

The Impact of Antisocial Media Towards Aggressive Behavior Among Online Gamers in Malaysia

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ABSTRACT

The global craze of digital gaming has attracted millions of individuals worldwide, particularly during the COVID-19 pandemic. While it has allure, it also carries drawbacks. Notably, it may lead to changes in conduct, such as a higher tendency for violence. In light of this, the study aims to identify the predictors of aggressive behaviors among online gamers. We recruited 384 local online gamers from the Klang Valley area using a purposive and snowball sampling technique. Data analysis was performed using the Statistical Equation Model-Partial Least Square (SEM-PLS), incorporating path analysis. The findings revealed a negative relationship between moral identity and self-esteem toward aggressive behavior, indicating that aggressive behavior decreases as moral identity and self-esteem increase. Conversely, a positive relationship was found between antisocial media exposure and aggressive behavior. It means that as antisocial media exposure increases, aggressive behavior also increases. In conclusion, this study demonstrated that high levels of moral identity, self-esteem, and a low level of antisocial media exposure are crucial predictors in decreasing aggressive behavior among local online gamers. Therefore, the study suggests policymakers should develop programs to boost moral identity and self-esteem

among Malaysian online gamers to reduce aggression. It also calls for further research on gamers from various regions, other influencing factors, behavioral changes over time, and in-depth qualitative studies.

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INTRODUCTION

In today's ever-evolving digital landscape brought on by advancing technologies, online communities and social interactions are constantly being transformed. Online communities have become the central hub for fostering social engagement and facilitating digital collaboration. Within this sphere, individuals can communicate and establish connections across geographical boundaries. This transition represents a profound shift in individuals' mode of engagement in the modern digital age. As a result, this phenomenon gives rise to fresh complexities in the intricate relationship between morality and aggressive behavior within the digital sphere, as elucidated by Barlett and Coyne (2019).

The presence of content in the media that may promote antisocial behaviors has always been a topic of interest in scientific studies. Due to the diverse ways violence is depicted in video games, television shows, news, movies, and social media to capture the audience's attention, it has become significant in all media-related production and sales businesses. While scientific research on the effects of media first emerged in the 1920s and 1930s, it only gained wider prominence by the late 1950s. All these previous research developments gave rise to bountiful theories and evidence on media effects. Since the 1990s, several meta-analyses have also been conducted to consolidate the findings of all these empirical studies. It was highlighted that adolescents who are regularly exposed to content on various media platforms

may promote antisocial behaviors such as substance abuse and violence (Strasburger et al., 2010). They are also at an elevated risk of engaging in aggressive acts and displaying problematic alcohol consumption patterns (Khurana et al., 2019). Previous scholars have framed antisocial media as delivering and promoting certain risky behaviors. For example, den Hamer et al. (2017) propose that antisocial and risky behaviors such as theft, excessive drinking, profanity, and physical altercations are more common among young individuals, as observed on various media outlets. Antisocial media content is pervasive on multiple platforms, including television shows (e.g., Hetsroni, 2007), films (e.g., Bushman et al., 2013), video games (e.g., Hartmann et al., 2014), music videos (e.g., Martin & Collins, 2002), and even advertisements (e.g., Jones et al., 2014).

To date, the media has been shown to indirectly stimulate acts of violence, causing an increasing presence of violence in society despite various prevention strategies to combat such negativity. Often, it is challenging to establish a direct relationship between aggression and antisocial media exposure (ASME). Most of the previous research listed ASME only as a causal factor of aggression, as a variety of factors can also cause aggression. So far, research has shown that ASME can predispose to aggressive behavior (AB), aggressive cognition, diminished empathy, and an increase in violence (Coyne, 2016).

In Malaysia, aggressive behavior has been extensively investigated in various

populations, including secondary school students, illegal motorcycle racers (*mat rempit*), road drivers, juveniles, moviegoers, rehabilitation center residents, and prison inmates. However, there is a noticeable gap in research with regard to aggressive behavior in the online gaming community. Nasser et al. (2021) found that most Malaysian youth are involved in online gaming or watching films on YouTube or Netflix. A recent report also highlighted online activities as the preferred media activity in Malaysia (Malaysian Communications and Multimedia Commission [MCMC], 2020). According to Ismail et al. (2021) and T'ng and Pau (2020), it is impossible to completely ban inappropriate media exposure and online games if the goal is to protect children from potential exposure to negative online content. Very often, the negative impact of online media content may differ among youths based on their personality or psychological states (Bushman, 2017). According to the General Aggression Model, psychological traits such as self-esteem (SE) may influence an individual's propensity for negative behavior (Anderson & Bushman, 2002; Balakrishnan & Fernandez, 2018). In other words, when situational factors interact with human personality, the presence and severity of an individual's aggressive behavior may be affected. Past research has highlighted the relationship between low SE and victimization caused by aggressive behavior. For instance, Schultze-Krumbholz et al. (2018) suggested that individuals exhibiting low SE are more prone to becoming victims.

Conversely, other research has explored the association between low SE and higher uptake of aggressive behavior. In view of the growing influence of media exposure and digital activity, it is imperative to investigate whether personal aspects of SE are related to aggressive behavior, especially among the youth of Malaysia who are actively engaged with antisocial media.

