

The effect of exposure to violent-related short-videos on aggression in college students: psychosocial factors as mediators

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Abstract

Background

This study investigated the impact of exposure to violent-related short-videos on aggression among college students in Hong Kong and Chinese Mainland, while testing the mediating roles of psychosocial factors—Parental Phubbing, Dark Triad traits, and Emotion Regulation Difficulties.

Methods

Using a quantitative cross-sectional design, participants ($N = 157$) in an age range of 17–27 years old completed validated assessments: the Reactive-Proactive Aggression Questionnaire measuring two subtypes of aggression, an adapted Exposure to Violent Media Questionnaire for violent short-videos consumption (frequency $\times$ intensity), the Parental Phubbing Scale, the Short Dark Triad Scale, and the Difficulties in Emotion Regulation Scale.

Results

Mediation regression analyses revealed that (1) the exposure to violence directly increased both reactive ($\beta = .243, p < .001$) and proactive aggression ($\beta = .081, p < .001$), and (2) dark triad traits ($\beta = .075, 95\%CI [.017, .215]$) and emotion dysregulation ($\beta = .052, 95\%CI [.018, .097]$) served as parallel mediators in this relationship, while parental phubbing did not.

Conclusions

Overall findings support that watching violent short-videos have made undergraduates more aggressive in daily life. Two psychological factors worked like bridges parallel: having dark personalities and struggling to control emotions. Findings give insight to the development of tailored interventions (e.g., digital literacy programs, emotion regulation skills training), such as launching an emotion regulation training program for university students, and evidence-based policies for mitigating aggression linked to short-video platforms.

Introduction

With the advancement of modern science and technology, especially in the domain of digitization, lifestyles have changed greatly across the whole world during recent decades [1]. For example, smart equipment including cell phones, laptops, or wearing devices is an ideal resource of amusement, professional communication, academic engagement, and essential daily activities [2]. Among which, smartphones equipped with various social media applications keep users connected to information all over the world [3]. According to the 55th Statistical Report on China's Internet Development, 93.8% of netizens (1.04 billion users) in China actively engage with short-videos. "Actively engage" refers to regular interaction with short-video platforms through viewing, creation, or social participation. An estimated average of ≥ 30 minutes/day

per user accounts for “actively” engagement [4]. However, accompanied by the rapid development of smartphones, the massive consumption of popular media and short-video platforms among the youngsters and elderly is universally discussed across societies [5]. Of particular concern is the widespread use of these platforms (e.g., TikTok, Kuaishou, Xiaohongshu) in China, which enable instantaneous consumption of diverse content [4]. Using one marketing report released recently by iiMedia Research [6] as another example, short-video/live-streaming content has become a daily high-frequency contact scene for Chinese users, among which 69.57% of short-video/live-streaming users are long-term active viewing groups. The daily viewing frequency of short-video/live-streaming users is concentrated in the 4-5 times range, accounting for 43.82%, and 53.19% of short-video/live-streaming users maintain the same viewing habits as the previous year, indicating a continuous strengthening of user stickiness.

Researchers’ calling for delayed smartphone access have pointed out that parental distraction may serve as a developmental accelerator of digital vulnerability, arguing that social media is a major cause of the mental illness epidemic [7]. Critically, alongside massive consumption, frequent exposure to violent material within them—such as graphic conflict, harmful challenges, or normalized aggression—has raised cross-cultural concerns on behavioral impacts [8]. Emerging research suggests such exposure may theoretically contribute to increased aggression [9], particularly among youth populations under psychosocial frameworks [10]. Yet the mechanism and strength of this relationship remain inadequately explored. To address the literature gap in prior research, this study investigated the dynamic effects of exposure to violent short-videos on aggression among college students, testing the mediating roles of several psychosocial factors, such as parental phubbing, dark triad traits, and emotion dysregulation.

Theoretical framework on aggression

Research on aggression has evolved from Freud’s early instinctual drives and Dollard’s foundational Frustration-Aggression Hypothesis, which posited that blocked goals directly trigger aggression, to more detailed models involving cognitive and social factors. Bandura’s Social Learning Theory established aggression as acquired through observation, imitation, and reinforcement [11]. The dominant General Aggression Model (GAM)^[1] integrates person/situation factors, proposing that inputs alter cognitive, affective, and arousal states, which interact to drive impulsive or calculated aggression. Contemporary scholarship underscores its complexity, urging future work to address multiple aspects and applications in understanding aggression [12].

As a vital background of this study, these theories collectively establish that aggression arises from dynamic interactions between individuals and situations when studying violent-related short-videos. GAM and Social Learning Theory explain how algorithmic violence reshapes cognitive-affective processes, provide the mechanistic basis for regulating emotion as the compensatory skill mitigating these pathways as an important strategy [13]. Furthermore, when taking a closer look into different subtypes of aggression, theoretical perspectives suggest media violence may heighten reactive aggression by amplifying stressful emotional responses to perceived threats [14]. In contrast, proactive aggression—characterized by goal-oriented, deliberate behaviors—appears less consistently linked to media exposure, instead showing stronger associations with specific personality dispositions like narcissism or psychopathy [15].

Frustration-aggression theory

The original concept of aggression was initially proposed by Sigmund Freud, who believed that it was a human death instinct. Later, the frustration-aggression theory was firstly formed by J. Dollard, which states that when individuals fail to achieve their goals or meet their needs, they will feel frustrated and dissatisfied, thus, trigger negative emotions like anger, anxiety, or hostility, which in turn leads to aggressive behavior [16]. However, recent research found the mediation role of the Significance Quest between frustration and aggression, suggesting that frustration leads to aggression only to the extent it is significance-reducing [17].

Social learning theory

Turning to later integrated perspectives, Bandura's social learning theory is one representative of early views regarding human aggression. Social Learning Theory proposed by Albert Bandura believes that throughout childhood, observational learning and imitation learning are the main ways to acquire motor and social skills. Children obtain a rich resource of role models from the media with violence. Coupled with the fact that children lack perfect cognitive abilities and moral judgment, it is easy for them to imitate and try indiscriminately [18].

Recent meta-analytic evidence confirms that Social Learning Theory effectively predicts violent and criminal behavior across adolescent and adult populations. This theoretical framework—centered on observational learning, reinforcement, and modeling—provides actionable mechanisms for developing targeted prevention strategies [19].

General aggression model

Contemporary psychology around the turn of the century has become more comprehensive and rigorous due to its greater emphasis on cognitive factors in psychological processes. The most representative view on the formation mechanism of youth violence during this period is the General Aggression Model [12]. GAM emphasizes that the emergence of aggressive behavior is determined by personal internal variables and external situational variables [20]. Changes in the individual's internal state are reflected in three aspects: cognition (such as hostile thoughts or aggressive scripts), emotion (hostile feelings or the tendency to show aggressive behavior) and physiological arousal (such as heart rate, blood pressure and endocrine, etc.). They interact and activate each other, determining the individual's evaluation and judgment of aggressive behavior and the formation of aggressive motivation [21].

