

The Protective Effects of Parental Monitoring and Internet Restriction on Adolescents' Risk of Online Harassment

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Abstract With many adolescents using the internet to communicate with their peers, online harassment is on the rise among youth. The purpose of this study was to understand how parental monitoring and strategies parents use to regulate children's internet use (i.e., internet restriction) can help reduce online harassment among adolescents. Online survey data were collected from a nationally representative sample of parents and their 12–17 year old adolescents ($n = 629$; 49 % female). Structural equation modeling was used to test direct and indirect effects of parental monitoring and internet restriction on being a victim of online harassment. Potential mediators included adolescents' frequency of use of social networking websites, time spent on computers outside of school, and internet access in the adolescent's bedroom. Age and gender differences were also explored. Adolescents' reports of parental monitoring and efforts to regulate specific forms of internet use were associated with reduced rates of online harassment. Specifically, the effect of parental monitoring was largely direct and 26 times greater than parental internet restriction. The latter was associated with lower rates of harassment only indirectly by limiting internet access in the adolescent's bedroom. These effects operated similarly for younger and older adolescents and for males and females. Adolescents' perceptions of parental monitoring and awareness can be

protective against online harassment. Specific restriction strategies such as regulating internet time and content can also help reduce the risk of online harassment.

Keywords Online harassment · Parental monitoring · Internet restriction · Adolescent internet use

Introduction

The unprecedented rise in internet use among youth (Madden et al. 2013) has been paralleled by an increased incidence of online bullying and harassment. Indeed, national surveys indicate that the rates of online harassment have almost doubled from 6 to 11 % in the last decade (Jones et al. 2013). Although the terms online bullying and harassment are often used interchangeably (Ybarra et al. 2006, 2007), bullying is a more severe form of harassment that involves repeated acts of harm-doing (Wolak et al. 2007). Using a preventive approach, the present study focuses on online harassment—an important precursor to more harmful forms of bullying (Wolak et al. 2007), defined as "... sending e-mail or text messages that are intended to embarrass or harass a peer ..." (David-Ferdon and Hertz 2007) and identifies parental strategies that can help reduce the risk of online harassment among adolescents.

Although considerable overlap exists in the developmental trends and precursors associated with traditional/face-to-face victimization and online forms of harassment (Jose et al. 2012; Ybarra et al. 2007), the negative consequences associated with the latter tend to be more severe given the relative anonymity and invisibility afforded by the internet to perpetrators as well as the potential for rapid spread of information to a greater number of peers

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(Kowalski and Limber 2013; Livingstone and Smith 2014). Adolescents who have experienced online harassment report greater psychological distress (Ybarra et al. 2006), depressive symptoms, and suicidal ideation (Bonanno and Hymel 2013; Schneider et al. 2012; van Geel et al. 2014) as well as higher rates of academic disengagement and delinquency (Ybarra et al. 2007) than those exposed to face-to-face victimization. Given the increasing reliance of today's youth on online modes of interaction, there is a critical need to identify ways in which they can be protected from the unique risks associated with these social settings.

Past studies have identified total time spent online (Korchmaros et al. 2014; Mitchell et al. 2007), including daily time spent on social networking websites (Lenhart et al. 2011; Mesch 2009; Ybarra et al. 2006) to be important predictors of online harassment. These are relevant risk factors to focus on given that more than 95 % of adolescents in the United States have access to and use the internet regularly (Madden et al. 2013), and about 50 % spend at least an hour on social networking sites daily (Espinoza and Juvonen 2011; Rideout et al. 2010). In addition, although online harassment has often been studied in peer and school contexts, little is known about the role families can play in protecting youth from negative online experiences (Bradshaw 2014). Emerging evidence suggests that parental monitoring of their children's behavior and strategies to regulate children's internet use (i.e., internet restriction) may help to reduce online harassment (Livingstone and Helsper 2008; Shapka and Law 2013; Ybarra and Mitchell 2004). However, as we describe below, these two strategies might be quite distinct from each other in how they protect adolescents from online risks. The key parental approach behind internet restriction is to limit time spent on the internet while parental monitoring may go beyond this strategy and reflect parental management efforts that can shield the adolescent from harmful peer relationships (Dishion et al. 2004), whether they be on- or off-line. The present research sought to determine which, if either, of these strategies is more effective in reducing exposure to online harassment.