While there has been substantial research on the individual concepts of moral identity, self-esteem, and antisocial behavior on social media, there appears to be a significant gap in the literature regarding the interplay among these three variables. For instance, studies have explored the antecedents of moral identity (Smith, 2019), the development of self-esteem (Johnson & Johnson, 2020), and the rise of antisocial behavior on social media (Brown, 2021). However, the potential influence of moral identity and self-esteem on antisocial behavior on social media still needs to be explored. Furthermore, cultural and demographic factors' impact on these relationships needs to be better understood (Williams, 2022; Zhang, 2023). This gap is particularly relevant given the increasing prevalence of antisocial behavior on social media (Brown, 2021) and the recognized importance of self-esteem and moral identity in individuals' behavior (Smith, 2019; Johnson & Johnson, 2020). Therefore, this study addresses this gap by examining the relationships among moral identity, self-esteem, and ASME on social media.

The General Aggression Model (GAM), developed by Anderson and Bushman, provides a comprehensive framework for understanding aggression. GAM predicts the likelihood of aggressive behavior based on a combination of personal and situational factors, and it can be used to understand and potentially reduce violent behavior in various contexts. It incorporates social, cognitive, personality, developmental, and biological factors (Anderson & Bushman, 2002). The model has been criticized for its broadness, lack of specificity, and inability to consider social and cultural factors (Ferguson & Dyck, 2012). Despite facing criticisms, the General Aggression Model (GAM) has found extensive application in diverse contexts. These include the study of the effects of media violence, domestic violence, intergroup violence, temperature effects, pain effects, and the impacts of global climate change (Anderson & Bushman, 2002). Recent research, such as those conducted by Jiang et al. (2022) and Gagnon et al. (2022), has consistently employed the GAM, underscoring its continued relevance. Meanwhile, Simanjuntak et al. (2021) explored the relationship between online game violence and adolescent aggression, establishing a low-to-moderate correlation. Our study builds upon this foundation but with a broader scope.

While valuable in outlining factors influencing aggression, it has limitations (Ferguson et al., 2011). GAM primarily focuses on situational cues and personality traits, neglecting the potential moderating role of moral identity (Carnagey &

Anderson, 2003). This study aims to extend the current understanding of aggression by examining how a strong moral identity might buffer the influence of self-esteem and exposure to antisocial content. Moral identity, a multifaceted construct encompassing cognitive, affective, and self-referent components (Aquino et al., 2023), could protect against the aggression-promoting effects of low self-esteem and exposure to negativity online. Self-esteem, a distinct yet interrelated construct, reflects an individual's overall positive self-evaluation, encompassing their abilities and inherent worth (Gentile, Greer, et al., 2020). Crucially, this study distinguishes between general social media use and exposure to antisocial content (Tedeschi et al., 2021).

The present study delves into the interplay between moral identity, self-esteem, and exposure to antisocial content on social media platforms. Moral identity, a cornerstone of ethical behavior, transcends singular aspects of moral reasoning. It encompasses a multifaceted framework that integrates cognitive (moral reasoning), affective (moral emotions like guilt and empathy), and self-referent components (moral self-image, seeing oneself as a good person) (Aquino et al., 2023). Moral identity is crucial in regulating the impact of other psychological factors on aggression. Individuals with a strong, integrated moral identity are more likely to utilize moral reasoning and experience emotions like guilt or empathy to inhibit aggressive tendencies, even when provoked (Graham et al., 2011). Self-esteem, a distinct yet interrelated

construct, reflects an individual's overall positive self-evaluation, encompassing their abilities and inherent worth (Gentile, Twenge, et al., 2020). Meanwhile, Antisocial media exposure (ASME) refers to exposure to all forms of social media content that depict behaviors considered antisocial, violating established societal norms and legal frameworks (den Hamer et al., 2017). Antisocial media content, characterized by negativity, aggression, and cyberbullying, represents a specific dimension of the online environment with potentially distinct influences (Tedeschi et al., 2021). This study further distinguishes between general social media use and exposure to antisocial content.

This study focused on the potential function of moral identity (MI) in regulating the impacts of ASME on aggression among Malaysian youth. Past studies have shown that MI is correlated to aggression, whereby it acts as a crucial component in regulating the impact of other psychological factors on aggression (Skobkareva, 2020; Teng et al., 2020). Moral identity plays a significant role as a crucial component in regulating the impact of other psychological factors on aggression. Anticipated feelings of guilt mediate the effect of moral identity on antisocial behavior. Individuals with a solid moral identity who contemplate aggressive actions anticipate feelings of guilt, which serves as a deterrent (Gini et al., 2021).

In this context, a solid moral identity could reduce moral disengagement, thereby reducing aggression (Falla et al., 2021). Hence, we set out to determine if the moral

identities of local Malaysian online gamers exhibit a similar influence on SE and deviant peer associations, as well as their role in mitigating the adverse effects of ASME on aggressive behavior. The primary aim of this study was to assess the potential impact of ASME, SE, and MI on aggressive behavior by using the General Aggression Model (GAM) as a theoretical framework.