This model further believes that violent media have both short-term and long-term effects on the formation of adolescent aggression. It may increase the activation level of aggressive cognition, hostile emotions and physiological arousal in a short period of time, thereby promoting the occurrence of violent aggressive behavior [22]. While working by strengthening their aggressive beliefs and attitudes, consolidating their aggressive schemas and scripts in a long-term effect [23]. GAM also explains the development of adolescent aggression, believing that violent media games have different effects on adolescents at different stages, and the effect on early adolescents is more obvious [9]. Researchers conducted an

empirical test of assumptions by GAM, testing how everyday aggression is influenced, and found that personal (such as trait aggressiveness) and situational variables (such as provocation or frustration) interactively predict aggressive behavior via internal states (cognition, affect, arousal), which can be well explained by the GAM [24]. Moreover, GAM's framework examined the distinction between two subtypes of aggression: reactive vs. proactive. Reactive aggression predominantly stems from impulsive pathways driven by heightened affect and arousal in response to threats, whereas proactive aggression arises from thoughtful reappraisal dominated by aggressive cognition and scripts [20, 25]. Thus, exposure to violent materials may exert stronger effects through these divergent routes, with psychosocial factors modulating specific outcomes of two subtypes.

Overall, current scholarship underscores the necessity of integrating neurobiological predispositions and psychological dispositions when evaluating longitudinal media violence effects on aggression. While extant evidence remains robust, future studies should investigate how these factors, including exposure duration (e.g., screen time, launch frequency), specific violent context (e.g., fighting livestream, extreme parkour), social supporting resources (e.g., parental support, school instruction) and individual vulnerability (e.g., personality traits, cognitive attribution), dynamically interact across distinct subtypes of aggression over developmental routines.

Proactive and reactive aggression

Aggression generally refers to anyone's behavior intended to cause harm to another individual who is motivated to avoid that harm. It shall be regarded as deliberately, and be considered under the power of imbalance [20]. To integrate early theories, when looking into its purposes, aggression can be categorized as two subtypes: reactive (hostile) aggression and proactive (instrumental) aggression [25]. According to their findings, reactive aggression may be driven impulsively by emotion, while proactive aggression is more likely linked to goal-oriented purpose. That's to say, in contrast, various aggressive forms indicate how aggression manifests, whereas reactive/proactive aggression emphasizes how violent content is translated into behavior through different cognition or emotion under certain mechanisms. Some scholars held similar views that reactive aggression is associated with negative emotion, in contrast, proactive aggression is associated with psychopathic features and antisocial behavior [26]. This distinction is further supported by the evidence that emotion dysregulation mediates the association between self-centered impulsivity traits of psychopathy and reactive, but not proactive, aggression [27]. And these subtypes may interact with media violence exposure to amplify reactive responses through emotional priming but reinforce proactive scripts in those with preexisting psychopathic vulnerabilities among emerging adults [28]. Therefore, in order to see how greatly the impact of violent short-videos are, this study mainly focuses on reactive/proactive aggression.

Violence from traditional media

The main difference between traditional media and short-videos is its material length [29]. Traditional media violence refers to professionally produced descriptions of aggression (e.g., films, television, video games) in long-form narratives (>30 minutes), designed for passive consumption [30]. Both media and real-life violence exposure shares the similar influences in triggering physiological arousal and observational

learning of aggression. However, compared to vivid real-life violence, media violence lacks feedback of vivid scenarios, immediate consequences, and depth in violent context [22]. Aligned with findings of GAM, decades of studies have confirmed that exposure to traditional media violence affects an individual's aggressive behavior both in short-term and long-term [31]. However, the research controversy is still arguing for a direct causation or even more complicated relationship between them. Khairuddin et al. [32] conducted a meta-analysis showing that no obvious causal effect leading to aggressive behavior, and multi-factors like environment (e.g., family dynamics, socioeconomic status), individual traits (e.g., mental health issues) may also place similar effects on aggression. Other contemporary researchers found a positive reciprocal relationship between media violence exposure and aggression under stable gender and family differences, indicating that media violence exposure was not only a risk factor for increasing aggression but also a negative outcome of high aggression [33]. This may imply that media violence shall be treated more as a risky factor than a solo cause of aggression.

Violence from short-video platforms

While traditional media are greatly-discussed and well-studied, the increasing dominance of popular social media usage, especially short-video platforms (e.g., Instagram, TikTok), whose influence remains less-explored through different age groups and cultural contexts. The violence deriving from short-video platforms refers to violent clips (<60 seconds) on social media applications like TikTok, Kuaishou, Xiaohongshu, Youtube shorts, or Instagram Reels, etc. They are mostly user-generated and amplified by algorithms, which are often stripped of context to maximize engagement and encourage interactions or imitations among users [30]. Some representative scenarios include a fighting battle on TikTok, a mischief on Youtube, or a highrise parkour on Instagram, etc.

These platforms introduced rising technology addiction to adolescents [34]. One research finding supports that the frequency and duration of exposure to social media violent content by short-video platforms amplify the likelihood of aggressive tendencies in real-life situations [35]. In addition to the usage or screen time of social media, another study indicated that both nighttime social media use and sleep quality were mediators in the relationship between social media addiction and aggressive behaviors in adolescents [36]. One research study [37] indicated a positive significant association between TikTok scrolling addiction and academic procrastination among young adults. And under specific cultural environments, such as male-dominated Pakistan, the dominating gender (male) scored higher in the correlation, while female tended to work harder to achieve goals and used less technology.

Psycho-social impact factors

As mentioned before, apart from the exposure to violent media or particular violent-related short-videos, there are key factors still contributing to the levels of aggression. Scholars [38] indicated that the interplay of various factors, including family background and social influences, has been shown to be more significant predictors of youth violence than violent video games alone. Brown [39] found that individuals with high exposure to violence but greater levels of self-control may be less influenced by the impact of exposure to violence.

Chabbouh et al. [14] suggested that higher exposure to traditional media violence was significantly associated with more psychological distress, which was significantly associated with higher levels of all types of aggression. Li X et al. [40] found that parental rejection and overprotection positively predict aggressive behavior, whereas emotional warmth and family climate negatively predict it. Haidt's [41] thesis on the neurocognitive consequences of algorithm-driven platforms—particularly attention fragmentation and emotional dysregulation from compulsive short-video consumption—provides some heuristic insights of our research hypothesis by suggesting early exposure may redesign or re-establish threat-response systems, amplifying reactive aggression pathways in emerging adults.

The parental phubbing. The term “Phubbing” being used among parents, which is a combination of the term “phone” and “snubbing”, refers to phenomenon that a parent gives more attention to their smartphone use more than to others or mainly to their child, resulting in children being ignored [42].

There are scholars noticing the influence of parental phubbing on children's development. Wang et al. [43] found that parental phubbing was positively related to children's social withdrawal and aggression. A significant positive prediction of parental phubbing was added to their aggression, and self-esteem significantly mediated the association between parental phubbing and adolescents' aggression [44]. In emerging adults, parental phubbing diminished the positive role of personal initiative and was relevant to their smartphone use habits [45], and acted as a direct predictor of their social anxiety, working through shyness and fear of negative evaluation [46]. Taken prior findings altogether, different behavior of parents like overprotection or neglect may have an influence on children's cognition such as self-esteem, and in turn affect their aggression. This study aims to explore when getting older and cognitive matured, will the parental influence be the same on college students in terms of their aggressive behavior.

