Electronic Media and Youth Violence: A CDC Issue Brief for Researchers

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Electronic Media and Youth Violence: A CDC Issue Brief for Researchers is a publication of the Centers for Disease Control and Prevention's National Center for Chronic Disease Prevention and Health Promotion, the National Center for Injury Prevention and Control, and the Adolescent Goals Team.

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Suggested citation: David-Ferdon C., Hertz MF Electronic Media and Youth Violence: A CDC Issue Brief for Researchers. Atlanta (GA): Centers for Disease Control; 2009.

Overview

Electronic media play an integral role in the lives of all people. Over the years, the rapid evolution of technology in various forms has significantly influenced the way people live and interact. Televisions, record players, computers, and VCRs changed how people learned, were entertained, stayed connected, and explored. In the past two decades, these devices have been joined or replaced by cell phones, i-Pods, MP3 players, DVDs, and PDAs (personal digital assistants). These new technologies have become a mainstay for how people, particularly children and adolescents, communicate and are entertained. Technology affords young people many benefits: the ability to talk to people worldwide, to more easily and regularly communicate with family and peers, and to make rewarding social connections that may be difficult to make in person. Some young people report that they feel better about themselves on-line than they do in the real world and feel it is easier to be accepted on-line.[1] In addition, the growing accessibility of the internet through cell phones and wireless computer access allows adolescents to quickly and easily increase their knowledge about a broad number of topics.

Technological advances also create the potential for risk. This brief focuses on one of the potential risks of technology use: *electronic aggression*. Electronic aggression is any kind of aggression perpetrated through technology—any type of harassment or bullying (teasing, telling lies, making fun of someone, making rude or mean comments, spreading rumors, or making threatening or aggressive comments) that occurs through e-mail, a chat room, instant messaging, a website (including blogs), text messaging, or videos or pictures posted on websites or sent through cell phones.

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Recently, extreme episodes of electronic aggression disseminated through blogs and on-line video postings have gained nationwide attention. This attention has sent parents, educators, and policy makers scurrying to find ways to protect children from electronic aggression. Many parents have responded by installing filtering software or setting time and content limits on internet use. In some cases, policy makers have responded by passing legislation or setting policies at the federal, state, district, and school levels in an attempt to safeguard young people when they are using new forms of technology.[2] The new laws have also guided policies and practices in schools across the country and stem from growing public concern about technology being used by young people as a vehicle to inflict aggression. Unfortunately, research about electronic media and aggression is limited, and policies and practices are being developed and implemented without a solid research foundation.

To inform prevention programs and policies and set the agenda for future research on the topic of electronic aggression, the Centers for Disease Control and Prevention, Division of Adolescent and School Health and Division of Violence Prevention, convened an expert panel on September 20–21, 2006 in Atlanta, Georgia entitled *Electronic Media and Youth Violence*. The panel consisted of 13 members (see addendum for list of panelists) who came from academic institutions, federal agencies, a school system, and nonprofit organizations who were already engaged in work focusing on electronic media and youth violence. Panelists presented quantitative and qualitative data about the incidence and prevalence of this type of violence and the risk and protective factors associated

with electronic victimization and perpetration. They also participated in a series of small and large group discussions to outline research gaps and to develop recommendations.

Many of the panelists expanded on their presentations and contributed to articles that appeared in a special issue of the *Journal of Adolescent Health, Volume 41, Issue 6*, which focused on the topic of electronic aggression. In addition to the journal supplement, two issue briefs were developed to summarize the presentations and discussions. One of the briefs was developed for educators and caregivers to summarize what is known about electronic media and youth violence and to provide policy and practice recommendations (available at: www.cdc.gov/ncipc/dvp/YVP/electronic_aggression.htm). The other brief (this document) was developed for researchers to summarize the data, to highlight the research gaps, and to suggest future directions in research.