To summarize, our objective is to examine the significant impact of Antisocial Social Media Exposure (ASME) on aggressive behavior, differentiating it from general social media use. We hypothesize that exposure to content specifically promoting violence, hate speech, and other antisocial behaviors will have a stronger association with aggression. Furthermore, we also aim to explore the interplay between Moral Identity (MI) and Self-Esteem (SE) within the GAM framework. We propose that strong MI, characterized by a well-developed moral compass and high Self-Esteem, can act as protective factors, mitigating the negative influence of ASME on aggressive tendencies among local online gamers in Malaysia (Figure 1).

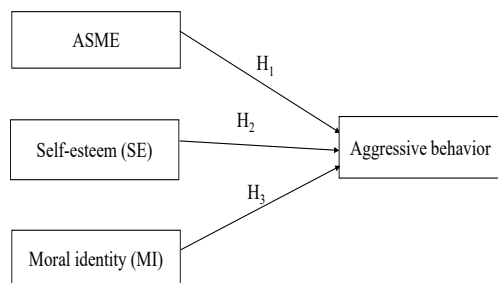


Figure 1. Conceptual framework
 Source: Authors' work

METHODS

Sample and Procedure

This quantitative cross-sectional study used a correlational design to examine the relationship between ASME and aggressive behavior. An online survey platform was used to distribute the questionnaire for data collection in the Klang Valley. The area is home to most of the Malaysian population, with 81% of the internet users residing there (MCMC, 2020). In addition, it was also the location for many major e-sports competitions, such as the one held at the Melawati Stadium in Shah Alam in 2020, as Yunus et al. (2021) reported.

Using the formula by Krejcie and Morgan (1970), the minimum sample size required was 384. The inclusion criteria were Malaysian citizens between 18 and 40 who played a massive multiplayer online role-playing game (MMORPG). Individuals who could not understand or communicate in English or Malay were excluded.

Before the data collection, a pilot test was conducted among 30 participants between November and December 2022. Based on Browne's (1995) recommendation, to achieve an 80% upper confidence limit (UCL), a pilot study or pre-test should include 30 subjects. Kieser and Wassmer (1996) also recommended a sample size between 20 and 40 for pilot tests. The Cronbach's alpha value of each construct was greater than 0.70 (Hair et al., 2019), while the UCL was approximately 85%.

Measure

In this study, multiple psychometric instruments were employed to evaluate salient constructs. The Content-based Media Exposure Scale (C-ME), adapted from den Hamer et al. (2017), was utilized to measure ASME. Of the 17 items, eight were under the "antisocial" domain and nine under the "natural" domain. All items were measured on a five-point Likert scale from 1 (never) to 5 (very often), with an α -value of 0.988. The Content-based Media Exposure Scale (C-ME), adapted from den Hamer et al. (2017), is chosen for its unique ability to assess Antisocial Social Media Exposure (ASME), a critical aspect of this study, allowing for a crucial differentiation between exposure to "antisocial" and "natural" content, given the distinct effects of negativity and aggression online on moral development and behavior (Huang et al., 2022; Tedeschi et al., 2021).

Next, the Moral Identity Questionnaire, a 20-item scale adapted from Black and Reynolds (2016), was implemented to assess participants' MI dimensions on a Likert scale from 1 (strongly disagree) to 5 (strongly agree). It demonstrated an alpha (α) of 0.985. The Moral Identity Questionnaire, adapted from Black and Reynolds (2016), is selected for its comprehensive capture of the multifaceted construct of moral identity, aligning with the research focus on understanding how different aspects of moral identity interact with other variables (Aquino et al., 2023; Graham et al., 2011).

Meanwhile, the ten items under the Rosenberg Self-esteem Scale (RSES, 1979)

were utilized to measure the level of SE on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree) with an α -value of 0.898. The Rosenberg Self-esteem Scale (RSES; Rosenberg, 1979) is chosen for its wide use and validation in measuring self-esteem, a construct of interest due to its complex relationship with social media use and its potential to make individuals more susceptible to the negative influences of antisocial content, potentially leading to increased aggression (Gentile, Twenge, et al., 2020).

Lastly, the Reactive and Proactive Aggression Questionnaires (RPQ), which encompassed 23 items on a three-point Likert scale from 1 (never) to 3 (often) with an α -value of 0.978, adapted from Raine et al. (2006), was also incorporated in the questionnaire. The RPQ, adapted from Raine et al. (2006), are selected for their ability to differentiate between reactive and proactive aggression, providing a nuanced understanding of how self-esteem and social media exposure might influence distinct types of aggressive behavior (Ferguson et al., 2011). These instruments, all well-established and validated in previous research, ensure the reliability and validity of the findings in this context.

Following data collection, descriptive statistics were used to report the participants' characteristics. Next, the reliability and validity of the constructs were also assessed. Finally, structural equation modeling (SEM) was employed for path analysis.

Reliability and Validity Analysis

Senior academic experts were invited to assess the questionnaire before the pilot study to determine the content validity. Thereafter, amendments and revisions were made to all measurement items in three aspects based on the expert feedback. Firstly, the objective of the statement was edited to provide a clearer purpose for the current research. Secondly, the sociodemographic-related items were also amended. Lastly, some items of the remaining variables were also redesigned.