The dark triad. It is crucial to understand how the dark triad (machiavellianism, narcissism, and psychopathy) shapes individual responses of hostility or even aggressivity. Research suggested distinct underlying motivations leading to these three universal traits in predicting violent-related aggression [47]. The term was coined in 2002 by Canadian psychologists Delroy Paulhus and Kevin Williams, who described the three traits as overlapping but distinct. According to Rico-Bordera et al.'s study [47], the cluster of three negative personality traits share certain features, including emotional coldness, duplicity, and aggressiveness. Machiavellianism is associated with manipulative behaviors, self-interest, exploitation of others, and a ruthless disregard for morality. Narcissism is described by a sense of grandiosity, egotism, and self-orientation. Psychopathy is characterized by impulsivity, antisocial behavior, and a lack of empathy [48]. Each individual Dark Triad trait uniquely predicted different facets of aggression. Machiavellianism and narcissism are associated with hostility, and psychopathy is associated with physical aggression [49].

Examining the presence of main dark traits can provide insight into how personality affects decision-making in aggression. When exposed to violent short-videos, these traits may lower the threshold of certain subtypes of aggression. Thus, there can be a preventing approach including the interplay of dark personality elements to carry out intervention strategies as well. Our research aims to investigate the relationship between the dark triad and reactive/proactive aggression, to see the effect of dark personality on aggression.

The emotion regulation. Cognitive strategies in regulating emotions show an important influence on the level of aggression. It is suggested that maladaptive strategies in emotion regulation have differential impact on aggressive behaviors. Such findings like anger and hostility greatly influenced all aggression subtypes [50]. Another research study supported the view that anger was consistently associated with the differential use of multiple emotion regulation strategies [51].

Apart from hostility and anger, we are also interested in other contributions like impulsive thoughts or lack of control on these strategies, and their links to different types of aggression. A study analyzed two emotional regulation strategies (cognitive reappraisal and expressive suppression), finding that negative affect mediated the relationship between expressive suppression and aggressive behavior, indicating that higher levels of cognitive reappraisal were related to a reduction in aggressive behavior [52].

As discussed above, aggression rarely stems from one cause alone. Like making a toast with several ingredients, it is mixed with family background (e.g., parents' phone habits), personality traits (e.g., impulsivity or callousness), emotional skills (e.g., calming under anger), and daily triggers (e.g., watching violent clips). Each ingredient shares the probability of pushing someone toward aggressive reactions, others add like bully factors. While prior research often examined psychosocial factors in isolation, the relationship between violent media exposure and aggression is likely explained by multiple simultaneous psychological pathways. To capture the real-life complexity, the study used a parallel mediation model examining how exposure to violent-related short-videos may differentially affect subtypes of aggression through psychosocial variables among college students. Think of it as a river splitting into three separate streams (parental phubbing, dark triad traits, and emotion regulation difficulties) that eventually lead to the same ocean. Each stream carries part of the "violent short-video" water to either "reactive or proactive aggression" ocean, revealing how and why the effect happens. This method is distinct from serial mediation, as it does not assume that one mediator causes another, but rather that all of them are potential, distinct pathways through which exposure to violent short-videos may influence aggression [53]. Reactive and proactive aggression are examined as distinct outcome variables [25], with particular interest in the role of emotional arousal from violent exposure. For instance, during high-stress periods like examinations, violent content might intensify reactive aggression through emotional escalation, while college students with certain traits could potentially adopt proactive aggression through imitation of instrumental scripts in social bullying contexts.

Present study

Compared to the emerging studies investigating the effects of media violence on aggression, research on practical interventions to prevent the exposure to violent media is just the starting point. In addition to the exposure reduction, suggestions that evaluate different types of media and promote critical understanding of relevant psychological processes and individual traits triggered by those stimuli should be investigated into detail. These knowledge gaps equally hinder the development of evidence-based regulatory frameworks for policymakers. According to existing literature, these major effects have been widely studied among primary and secondary school students or adolescents across countries, but there is still lack of research on adults, especially emerging adulthood or college students. In addition, the adverse effects of

the consumption of violent-related short-videos have not been investigated together with other related psychological and social comorbidity, or in other words, there is still a lack of confirmation of the comprehensive factors and the influencing pathways, and more evidence is still needed diversely.

Therefore, to try to put all prime considerations into a nutshell, this study explored the dynamic effects of the exposure to violent-related short-videos on college students' aggression, and tested the mediating effects of a number of psychosocial factors including parental phubbing status, the dark triad traits, and the abilities of regulating emotions on their reactive and proactive aggression. Three psychosocial factors were tested as parallel mediators in the relationship between exposure and aggression. In this model, the exposure variable influences all three mediators simultaneously rather than sequentially, and they collectively—yet independently—contribute to the effect on aggression (Figure 1).

[1] *Note.* See Appendix for a list of all acronyms mentioned in the article.

Method

Procedure

All participants were invited to answer a series of questionnaires including above five scales, and with the following preference part filled in to collect their basic personal information. The questionnaire was administered via online platform (e.g., google form). All participants enrolled via either scanning QR code or accessing online addresses, with informed consent in advance. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2013. All procedures involving human subjects/patients were approved by the research ethics committee of the Department of Counselling Psychology at Hong Kong Shue Yan University (MPSY-RP-2025-24P509M). The written informed consent form both in English and Chinese version was obtained prior to the start of data collection. The main content in the consent form included the purpose, procedure, potential risk or benefit of the study, and rules of confidentiality, data privacy, and free withdrawal as well.

Participants

In order to avoid random answering, the study excluded 48 participants' data whose finishing duration was less than five minutes. As a consequence, the sample (convenience sampling) consisted of 57 men and 100 women ($N = 157$), with an age range from 17 to 27. Men ($M = 20.000$, $SD = 2.322$) and women ($M = 20.670$, $SD = 3.029$) did not differ significantly in age. Among all the reported cases, over 80% of them were younger undergraduates aged between 18-23 ($N = 129$).

Measurements

The aggression level (dependent variable)

The Aggression levels among college students were assessed using the Reactive-Proactive Aggression Questionnaire (RPQ). There are 11 items measuring reactive aggression and 12 items measuring proactive

aggression, scoring from 0 (Never), 1 (Sometimes), and 2 (Often), with a higher score indicating greater frequency of that subtype of aggression [25]. The scale has been used both in English and Chinese versions with good reliability and validity [54]. RPQ used in this study showed relatively good internal reliability by a .883 value of Cronbach's alpha.

Exposure to violent-related short-videos (independent variable)

Similar to early approaches, the study has examined the exposure to violent-related short-videos by an adjustment to the former validated Exposure to Violent Media Questionnaire (ETVMQ). The ETVMQ includes two subscales: media exposure frequency and violence intensity. According to the research of Gentile et al. [55], participants' exposure to violent media were reported by three types of media, including television, movies/videos, and video games. To have a better indication of short-videos' exposure frequency and intensity, the study merged the first type of media to television/movies, and changed the second media type into a new one: Short-videos. The scale was used both in English and Chinese with good reliability. The frequency of participants' consumption of different media types is understood through a 5-point scale, and the violence intensity regarding media is understood through a 7-point scale, ranging from "no violence" to "extremely violent". The total score of violent short-videos exposure is the product of two scores, and the questionnaire score ranges from 1 to 35 points. This 6-item scale used in the study had an acceptable internal reliability by a .692 value of Cronbach's alpha.