Presenters and discussion groups highlighted the variety of terms being used to describe and measure this new form of aggression including: internet bullying, internet harassment, and cyber-bullying. Accordingly, when a specific study is discussed, this brief uses the wording the researcher used in the study. In general discussion sections, the phrase "electronic aggression" is used to refer to any kind of aggression perpetrated through technology.

Is Electronic Aggression Really An Emerging Public Health Problem?

In 2000, 6% of internet users ages 10–17 said they had been the victim of "on-line harassment," which was defined as threats or other offensive behavior [not sexual solicitation] sent or posted on-line. By 2005, the percentage had increased by 50%, to 9%.

The short answer is—probably yes. The available studies consistently suggest that most young people (65%–91%) report little or no involvement in electronic aggression.[3,4,5] Additionally, face-to-face verbal and physical aggression are still far more common than electronic aggression.[3] However, it has been suggested that electronic aggression is a growing public health problem in need of additional research and prevention efforts.[6] This assertion is in large part because of the results of the only longitudinal data on this topic that suggest that internet harassment is becoming more and more common. Specifically, in 2000, 6% of internet users ages 10–17 said they had been the victim of "on-line harassment," which was defined as threats or other offensive behavior [not sexual solicitation] sent or posted on-line. By 2005, the percentage had increased by 50%, to 9%.[7]

A definitive answer to the question of whether or not electronic aggression is a public health problem cannot be given because electronic aggression is a fairly new topic of investigation and those researching the topic use different measures with limited comparability. For example, some researchers use a narrow definition of electronic aggression (e.g., aggression perpetrated through e-mail or instant messaging),[3] while others use a broader definition (e.g., aggression perpetrated through e-mail, instant messaging, on a website, or through text messaging).[4] In addition, researchers ask young people to report about their experiences over different time periods (e.g., over the past several months, since the beginning of schools, in the past year) and survey young people of different ages (e.g., 6th–8th graders, 10–15-year-olds, 10–17-year-olds). Thus, information cannot be readily compared or combined across studies, which limits our ability to make definitive conclusions about the prevalence and impact of electronic aggression.

How Common Is Electronic Aggression Victimization and Perpetration?

Because of the methodological issues described above, the most accurate way to describe the available data on the prevalence of electronic aggression is by presenting ranges that include the findings from all of the panelists' studies. These studies suggested a minority of young people are victims (9%–35%) or perpetrators (4%–21%) of electronic aggression.[3,4,5] Like other types of aggression, data suggest an overlap between electronic aggression victimization and perpetration. Across studies, between 7%–14% of surveyed young people reported being both a victim and a perpetrator of electronic aggression.[4,5]

In these ranges, in some cases, the higher percentages reflect studies that defined electronic aggression more broadly (e.g., spreading rumors, telling lies, and making threats vs. just telling lies). In other cases, the higher end of the range reflects studies that asked about electronic aggression over a longer time period (e.g., a year as opposed to 2 months). For instance, if we look at victimization "monthly or more often," or, "at least once in the past 2 months," estimates across studies become much narrower, ranging from 8%–11%.[3,4] Likewise, the percentage of young people who reported perpetrating electronic aggression compresses to 4%–9% when they were asked to report about their behavior in recent months.[3,5,8]

Little to no empirical examination has focused on potential differences between and within groups. Sex differences were analyzed in two studies, which had conflicting results. One study found no difference; the other reported girls perpetrated electronic aggression more frequently than boys.[3,5] Only one study looked at variation by grade, and results indicated that internet bullying is less common in 5th grade than in 8th grade, and higher in 8th grade than in 11th grade. These results suggest that electronic aggression may peak around the end of middle school to the beginning of high school.[3] Examinations of differences for various racial and ethnic groups or by other factors, such as socioeconomic status, have not yet been conducted.

What Is the Relationship Between Victims and Perpetrators of Electronic Aggression?