In the next step, the reliability of each independent variable in the questionnaire was assessed using Partial Least Squares-Confirmatory Composite Analysis (PLS-CCA) to obtain the quality of the reflective measurement model. PLS-CCA aims to assess the reliability and validity of reflective PLS-SEM measurement models via three categories: internal consistency reliability (ICR), convergent validity (CV), and discriminant validity (DV).

Table 1 presents the Composite Reliability (CR) and Cronbach Alpha (CA), representing the internal consistency and reliability of the items in the questionnaire. Each item's standardized factor loadings (estimate) exceeded the critical value 0.5. Based on Table 1, any ICR results above 0.95 indicated problematic data. However, according to Becker et al. (2023), if the researcher has strategically employed appropriate data collection (e.g., avoiding respondents being distracted by the questions and any potential ensuing demand effects) in

optimizing the construct (e.g., never using a redundant and synonymous item in the questionnaire), then the ICR result should be considered as a good match to the concept of reliability. Therefore, the nearer the value is to 1, the more reliable the items are.

Convergent analysis refers to the degree to which a specified construct explains the variance of its indicator reflectively (Hair et al., 2021). In this study, convergent validity was evaluated using the established technique known as “Average Variance Extracted” (AVE). The AVE for each construct was above the recommended value of 0.5 in this study.

The next step was determining the outer loading or indicator to see how each item contributed to that construct (Hair et al., 2017). Table 2 presents the outer loading result as between 0.75 and 0.99. Therefore, several items (D14, E15,17, 23, and 5) were removed to ensure the outer loading met the standard of assessment of the reflective model. Furthermore, the missing data in this study was analyzed by computing the cases for each variable with missing data. Based on the recommendation of Hair et al. (2009), any missing data of less than 10% can be ignored.

Table 1
Internal Consistency Reliability (ICR)

Construct	Items	CA	CR	AVE
Aggressive behavior	AB	0.976	0.981	0.692
Antisocial media exposure	ASME	0.963	0.967	0.765
Moral identity	MI	0.983	0.984	0.745
Self-esteem	SE	0.978	0.983	0.813

Note. CA= Cronbach’s alpha, CR= Combined Reality; AVE = Average Variance Extracted

Source: Authors’ work

Table 2
Outer loading

Construct	Item of the construct	Outer loading
ASME1	How often do you watch people who fight on the Internet/TV/mobile phone/DVD?	0.995
ASME2	How often do you watch on the Internet/TV/mobile phone/DV people who use drugs?	0.822
ASME3	How often do you watch on the Internet/TV/mobile phone/DVD people who drink a lot of alcohol?	0.979
ASME4	How often do you watch on the Internet/TV/mobile phone/DVD people who are having sex?	0.833

Table 2 (Continue)

Construct	Item of the construct	Outer loading
ASME5	How often do you watch people who steal on the Internet/TV/mobile phone/DVD?	0.999
ASME6	How often do you watch on the Internet/TV/mobile phone/DVD people who help someone?	0.890
ASME7	How often do you watch on the Internet/TV/mobile phone/DVD people who openly talk about sex?	0.920
ASME8	How often do you watch on the Internet/TV/mobile phone/DVD people who destroy someone else's belongings?	0.877
SE1	On the whole, I am satisfied with myself.	0.999
SE2	At times, I think I am no good at all.	0.836
SE3	I feel that I have several good qualities.	0.894
SE4	I can do things as well as most other people.	0.845
SE5	I feel I do not have much to be proud of.	0.896
SE6	I certainly feel useless at times.	0.849
SE7	I feel that I am a person of worth.	0.886
SE8	I wish I could have more respect for myself.	0.855
SE9	All in all, I am inclined to think that I am a failure.	0.881
SE10	I take a positive attitude toward myself	0.857
MI1	I try hard to act honestly in most things I do.	0.969
MI0	If no one is watching or will know, it does not matter if I do the right thing.	0.886
MI1	It is more important that people think you are honest than being honest.	0.851
MI2	If no one could find out, stealing a small amount of money or other things that no one will miss is okay.	0.820
MI3	If a cashier accidentally gives me RM 50 extra change, I usually act as if I did not notice it.	0.947
MI5	Lying and cheating are just things you have to do in this world.	0.843
MI6	Lying and cheating are just things you have to do in this world.	0.848
MI7	Doing things that some people might view as dishonest does not bother me.	0.903
MI8	If people treat me badly, I will treat them in the same manner.	0.757
MI19	I will go along with a group decision, even if I know it is morally wrong.	0.898
MI2	It is more important that people think you are honest than being honest.	0.824
MI20	Having moral values is worthless in today's society.	0.933

Table 2 (Continue)