The parental phubbing (mediating variable 1)

This study adapts the Parental Phubbing Scale (PPS) used by Li J et al. [42] with good reliability and validity. Based on previous studies, the one-dimensional scale with 8-item was transferred into English and Chinese versions, and reworded for self-reporting by college students reflecting on their own parents' phubbing levels. All items were rated on a 5-point Likert scale, ranging from "never" to "very often". The higher score indicates a higher level of their parental phubbing. PPS used in this study had a good internal reliability by a .888 value of Cronbach's alpha.

The dark triad (mediating variable 2)

The Short Dark Triad Scale (SD3) both in English and Chinese version was designed to measure the three dark triad dimensions (Machiavellianism, narcissism, and psychopathy). SD3 comprises 27 items (9 for each dimension), for which the participants must indicate their degree of agreement with five response options rated on a Likert scale, ranging from "totally disagree" to "totally agree". The higher the scores obtained on the scale, the higher the levels of dark triad traits [56]. SD3 used in this study showed relatively good internal reliability by a .796 value of Cronbach's alpha.

The emotion regulation (mediating variable 3)

The emotion regulation was measured by the Difficulties in Emotion Regulation Scale-16 item version (DERS-16). DERS-16 is a self-report measurement that assesses individuals' levels of difficulties in emotion regulation. Based upon the original 36-item version scale [57], the DERS-16 uses a clinically-useful conceptualization of emotion regulation that was developed to be applicable to a wide variety of

psychological difficulties. This short form keeps the total and 5 subscale (clarity, goals, impulse, strategies, and nonacceptance) scores of the original measurement with both Chinese and English version, ranging from “almost never” to “almost always”, still maintaining a good reliability and validity [58]. DERS-16 used in this study showed good internal reliability by a .955 value of Cronbach’s alpha.

Results

Data analysis used IBM SPSS 29.0 and PROCESS v4.2 for basic descriptive statistics, reliability tests, overall correlations, and regression mediation testing.

Descriptive and correlational analyses

Prior to testing the main hypotheses, preliminary analyses were conducted. Data screening confirmed no major violations of statistical assumptions. The sample ($N = 157$) showed adequate variability on all key constructs. Descriptive statistics and inter-correlations for all study variables were calculated and presented in Table 1. A significant negative correlation was observed between participants’ age and exposure to violent short-videos ($r = -.235, p < .01$), indicating that younger undergraduates reported more consumption of violent content. However, it was worth noting that, while parental phubbing correlated with reactive aggression ($r = .216, p < .01$) and total aggression ($r = .201, p < .05$) in general, it was found no correlation with the independent variable: violent short-videos exposure ($r = .121, p = .130$).

Table 1 Descriptive statistics and correlations for study variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. Age range	20.427	2.804	--						
2. Levels of violent short-videos exposure	7.433	6.169	-.235**	--					
3. Total score of parental phubbing	13.038	6.632	.003	.121	--				
4. Total score of dark triad traits	72.873	11.951	-.155	.351**	.280**	--			
5. Total score of emotion dysregulation	38.000	15.213	-.156	.325**	.252**	.319**	--		
6. Reactive aggression	4.032	3.474	-.046	.432**	.216**	.411**	.418**	--	
7. Proactive aggression	0.548	1.889	.071	.264**	.113	.371**	.189**	.554**	--
8. Total aggression	4.580	4.787	-.006	.418**	.201*	.444**	.378**	.944**	.797**

Note. ** $p < .01$, * $p < .05$

An independent-samples t-test (Table 2) revealed no statistically significant gender differences in reactive ($t(95.212) = .097, p = .923$), proactive ($t(71.346) = 1.472, p = .145$), and total aggression ($t(82.334) = .676, p = .501$).

Table 2 Independent-samples t-test on aggression scores for gender difference

3-level of Aggression	Male			Female			<i>df</i>	<i>t</i>	<i>p</i>	Cohen's <i>d</i>
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>				
Reactive	57	4.070	4.022	100	4.010	3.141	95.212	0.097	0.923	3.485
Proactive	57	0.895	2.623	100	0.350	1.274	71.346	1.472	0.145	1.877
Total	57	4.965	6.089	100	4.360	3.873	82.334	0.676	0.501	4.793

Hypothesis testing results

Hypothesis 1 proposed that exposure to violent short-videos would predict both reactive and proactive aggression, with a stronger effect on reactive one. A multiple regression analysis, controlling for gender and age, was conducted. The results confirmed that exposure was a significant positive predictor of reactive aggression ($\beta = .243, SE = .041, F(1,155) = 35.536, p < .001, R^2 = .187$), also a significant predictor of proactive aggression ($\beta = .081, SE = .024, F(1,155) = 11.598, p < .001, R^2 = .070$), and the same of total

aggression ($\beta = .324$, $SE = .057$, $F(1,155) = 32.738$, $p < .001$, $R^2 = .174$). Crucially, the proportion of variance explained (R^2) for reactive aggression was approximately three times larger than for proactive aggression, confirming the dominant effect on reactive aggression subtypes. Thus, **hypothesis 1** was fully supported.

Hypothesis 2 proposed that the parental phubbing level, dark triad traits and emotion regulation difficulties would parallel mediate the relationship between exposure to violent short-videos and aggression. However, according to the results in Table 1, there was no correlation between exposure and parental phubbing, which is a prerequisite for the existence of the first mediating pathway in the original hypothesis model (Figure 2). A subsequent mediation analysis was performed to reckon that while a total effect and direct effect ($\beta = .323$, $SE = .058$, $p < .001$) both significantly detected, the indirect effect of parental phubbing failed to demonstrate significant mediation ($\beta = .017$, 95% CI $[-.004, .047]$), leading to model refinement.

Therefore, a parallel mediation analysis was further conducted using PROCESS (Model 4) with 5000 bootstrap samples, controlling for both gender and age. The total effect of violent short-videos exposure on total aggression was significant ($\beta = .340$, $SE = .058$, $p < .001$). As shown in Figure 2, the direct effect remained significant ($\beta = .212$, $SE = .058$, $p < .001$). The total indirect effect through two mediators was also significant ($\beta = .128$, $SE = .042$, 95% CI $[.054, .215]$), indicating partial mediation.

This confirms that both dark triad traits and emotion regulation difficulties serve as significant parallel mediators in predicting violent short-videos exposure on aggression, mostly supporting the original **hypothesis 2**. Moreover, as indicated in Figure 3 and 4, follow-up analyses examining aggression subtypes separately revealed that both mediators significantly explained the relationship with reactive aggression ($a_1b_1:\beta = .045$, $SE = .021$, 95% CI $[.007, .089]$; $a_2b_2:\beta = .045$, $SE = .018$, 95% CI $[.014, .085]$), while only dark triad traits mediated the relationship with proactive aggression ($a_1b_1:\beta = .030$, $SE = .016$, 95% CI $[.006, .064]$).