Parental internet restriction includes strategies that parents employ to regulate their child's time spent with the internet and access to different types of content (Livingstone and Helsper 2008; Valkenburg et al. 1999). These practices can include both active monitoring (i.e., tracking time spent with the internet) as well as rule-setting (i.e., restricting access by setting rules about internet time and content). The efficacy of these strategies in protecting against online forms of victimization can, however, vary based on a number of factors, including the age of the adolescent and parent-child relationship quality (Livingstone and Helsper 2008; Padilla-Walker et al. 2012).

Nevertheless, to the extent that internet restriction reduces exposure to online harassment, it would be expected to do so by limiting the child's online activities, especially in contexts that involve peer interaction.

An alternative parental approach to reducing the risks of online harassment is through traditional monitoring and awareness of the child's whereabouts. This strategy is found to be effective in protecting against face-to-face forms of victimization (Pepler et al. 2008). Given the striking similarity between the precursors of traditional and online harassment (Juvonen and Gross 2008; Raskauskas and Stoltz 2007), parental monitoring may also serve to reduce the risk for online victimization. Indeed, some studies have reported lack of parental monitoring to be a significant risk factor for both online perpetration and victimization (Korchmaros et al. 2014; Ybarra and Mitchell 2004). It is important to note that, like other researchers (e.g., Kiesner et al. 2009), we view parental monitoring as an interactive process resulting in greater parental awareness of children's activities through a combination of children's self-disclosure and parental solicitation (Kerr et al. 2010). Despite the appeal of parental monitoring as an intervention target, much remains to be known about the precise mechanisms by which the process of monitoring impacts online harassment (Bradshaw 2014). It is possible that parental monitoring has a direct protective effect on harassment, regardless of the adolescent's internet use behaviors, by influencing choice of peers and greater disclosure of online interactions. Parents who are aware of their children's whereabouts and activities are more likely to be involved in their children's lives and may reduce the risk of online harassment by discouraging affiliation with harmful peers. Greater child disclosure is also reflective of strong emotional bonds with the parents (Hirschi 2001), which can discourage affiliation with deviant peers in online and offline settings. On the other hand, parental involvement may employ some of the same rule-setting strategies encompassed by internet restriction (e.g., restricting access to the internet in the home) and reduce online victimization risk by limiting online interactions.

Current Study

To better understand the roles of parental monitoring and internet restriction as potential strategies that can reduce the risk of online harassment, we explored their direct and indirect effects (as mediated by adolescents' access to and time spent using the internet) in a nationally representative sample of 12–17 year old adolescents. We specifically examined three potential indirect pathways of influence, involving the following mediators—adolescents' frequency of use of social networking websites (Mesch 2009), time

spent on computers outside of school (Mishna et al. 2012; Ybarra and Mitchell 2004), and access to the internet in the child's bedroom (Law et al. 2010; Livingstone 2007). We expected parental monitoring to have a direct protective effect through greater awareness of the child's potentially harmful peer relationships and the ability to discourage interaction with such peers (Dishion et al. 2004) rather than through restriction of online access. Parental internet restriction was hypothesized to reduce the risk of online harassment by impacting youth's internet use (e.g., time spent on social networking websites). Finally, since parents tend to monitor younger adolescents (Frick et al. 1999) and girls (Borawski et al. 2003; Svensson 2003) more intensely than older teens and boys, we also investigated potential age and gender variations in the hypothesized pathways of influence.

Methods

Data were obtained from 629 adolescents (aged 12–17) and their parents who participated in a larger survey conducted in March 2012 to assess the media use habits of parents and their children (Bleakley et al. 2014). Parent respondents were randomly selected from an online probability panel (KnowledgePanel) recruited by GfK. The panel was designed to be representative of adults (ages 18+) in the United States. GfK relies on probability-based (i.e., random-digit dialing and address-based) sampling to recruit households to the panel. Households are provided with access to the internet and hardware if needed. Although the study included parents with children aged 17 years or younger (total $N = 1,550$), the present analyses were conducted using data from parents with adolescents aged 12–17 years ($n = 629$).