Construct	Item of the construct	Outer loading
MI3	If no one could find out, stealing a small amount of money or other things that no one will miss is okay.	0.947
MI5	If a cashier accidentally gives me RM 50 extra change, I usually act as if I did not notice it.	0.843
MI6	Lying and cheating are just things you have to do in this world.	0.848
MI7	Doing things that some people might view as dishonest does not bother me.	0.903
MI8	If people treat me badly, I will treat them in the same manner.	0.757
MI9	As long as I make a decision to do something that helps me, it does not matter much if other people are harmed.	0.898
AB1	Yelled at others when they have annoyed you	0.997
AB10	Hurt others to win a game	0.887
AB 11	Become angry or mad when you do not get your way	0.789
AB 12	Use physical force to get others to do what you want	0.912
AB 13	Get angry or mad when you lose a game	0.753
AB 14	Got angry when others threatened you	0.703
AB 16	Used force to obtain money or things from others	0.900
AB 8	Made obscene phone calls for fun	0.910
AB 9	Hit others to defend yourself	0.782
AB 2	Had fights with others to show who was on top	0.802
AB 20	Gotten others to gang up on someone else	0.923
AB 21	Carried a weapon to use in a fight	0.925
AB 22	Yelled at others so they would do things for you	0.868
AB 3	Reacted angrily when provoked by others	0.756
AB 4	Taken things from other students	0.722
AB 6	Vandalized something for fun	0.914
AB 7	Had temper tantrums	0.775
AB 8	Damaged things because you felt mad	0.834
AB 9	Had a gang fight to be cool	0.461

Source: Authors' work

Discriminant Validity Analysis Using the Fornell and Lacker Criterion and Heterotrait-Monotrait Ratio (HTMT)

Two methods were utilized to assess the discriminant validity of the constructs, i.e.,

the Fornell-Larcker criterion (Table 3), as well as item loading and cross-loading in Table 4. The results showed that all the measures exhibited appropriate discriminant validity. Furthermore, the Fornell and

Lacker ratio should be less than 0.9 for the measurement model to demonstrate discriminant validity. As evident in Table 3, the HTMT ratios for all the comparisons of constructs ranged between 0.324 and 0.823 (below 0.9). Thus, the measurement model achieved satisfactory discriminant validity according to the HTMT criterion.

Table 3
Discriminant Validity using the Fornell and Lacker Criterion and HTMT

Fornell and Lacker	AB	ASME	MI	SE
AB	0.832	-	-	-
ASME	0.626	0.501	-	-
MI	-0.426	-0.328	0.863	-
SE	-0.716	-0.683	0.291	0.902
Heterotrait-Monotrait Ratio (HTMT)				
AB	-	-	-	-
ASME	0.620	-	-	-
MI	0.424	0.266	-	-
SE	0.708	0.438	0.285	-

Note. AB = Aggressive Behavior; MI = Moral Identity; ASME = Antisocial Media Exposure
Source: Authors' work

In addition, the cross-loading matrix was also employed as the third approach to assess discriminant validity. The process involved examining the item loadings of a construct on other constructs. For discriminant validity, the items of a particular construct should have higher loadings on their intended construct than other constructs (Straub et al., 2004). This study used the cross-loading method to validate the discriminant validity. Table 4 indicates that all items demonstrated the highest loadings on their respective intended constructs, thus confirming the discriminant validity of the measurement model. In short, the measurement model was verified and established, and the structural model assessment could be adopted in the next step.

Table 4
Cross loading result

Item	Aggressive behavior	Antisocial media exposure	Moral identity	Self-esteem
Item_ASME1	0.583	0.931	-0.240	-0.423
Item_ASME2	0.594	0.949	-0.284	-0.395
Item_ASME 3	0.473	0.756	-0.209	-0.337
Item_ASME 4	0.559	0.893	-0.240	-0.374

Table 4 (Continue)

Item	Aggressive behavior	Antisocial media exposure	Moral identity	Self-esteem
Item_ASME 5	0.476	0.760	-0.191	-0.374
Item_ASME 6	0.553	0.883	-0.239	-0.375
Item_ASME 7	0.512	0.818	-0.210	-0.408
Item_ASME 8	0.614	0.981	-0.263	-0.416
Item_SE1	-0.839	-0.543	0.338	1.171
Item_SE10	-0.599	-0.361	0.237	0.836
Item_SE2	-0.640	-0.366	0.234	0.894
Item_SE 3	-0.605	-0.413	0.299	0.845
Item_SE 4	-0.642	-0.362	0.246	0.896
Item_SE 5	-0.608	-0.391	0.256	0.849
Item_SE 6	-0.634	-0.400	0.243	0.886
Item_SE 7	-0.612	-0.385	0.255	0.855
Item_SE 8	-0.631	-0.371	0.260	0.881
Item_SE 9	-0.614	-0.380	0.245	0.857
Item_MI1	-0.413	-0.230	0.969	0.253
Item_MI10	-0.377	-0.244	0.886	0.288
Item_MI11	-0.362	-0.210	0.851	0.247
Item_MI12	-0.349	-0.208	0.820	0.242
Item_MI13	-0.403	-0.254	0.947	0.271
Item_MI15	-0.359	-0.232	0.843	0.231
Item_MI16	-0.361	-0.209	0.848	0.230
Item_MI17	-0.384	-0.249	0.903	0.272
Item_MI18	-0.322	-0.200	0.757	0.245
Item_MI19	-0.382	-0.237	0.898	0.260
Item_MI2	-0.351	-0.222	0.824	0.244
Item_MI20	-0.464	-0.281	1.089	0.348
Item_MI3	-0.355	-0.232	0.834	0.248
Item_MI4	-0.345	-0.237	0.810	0.220
Item_MI5	-0.352	-0.228	0.826	0.241
Item_MI6	-0.347	-0.222	0.816	0.238
Item_MI7	-0.357	-0.235	0.838	0.224
Item_MI8	-0.342	-0.257	0.803	0.220
Item_MI9	-0.329	-0.231	0.772	0.226
Item_AB1	1.025	0.583	-0.342	-0.791
Item_AB10	0.887	0.586	-0.391	-0.616
Item_AB11	0.789	0.486	-0.299	-0.579
Item_AB12	0.912	0.582	-0.419	-0.641

