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ORIGINAL RESEARCH

The Interactive Effects of Parental Mediation Strategies in Preventing Cyberbullying on Social Media

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Purpose: Applying the parental mediation theory, this study investigates the main effects and interactive effects of three parental social media strategies, ie, active mediation, restrictive mediation, and non-intrusive inspection, on cyberbullying among teenagers. A matched child-parent survey was conducted with 642 secondary-school students aged 13–18 and their parents in China.

Results: The results showed that active mediation was negatively associated with both cyberbullying victimization and perpetration. Restrictive mediation was not significantly associated with cyberbullying. Non-intrusive inspection was positively associated with cyberbullying perpetration but not associated with cyberbullying victimization. Moreover, the two-way interaction between active and restrictive mediation as well as the three-way interaction between the three parental mediation strategies significantly affected cyberbullying perpetration and victimization. Specifically, the combination of high-level active mediation and non-intrusive inspection with low-level restrictive mediation was the most effective strategy for preventing cyberbullying.

Conclusion: This finding significantly contributes to the parental mediation literature and provide theoretical guidelines for parental intervention to prevent cyberbullying among teenager.

Keywords: parental mediation, social media, cyberbullying, interactive effects

Introduction

In recent decades, social media have been used extensively worldwide, and 71% of teenagers have engaged in at least two types of social media.[1] Social media allow teenagers to maintain and extend their social networks and promote personal development, but also brings numerous online risks to teenagers such as exposure to pornographic and violent content, unintended privacy disclosure, and cyberbullying.[2–5] Cyberbullying refers to

> an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself.[6]

Generally, the incidence of cyberbullying ranges from 1.9% to 84.0% across different countries.[7] 77% of Chinese teenagers have been victims of cyberbullying.[8] Cyberbullying has severe adverse effects on the mental and physical health of teenagers. Cyberbullying victims are at greater risk for cigarette smoking, alcohol, and drug abuse, and demonstrate a greater tendency to commit crime, self-mutilation, or suicide.[9–11]

Parents typically utilize various interpersonal communication strategies, referred to as parental mediation, to guide teenagers' media use.[12] Numerous studies indicated that parental mediation could decrease the amount of time teenagers spend on the Internet, and their likelihood of engaging in online risks.[2,13] While previous studies have explored the main effects of parental mediation strategies on cyberbullying victimization or perpetration separately, the effectiveness of different combinations of parental mediation strategies has yet to be examined.[14,15] However, in actual circumstances, parents tend to combine different mediation strategies, which may have different influences on online risks, such as

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cyberbullying.[16] Thus, this study seeks to investigate the main effects and interactive effects of various parental mediation strategies on cyberbullying victimization and perpetration among teenagers.

Literature Review

Parental Mediation Theory

Parental mediation theory posits that parents use various strategies to mediate the negative impacts of media.[17] Parental mediation theory is rooted primarily in media effects, information processing theories, and interpersonal communication theories, explaining how the communication between parents and teenagers decreases the adverse effects of media.[12] Parental mediation studies have indicated that media do affect attitudes and behaviors among teenagers, but this effect can be mediated by parental intervention.[18]

With the popularity of television in the 1980s, children were exposed to various undesirable content such as violence and pornography that could lead to negative social consequences including crime, materialism, and aggressive behaviors.[19] Parents generally adopted three strategies, including active mediation (talking with children about television), restrictive mediation (setting rules about children's television viewing), and co-viewing (watching television with children), in their attempts to manage children's television viewing.[19] These three strategies were found to effectively reduce the adverse effects of TV viewing.[13] With the Internet becoming popular among teenagers, parental mediation strategies, including active mediation and restrictive mediation, have been adopted to manage teenagers' Internet use.[20] However, co-viewing does not appear to have been adopted as an effective parental mediation strategy because of the smaller screen size, sitting position, reliance on a mouse, and common location in a small or private room.[21]

As social media gained in popularity, teenager cyberbullying happened on social media became exceptionally common.[5] Social media, such as Facebook, Myspace, WeChat, Weibo, etc. have been built on the technologies of Web 2.0 (mashups, AJSX, user comments).[22] Beyond traditional Internet applications in the Web 1.0 age such as static web pages, email, and bulletin boards, social media combines all aspects of these applications and becomes part of teenagers' lives (Symons, 2017), allowing teenagers to interact with friends, acquaintances, and even strangers by sending private messages, audio clips, and videos.[23,24] Compared to the simpler acts of watching television and browsing online content, social media communication is much more complicated and reflected in the interactivity, user affordability, and communication style and content.[25] Besides harmful or inappropriate content, teenagers also experience various contact risks and conduct risks on social media.[3] Specifically, as teenagers frequently post personal information on social media, a vast number of traceable clues created facilitate cyberbullying perpetrators' easy identification of them.[26] Such clues also allow cyberbullying perpetrators to steal personal information and use social media's characteristic of rapid dissemination to spread such information quickly and widely.