Of the eligible parents with 12–17 year olds who were selected from the panel for the study sample ($n = 1,833$), 44 % ($n = 802$) confirmed that they had an adolescent living in home. Eighty percent of these parents gave consent for their adolescents to participate ($n = 642$) and 629 of those adolescents completed the survey. Only parents whose adolescent completed the survey were included in the sample. To obtain nationally representative estimates, post-stratification weights were applied to the adolescent data. The respondents were weighted to be representative of the US population based on: gender, age, race/Hispanic ethnicity, education level, census region, metropolitan area, and household income. Survey length was approximately 17 min. Parental consent for adolescent respondents and teen assent was obtained. The study was approved by the Institutional Review Board at the University of Pennsylvania.

Measures

Online Harassment

Online harassment was assessed using the following questions: “In the past 12 months, has someone posted something about you online that you didn't want others to see?”, and “has someone sent you an email or instant message to make you upset?” Respondents answered either yes, no, don't know, or don't want to answer. Participants who reported “yes” to either one of these two items were coded 1, as having experienced online harassment. Those who reported “no” to both items were coded 0. Approximately 12 % of the sample responded “don't know” or “don't want to answer” for these items. These cases were coded as missing.

Parental Internet Restriction

Adolescents were asked: “In the past 30 days, how often has a parent: “forbidden or blocked certain websites that you might use”, “restricted the amount of time you spend online?”, and “monitored or tracked what you are doing online, such as tracking your Facebook page or checking your search history?” Answers were recorded on a 4-point scale from (1) Never to (4) Often. Confirmatory factor analyses (CFA) revealed that these items loaded on a single latent factor, with loadings ranging from 0.66 to 0.80, and a rho of 0.81. The latent factor of parental internet restriction was included in the final model. Based on classifications used in past studies (Padilla-Walker et al. 2012), the three items listed above measure parents' restrictive mediation of internet time and content. An additional item assessing parents' co-use of the internet (“in the past 30 days, how often has a parent used the internet with you”) did not load well with these three items and was therefore included as a separate variable in the model.

Parental Monitoring

Eight items from the Parental Monitoring Scale (Kerr et al. 2010) were used to measure adolescents perceived parental monitoring, i.e., the extent to which the adolescent believed his or her parents knew about his/her whereabouts and activities. On a scale from (1) Never to (5) Always, adolescents reported on how often their parent(s) know, for example: “what you are doing during your free time?” and “when you have an exam or paper due at school?” CFA revealed a single factor solution, with loadings ranging from 0.59 to 0.75, and a rho of 0.89. The latent factor of parental monitoring was included in the final model.

Average Computer Time Outside School

Adolescents were asked about their computer use on a “typical weekday, for example last Tuesday” and on a “typical weekend day, for example last Saturday,” between the time they wake up and noon, noon and 6 pm, and 6 pm and the time they fall asleep. Computer time was defined as total time spent on “a desktop, laptop, or tablet” when they were not in school. The responses were closed-ended and ranged from 0 min to 7 h in 30 min increments. Average daily time was calculated by weight averaging total weekday [from wake up-noon (0–7 h); noon-6 pm (0–6 h); 6 pm-sleep (0–7 h)] and weekend day hours by their respective proportions of the week. This score ranged from 0 to 20 h.

Internet Access in Child’s Bedroom

Parents were asked to fill out an inventory of rooms in their home with computer (desktop or laptop) and internet access (using Ethernet, modem, or Wi-Fi), including whether internet access was available in their child’s bedroom. Internet access in child’s bedroom was coded 1 if the parent reported yes to the above question, 0 otherwise.

Use of Social Networking Sites

On a scale from (1) Never to (4) Most days, adolescents were asked how often they used online social network sites like MySpace or Facebook.

Controls

Parental gender and reports of household income (assessed across 19 categories ranging from \leq \$5,000 to \geq \$175,000) and education (ranging from less than high school to college degree or higher) were included as covariates in the full model.

Analytic Plan

We used structural equation modeling (SEM) to assess the influence of parental monitoring and internet restriction on online harassment. Bivariate analyses were conducted using STATA 11.0 (Stata Corporation, College Station, TX), and latent variable modeling was conducted in *Mplus* v7 (Muthén and Muthén, 1998–2012). Given the binary nature of our outcome variables, the models were tested using the robust mean and variance adjusted weighted least squares estimator (WLSMV). Confidence intervals for mediated effects

were obtained using the bias-corrected bootstrap resampling method (MacKinnon et al. 2004). Multi-group SEM models were analyzed to examine age and gender-based variations in the significant effects.

