

Potential Moderator between Violent Video Games, Prosocial Media Violence and Aggressive Behaviours: Systematic Literature Review

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Abstract

As media popularizes, it poses varied effects on well-being. Gaming and watching superhero movies especially with violent content are designed to simulate real-life violence. Hence, this exposes children to online harm, which can negatively impact their well-being and safety. Unfortunately, previous researches have yet to provide evidence of potential moderators between violent video games, prosocial media violence and aggressive behaviours. The current study attempts to present a systematic review of all the relevant literature to fulfil the gap in the existing research. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was used to review the current research on major journal databases, mainly Google Scholar, Scopus, Science Direct, Sage Pub and Springer. The study resulted in a total of 10 articles that can be analysed systematically. Most importantly, the review managed to identify significant moderators between violent video games, prosocial violent media and aggressive behaviours. As a result, thematic analyses formulated two categories known as Intrinsic Moderators (InM) and Extrinsic Moderators (ExM). Hence, a few recommendations and suggestions were shared at the end of this research for references of future scholars.

Keywords: Online Gaming, Prosocial Aggressive Behaviour, Violent Videogames, Gaming Addiction, Superhero Movie

Introduction

Modernization happens when online activities become a primary practice and media effects has produced significant interest over the recent years and consistently shown that media can influence attitudes and behaviour. The internet is providing unprecedented opportunities for children's education and social development. However, the very same technologies can expose them to online harm, which may negatively impact their well-being and safety. The percentage of youth using the internet keeps on increasing.

The 2030 Agenda for sustainable development predicts a world without violence and exploitation for adults and create a nurturing environment to strive for the rights and capabilities of the generation. The environments in which children are commonly nurtured are in families, communities and schools, but we can no longer ignore the online environment where children from less than one year old are interacting on a regular basis and for longer periods of time (Croll, 2016).

As the popularity of violent media escalates in demand, evidence emerged against exposure to violent media and its influence to increase aggressive behaviour. Numerous research on the effects of exposure to media violence, relational aggression, and prosocial behaviour was studied extensively, as found evidently in the General Aggression Model, GAM (Bushman & Anderson, 2002) and the General Learning Model, GLM (Buckley & Anderson, 2006). Both models explained the significant influence of violent media content towards those exposed sufficiently to such content on moulding an individual's characteristics and personality. For example, existing research presented a relationship between exposure to physical and relational aggression in media and increased aggressive behaviour (Coyne et al., 2017).

In general, human aggression is referred to as "any behaviour intended to harm another person who does not want to be harmed" (Weiner et al., 2012, p. 449). Thus, aggressive behaviour is understood as a form of behaviour with a negative intention to cause negative inflictions on another. On the other hand, the opposite of prosocial behaviour is a behaviour intended to help others. Recently, a new term emerged that is a combination of the two terms known as prosocial violence. The term is defined as the behaviour intended to help one person by hurting another. For example, the act of Romeo killing Mercutio to avenge his friend, Tybalt depicted in the Shakespearean classic of Romeo and Juliet (Holmgren et al., 2019).

Observed from the increase of demands in violent themed movies such as fighting superheroes and martial arts genres, prosocial violence is becoming increasingly popular globally (Box Office Mojo, 2020). Due to the fantasy-like genre of superhero movies and television programmes such as the Ultimate Spider-Man, Young Justice and Green Lantern, younger audiences had grabbed interest. The issue is that the audiences, for instance, preschool-aged boys are in a stage of personality development may be detrimentally affected by this behaviour (Coyne et al., 2017).

While violent video games (VVG) have a significant relationship with aggressive behaviour, for example, Massive Multiplayer Online Role-Playing Game (MMORPG) is one of the most appealing forms that involves a majority of youth. This game provides players simultaneously playing games on the Internet with different backgrounds which makes MMORPG a "special kind" of online gaming segment (Zhong, 2011, p. 2353) that produces many types of games featured into a single game with thousands of players (Merrick et al., 2013). Alrobai et al (2016) also noted that gaming had a significant negative effect on personal life development.

The Need For A Systematic Review

The modern style of reviewing articles based on a systematic technique is known as a systematic review which offers several advantages compared to the traditional style of reviewing articles. In order to produce quality evidence for better significant results, a

systematic review is a prominent way with the efficient strategies in retrieving the articles, wider area of research and creating a purposeful objective. A systematic review is also utilized to retrieve the article with a transparent process which can control research bias to strengthened the reviews process and enhance researcher motivation to produce valuable papers (Mallett et al., 2012).

There is a lack of consensus in the research literature regarding the moderating variable for VVG, prosocial violent media and aggression. Therefore, this study aims, for the first time, to shed light on the potential moderators in the association between VVG, prosocial violent media and aggression by systematically reviewing the related literature.