Table 4 (Continue)

Item	Aggressive behavior	Antisocial media exposure	Moral identity	Self-esteem
Item_AB13	0.753	0.535	-0.275	-0.514
Item_AB14	0.703	0.482	-0.231	-0.471
Item_AB16	0.900	0.567	-0.402	-0.638
Item_AB18	0.910	0.579	-0.470	-0.605
Item_AB19	0.782	0.497	-0.358	-0.547
Item_AB2	0.802	0.445	-0.316	-0.612
Item_AB20	0.923	0.596	-0.430	-0.633
Item_AB21	0.925	0.612	-0.399	-0.628
Item_AB22	0.868	0.539	-0.341	-0.636
Item_AB3	0.756	0.444	-0.233	-0.576
Item_AB4	0.722	0.406	-0.418	-0.543
Item_AB6	0.914	0.569	-0.430	-0.642
Item_AB7	0.775	0.524	-0.232	-0.567
Item_AB8	0.834	0.509	-0.357	-0.627
Item_AB9	0.461	0.241	-0.386	-0.345

Source: Authors' work

Data Collection

The data collection involved a multi-stage approach. Firstly, ethical clearance was obtained from the Institutional Review Board (IRB) of the University's Ethics Committee for Research Involving Human Subjects (JKEUPM). The survey started in December 2022. A purposive and snowball sampling was used to recruit online gamers on gaming platforms such as Quora, Facebook forums, MMORPG forums, Instagram, WhatsApp or Telegram gaming forums, and various gaming events. The questionnaire encompassed variables on demographic characteristics, ASME, MI, SE, and aggressive behavior that could be completed in 20 minutes. A cover letter was attached at the beginning

of the questionnaire to explain the study objective. The researcher's email address and mobile number were also included if the participants needed to obtain further information about the study.

RESULTS

Participant Demographics

Table 5 shows the baseline demographic characteristics of the study participants. Among the 384 participants, two-thirds (67.2%) were males. Most were young adults aged between 18 and 24 (71.4%), with only a small number of older adults aged 32 and above (6.8%). All participants reported that they had experienced ASME.

Table 5
Demographics of study participants (n = 384)

Demographic Profile	n	%
Gender		
Female	126	32.8
Male	258	67.2
Age		
18–24	274	71.4
25–31	84	21.9
32 and above	26	6.8
Antisocial Media Exposure (e.g., online games and film)		
Yes	384	100.0

Source: Authors' work

Path Analysis

Direct Effect Analysis

Figure 2 shows the results of a direct effect analysis examining the relationships between ASME, MI, SE, and aggressive behavior.

Table 6 shows a path coefficient result; a negative relationship was observed between MI, SE, and aggressive behavior ($\beta = -0.14, p < 0.00$; $\beta = -0.27, p < 0.00$), indicating that aggressive behavior would decrease when MI and SE increased. A positive relationship was also found between ASME and aggressive behavior ($\beta = 0.25, p < 0.000$). In other words, when ASME increases, aggressive behavior also increases. These results align with previous findings reported by Shafti et al. (2021) and Przybylski and Weinstein (2019), who all reported MI and SE as important factors in reducing aggressive behavior. Meanwhile, ASME was an important predictor of aggressive behavior.

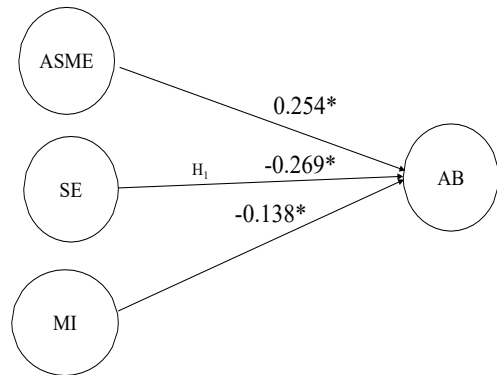


Figure 2. Path Coefficients Analysis. The main entries are standardized coefficients, β (Sig. level * $p < 0.05$, ** $p < 0.05$).

Source: Authors' work

Furthermore, coefficients of determination (R^2), effect size (f^2), and predictive relevance (Q^2) were tested in the analysis. The f^2 value for the relationship between MI and AB (0.051) was lower than 0.15 (Hair et al., 2017), indicating a small effect. However, the value of f^2 for the relationship between ASME and AB (0.185) was higher than 0.35, revealing a significant effect. Meanwhile, including R^2

Table 6
Path coefficients

Hypotheses	Coefficients	Std Error	t-values	p-values	R ²	f ²	Q ²	Decision
ASME -> AB	0.254	0.041	6.139	0.000		0.185		Supported
SE -> AB	-0.269	0.037	7.300	0.000		0.149		Supported
MI -> AB	-0.138	0.033	4.223	0.000		0.351		Supported
IV predict DV							0.681	Highly predictive
DV predict IV					0.694			Highly predictive

Note. R² = coefficients of determination; f² = effect size; Q² = predictive relevance; Significance Level = p > 0.05

Source: Authors' work

in the analysis contributed to 70% of the variance in aggressive behavior. In general, the model's overall predictive strength was considered highly acceptable (R² = 0.694; Henseler & Chin, 2010). In addition, the Q² value for AB was 0.681. Any value higher than zero indicates a good predictive relevance of the model (Byrne, 2016). In other words, independent variables in this model could explain a significant portion of the variance in aggressive behavior.