Discussion

Overall, this study investigated the impact of exposure to violent-related short-videos on aggression among college students, with a specific focus on the mediating roles of parental phubbing, dark triad traits, and emotion regulation difficulties. Statistical analyses above suggested key results. First, exposure to violent short-videos was a significantly stronger predictor of reactive aggression than proactive aggression, indicating its primary role as a trigger for impulsive, emotional responses. And second, two psychosocial factors clearly passed the effect from watching violent short-videos to aggression: dark personality traits (like cold-hearted or manipulative), and problems in regulating emotions (like getting angry easily). However, parents ignoring their children for phone phubbing didn't play a role in carrying any signal from videos to aggression in emerging adults. These findings have practical implications, suggesting that interventions should aim at mitigating aggression linked to modern media, cultivating emotion regulation abilities, and monitoring dark personality traits as well.

Differential pathways to aggression subtypes

The result of multiple regression indicated an obvious contrast in predictive power between reactive ($R^2 = 18.7\%$) and proactive aggression ($R^2 = 7.0\%$) underscoring fundamental differences in their psychological mechanisms. This aligns with GAM propositions [12] that situational inputs like media violence primarily affect automatic, emotion-driven processes (reactive aggression) rather than deliberate, instrumental behaviors (proactive aggression). The nearly tripled difference in variance explained in this study suggests that short-videos violence operates more as an emotional trigger than a strategic tutorial for undergraduates, highlighting the importance of controlling reactive aggression in order to reduce the total levels of aggression. As also found by Husemann [22], individuals are more likely to interpret an ambiguous situation as a hostile offense, like someone bumping into you, after watching violent short-videos. These violent content can cause physiological arousal making an aggressive behavior more likely to take place. These processes directly fuel the impulsive reactive aggressive levels.

Furthermore, according to Han et al.'s finding [23], long-term exposure to violence increases one's proactive aggression in high-irritation situations and reactive aggression in low-irritation situations. In other words, violent short-videos are primarily a situational trigger that interacts with a person's internal state to cause reactive aggression. In contrast, their influence on proactive aggression is more indirect and conditional, for example, acting through specific personality traits. As for various violent material exposure, including short-video platforms, it is more important to have an eye on environmental and emotional factors triggering the rise of students' aggression.

The parallel mediation mechanism

When it comes to parallel mediation model, the analytical approach allows for the estimation of the unique indirect effect of each mediator (dark triad traits and emotion regulation difficulties) while accounting for their correlations, thus providing a critical understanding of the mediating mechanism [59]. Our study revealed a meaningful difference between two aggression subtypes.

For reactive aggression, both dark triad traits and emotion regulation difficulties served as significant parallel mediators. This indicates that exposure to violent content can increase aggression either by perceiving callous and manipulative personalities or by failing to regulate one's negative emotions, consistent with theories positioning emotion dysregulation as a key factor in impulsive, anger-driven responses [50]. For proactive aggression, only dark triad traits emerged as a significant mediator, which aligns with research identifying dark personalities, particularly psychopathy, as one of the strongest predictors of both reactive and proactive aggression [47]. The specific result also aligned with GAM's proposition that person factors (dark triad) and affective state (emotion dysregulation) represent distinct pathways through which situational inputs influence aggressive outcomes [12]. This pattern suggests that improving emotion regulation skills might primarily reduce impulsive aggression, while addressing dark triad tendencies might require more comprehensive personality-focused interventions.

Comparative strength of mediating pathways

The indirect effect through dark triad traits ($\beta = .075$, 95% CI [.017, .215]) was larger than through emotion regulation difficulties ($\beta = .052$, 95% CI [.018, .097]), highlighting the contrasting level about β effect at .023

(Table 3). The distinction underscores different mechanistic roles in translating exposure to aggression, where exposure may rise latent dark traits by reinforcing aggressive scripts, while emotion dysregulation acts as a secondary amplifier via affective arousal. Supporting evidence from recent mediation studies with similar comparisons stand up for differentiating dark personalities from emotion regulation abilities. Dark triad traits, as stable personality dispositions, likely represent stronger mediating effects by embedding aggressive scripts and desensitizing viewers to violence via cognitive biases such as psychopathic callousness normalizing harmful behaviors [49]. In contrast, emotion regulation difficulties amplify situational arousal with plasticity but explain less variance, as they are downstream from trait influences [27]. Maladaptive cognitive emotion regulation strategies (e.g., rumination, catastrophizing) fully mediate narcissism and machiavellianism's links to stress/anxiety, while adaptive ones partially mediate psychopathy-depression, suggesting dark personalities predisposes poor regulation abilities leading to negative outcomes like aggression [60]. In nowadays' algorithmic-related environment, for example, exposure to violent short-videos may enrage dark traits vulnerabilities by producing provocative content, explaining the indirect effect difference. The rationale aligns with GAM's viewpoint that exposure activate long-term cognitive-based traits (stronger dark personalities mediating path) over short-term emotional escalation (weaker emotion regulation mediating path).

Table 3
Indirect effects comparison of two mediators

Mediators	Total Aggression		Reactive Aggression		Proactive Aggression	
	Indirect Effect (β)	SE	Indirect Effect (β)	SE	Indirect Effect (β)	SE
M₁: Dark Triad Traits	0.075***	0.035	0.047***	0.024	0.033***	0.019
M₂: Emotion Dysregulation	0.052***	0.020	0.047***	0.018	0.004	0.005
*** $p < .001$						

Interrelations between parallel mediators

The moderate positive correlation between two parallel mediators ($r = .319, p < .01$) indicated meaningful mechanistic overlapping that dark personalities partially determine the failure in emotional processing. According to related research, as for psychopathy, both primary and secondary psychopathy consistently links to higher emotion dysregulation scores via suppression or reappraisal impulsivity deficits [61]. Meanwhile, as for narcissism, it correlates modestly via vulnerable facets such as non-acceptance of response or lack of strategies, and machiavellianism shows weaker or non-significant relationships with these abilities [62].

However, the moderate strength can be interpreted as an independent influence, where emotion regulation difficulties still mediate outcomes beyond dark traits. For example, problematic SNS (social networking site) was significantly associated with dark triad traits as well as emotion dysregulation, highlighting the important role of emotion regulation abilities [63]. The consumption of algorithmic short-videos with

violence may mixed use the overlapping or single pathways to magnify its influence on aggressive impulsivity, thus, suggesting hybrid interventions focused both on detecting dark personalities and training regulation abilities.

Psychopathy as the primary driver within the dark triad

To unpack the Dark Triad's mediating role, regression analyses were conducted to examine its three facets separately as parallel mediators. Results revealed that only psychopathy demonstrated a significant indirect effect from violent exposure to aggression ($\beta = .061$, 95% CI [.011, .143]). Neither narcissism ($\beta = .029$, 95% CI [-.001, .075]) nor machiavellianism ($\beta = .038$, 95% CI [-.002, .093]) reached significance. This pattern is interpretive and common regarding various research findings of dark personalities, in which psychopathy is the "darkest" one out of the three facets, and mostly linked to aggressive outcomes.

A meta-analysis confirmed psychopathy's strongest associations with antisocial behavior and aggression, driven by callous-unemotional traits and impulsivity that facilitated desensitization to violence [64]. Within media contexts, psychopathy correlates with greater violent content preference and weaker emotional responses to harmful scenarios—at GAM's perspective—amplifies observational learning and script reinforcement [65]. The subscales' results further elaborated our findings from SD3 that the overall dark personalities effect was largely carried by psychopathy. In AI/algorithm-driven short-videos carrying violent contents, aggressive imitations like verbal argument or physical fight can be regarded as cool, fancy responses by those with psychopathy trait. That's why psychopathy is more likely to mediate the relationship from exposure to aggression by decreasing the threshold of important cognitive process.