Electronic technology allows adolescents to hide their identity, either by sending or posting messages anonymously or under a false name. So, unlike the aggression or bullying that occurs in the school yard, victims and perpetrators of electronic aggression may not know with whom they are interacting. Between 13% and 46% of young people who were victims of electronic aggression reported not knowing their harasser's identity.[5,7] Likewise, 22% of perpetrators of electronic aggression reported not knowing the identity of their victim.[5]

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However, not all victims and perpetrators are anonymous. In one study, almost half of the victims (47%) said the perpetrator was another student at school.[5] Siblings are also using electronic technology to inflict harm. Specifically, 12% of victims reported they were victims of electronic aggression initiated by their brother or sister, and 10% of perpetrators reported being electronically aggressive toward a sibling.[5]

Do Certain Types of Electronic Technology Use Pose a Greater Risk for Victimization?

Public attention about the potential dangers of electronic media has primarily centered on social networking websites. This attention is not without merit, as young people have reported experiencing electronic aggression in chat rooms (25%) and on websites (23%).[5] However, instant messaging appears to be the most common way young people perpetrate electronic aggression.[5] Fifty-six percent of perpetrators and 67% of victims said the aggression they experienced or perpetrated was through instant messaging. Victims of electronic aggression also reported aggression occurring through e-mail (24%) and text messages (15%).[5]

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The relationship between the victim and the perpetrator also appears to influence the type of electronic technology used to aggress. For example, one study found that instant messaging was used as a mechanism to harass a peer when the victims and perpetrators knew each other from in-person situations (64%); instant messaging was used less often (37%) when the young people only knew each other on-line.[7] Adolescents who were victimized by people they only knew on-line were significantly more likely than those victimized by people they knew from in-person situations to be victimized through e-mail (18% vs. 5%), in chat rooms (18% vs. 4%), and in on-line gaming websites (14% vs. 0%).[7]

What Problems Are Associated with Being a Victim of Electronic Aggression?

Research is just beginning to look at risk and protective factors for and the effects of being a victim of electronic aggression. At this point, there is no data showing a causal link between any variables and electronic aggression victimization or perpetration. The information currently available suggests that young people who were victims of internet harassment were significantly more likely than those who had not been victimized electronically to use alcohol and other drugs, receive school detention or suspension, skip school, and experience in-person victimization.[4] In addition, young people who received rude or nasty comments via text messaging were significantly more likely to report feeling unsafe at school.[4] Internet harassment victims were also more likely than non-victims to report poor parental monitoring and caregiver-adolescent emotional bonds.[4] These difficulties could be: the result of electronic victimization; could increase the risk of electronic victimization; or could be related to something else entirely.

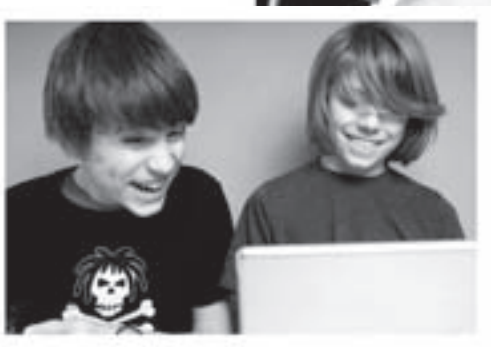
Available data indicate that victims of electronic aggression do experience distress associated with electronic aggression. The amount of emotional distress experienced by a victim seems to be related to the relationship between the victim and perpetrator and the frequency of the aggression. Electronic aggression victims were significantly more likely to report they were distressed by the incident when they were bullied by the same people on-line and off-line (46%) relative to young people who were bullied by different people on-line and in-person (15%), and young people who were only harassed on-line but did not know the identity of their harasser (18%).[4] The likelihood of distress also appears to be related to aspects of the electronic aggression incident. For instance, young people who were harassed by people they only knew on-line were more likely to report distress if the harassment was reoccurring, if the harasser was age 18 or older, or if the harasser asked for a picture. However, these victims were less likely to report distress if they used chat rooms or the internet at their friends' homes.[7] Research has not been conducted to examine how various forms of electronic aggression may differentially affect victims.