DISCUSSION

This study examined the factors influencing aggressive behavior in online gamers, focusing on Antisocial Social Media Exposure (ASME), Self-Esteem (SE), and Moral Identity (MI). All three hypotheses received significant support.

The study results revealed a significant and positive association between ASME and aggressive behavior, concordance with prior research (Przybylski & Weinstein, 2019; Teng et al., 2020). Several mechanisms

might explain this association. Online environments saturated with negativity can desensitize individuals to aggressive behavior (Ferguson & Kilpatrick, 2009). Witnessing such behavior on social media might be seen as a model for responding to conflict (Bandura, 1977). Additionally, exposure to violent content can trigger feelings of anger and hostility (Anderson & Bushman, 2002), increasing the risk of impulsive and aggressive responses.

However, Self-Esteem (SE) acts as a protective factor against aggressive behavior. Individuals with high Self-Esteem are less susceptible to internalizing negative messages from online content (Rosenberg, 1965). This resilience allows them to favor assertive communication styles over resorting to aggression when faced with conflict or frustration. Similarly, a robust Moral Identity (MI) also buffers against aggressive behavior. Gamers with a well-developed moral compass are more likely to critically evaluate aggressive

messages embedded in social media content (Shaffer et al., 2016). This critical evaluation process helps them distance themselves from negativity and avoid internalizing aggressive messaging. Additionally, their strong moral compass guides them to behave in ways that align with their internal ethical standards, reducing the likelihood of engaging in aggressive behavior that contradicts their core values.

Nevertheless, our findings also show a different light on aggressive behavior in the Malaysian context, whereby two personal factors in the GAM, i.e., SE and MI, can decrease the level of aggressive behavior among local online gamers. This finding is very important to stakeholders in developing suitable strategies to mitigate various delinquencies among local online gamers. Apart from that, multinational companies (MNCs) involved in producing and marketing online games in Malaysia must revise their policies to avoid the increasing rates of aggressiveness among local online gamers, given the evidence linking exposure of antisocial elements to aggressive behavior. The Malaysian Communications and Multimedia Commission (MCMC) plays a significant role in ensuring the implementation and enforcement of relevant policies that can reduce aggressive tendencies among gamers.

CONCLUSION

The findings of this study underscore the pivotal role that Antisocial Media Exposure (ASME) plays in fostering aggressive behavior. This groundbreaking evidence not

only enriches the General Aggression Model (GAM) by integrating a new social factor but also illuminates the intricate cognitive processes within the GAM. The study's findings reveal that Moral Identity (MI) and Self-Esteem (SE) serve as cognitive buffers, mitigating the likelihood of aggressive outcomes in response to ASME. From a practical perspective, these findings carry profound implications for Malaysia's rapidly evolving online landscape. They substantiate concerns about the capacity of social media platforms to escalate negativity and aggression, especially among Malaysia's young demographic with high social media usage rates (Ho et al., 2022). It calls for more rigorous content moderation practices by platforms like Facebook and YouTube, notably popular in Malaysia (Kemp, 2023). Moreover, implementing robust age verification systems can limit minors' access to harmful content, providing an extra layer of protection for this vulnerable group (UNICEF Malaysia, 2021). The study also underscores the protective role of MI and SE. This insight can guide the creation of targeted educational interventions within Malaysia's national curriculum.

By equipping students with digital media literacy skills, we can enable them to critically evaluate online content and responsibly navigate the digital world (Ministry of Education Malaysia, 2023). Furthermore, mental well-being programs that nurture self-esteem and foster positive online communities can enhance resilience against negative influences. Public awareness campaigns can enlighten parents

and the broader population about the risks of ASME and strategies for responsible social media use, potentially capitalizing on existing initiatives by the MCMC (2021). Lastly, forging partnerships with social media platforms is essential. Through collaboration, policymakers and platforms can devise evidence-based interventions to stem the tide of harmful content and foster positive online interactions. This comprehensive approach can assist Malaysia in establishing a safer and more responsible online environment, promoting positive social interactions and curbing aggression incited by social media. This study, therefore, serves as a beacon, guiding us toward a more harmonious digital future.

Implication for Theory and Practice

This study has significant implications for both the theoretical understanding and practical management of aggression, particularly within the context of the General Aggression Model. This research offers valuable insights that refine the General Aggression Model (GAM) when applied to online gaming environments. Traditionally, GAM emphasizes internal cues (frustration, anger) and external cues (witnessing aggression) as triggers leading to aggressive behavior (Berkowitz, 1962). This study broadens the understanding of external cues by highlighting the role of Antisocial Social Media Exposure (ASME). Frequent exposure to negativity, violent content, and hate speech online can be seen as a social learning context within the GAM framework. Through repeated exposure,

gamers might observe and learn aggressive behaviors displayed on social media, potentially increasing their likelihood of adopting them. It suggests that the online environment can be a significant source of cues that trigger aggressive tendencies.