Parental mediation strategies in the television or Internet era were simply aimed to solve the risks of passive exposure to undesirable content. However, social media platforms include user profiles and friend circles, and allow teenagers to post their personal information, comment on postings by others, and upload photos or videos. Parental mediation strategies in the social media era are demanded to address not only content risks but also the risks that arise from social interactions.[27] Besides, parents have opportunities to browse their children's social media accounts or profiles and check their status, which makes it convenient for parents to learn about children's online behaviors.[28] Parents even feel necessary to show their interest in children's social media use and engage in social media themselves in order to communicate with, instruct or monitor their children.[23] Based on the above considerations, parental mediation strategies used to manage teenagers' social media use are considerably different from the mediation strategies referred to manage teenagers' television viewing and Internet use.[27] Indeed, many scholars have attempted to examine parental mediation strategies in the context of social media.[29]

All extant studies examining parental mediation strategies for children's social media use were reviewed. The classifications of parental social media mediation strategies are listed in Table 1. Almost all studies found that active mediation and restrictive mediation were those most frequently used to manage teenagers' social media use.[14] In addition, other studies identified another widely utilized parental mediation strategy, namely supervision. Supervision refers to checking children's activities on social media, including emails or IM accounts, and installing software that

Table 1 Parental Mediation Strategies in the Social Media Era

Publication	Age Group	Media Type	Active Mediation	Restrictive Mediation	Supervision	Others
Barbovschi et al 2015[67]	9–12	Social Network Sites (SNSs)	√	√		
Daneels & Vanwynsberghe 2017[29]	12–18	Social Media	√	√	√ (Distant Mediation: Supervision)	Distant Mediation: Deference
Ho et al 2017[47]	13–21	Social Media	√	√ (Regulated Mediation)		
Ho, Chen, et al 2017[14]	9–17	Social Media	√	√		
Baldry et al 2019[31]	13–18	SNSs, Internet			√ (Parental Supervision)	Parental Education, Parental Control
Dhir et al 2019[68]	13–18	SNSs, Mobile Instant Messaging			√ (Parental Monitoring)	Parental Encouragement, Parental Worry, Parental Permission
Ho et al 2020[27]	10–18	Social Media	√	√	√ (Non-Intrusive Inspection, Authoritarian Surveillance)	
Ho et al 2019[32]	8–17	Social Media	√	√		
Douglas et al 2020[69]	11–17	Social media	√	√	√ (Parental Monitoring)	Co-use
Symons et al 2020[70]	13–18	SNSs		√ (Interaction Restriction)		
Helfrich et al 2020[71]		Social Media	√ (Active Monitoring)	√ (Restrictive Monitoring)		
Festl 2021[72]	11–18	Social Media	√	√		
Kang et al 2021[73]	13–18	Douyin	√	√		
Yu & Luo 2021[74]	19 (Mean Age)	SNSs	√	√		Co-use

records the sites visited.[29,30] While many studies have put forward the supervision strategy, they have used different terms, such as inspection, surveillance, and monitoring, based on the extent to which parents respect their teenagers' privacy.[31,32] Ho et al proposed that the supervision strategy includes two types—authoritarian surveillance and non-intrusive inspection.[32] Authoritarian surveillance means that parents log into their children's social media accounts to check or track their children's behaviors on social media. Non-intrusive inspection refers to parents adding their children as social media friends in order to browse their children's social media information and browsing contact history.

Parents who adopt authoritarian surveillance may log into their children's social media accounts and use monitoring software to track their children's online behaviors in real-time. However, this leads to children feeling that their privacy has been invaded and may result in resistant behaviors.[33] Teenagers typically complain that their parents excessively deprive them of their personal space, and as they become older, they tend to resist parental intervention, especially when

parental management of teenager media use intrudes into their personal domains (eg, managing online peer relationships).[34,35] By contrast, most teenagers do not perceive their parent's friending them as an invasion of privacy since they acknowledge that parents are in their social media network and actively allow parents to "friend" them.[36] From the perspective of communication privacy management, teenagers can control who is allowed to access their information by using control settings on social media, and this sense of control may, in turn, make teenagers' privacy boundaries more permeable and induce them to share information more actively.[37] As such, non-intrusive inspection is a more appropriate supervision strategy. Therefore, parental mediation strategies in the social media era are summarized as active mediation, restrictive mediation, and non-intrusive inspection.

Parental Mediation Strategies and Cyberbullying

Active mediation refers to parents' actively engaging with their children in order to discuss and explain media content and guide them regarding appropriate media use.[13] Based on the dialogue and critical discussion between parents and children, active mediation has been shown to promote critical thinking and improve teenagers' digital literacy so as to reduce the adverse effects of social media.[38] Previous studies found that active mediation can effectively reduce contact risk (eg, adding strangers to their friend lists) and privacy risk, risk of cyberbullying victimization and perpetration.[14,15,39]

Restrictive mediation means that parents set rules to limit children's social media screen time and restrict the activities children engage in on social media.[27] Parents restrict the amount of time and the content of media in regard to their teenagers' use, which reduces the likelihood of their exposure to unwelcome and unwanted information and thereby, directly decreases online risks.[40] Besides, parents who adopt restrictive mediation as a structure expect to develop a code of conduct to guide teenagers to use social media rationally.[41] Existing studies found that restrictive mediation could effectively reduce youth's online surfing time and online risks, such as content risk, privacy risk, risk of cyberbullying victimization and perpetration.[2,4,14,42,43]

Non-intrusive inspection means that parents add their children to friend lists and browse children's personal profiles, tweets, and comments on social media.[27] Parents' non-intrusive inspection is a form of parental presence indicating that parents are available and responsive.[44] This perceived presence of parents helps to restrain teenagers from engaging in forbidden activities and enhances their ability to resist temptation[30] Previous studies revealed that parental supervision is negatively correlated with teenagers' online risks, such as online gaming disorder, cyberbullying victimization and perpetration.[9,42,45]

According to Parental mediation theory, earlier studies have examined the effectiveness of parental mediation strategies on online risks separately, but limited research has explored the effectiveness of parental mediation strategies on both cyberbullying victimization and perpetration. Given the prevalence and potentially serious impacts of cyberbullying among teenagers on social media, it is critical to explore effective strategies for preventing cyberbullying risks. Thus, this study postulates the following hypotheses:

H1: Active mediation is negatively associated with teenagers' (a) cyberbullying victimization and (b) cyberbullying perpetration.