Thus, this study contributes to the literature on the new phenomena and development of the current systematic review is based on the main research question: Which moderator variable has a significant effect between VVG, prosocial media violence and aggression behaviour?

Methodology

In this section, the method used to retrieve articles related to the moderating variables which linked VVG, prosocial violent media and aggression were discussed. The reviewers had used a research method called PRISMA, which includes several resources used to run the systematic review, eligibility and exclusion criteria, steps of the review process (identification, screening and eligibility), data abstraction and analysis.

PRISMA

The review was guided by the PRISMA Statement (Preferred Reporting Items for Systematic reviews and Meta-Analyses). The PRISMA statement allows for a rigorous search of terms related to the title of this paper. The use of PRISMA helps to define a clear research question, examine a broad scientific database within the defined time and identifies exclusion and inclusion criteria (Sierra-Correa & Kintz, 2015).

Resources

The review relied on five journal databases – Google Scholar, Scopus, Springer, Sage Pub and Science Direct. These sources are robust databases consisting of thousands of journals with a coverage of over a hundred disciplines, including subjects related to social sciences studies. Google scholar participates with approximately 2,900 scholarly publishers and includes more than 10 million items from Google Book Search (Jascó, 2010).

The present study conducted manual searching efforts on several established sources such as Science Direct, Springer, and Sage, considering that they are reliable databases containing journals related to the field of social psychology. Moreover, other sources by well-known publishers were also used, for example, Scopus. Scopus is known as the second most used database for reviews. It is one of the largest abstract and citation databases of peer-reviewed literature with N = 22,800 journals from 5,000 publishers worldwide. Scopus consists of diverse subject areas such as environmental sciences, social science and agriculture and biological sciences.

The Systematic Review Process for Selecting the Articles

Identification

There were four stages involved in the systematic review process. The review process commenced in September 2020. The first phase is to identify the keywords used for the search process by relying on similar keywords used in previous studies that are related to the topic of this research. At this stage, after careful screening, two duplicated articles were removed.

Table 1:

Keywords and Searching Information Strategy

Databases	Keywords used / Search string
Google Scholar/ Springer/ Science Direct/Sage Pub	Violent video game, prosocial violent media exposure, online gaming, violent media, moderator, aggression, aggressive behaviour.
Scopus	TITLE-ABS-KEY (("violent* video gam*" OR "violent video game*" OR "on stream game*" OR " moderat* variable" OR "superhero movi*" OR "prosocial violent media*" OR "violent media*") AND (aggress* OR deliquen* OR external*))

Screening

The purpose of the first stage of screening was to remove duplicate articles. In this case, two articles were excluded during the first stage, while articles were screened based on a few inclusion and exclusion criteria determined by the researchers in the second stage. The first criterion was the literature type in which the researchers decided to focus only on the journal (research articles) because it acts as the primary source that offers empirical data.

Hence, this further implies that publications in the form of systematic review, review, meta-analysis, meta-synthesis, book series, book, chapter in a book, and conference proceedings were excluded in the current research. Also, the review only focused on articles published in English. Other than that, only studies with moderator variables were selected to answer the review objectives. Most importantly, articles published in the field of social science, psychology, humanities and biological science were selected to increase the possibility of retrieving related articles.

Table 2:

The Inclusion and Exclusion Criteria

Criterion	Eligibility	Exclusion
Literature type	Journal (research articles)	Journals (systematic review), book series, book, chapter in book, conference proceeding
Language	English	Non-English
Time line	Between 2015-2021	<2015
Indexes	Social Science Citation Index, Emerging Sources Citation Index, Art and Humanities Index (Web of Science)	Science Citation Indexed Expanded
Countries and territories	Non-Malaysia countries	Non-Malaysia countries

Overall, a total of 1,747 articles were excluded based on these criteria. A few eligibility criteria and exclusion criteria were determined. First, with regards to the literature type, only article journals with empirical data are selected which means review articles, book series, book, chapter in book and conference proceedings are all excluded. Second, in order to avoid any confusion and difficulty in translating, the searching efforts excluded non-English publications and focused only on articles published in English.

Thirdly, with regards to the timeline, only articles within the recent seven years (between 2015 and 2021) were selected. This is due to the adequate period of time to see the evolution of research and related publications. Lastly, in line with its objective which focuses on moderating variables, only articles focused are selected.

Eligibility

A total of 16 articles were prepared for the third stage known as eligibility. At this stage, on a more important note, the titles, abstracts, and the main contents of all the articles were examined thoroughly to ensure that they fulfilled the inclusion criteria and fit to be employed in the present study in order to achieve the objectives of the current research. Consequently, a total of 1,951 articles were excluded as they are not related to the research question and articles that did not focus on moderating effect. Finally, a total of 10 remaining articles are ready to be analysed (see Figure 1).