The null finding of parental phubbing

Compared to dark triad traits and emotion regulation abilities, parental phubbing is relatively a newer concept among previous studies. The non-significant association between violent exposure and parental phubbing represents that college students are less influenced by their parents' current phone habits when compared to factors such as their personality, and how they manage their emotions. Previous research established parental phubbing as influential in childhood, adolescence [43, 44], and emerging adults [45, 46]. Conclusively, a recent meta-analysis by Zhang et al. [66] found that parental phubbing has a significant and positive overall effect on children's and adolescents' social-emotional maladjustment, including aggression. Nevertheless, its null effect in this college sample suggested a contrast to them.

That helped to further clarify when and for whom parental phubbing is a relevant risk factor. New research supported the evidence that, when individuals move into college life, their primary social orbits shift from the family to peers and independent social networks [67]. As emerging adults, it's not that parental phubbing today causes them to watch more violent short-videos. Profound studies agreed with facts that college students may be more influenced by peer networks [68], romantic relationships [69], and personal characteristics [70] than parental influences [71]. These findings align with developmental theories emphasizing the increasing importance of extra-familial influences during the transition to adulthood. In terms of forming aggression at a much cognitive matured life stage, social observational learning or operant conditioning, as powerful processes for acquiring social behaviors (including aggressive behavior),

may alter more than family influence [72]. For future research on this age group, for instance, “peer phubbing” might be a more relevant construct to be tested.

There may also exist some concerns about the measurement factors. Although the one-dimensional scale examining parental phubbing levels used in this study had a good internal reliability, its limited 8-item cannot be really enough to be fully illustrative. Moreover, the scale is originally designed to be self-reported by parents. When transferred into a version of self-reported by college students, it may draw concerns about the lack of sensitivity or accuracy.

A narrowing gender and age difference

Current study revealed two demographic patterns. Firstly, the absence of gender differences in college students’ total aggression contrasted with some previous research but may reflect evolving social norms or sample characteristics. Recent studies showed that the understanding of gender differences, specifically the biological sex alone in predicting aggression alters a lot. Compellingly, our previously assumed sex differences are not universal but highly dependent on social context that females’ aggression are reported equal to or even higher than those of males [73]. A systematic review of interventions regarding gender stereotypes noting that norms are subject to the influence of social and historical context, supporting that traditional gender stereotypes are being challenged and are becoming less prescriptive in guiding behavior [74]. We should pay enough attention to the fact that the emphasis on gender differences in well-developed societies is no longer so obvious, supported by Nivette et al.’s cross-cultural research [75], even though some differences between men and women are gradually narrowing.

Secondly, as a significant negative correlation ($r = -.235$) between age and violent short-videos exposure were given out, it can be regarded as younger undergraduates watching more violent short-videos. However, as the correlation r is less than 0.3, the significance may be seen as a negligible or small correlation statistically. Similar to the evolving gender stereotypes discussed ahead, one possible explanation can be the rapid advancing society with age perceptions changed a lot, suggesting developmental declines in interest for such content, possibly due to increasing cognitive maturity or shifting social priorities during a special period. Research during the COVID-19 pandemic found that specific time horizons may reduce classic age differences in social motivation. This suggests these differences are linked to perceived future time instead of simply a single chronological age variable [76]. Thus, the age-related variable varying in short-videos consumption may be better explained by psychosocial developmental factors than by age itself.

Theoretical implications

This study extends the GAM by multiple pathways: (1) identifying watching violent short-videos as a real trigger for both hot-headed and cold-blooded aggression, expanding beyond traditional media types; (2) presenting developmental boundaries for parental influence factors like phubbing, suggesting theoretical models should take developmental specificity into account; (3) demonstrating dark personalities and

emotion dysregulation as two “middlemen” carrying important signals from videos to aggression, refining the theoretical precision.

Practical implications

In practical surroundings, structured campus interventions focusing on evidence-based emotion regulation strategies (e.g., cognitive reappraisal, distress tolerance) could be integrated into freshman orientation programs at university level. For example, living within a high-competitive academic environment such as Hong Kong, universities should implement emotion regulation training, particularly targeting stress management and impulse control during high-pressure periods like examinations.

Students’ digital literacy skills should be developed appropriately, specifically those towards algorithm-generating outcomes on the Internet. Especially in the age of AI, incorporate critical media consumption skills that help students recognize and mitigate the emotional impact of violent content. For example, “My Digital Tat2”, an non-profit digital resilience program with 8–10 sessions, teaching digital skills, self-efficacy in tech use, and strategies to counter emotional harms from violent online challenges showed effectiveness to 566 participants in proactive help-seeking and upstander intentions for violent media exposure [77]. Similar programs can be integrated into university curricular, such as mandatory first-year seminars to reduce aggression by critical reflection instead of passive scrolling. And, for students exhibiting dark personalities, interventions might focus on specific empathy skills development and result-oriented thinking rather than basic emotion-focused strategies. For instance, employing Cognitive-Behavioral Therapy (CBT) among college students with narcissistic traits reported effectively reducing their negative behaviors and promoting emotional literacy [78].

Moreover, there can be policy recommendations for governments to develop guidelines for digital wellness that address short-video consumption patterns, such as EU’s Digital Services Act (DSA) mandating age-appropriate design and time management for platforms (e.g., TikTok), promoting digital wellness via risk assessments. Annual reports showed 20–30% reduction in harmful youth exposure [79].

Last but not least, responding to Haidt’s call, while parental phubbing showed no significance in this study, parents should still pay great attention to reduce phone-based experiences as well as model healthy devices usage during Generation Z’s essential childhood and adolescent development, which aligned with Digital Wellness Framework of Australia’s eSafety Commissioner [80], promoting attention to parental controls during key developmental stages of children and young people.

Limitations

Several limitations of this study provided valuable insights for future explorations. First, the null finding for parental phubbing should be interpreted with consideration for its measuring items. The transformed scale might not fully captured the nature of digital interactions within families. This suggested a need for future research to develop and validate new measurements tailored to emerging adulthood, such as assessing “peer phubbing”.

Second, a notable limitation was that the internal reliability of the adapted ETVMQ was lower than .7 ($\alpha = .692$), which may stem from factors that the original survey was validated for traditional media types (TV/movies/games), not algorithm-driven, user-generated short-videos. Another possibility may have been that the college students' usage among different short-video platforms (e.g., YouTube Shorts vs. TikTok) varied a lot, which challenged the item cohesion. Future studies should refine the scale with factor analysis, potentially adding platform-related items, to enhance precision and reliability in digital media contexts.

Third, the self-report bias couldn't exclude individuals' social desirability and common method variance. Participants may have reported lower levels of their aggression or dark personalities due to social norms or expectations. And, all variables were measured simultaneously through a same survey with fixed-order questions and their corresponding credits, which may offer related hints of what is being measured to participants.