H2: Restrictive mediation is negatively associated with teenagers' (a) cyberbullying victimization and (b) cyberbullying perpetration.

H3: Non-intrusive inspection is negatively associated with teenagers' (a) cyberbullying victimization and (b) cyberbullying perpetration.

Additionally, Barkin et al found that 59% of parents use multiple mediation strategies simultaneously.[46] Different combinations of parental mediation strategies may have different effects on teenagers' online risks. When parents adopt active mediation and non-intrusive inspection simultaneously, active mediation can transfer parents' expectations about social media use and help teenagers to form the perception of subjective norms. At the same time, non-intrusive inspection serves as a psychological presence because parents may check on whether teenagers follow their suggestions and guidance, which could strengthen the link between parents' expectations and children's actual behavior, and thus

reduce teenager's hazardous or risky behaviors.[47] Similarly, when parents use both active mediation and restrictive mediation, active mediation may help teenagers to appreciate the need for appropriate use of social media, thereby increasing their understanding of parental restrictive mediation and decreasing their resistance to parental authority.[39] In this case, teenagers tend to be more responsive to parents' comments and better internalize parental expectations and thus, adopt parental restrictive mediation.

Parents tend to combine different methods of mediation, and a balanced combination of different parental mediation strategies may promote teenagers' self-regulation online and their autonomy.[16] Previous studies focused on the effects of different parental mediation strategies on teenagers' online risks separately. The interactive effects of different parental mediation strategies on teenagers' Internet risks, especially cyberbullying, remain understudied. Therefore, we proposed the following research question:

RQ1: How do active mediation, restrictive mediation, and non-intrusive inspection interact to affect teenagers' (a) cyberbullying perpetration and (b) cyberbullying victimization?

Materials and Methods

Sample and Procedure

We used convenience sampling to recruit secondary-school students (ages between 13–18) and their parents in China to complete online questionnaires between January and March 2020. The present study received ethical approval from the Academic Committee of the School of Communication and Design, Sun Yat-sen University (No. 18212208). Prior to conducting the online survey, the specific purpose of this research and a detailed description of the questionnaire were explained to all participants, and they were assured that confidentiality would be maintained. We obtained consent from both parents and teenagers. All participants voluntarily completed the questionnaire. We used a parent–child matched sample design in which the parents who completed the questionnaires were the parents of the students who were sampled. A parent–child sample was chosen because some variables in our study (eg, cyberbullying victimization) are assumed to be more accurately measured among children, whereas other variables (eg, parental mediation strategies) are more adequately measured among parents.[32] Our sample comprised 642 students and 642 parents. The margin of error was approximately ± 3% at the 95% confidence level.

Measures

Independent Variables

Active mediation was measured using four items, in which respondents were asked on a seven-point scale ranging from 1 (not at all) to 7 (very frequently) on the frequency with which they did the following: (a) "Tell your child about the information they can disclose on social media"; (b) "Remind your child not to give out personal information on social media"; (c) "Tell your child to stop any experience on social media if they feel uncomfortable or scared"; (d) "Explain to your child about the dangers of social media". The four items were adapted from a previous study and averaged to form a composite index for active mediation (M = 4.76, SD = 1.57; Cronbach's $\alpha = 0.89$).[27]

Restrictive mediation was measured using five items, in which respondents were asked on a seven-point scale ranging from 1 (not at all) to 7 (very frequently) on the frequency with which they did the following: (a) "Restrict the type of social media platforms your child can visit"; (b) "Set rules regarding your child's access to social media, such as WeChat, QQ, Weibo, etc"; (c) "Limit the kind of activities your child can do on social media" (d) "Restrict the amount of time your child can use social media"; (e) "Limit your child to using social media only for school work". The five items were adapted from a previous study and averaged to form a composite index for restrictive mediation (M = 4.20, SD = 1.53; Cronbach's $\alpha = 0.91$).[27]

Non-intrusive inspection was measured using three items, in which respondents were asked on a seven-point scale ranging from 1 (not at all) to 7 (very frequently) on the frequency with which they did the following: (a) "Know your child's social media account(s)"; (b) "Check your child's social media profile(s)"; (c) "Add your child as a friend on social media to check what they post on social media". The three items were adapted from a previous study and averaged to form a composite index for non-intrusive inspection (M = 3.36, SD = 1.58; Cronbach's $\alpha = 0.89$).[27]

Dependent Variables

Cyberbullying victimization was measured using a 3-item scale adapted from Ybarra et al study.[48] Teenagers were asked to rate their frequency of cyberbullying victimization in the last year from 1 (never) to 5 (every day / almost every day) for the following statement: (a) "Receive rude or nasty comments from someone while online"; (b) "Be the target of rumors spread online, whether they were true or not"; (c) "Receive threatening or aggressive comments while online". These items were averaged to create a composite index, in which a higher score indicates a higher frequency of cyberbullying victimization. Because the Cronbach's α of cyberbullying victimization was too low, one measurement item of cyberbullying victimization was abandoned. Cronbach's α was 0.61 for the measurement of cyberbullying victimization with 2-item. 2-item scale would be expected to have a lower level of internal consistency.[49] The recommended threshold is 0.60.[50]