Figure 1: Flow Diagram of the Study adapted from Moher, Liberati, Tetzlaff, Altman and Prisma Group (2009)

Data Abstraction and Analysis

These processes of developing the appropriate themes were carried out based on thematic analysis. The first phase of the theme development process was the compilation of data. In this phase, the authors carefully analysed a group of 10 selected articles. Statements that answers the research questions were then extracted as data. Subsequently, in the second phase, the authors created significant groups via coding method according to the nature of the data. Afterwards, the authors resumed the process by arranging the themes, concepts, or ideas which are connected. Consequently, this process eventually resulted in a total of one theme and four sub-themes.

These processes of developing the appropriate themes were carried out based on thematic analysis.

Result

General Findings

The analysis produced one main theme and seven sub-themes that are potential moderators for the relationship between VVG and prosocial media exposure towards aggressive behaviour. According to Brand et al (2016), The Interaction of Person-Affect-Cognition-Execution (I-PACE) model explained that problematic gaming is not the sole cause of aggressive behaviours, but also gambling, pornography viewing, shopping, and social networking. Based on this model, the component Person's Core Characteristics (PCC) is a predisposing variable, referring to an individual's core characteristics related to other sub-themes.

Table 3:

The Main Themes and The Sub-Themes

Literature	Potential Moderators under PCC							Moderator
	P	SC	BC	PC	SM	C	IC	
Beene (2015)	√				√			Age Year of Study
Jung, Park & Lee (2015)					√			Game character
Kanz (2016).					√			Violent media consumption
Stockdale, Morrison, Palumbo, Garbarino & Siltan (2017)	√							Empathetic concern
Prescott, Sargent & Hull (2018)		√						Ethnicity
Shao & Wang (2019)			√					Family environment
Halbrook, O'Donnell & Msetfi (2019)		√						Social aspect
Halbrook, O'Donnell & Msetfi (2019)			√					Physical activity
Halbrook, O'Donnell & Msetfi (2019)					√			The motivations behind playing the game
Delhove & Greitemeyer (2019)					√			Target Group
Teng, Nie, Zhu, & Guo (2020)	√							Trait of aggression
Teng, Nie, Zhu, & Guo (2020)	√							Moral identity
López-Fernández, Mezquita, Etkin, Griffiths, Ortet, & Ibáñez (2021)		√						Deviant peers

Sub Themes: P= Personality; SC = Social Cognition; BC = Bio psychological Condition; PC= Psychopathology; SM = Specific motive for using; C = Coping style; IC = Internet Cognitive Bias

Theme : PCC = Person's Core Characteristic

Main Finding

In this section, the discussion revolves around four main themes that consist of all related moderator variables, namely personality, social cognition, bio-psychological condition and specific motive for using as shown in table 3.

Personality (P)

Personality is a sub-theme that consists of three potential moderators of the relationship between VVG games, prosocial media violence and aggressive behaviour. They are the trait of aggression, moral identity and emphatic concern. According to Teng et al (2020), the effects of VVG exposure on bullying behaviour increased for individuals with lower moral identities and those with higher trait of aggression. Supporting this statement is a study by Stockdale, Morrison, Palumbo, Garbarino, and Siltan (2017) that found similar results, whereby exposure to VVG the bullying behaviour among individuals with low moral identities than for those with high moral identities.

Social Cognition (SC)

The second sub-theme consists of three potential moderators which are ethnicity, deviant peers and social aspect. A study conducted by López-Fernández, Mezquita et al (2021) found that across both cross-sectional and longitudinal waves, the presence of a deviant friend moderated the increase of aggressive behaviour among adolescents who with greater exposure to VVG. Meanwhile, Halbrook, O'Donnell and Msetfi (2019) noted that video-game effects on well-being greatly depended on the moderation ability of social aspects which in this case could strengthen or weaken the relationship. Also, the study by Prescott, Sargent and Hull (2018) found evidence that ethnicity moderates the effect of VVG on aggression by decreasing the level of aggressive behaviour.

Biopsychological condition (BC)

Next, family environment and physical activity are potential moderators under the sub-theme bio psychological condition according to the I-PACE model. Shao and Wang (2019) noted that family environment moderates the relationship between exposure to VVG and normative beliefs about aggression. Besides that, a study by Halbrook et al (2019) claimed that the video-game effects on well-being greatly depended on the presence of moderators, such as social aspects, violence, or physical activity and the motivations behind playing the game.

Specific Motive for Using (SM)

Lastly are the moderators under the sub-theme of specific motives which are the motivations behind playing the game, target group, age, violent media consumption, years of study and game characters. In a study by Beene (2015), both age and the year of study moderates the relationship of VVG and aggression through a post-hoc analysis. Evidence found in a study by Jung, Park and Lee (2015) indicated that identification with the game character moderated the effects of trait-level personality and the interface on postgame aggression.