Focus groups with parents also suggest that the potential negative effects of electronic aggression are not limited to the young person who is victimized. Caregivers who are aware that their adolescent has been a victim of electronic aggression report that they sometimes feel even more fearful, frustrated, and angry about incidents of electronic aggression than their children.[9]

Like perpetrators of other forms of aggression, perpetrators of electronic aggression were more likely to believe that bullying peers and encouraging others to bully peers are acceptable behaviors.

What Problems Are Associated with Being a Perpetrator of Electronic Aggression?

Consistent with the electronic aggression victimization literature, data are limited on the risk and protective factors associated with electronic aggression perpetration and on the effects of perpetration on young people. Available research suggests that, like perpetrators of other forms of aggression, perpetrators of electronic aggression were more likely to believe that bullying peers and encouraging others to bully peers are acceptable behaviors. Additionally, young people who reported perpetrating electronic aggression were also more likely to report perpetrating face-to-face aggression.[3] In terms of protective factors, young people who said they were connected to their school, perceived their school as trusting, fair and pleasant, and believed their friends were trustworthy, caring, and helpful were less likely to report being perpetrators of electronic, physical, and verbal aggression.[3]



Are Electronic Aggression Victims the Same Young People Who Experience In-Person Bullying?

Data on the overlap between experiences of electronic aggression and face-to-face aggression are limited and conflicting. One study found that 65% of young people who were victims of electronic aggression were *not* also victimized at school.[4] Conversely, perhaps because of differences in how electronic aggression was defined, another study found considerable overlap between electronic aggression and in-person bullying, either as victims or perpetrators. Specifically, the study found few electronic aggression victims (6.4%) were not also bullied in person.[5]

The frequency of electronic aggression seems to be a factor in the overlap between electronic aggression and in-person victimization. Young people who were frequent victims of electronic aggression (monthly or more often) were more likely than infrequent victims to also report being the victim of face-to-face aggression.[4] Fifty-nine percent of the electronic aggression incidents perpetrated by known peers involved a series of incidents by the same harasser, compared to 27% of harassment incidents perpetrated by on-line-only contacts.[7]

What are the Empirically Supported Prevention and Intervention Strategies?

To date, no strategies or programs have been evaluated for their effectiveness in addressing electronic aggression victimization or perpetration. Parents and schools frequently install computer blocking software to prevent young people from accessing certain websites. However, there are no data to support the effectiveness of this strategy. In fact, available information suggests several limitations with the strategy of blocking access when used in isolation. First, young people are often victimized via cell phone text messages, and blocking software will not prevent this type of victimization. Second, focus groups with middle and high school students indicated that the effectiveness of blocking software at school might be limited because many students can navigate their way around the software, and because most students do not attempt to access social networking websites during the school day.[9] Students can also access sites that may be blocked on home and school computers from another location. Finally, blocking software may restrict some of the educational and social benefits young people experience from new technology, including social networking websites.

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Blocking software may be one tool, but the panel emphasized the need for comprehensive solutions and the evaluation of strategies. The panel pointed to the potential benefit of programs that use media literacy, and suggested that media literacy may be a promising approach.[10,11] Media literacy trains adolescents to

critically analyze media and thus, may help to moderate the impact of violent media messages on subsequent aggression.[12,13] Although media literacy has been effective in changing attitudes and behaviors of adolescents related to alcohol,[14] eating disorders,[15] and tobacco control,[10] currently there are no primary or secondary prevention programs designed specifically to address electronic aggression that have been rigorously evaluated.

Research Gaps and Recommendations

Research on electronic aggression is beginning to emerge. The CDC 2006 expert panel and the *Journal of Adolescent Health, Volume 41, Issue 6*, represent the first steps taken to critically examine what we know and to identify the next generation of research issues that warrant further investigation.