Cyberbullying perpetration was measured using a 3-item scale adapted from Ybarra et al study.[48] Teenagers were asked to rate their frequency of cyberbullying perpetration behavior in the last year from 1 (never) to 5 (every day / almost every day) for the following statement: (a) "Send rude or nasty comments to someone while online"; (b) "Spread someone's rumors online, whether they were true or not"; (c)"Send threatening or aggressive comments while online". These items were averaged to create a composite index, in which a higher score indicates a higher frequency of cyberbullying perpetration. Because the Cronbach's α of cyberbullying perpetration was too low, one measurement item of cyberbullying perpetration was abandoned. Cronbach's α was 0.80 for the measurement of cyberbullying perpetration with 2-item.

Control Variables

Demographic variables include teenagers' sex (63.10% female), age (M = 16.09, SD = 1.51) and parents' sex (58.70% female), age (M = 44.49, SD = 7.91). Social media use was measured by asking the average amount of time spent on social media per day on weekend and on weekday, and the two items were averaged to form an index for social media use. Parents' and children's average social media use time were 2.67 hours (SD = 2.19) and 2.92 hours (SD = 2.37).

Digital literacy was measured using ten items, in which respondents were asked on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) on how much they agree with the following statements, such as: "I know how to solve my own technical problems". These items were adapted from a previous study and averaged to form a composite index for digital literacy (M = 4.08, SD = 1.76; Cronbach's α = 0.94).[51]

Statistical Analysis

Data analysis was performed in SPSS 25.0. First, three parental mediation variables were recoded as dichotomous variables by way of mean splits.[52,53] Previous studies examined and verified the practice of dichotomization at the mean based on valid measurement and statistical analyses, which found that mean split results in a more conservative result—reducing the effect size, but this loss can be viewed alternatively as an effective loss of sample size.[54,55] Second, a three-way Multivariate Analysis of Covariance (MACOVA) was conducted to examine the main effects and interactive effects of three parental mediation strategies on cyberbullying victimization and perpetration.

Results

The results showed that 41.12% teenagers reported having experienced cyberbullying victimization (M = 1.43, SD = 0.64), while 8.10% reported that they were cyberbullying perpetrators (M = 1.08, SD = 0.32).

A significant main effect was revealed for active mediation. Teenagers whose parents adopted high active mediation experienced less cyberbullying victimization (M = 1.37, SD = 0.58) and perpetration (M = 1.06, SD = 0.28). By contrast, those whose parents adopted low active mediation experienced more cyberbullying victimization (M = 1.49, SD = 0.69), F (1, 627) = 10.76, $P < 0.01$, partial $\eta 2 = 0.017$, and perpetration (M = 1.10, SD = 0.36), F (1, 627) = 4.02, $P < 0.05$, partial $\eta 2 = 0.006$, thereby supporting H1a and H1b (See Table 2). Next, the results indicated that restrictive mediation was not significantly associated with cyberbullying victimization and perpetration. Thus, H2a and H2b were not supported. In addition, the results revealed that non-intrusive inspection was not associated with cyberbullying

Table 2 Active Mediation × Restrictive Mediation × Non-Intrusive Inspection Factorial Analysis of Variance for Cyberbullying

Variables	Cyberbullying Victimization			Cyberbullying Perpetration		
	F (1627)	*P*	Partial η^2	*F* (1627)	*P*	Partial η^2
Children's sex	8.936	0.003**	0.014	0.322	0.571	0.001
Children's age	21.889	0.000***	0.034	2.350	0.126	0.004
Children's social media use time	1.398	0.237	0.002	0.709	0.400	0.001
Parents' sex	0.389	0.533	0.001	0.789	0.375	0.001
Parents' age	10.469	0.001***	0.016	0.741	0.390	0.001
Parents' digital literacy	2.020	0.156	0.003	0.086	0.769	0.000
Parents' social media use time	0.111	0.740	0.000	0.766	0.382	0.001
Active mediation	10.758	0.001***	0.017	4.019	0.045*	0.006
Restrictive mediation	0.201	0.654	0.000	1.344	0.247	0.002
Non-intrusive inspection	0.681	0.409	0.001	5.570	0.019*	0.009
Active mediation × restrictive mediation	6.751	0.010**	0.011	8.065	0.005**	0.013
Active mediation × non-intrusive inspection	0.560	0.455	0.001	2.762	0.097	0.004
Restrictive mediation × non-intrusive inspection	0.168	0.682	0.000	0.841	0.360	0.001
Active mediation × restrictive mediation × non-intrusive inspection	3.964	0.047*	0.006	4.870	0.028*	0.008

Notes: *$P \leq 0.05$, **$P \leq 0.01$, and ***$P \leq 0.001$.

victimization, thereby rejecting H3a. The results showed a significant main effect for non-intrusive inspection, F (1, 627) = 5.57, $P < 0.05$, partial $\eta 2 = 0.009$, which indicated that teenagers who received high non-intrusive inspection engaged in more cyberbullying perpetration (M = 1.13, SD = 0.44) than those who received low non-intrusive inspection (M = 1.04, SD = 0.15), thereby rejecting H3b.