Fourth, most of the participants in this study were college students from Hong Kong and Chinese Mainland, containing an unbalanced proportion of gender samples (nearly 65% females). Thus, the results could be inapplicable to non-college populations, other cultural contexts, or samples with a different gender distribution. Future scholars shall criticize by exploring a much diverse demographic patterns of sample to enhance external validity.

Last but not least, the study using cross-sectional design without any manipulation indicated no causal effect. Researchers are encouraged to conduct experimental observations or longitudinal designs to discover causal pathways underlying these relationships.

Conclusion

In summary, this study provided solid evidence that violent short-videos exposure affects college students' aggression through distinct psychological pathways. The findings suggested that violent short-video consumption specifically worsened reactive rather than proactive aggression. Dark personalities and emotion dysregulation acted as "bridges" in parallel, carrying the effect from watching violent videos to performing aggressive behaviors. The study extended the widely-acknowledged GAM to contemporary digital & AI driven industries while highlighting the importance of distinguishing two original subtypes of aggression. The findings have important implications by informing the development of tailored interventions including digital literacy programs, emotion regulation skills training, and evidence-based policies recommended for mitigating media-specific aggression among emerging adults.

Declarations

Ethics approval and consent to participate

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2013. All procedures involving human subjects/patients were approved by the research ethics committee of the Department of Counselling Psychology at Hong Kong Shue Yan

University (MPSY-RP-2025-24P509M). All responses were only used for research purposes and kept confidential. All the data collected from the study was anonymized and stored in encrypted files which only the investigator and the supervisor can access. All data will be destroyed within three years after the completion of the research.

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

Declaration of Interest

None.

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Authors' contributions

Wang, J. was responsible for the study administration, data collection, data analysis and write up for the first draft. Lam, B.Y.H. conceptualized the study and supervised the administration and data analysis of the study. Lam, B.Y.H. also revised and finalised the manuscript. All authors read and approved the final manuscript.

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Figures

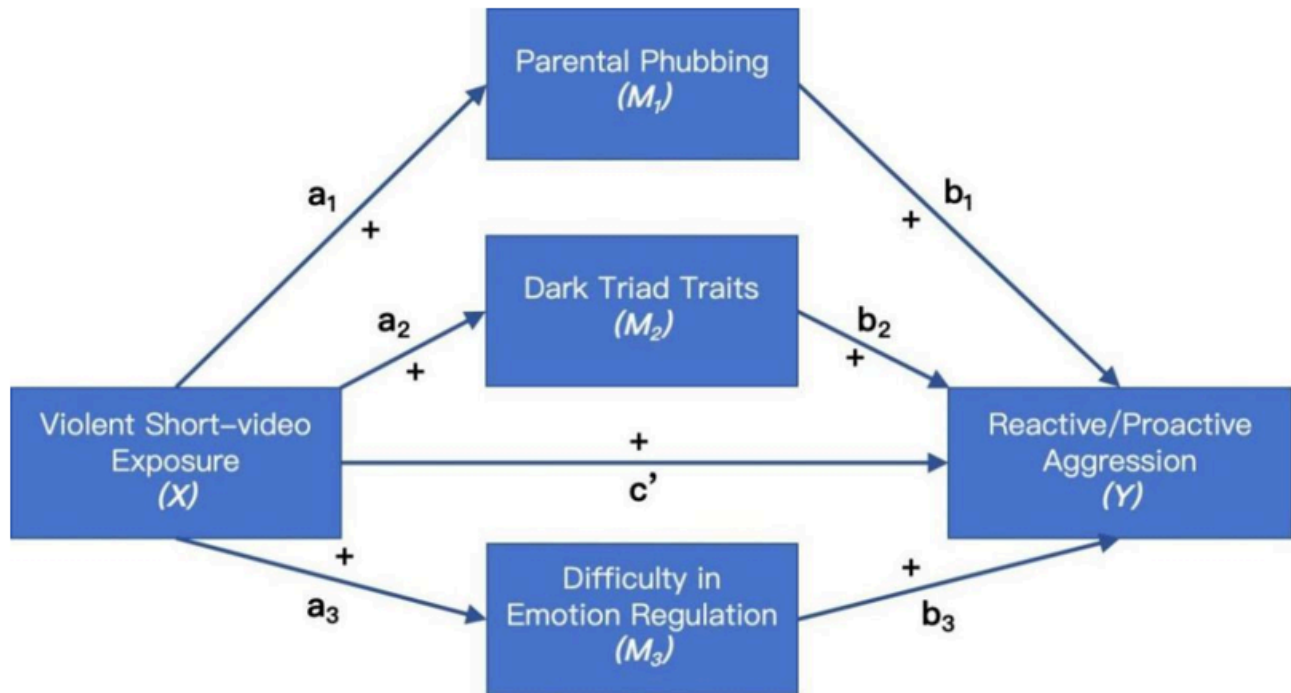
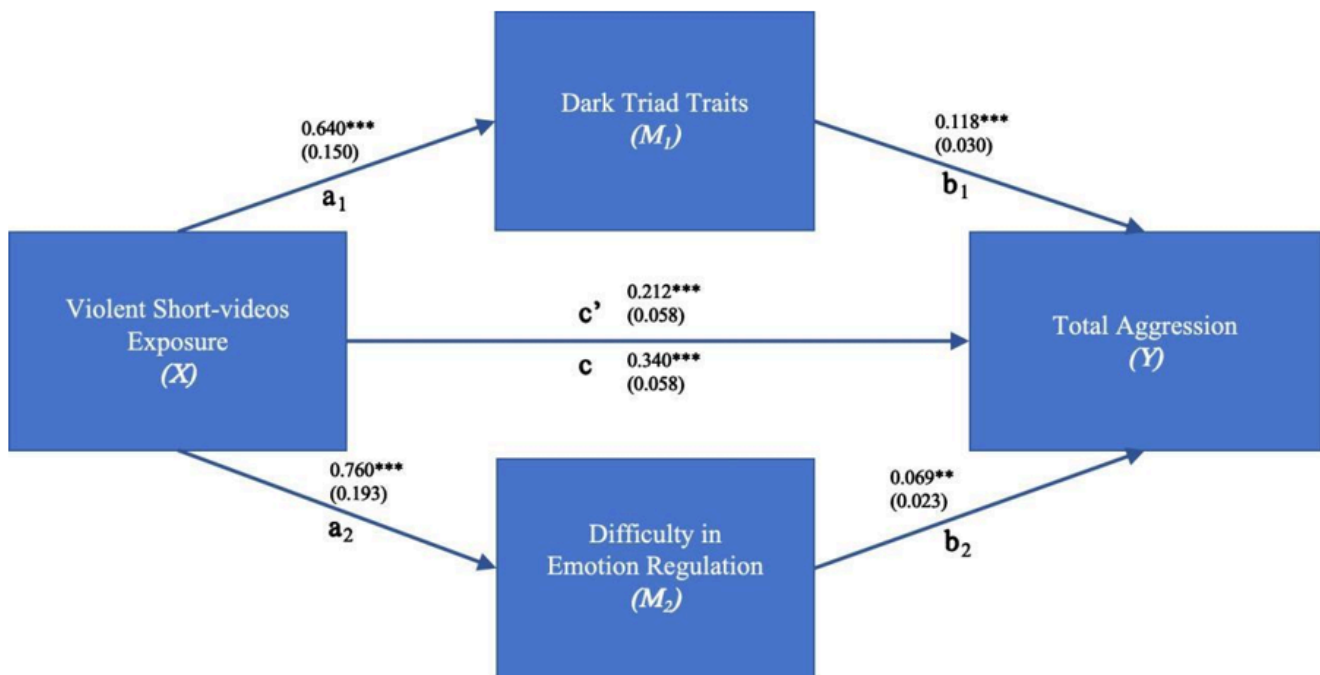