Results

Nearly a quarter of our sample (25.5 %) reported having experienced online harassment, with females (31.8 %) reporting significantly higher incidence as compared to males (19.3 %). On average, youth spent about 3 h on computers daily, with females and older adolescents (15–17 years) reporting more frequent use of both computers and social networking websites (see Table 1). More than half of our sample (57.2 %) had access to the internet in their bedroom. Older adolescents were more likely to have bedroom internet access as compared to their younger peers. Age differences were also observed in adolescent reports of parental monitoring and internet restriction, with younger adolescents reporting higher rates of both.

Findings from structural equation modeling revealed that parental monitoring had a significant protective effect on online harassment, both directly, B (SE) = -0.40 (0.12), $p < 0.001$, and indirectly, B (95 % CI) = -0.05 ($-0.10, -0.01$), through its association with reduced use of social networking websites (see Fig. 1; Table 2). Parental monitoring was also associated with reduced computer time, B (SE) = -0.79 (0.26), $p < 0.01$, but time spent on computers was not associated with history of online harassment.

Although parental internet restriction was positively correlated with parental monitoring ($r = 0.15$, $p < .05$), unlike monitoring it did not have a direct protective effect on online harassment. Instead, internet restriction was negatively associated with having internet access in the bedroom, which in turn was linked to reduced use of social networking websites and lower risk of online harassment (see Table 2). Overall, the total protective effect of parental monitoring on online harassment was much stronger (beta = -0.26) as compared to the indirect effect of parental internet restriction (beta = -0.01). Parental co-use of the internet did not predict any of the key outcome variables and was therefore not included in the final model. Multi-group SEM analyses comparing unconstrained and constrained models revealed no significant drop in model fit, ruling out potential moderating effects of age and gender. The overall model provided a good fit to the data as indexed by the following model fit criteria: $\chi^2(df = 80) = 122.50$, $p < .01$; RMSEA (90 % CI) = .03 (.02, .04), CFI = 0.95, TLI = 0.93.

Table 1 Descriptive statistics [mean (SD) and percentages] for key variables: age and gender differences

Key variables	Full sample (N = 629)	Younger (12–14 years) (N = 272)	Older (15–17 years) (N = 357)	Mean differences	Female (N = 310)	Male (N = 319)	Mean differences
Online harassment (range: 0–1)	25.45 %	22.36 %	27.76 %	$\chi^2(1) = 2.10, p = 0.15$	31.75 %	19.29 %	$\chi^2(1) = 11.42, p < 0.001$
Parental monitoring (range: 1–5)	4.12 (0.69)	4.22 (0.58)	4.04 (0.75)	F(1, 625) = 10.66, p = 0.001	4.20 (0.67)	4.05 (0.70)	F(1, 625) = 7.46, p < 0.01
Parental internet restriction (range: 1–4)	2.19 (0.93)	2.43 (0.91)	2.01 (0.90)	F(1, 623) = 32.12, p < 0.01	2.15 (0.91)	2.23 (0.95)	F(1, 623) = 0.96, p = 0.33
Internet access in child's bedroom (range: 0–1)	57.23 %	49.26 %	63.31 %	$\chi^2(1) = 12.43, p < 0.001$	39.24 %	38.83 %	$\chi^2(1) = 0.03, p = 0.87$
Computer time outside school (range: 0–20 h)	3.23 (2.79)	2.80 (2.42)	3.56 (3.01)	F(1, 624) = 11.47, p < 0.001	3.56 (2.98)	2.91 (2.56)	F(1, 624) = 8.80, p < 0.01
Time spent on social networking sites (range: 1–4)	3.01 (1.21)	2.70 (1.30)	3.24 (1.08)	F(1, 623) = 31.17, p < 0.001	3.12 (1.20)	2.89 (1.21)	F(1, 623) = 5.72, p < 0.05

Parental monitoring and internet restriction scores reported here are based on average scores of individual items. Latent factors of these variables were used in the final SEM model. Significant group differences (at $p < 0.05$) are highlighted in bold

Discussion

The primary goal of this study was to assess whether adolescents whose parents monitor their free time or restrict their internet use are protected from online harassment. Our findings, based on a nationally representative survey of 12–17 year olds, demonstrate that parental monitoring as well as efforts to regulate specific forms of internet use were associated with reduced rates of online harassment. However, the effect of monitoring, which was both direct and mediated by time spent on social networking sites, was far greater than the influence of internet restriction, which was only indirect and mediated by internet access in the child's bedroom. Thus, parents may be better able to prevent online harassment by being aware of and involved in their children's lives more generally than by only restricting their online behaviors.