Regarding RQ1, the results revealed a significant two-way interaction effect between active mediation and restrictive mediation on cyberbullying victimization, F (1, 627) = 6.75, $P < 0.05$, partial $\eta 2 = 0.011$, and cyberbullying perpetration, F (1, 627) = 8.06, $P < 0.01$, partial $\eta 2 = 0.013$. Examination of this interaction effect indicates that individuals who received high active mediation–low restrictive mediation experienced less cyberbullying victimization (M = 1.22, SD = 0.46) and perpetration (M = 1.01, SD = 0.07) than those who received high active mediation–high restrictive mediation (cyberbullying victimization: M = 1.43, SD = 0.61; cyberbullying perpetration: M = 1.08, SD = 0.33), low active mediation–high restrictive mediation (cyberbullying victimization: M = 1.42, SD = 0.67; cyberbullying perpetration: M = 1.03, SD = 0.16), or low active mediation–low restrictive mediation (cyberbullying victimization: M = 1.51, SD = 0.70; cyberbullying perpetration: M = 1.11, SD = 0.39) (See Figures 1 and 2).

Furthermore, there was a significant three-way interaction effect between active mediation, restrictive mediation, and non-intrusive inspection on cyberbullying victimization, F (1, 627) = 3.96, $P < 0.05$, partial $\eta 2 = 0.006$ (see Figures 3 and 4), and cyberbullying perpetration, F (1, 627) = 4.87, $P < 0.05$, partial $\eta 2 = 0.008$ (see Figures 5 and 6). Examination of this interaction effect indicates that teenagers who received high active mediation–low restrictive mediation–high non-intrusive inspection experienced less cyberbullying victimization (M = 1.16, SD = 0.28) and perpetration (M = 1.00, SD = 0.00) than those who received other combinations of three parental mediation strategies.

Discussion

This study examined the main effects and interaction effects of three parental social media mediation strategies. The results revealed that active mediation was negatively correlated with teenagers' cyberbullying victimization and

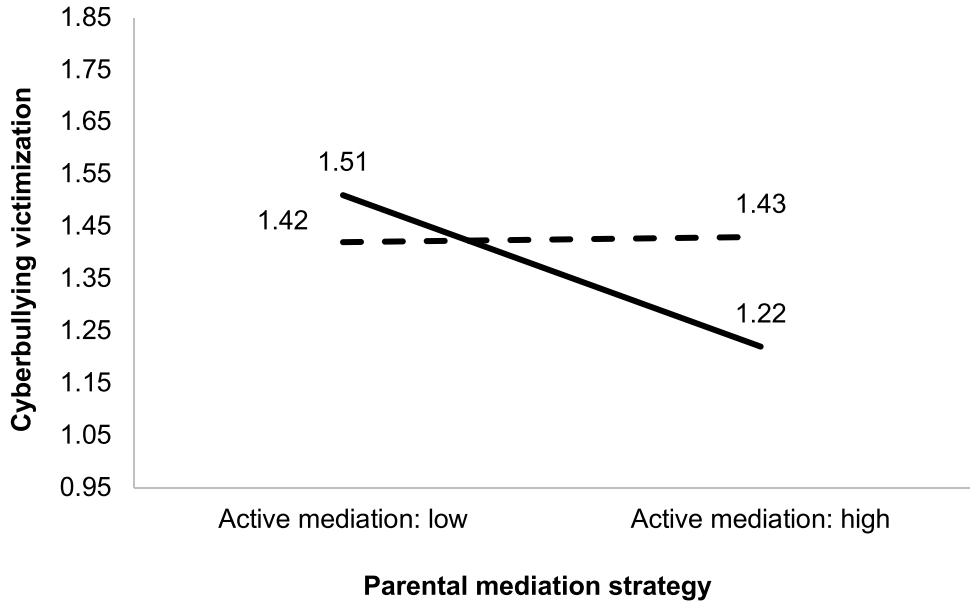

Figure 1 Interaction effect between active mediation and restrictive mediation upon cyberbullying victimization. The solid line represents cyberbullying victimization under the low level of restrictive mediation. The dotted line represents cyberbullying victimization under the high level of restrictive mediation.

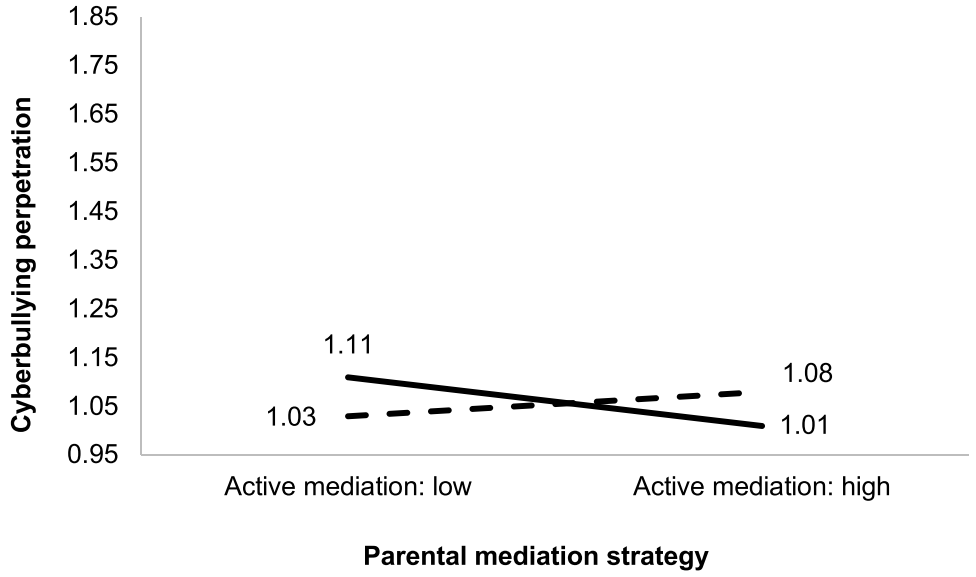

Figure 2 Interaction effect between active mediation and restrictive mediation upon cyberbullying perpetration. The solid line represents cyberbullying perpetration under the low level of restrictive mediation. The dotted line represents cyberbullying perpetration under the high level of restrictive mediation.