Furthermore, the study elevates the role of individual differences within GAM. Traditionally, the model focuses on immediate situational factors leading to aggression. This research emphasizes the role of moderators like Self-Esteem and Moral Identity. These personal characteristics influence how individuals process and respond to social learning experiences like ASME exposure. Individuals with high Self-Esteem have a more positive self-perception, making them less susceptible to internalizing negativity online. This resilience allows them to favor assertive communication styles over resorting to aggression in online conflicts. Gamers with a well-developed Moral Identity possess a strong sense of right and wrong. This strong moral compass guides their online interactions and reduces the likelihood of engaging in aggressive behavior that contradicts their core values. They might critically evaluate aggressive messages, allowing them to distance themselves from the negativity and avoid internalizing aggressive messaging.

This study suggests a more nuanced understanding of GAM in online gaming contexts. It expands the model by identifying antisocial social media exposure as a potential social learning context that triggers aggressive behavior. It also highlights the

crucial role of individual differences like self-esteem and moral identity in moderating the influence of social learning experiences on aggressive tendencies. These findings encourage further exploration of how the GAM can be adapted to better capture the complex interplay between online environments, individual characteristics, and aggressive behavior in online gamers.

This study enhances the available evidence of the association between ASME and aggressive behavior. ASME was established to impact the portrayal of aggressive behavior significantly. In contrast, MI and SE could be protective against individuals' reactions to violent online content. In conclusion, these findings can be instrumental in the development of digital detox programs aimed at preventing online media-related violence. Digital detox programs have emerged as a potential solution to curb online media-related violence. However, these programs can offer more than just reduced screen time. By incorporating evidence-based strategies, digital detox programs can equip participants with the skills to navigate the online world more critically and foster a more positive online environment. One approach involves enhancing media literacy. Digital detox programs can integrate training that empowers participants to evaluate online content critically. This training could focus on identifying red flags associated with Antisocial Social Media Exposure (ASME), such as inflammatory language, the normalization of violence, and the promotion of hate speech. By developing

these media literacy skills, participants become more responsible online consumers, actively seeking prosocial content that contributes to a richer online experience.

Digital detox programs should not be seen solely as periods of isolation. These programs can be designed to foster a sense of community and belonging even with reduced online engagement. Support groups or online forums designed for digital detox participants can provide a safe space for individuals to share their experiences, challenges, and successes. It fosters a sense of accountability and motivates participants to stay committed to their digital detox goals. A crucial aspect of digital detox programs involves encouraging participants to explore alternative activities and hobbies. It could involve reconnecting with nature, engaging in physical activities, or pursuing creative endeavors. By developing a more prosperous offline life, participants are less likely to feel the pull of potentially harmful online environments.

Finally, digital detox programs should be realistic and acknowledge the potential for relapse. Equipping participants with relapse prevention strategies is crucial for long-term success. It might involve developing personalized trigger lists identifying situations where they are more likely to return to unhealthy online habits. Participants can then create coping plans to address those triggers and maintain their digital detox goals. By incorporating these research-informed strategies, digital detox programs can move beyond simply reducing screen time and offer a more holistic

approach to curbing online media-related violence. These programs can empower individuals to navigate the online world more critically, fostering a positive and responsible online environment.

Several proposals are proposed for expanding future research. Firstly, broadening the demography to include players from diverse geographical places or countries is recommended. This methodology has the potential to provide a more thorough comprehension of the topic since it would incorporate a wider range of cultural and socioeconomic circumstances. Additionally, it is advisable to investigate other variables that influence aggression conduct. It can provide more insights into such behavior's fundamental origins and triggers, enhancing the current knowledge base. Furthermore, it is suggested that longitudinal investigations be carried out. Longitudinal studies, which examine people over long durations, have the potential to illuminate the progression of aggressive behaviors, providing a dynamic viewpoint that cross-sectional research may need to improve. Finally, it is advisable to use qualitative research methodologies. Qualitative approaches differ from quantitative methods in exploring humans' subjective experiences and views rather than focusing on numerical data and statistical analysis.

It has the potential to provide a more profound comprehension of the events being examined, providing subtle insights that quantitative data could fail to encompass. If these ideas are put into practice, they can

greatly improve the quality and breadth of future study in this area. Their approach to studying aggressive behavior among gamers is broad, aiming to foster a comprehensive knowledge of the subject.

Limitations and Recommendations for Future Research

There are several limitations to this study. Firstly, the questionnaire survey in this study only focused on gamers in Malaysia, thus limiting the generalizability of the results. Furthermore, it will be valuable to examine the long-term effects of violent media exposure and moral identity on aggressive behavior in future studies. Longitudinal research can help to establish causal relationships and provide insights into the developmental trajectories of aggression, as well as the potential roles of moral identity and self-esteem in mitigating or exacerbating these effects over time. As we employed a purposive and snowball sampling approach of individuals living in the Klang Valley, our study results would not be generalizable to the entire community of online gamers in Malaysia.

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