The findings indicate that the beneficial effects of parental monitoring operated similarly for older and younger adolescents, and for males and females. Consistent with past research, we found that girls were at much greater risk for online harassment (Jones et al. 2013; Kowalski and Limber 2007). They also reported higher rates of parental monitoring as compared to boys. However, as suggested by past studies (Lenhart and Madden 2007), this protective effect may have been offset by the fact that girls spent more time on average on computers and on social networking websites as compared to boys. Given their higher likelihood of being victimized in online settings, girls need to be especially targeted in prevention efforts. Although parental efforts can help reduce their risk, the influence of other risk factors, such as negative peer influences and relational aggression (Wang et al. 2009), also needs to be explored.

Past research suggests that the effectiveness of parental efforts such as monitoring and internet restriction is likely to vary based on the parent–adolescent relationship quality (Padilla-Walker and Coyne 2011). For instance, greater parental trust is likely to facilitate more open discussions and greater self-disclosure (Kerr et al. 2010). Although we did not specifically model these relationships, supplemental analyses revealed a strong correlation ($r = 0.70$) between adolescents' reports of parental monitoring and parental involvement (assessed using a latent factor including items such as “how often does your parent help you do things that are important to you?”). This indicates that adolescents in our sample who perceived greater parental monitoring also reported more positive involvement with their parents. As reported by past studies, parents who are more involved in their children's lives may be better able to monitor their involvement with harmful peers (Dishion et al. 2004) and shield adolescents from online victimization (Korchmaros et al. 2014; Mesch 2009; Ybarra and

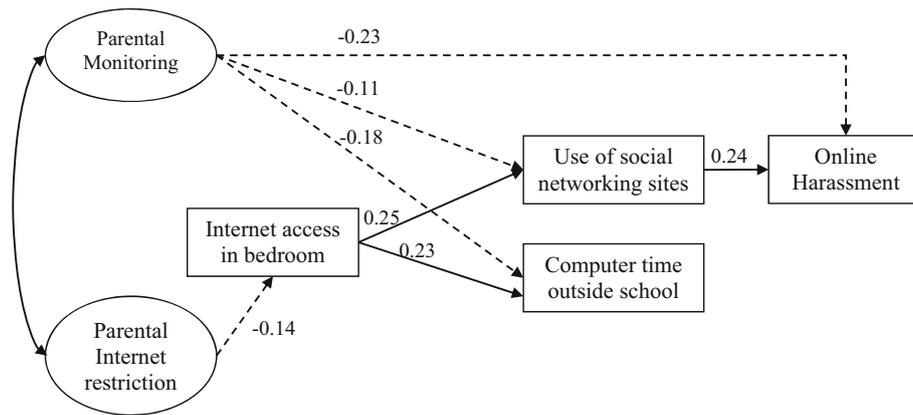


Fig. 1 Model showing significant effects (with standardized regression coefficients) of parental monitoring and internet restriction on adolescents' reports of online harassment during the past 12 months. *Note* Model Fit: $\chi^2(df = 80) = 122.50$, $p < .01$; RMSEA (90 % CI) = .03 (.02, .04), CFI = 0.95, TLI = 0.93. *Dashed lines* represent paths that have negative coefficients associated with them while *solid lines* represent paths with positive coefficients. Only the significant paths are shown in the model above. The effect of adolescent age,

adolescent gender, parent gender, parental education and parental income was covaried out. These paths are not shown for reasons of clarity. Multi-group SEM for younger (12–14 years) and older (15–17 years) adolescents, and male and female adolescents revealed a non-significant drop in model fit when path coefficients were constrained to be equal, suggesting that age or gender did not moderate the significant pathways of influence

Table 2 Unstandardized regression coefficients and standard errors associated with significant model pathways