perpetration, which is consistent with previous studies.[14] Active mediation promotes critical thinking through family dialogue, enhances teenagers' awareness of the need for self-protection, and helps improve teenagers' digital skills and response to social media information, and thus, reduces cyberbullying victimization.[38] Moreover, active mediation is conducive to the establishment of good parent-child relationships.[12] Based on parent–child communication, active mediation focuses on family discussion and takes into consideration teenagers' increasing understanding and autonomy.[52] Teenagers whose parents gave them autonomy and trust showed greater acceptance of parental management and displayed internalized self-regulation for social media use out of intrinsic motivation, thus reducing cyberbullying perpetration.[33]

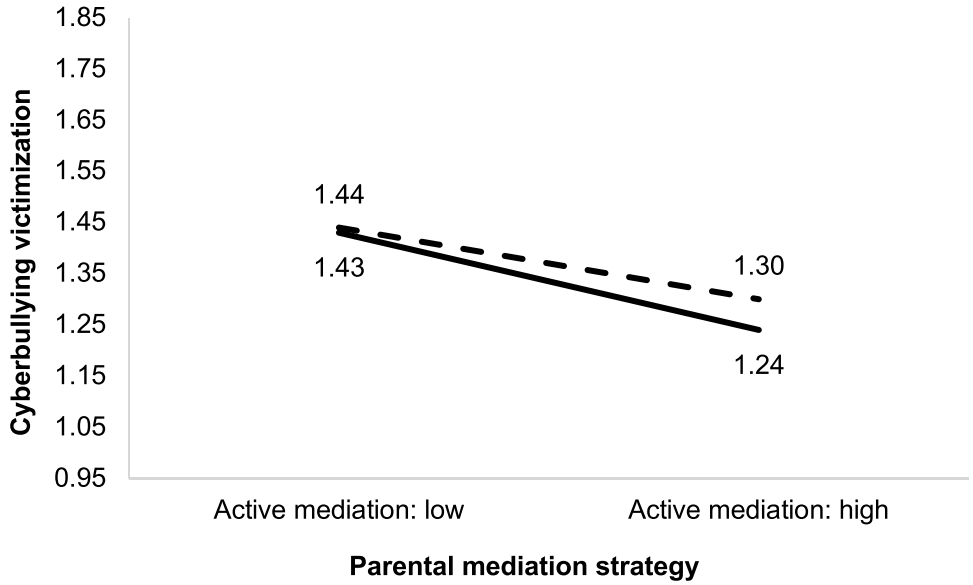

Figure 3 Interaction effect between active mediation and restrictive mediation upon cyberbullying victimization (non-intrusive inspection: low). The solid line represents cyberbullying victimization under the low level of restrictive mediation. The dotted line represents cyberbullying victimization under the high level of restrictive mediation.

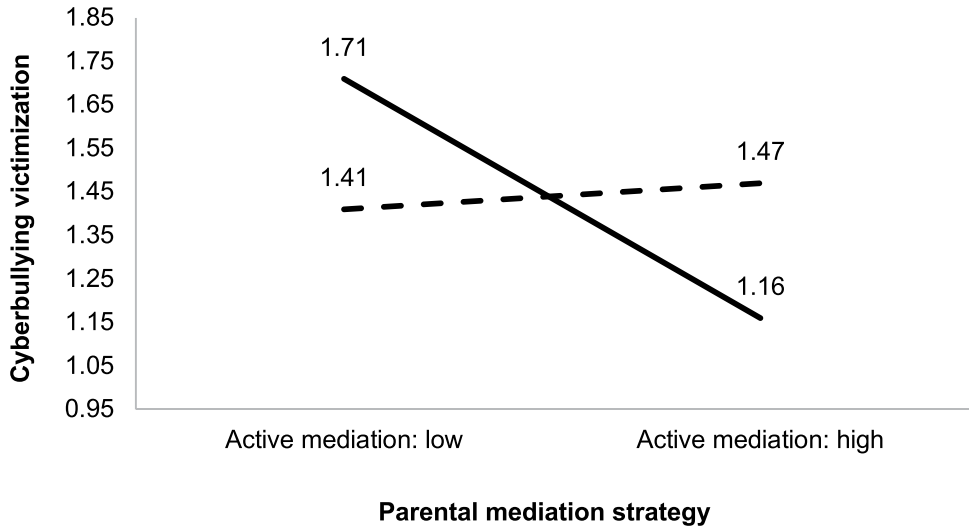

Figure 4 Interaction effect between active mediation and restrictive mediation upon cyberbullying victimization (non-intrusive inspection: high). The solid line represents cyberbullying victimization under the low level of restrictive mediation. The dotted line represents cyberbullying victimization under the high level of restrictive mediation.