1. **Definition and Measurement of Electronic Aggression.** There is tremendous variability in the conceptualization and measurement of electronic aggression. This variability creates challenges for pooling results and drawing conclusions across studies. Data indicate that electronic aggression occurs through many types of technology (e.g., e-mail, instant messaging, chat rooms) and takes different forms (e.g., rude or threatening comments, pictures, threats). Accordingly, a broad definition of electronic aggression is more likely to capture the breadth of electronic aggression-related behaviors and provide enough flexibility so the construct of electronic aggression can evolve as technology does. The proposed definition of electronic aggression in this document serves as a starting point for researchers to work toward a standardized definition. At this early phase, a series of questions assessing a variety of forms of electronic aggression would provide a more accurate picture of the scope, nature, and impact of electronic aggression. The time frame (e.g., 2 months, 1 year) that should be referenced in assessment questions remains uncertain. Because research has tended to focus on narrow definitions of electronic aggression, we do not know yet whether shorter or longer time frames provide the most sensitive and accurate picture of electronic aggression and should be the focus of research attention. These definitional and measurement impediments must be addressed for researchers to draw accurate conclusions about the incidence, prevalence, and risk and protective factors associated with electronic aggression.

2. **Incidence and Prevalence.** Due to the lack of consistent terminology, time frames, survey methodologies, and study replication, the true occurrence of electronic aggression victimization and perpetration is unknown. With the development and validation of measures of electronic aggression, standardized information can be collected and analyzed. The standardization process would also permit the field to examine whether incidence or prevalence vary by subgroups (e.g., age, urban vs. rural, race/ethnicity, frequent vs. infrequent electronic media users, those who are vs. those who are not victimized in other contexts). Research on electronic aggression and aggression more broadly also suggests that accurate estimates of prevalence require researchers to include in research studies young people who are not in traditional school settings (e.g., alternative school, home-school) and who are out-of-school.[1,4] Furthermore, longitudinal studies are necessary to monitor if and how electronic aggression changes as technology use evolves and as prevention strategies are implemented.

3. **Sub-Group Differences.** Little to no empirical attention has been given to identifying and understanding potential differences in prevalence, risk and protective factors, or effects of electronic aggression for various sub-groups of adolescents. For instance, only two studies to date have examined sex differences and variations by grade.[3,5] Additionally, samples have been overwhelmingly Caucasian, with the percentage of White non-Latinos in the study samples ranging from 62% to 76%.[3,7] Thus, studies are needed to examine electronic aggression by sub-group in order to increase knowledge about potential differences, and if they exist to appropriately design and implement prevention and intervention activities to meet the needs of different adolescents.

4. **Electronic Aggression and Other Types of Violence.** Although research on electronic aggression is just starting to emerge, a much larger and established literature on other forms of aggression experienced and committed by adolescents exists. Increasing the understanding of the co-occurrence and commonality between electronic aggression and other forms of aggression and the unique aspects of electronic aggression will inform potential effective prevention approaches for electronic aggression. Studies need to further explore the following: a) the relationship of electronic aggression to other types of violence, such as in-person bullying, relational aggression, physical aggression, and sexual harassment; and, b) the relationship between electronic aggression and exposure to violence through the media and in the home, school, and neighborhood environments. This research will aid in the conceptualization of electronic aggression, determining whether or not electronic aggression is a discrete phenomenon or another type of aggression along the continuum of violence.