Paths represented	β (SE)	p value
<i>Main effects</i>		
Parental monitoring → online harassment	-0.40 (0.12)	$p < .001$
Parental monitoring → use of social networking websites	-0.22 (0.08)	$p < .01$
Parental monitoring → computer time outside school	-0.79 (0.26)	$p < .01$
Parental internet restriction → internet access in child's bedroom	-0.17 (0.08)	$p < .05$
Internet access in child's bedroom → use of social networking websites	0.31 (0.06)	$p < .001$
Internet access in child's bedroom → computer time outside school	0.61 (0.17)	$p < .001$
Use of social networking websites → online harassment	0.21 (0.05)	$p < .001$
	Estimate (95 % CI)	
<i>Significant mediated effects</i>		
Parental monitoring → use of social networking websites → online harassment	-0.05 (-0.10, -0.01)	
Parental internet restriction → internet access in child's bedroom → use of social networking websites → online harassment	-0.01 (-0.03, -0.001)	

Mitchell 2004). Indeed, our mediation analyses suggest that the direct effect of parental monitoring was far more effective in shielding adolescents from online harassment

than merely restricting use of social networking sites or internet use in the bedroom. Other recent work has found that family dinners (used as a proxy for parental involvement) can have a protective effect on online victimization; however how this effect operates remains unclear (Elgar et al. 2014). By delineating the direct and indirect influence of parental monitoring, our findings identify one specific mechanism by which involved parents may be able to protect their adolescents from online victimization.

Consistent with past research, the lack of internet access in the child's bedroom emerged as a robust protective factor (Eastin et al. 2006). Households where parents were more aware of their child's internet use habits and took active steps to restrict access to certain websites or limit online time, were less likely to have internet access in the child's bedroom. Nonetheless, more than half of our sample reported having internet access in the child's bedroom, and this was not related to parental income. Other factors, such as increased access to mobile forms of internet technology, may partly explain high rates of internet access in teens' bedrooms. As internet technology becomes more mobile and ubiquitous, parental strategies to limit and supervise adolescents' internet use may also need to evolve in order to be effective.

The following limitations should be considered when interpreting the current findings. First, the cross-sectional design limits our ability to infer directionality of effects. Nevertheless, our findings are consistent with past research and further our understanding of the protective effects of parental strategies by elucidating their mechanisms of influence. Although our focus in this study was to contrast

general parental monitoring and internet restriction as parental strategies that can afford protection against online risks, future research should also consider comparing effects of general and internet-specific forms of parental monitoring (Law et al. 2010). Second, the generalizability of our results may be limited in the forms of online media devices we studied. For instance, although amount of computer time was not associated with risk of harassment, the same may not be true for time spent on tablets or smartphones. Third, our study focused on a specific form of online victimization. We do not know if parental strategies effective against online harassment can also afford protection against other forms of online risks (e.g., sexual exploitation). Fourth, the items used to assess harassment assumed that the behaviors were intended to be hurtful, but we cannot rule out the possibility that they may have been accidental or posted/sent for some other purpose. Finally, lack of information about the context in which parents engage in co-use of the internet, i.e., whether it was accompanied by discussions about potential dangers, may have negatively impacted our ability to detect any significant effects associated with this variable (Padilla-Walker et al. 2012).

Conclusion

Taken together, our findings provide evidence to support intervention by parents to be more involved and aware of their children's daily activities and internet use to prevent and/or reduce the incidence of online harassment. As with other risk behaviors such as unprotected sex (Huebner and Howell 2003), substance misuse (DiClemente et al. 2001), and face to face bullying (Cook et al. 2010), parental monitoring can be a critical factor in protecting youth from online altercations. Indeed, parental monitoring may reduce risk for online harassment independent of the frequency of the child's internet use. Although parental monitoring is likely to be more effective during younger years, we found its protective effects to be significant for younger and older teens and for male and female adolescents.

Online harassment is an important precursor to more persistent forms of online bullying (Wolak et al. 2007) and is therefore an important target for prevention and intervention. Past efforts to reduce rates of online harassment have involved increasing awareness among youth about online risks (i.e., media literacy campaigns) (Worthen 2007). Present findings suggest that including parents in these discussions may be an effective strategy. Helping parents find ways to be more involved in their adolescents day-to-day and online activities (Mitchell and Ybarra

2009) may be one way they can help their adolescent safely navigate online environments.

Author contributions A.K., A.B., A.J., and D.R. conceived the study and participated in its design and coordination; A.K. conducted the statistical analyses and prepared the first draft of the manuscript; A.B. and D.R. led the data collection efforts and participated in the interpretation of the data; A.B., A.J., and D.R. edited and provided feedback on the manuscript. All authors read and approved the final manuscript.

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