Restrictive mediation was not significantly associated with cyberbullying victimization and perpetration. In extant studies, parents' restrictive mediation often failed to reduce teenagers' online risks, including contact risk and privacy risk.[39] As teenagers' sense of autonomy is increased, restrictive mediation serves as evidence that they are not trusted by their parents, which leads to their resisting parental management.[56] Restrictive mediation posed perceived threats to personal freedom and resulted in psychological reactance and negative evaluations of parents.[57] This psychological reactance is embodied in tendencies to reclaim threatened freedoms and to be more interested in restricted content. Thus, restrictive mediation cannot reduce teenagers' cyberbullying risks.

Non-intrusive inspection was positively associated with cyberbullying perpetration but not significantly associated with cyberbullying victimization, a finding that aligns with several previous studies.[58,59] One plausible explanation for non-intrusive inspection not reducing cyberbullying victimization is that this strategy only serves as a form of psychological presence. Non-intrusive parents do not interact with their children to provide guidance and suggestions.

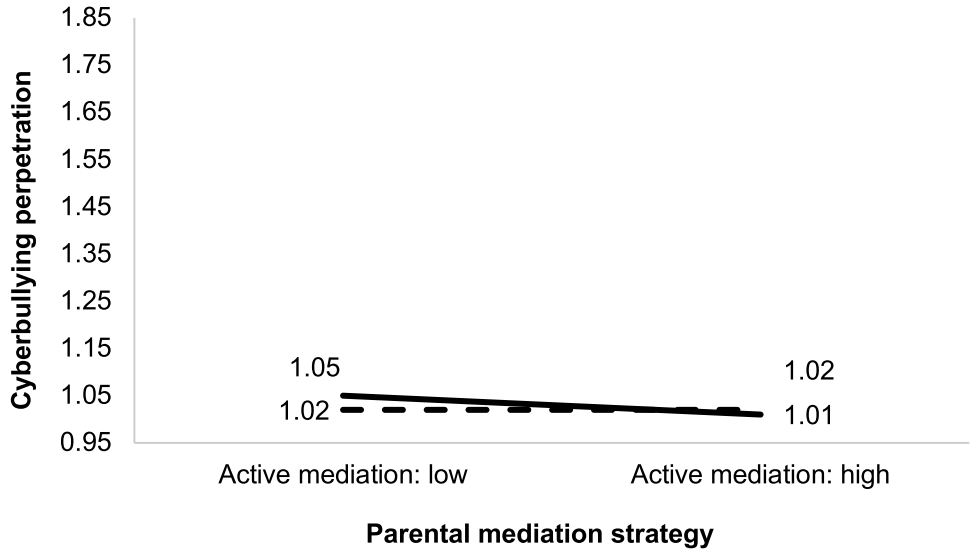

Figure 5 Interaction effect between active mediation and restrictive mediation upon cyberbullying perpetration (non-intrusive inspection: low). The solid line represents cyberbullying perpetration under the low level of restrictive mediation. The dotted line represents cyberbullying perpetration under the high level of restrictive mediation.

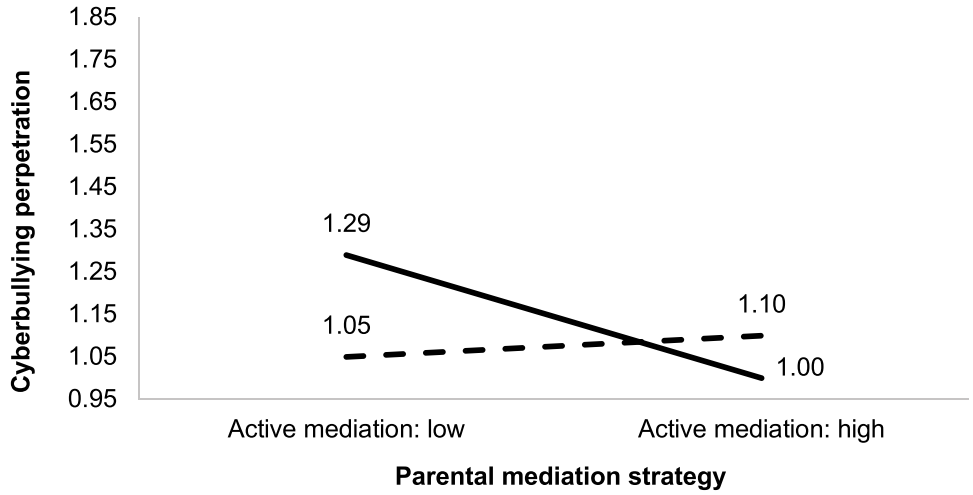

Figure 6 Interaction effect between active mediation and restrictive mediation upon cyberbullying perpetration (non-intrusive inspection: high). The solid line represents cyberbullying perpetration under the low level of restrictive mediation. The dotted line represents cyberbullying perpetration under the high level of restrictive mediation.

Although younger generations are considered "digital natives", that they are digitally competent should not be assumed.[60] Several scholars have found that teenagers have significant difficulty evaluating online information, protecting personal privacy, and maintaining safety online.[61] Besides, non-intrusive inspection tends to have a boomerang effect on cyberbullying perpetration. High-level non-intrusive inspection may give rise to a sense of oppression in teenagers, which leads teenagers to bypass such inspection and conceal personal information.[62] Although most parents monitor their children's online activities, they are still not sufficiently conscious of the cyberbullying children experience.[40] Parents' well-meaning attempts to observe their children's online behaviors do not mean that children are willing to disclose what they are doing. Many teenagers adopt a variety of tactics, including wheedling, lying, demanding, and refusing, in an effort to assert their rights, which indicates that parents' legitimate authority to manage their children's behavior is diminished.[23,63] Thus, without positive parent–child communication, non-intrusive inspection may increase teenagers' sense of oppression and trigger their risk of cyberbullying perpetration.