Kanz (2016) noted that violent media consumption, as well as various forms of non-empathetic parental behaviour, were found to be potential moderators that may lead to slightly more violent delinquency (small to moderate effects) or considerably more violence-approving normative beliefs (moderate to large effects).

Meanwhile, studies by Delhove and Greitemeyer (2019); Halbrook, O'Donnell and Msetfi (2019) both stated that the relationship between VVG exposure and violent behaviours were found to be moderated by motivations of playing the game that increased or decreased the streaks of violence.

Discussion

Researchers were inconclusive when concerned with the question of whether or not playing VVG is moderated by certain potential variables that could increase physical aggression. Although a majority of researchers have argued for such an association, a vocal minority has claimed that existing evidence is flawed in multiple respects. This paper does not answer whether there have been significant relationships between the independent and dependent variables but instead demonstrates the specific knowledge gap regarding potential moderators between those variables.

This review is different because this paper is guided by a specific question: which moderator shows a significant effect between VVG, prosocial media violence and aggressive behaviour? Herein, our result showed that several moderators existed between VVG, prosocial media violence and aggressive behaviour. The methodology is systematically designed to answer this question through systematic literature analysis, by comparing literature reviews, which typically seek to establish what we know about the topic in general. The synthesis indicated that the moderating variable creates a significant effect between independent and dependent variable VVG, prosocial media violence and aggressive behaviour.

Based on this systematic literature review, potential moderators can be divided into two groups which are Intrinsic Moderators (InM) and Extrinsic Moderators (ExM). The grouping of moderators is formally grouped by the I-PACE model with the components of a person's core characteristics. Then, it was further synthesised into InM and ExM as guided by the moderators found within the literature.

Moderators that were grouped under Social Cognition (SC) and Specific Motive for Using (SM) were found to be most suited to be regrouped under ExM. This is because the literature found evidently between those two sub-themes points towards an external cause of influence; moderators that are derived from the reaction from an outside source. Meanwhile, for the moderators that fit under Personality (P) and Bio psychological condition (BC), it was found that the moderators in these findings are suited to be under InM. Vice versa to ExM, InM included moderators that are innately sourced such as biological conditions or antecedent traits as well as due to the development of one's characteristics. The purpose of grouping the moderators is to assist further understanding and to provide a different angle to investigate the moderators in the future.

Due to the regrouping of moderators under the term ExM and InM, ExM now consists of moderators such as target group, age, violent media consumption, the number of years of study, game character, ethnicity and social aspect. Meanwhile, under InM, the moderators in this group are trait of aggression, moral identity, emphatic, deviant peers, family environment and physical activity.

Table 4:

Group of Potential Moderators between VVG, Prosocial Media Violence and Aggressive Behaviours

	Personality (P)*	Bio psychological condition (BC)*
Intrinsic Moderators (InM)	Target Group, Age, Violent Media Consumption, Number of Years Of Study, Game Character, Ethnicity and Social Aspect	
	Social Cognition (SC)*	Specific Motive for Using (SM)*
Extrinsic Moderators (ExM)	Trait of Aggression, Moral Identity, Emphatic, Deviant Peers, Family Environment and Physical Activity	

*Adopted from: I-PACE Model, Brand et al., (2016)

Conclusion

This study identifies possible moderators that may influence the relationship between VVG, prosocial media violence and aggressive behaviour.

In this study, one main theme that represented the main category of moderators were identified. Based on the Systematic Literature Review, the main theme that revolved falls under components found in PCC which has an amalgamation of four sub-themes. This study takes it further by synthesizing the moderators in the literature reviewed and categorized them into two big groups, InM and ExM. Thus, providing a different angle of the moderators classified using the PCC model.

Overall, this SLR provides several types of moderators for scholars to understand the relationship between VVG, prosocial media violence and aggressive behaviour. Therefore, further broadening of this basic understanding through the integration of diverse researches findings may assist the concerned parties in developing other SLR that are focus on mediator variables for this topic.

The findings and systematic review process of the present study have led to a number of recommendations that may be helpful for future studies. First, future scholars should focus on the intrinsic groups for their future research by figuring out the reasons what the others moderator involve in the intrinsic group. Furthermore, it is vital to examine which group are most affect the relationship between independent and dependant variable.

All in all, the current study is a concept paper and may require more time and cost in order to capture the long-term effects of engagement with complicated characters and different types of moderators such as gaming on the development of aggressive and prosocial media violent behaviours. Nevertheless, this study is important in helping understand the types and existence of moderating variables in the relationship between VVG, prosocial media violence and aggressive behaviours.

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