Figure 1

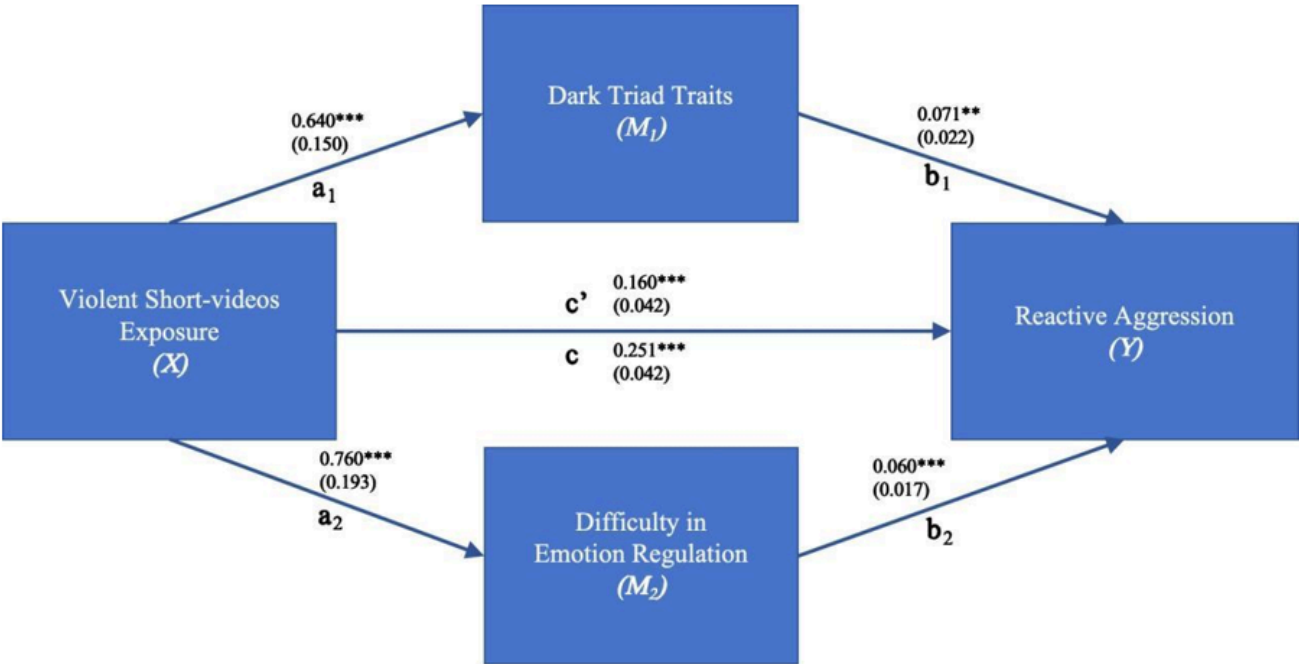
Hypothesized mediation effect model



Note. c (total effect): X on Y when no mediators are included, c' (direct effect): X on Y after accounting for the mediators, $c = c' + a_1b_1 + a_2b_2$
 $***p < .001$, $**p < .01$

Figure 2

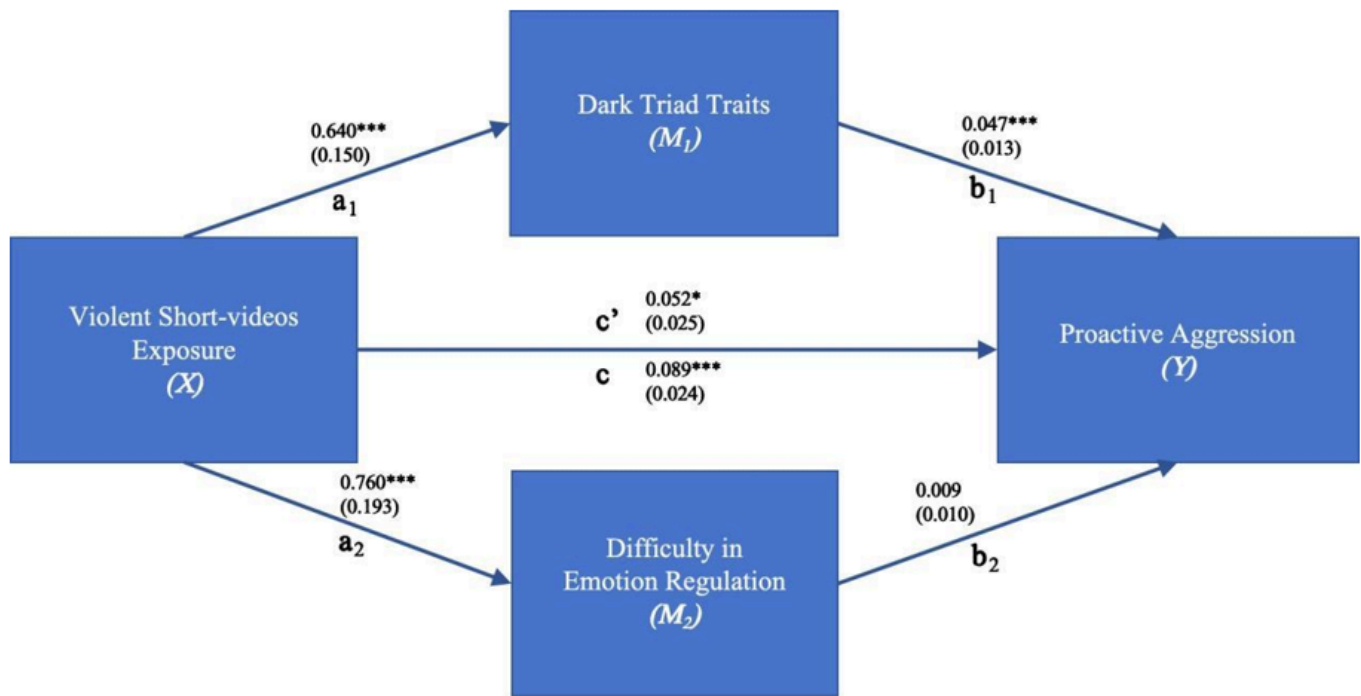
Modified parallel mediation model on total aggression



Note. c (total effect): X on Y when no mediators are included, c' (direct effect): X on Y after accounting for the mediators, $c = c' + a_1b_1 + a_2b_2$
*** $p < .001$, ** $p < .01$

Figure 3

Parallel mediation model on reactive aggression



Note. c (total effect): X on Y when no mediators are included, c' (direct effect): X on Y after accounting for the mediators,
 $c = c' + a_1b_1 + a_2b_2$
 *** $p < .001$, ** $p < .01$, * $p < .05$

Figure 4

Parallel mediation model on proactive aggression

Supplementary Files

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- [Appendi1.docx](#)