In regard to interaction effects, the results revealed that active mediation and restrictive mediation interacted to affect cyberbullying victimization and perpetration. Specifically, active mediation was effective in reducing cyberbullying

victimization and perpetration, but this impact decreased as parents' levels of restrictive mediation increased. It is plausible that the simultaneous use of high-level active mediation and restrictive mediation may lead to inconsistent parenting and be seen as the parents' tendency to be erratic and unpredictable in their management of children's social media use.[64] Enduring inconsistent parenting can eventually result in a so-called reinforcement trap or coercive circle where parents adopt permissive behaviors to avoid conflict at the expense of developing children's behavioral norms.[33] Thus, using high-level active mediation and restrictive mediation was found to be ineffective in preventing cyberbullying.

Another major finding of the present study is that there is a significant interaction effect between active mediation, restrictive mediation, and non-intrusive inspection. Indeed, with low-level restrictive mediation, the effectiveness of active mediation became more robust as the level of non-intrusive inspection increased. When parents use active mediation, teenagers tend to perceive that parents hope they use social media appropriately. Through the presence of parental authority and open attention, non-intrusive inspection stimulates teenagers' subjective norms.[44] Therefore, when parents observe teenagers' behaviors on social media, teenagers tend to adhere to parents' norms and are more likely to normalize their own behaviors on social media.[47] As a consequence, the risk of being involved in cyberbullying could be reduced. However, if the level of non-intrusive inspection increases but the level of active mediation is low, high-level non-intrusive inspection may increase teenagers' sense of oppression and trigger cyberbullying risks because teenagers cannot understand and accept parents' supervision without detailed guidance and effective parent-child communication.

By contrast, with high-level restrictive mediation, the adverse effects were presented under high-level active mediation and high-level non-intrusive inspection. According to psychological reactance theory, reactance proneness peaks in teenagers.[20] When parents adopt high-level restrictive mediation, non-intrusive inspection might exacerbate negative effects because teenagers perceive parents adopting non-intrusive inspection as checking their obedience to social media use rules instead of caring for their online safety, which could stimulate psychological reactance in teenagers. Thus, a potential boomerang effect will be activated for teenagers who are highly restricted, when the level of non-intrusive inspection increases.[20]

The study contributes to parental mediation theory in the context of social media cyberbullying. First, although many studies have examined various parental mediation strategies on social media, scant literature has compared the differences between each classification. This study classified parental mediation strategies as active mediation, restrictive mediation, and non-intrusive inspection, which advanced parental mediation theory in a more accurate manner in the social media era. Second, despite the fact that numerous studies have examined the main effects of each parental mediation strategy, limited research has focused on the interactive effects of different strategies. This is the first study to examine both the main effects and interactive effects of three parental social media mediation strategies, which is of considerable significance for parental mediation literature. Third, many studies have explored the association between parental mediation and cyberbullying victimization or perpetration respectively, but have ignored the association between cyberbullying victimization and perpetration.[65] The present research explored the effects of parental mediation strategies on both cyberbullying victimization and perpetration which were categorized as different types of online risks, namely contact and conduct risks.[3] This finding suggests that parents should use different parental mediation strategies for different kinds of social media risks.

The present study offers practical implications for parents, educators, and social media operators. Parents and educators should adopt multiple social media mediation strategies—the combination of three strategies, namely high-level active mediation and non-intrusive inspection along with low-level restrictive mediation—to prevent cyberbullying of teenagers. Besides, social media platforms should build user-friendly systems for parent-child interaction. Platform operators can develop technical guidance for parents who wish to interact with teenagers, and determine the age and circumstances during which teenagers are most receptive to parental interventions that will develop internalized mediated learning.

Several limitations of this study should be addressed in future research. First, the current research, though a theory-driven study, employed convenience sampling which is difficult to generalize its findings to a broader sample. However, this is a common limitation of studies on cyberbullying. A current meta-analysis has also indicated that most extant cyberbullying studies did not use national representative data, especially in regard to focusing on the relationships

between variables.[13] In this study, participants live in China's eastern, middle, and western regions and represent a variety of regional economic levels. The sex distribution and education level of the sample were comparable with those of the general population. Second, cross-sectional data collected for this study can demonstrate correlations but not causation. Third, the present study relied on parents' and teenagers' self-report of behaviors, which may lead to misestimation, because people are more likely to report experiences that are considered to be socially acceptable or preferred.[66] Fourth, parental supervision strategies in the current research did not include "authoritarian surveillance", because this study aimed to explore appropriate and effective methods. However, authoritarian surveillance was also used by a few parents.

Conclusion

That social media is potentially harmful to teenagers has been made clear. Although cyberbullying has received much attention in the popular press and by parents, no research to date has examined how parental mediation strategies may interact to affect both cyberbullying victimization and perpetration. The present research has yielded compelling evidence that active mediation can be useful in decreasing cyberbullying, and the most effective method was found to be the combination of high-level active mediation, low-level restrictive mediation, and high-level non-intrusive inspection. Parents, educators, and scholars should take heed of the results not only for changing approaches to protecting teenagers on social media but also as a potential direction for further study.

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