5. **Frequency.** In light of the infancy of the research on electronic aggression, many researchers are drawing upon the traditional school bullying literature. This framework has some benefit, but technology and electronic aggression have unique aspects that need to be considered as this field moves forward. For instance, Daniel Olweus' definition describes bullying as intentional, repeated hurtful acts, words, or other behavior, such as name-calling, threatening and/or shunning committed by one or more children against another and an imbalance in real or perceived power between the bully and victim.[16] Applying this definition to aggression that occurs through technology is challenging. For instance, what constitutes "repeated" in an electronic envi-

ronment? For a victim of an aggressive text message or internet posting, if he/she rereads the message or repeatedly logs on to the website containing the posting, does the experience constitute a single episode of aggression or multiple episodes? If the message becomes widely disseminated, does it remain one incident of aggression or does it become a repeated act as the victim becomes aware the message is being viewed by more peers? If other peers join in and add to the blog or website, does the episode remain one act of aggression or become part of a cycle of repeated acts? Research is needed to determine if it is appropriate to define electronic aggression in terms of intensity or frequency of exposure or a combination of factors, including the victim's perception of the aggression. Attention to this issue will inform our understanding of the effects of electronic aggression. For example, some young people may not experience distress if the incident of electronic aggression is restricted to the victim and the perpetrator, even if repeated, but may become extremely distressed from only one publicly displayed incident.

6. **Power Imbalance.** Olweus' definition of bullying also identifies a power imbalance between a victim and a perpetrator, but the presence or importance of this factor for electronic aggression is unclear.[16] Although the traditional influence of physical size, for example, does not play as strong a role in electronic aggression, and it may seem easy to tell young people to turn off a computer as a way to maintain power equality, it is premature to believe a power imbalance does not exist when technology is used to perpetrate aggression. There are several unique features of new technology that give a lot of power to young people who choose to perpetrate violence with it, and these factors require further investigation. For instance, new technology

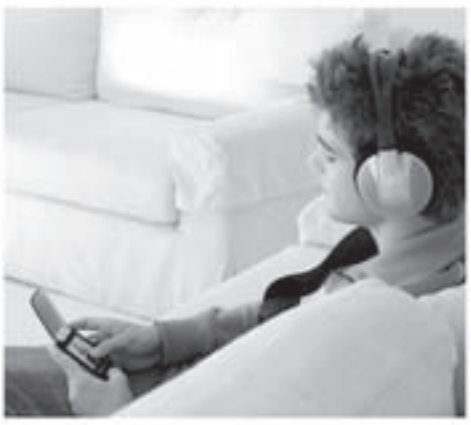
allows adolescents to mask their identity when they perpetrate aggression (e.g., send or post messages anonymously or under assumed or falsified identities), limits a victim's ability to respond in a way that may ordinarily stop a peer's aggressive behavior or influence the probability of future acts, and allows perpetrators to attack at any time and in any place. The presence or absence of a power imbalance is important to examine as it may influence the likelihood of incidences and associated distress as well as have implications for prevention strategies. Research is needed to examine the following: a) whether a power imbalance can occur electronically, and, if so, how it can be measured; b) the factors that increase or decrease the likelihood that the imbalance is created; c) the relationship between power imbalance and the impact of electronic aggression on victims' functioning; and, d) the strategies that might be effective in preventing or intervening when such an imbalance occurs.

7. **Associated Factors.** From the available literature, victims of electronic aggression are more likely to report a range of associated psychosocial difficulties than nonvictims.[4,7,8] This research requires replication across varying groups of young people and across varying subtypes of electronic aggression. Additionally, longitudinal, controlled etiologic studies are needed to better understand whether these variables are risk factors, represent the negative effects of victimization, or are related to unidentified, third variables.

   a. **Risk and protective factors.** Additional research is needed on the factors that put young people at risk for electronic aggression victimization *and* perpetration for young people in general and for subgroups. Current knowledge about risk and protective factors is limited to individual factors, and we know nothing about risk and protective factors at the peer, school, family, or neighborhood levels of the social ecology. For example, does parental monitoring or parental education decrease the likelihood of becoming a victim or perpetrator of electronic aggression? Is the presence of delinquent peers a risk factor? Is connection to school a protective factor? Drawing upon the research on risk and protective factors for other forms of aggression will benefit this future research by helping to identify possible factors to investigate and factors that should be considered in prevention strategies.

   b. **Effects on functioning.** When young people are victimized by their peers, either through traditional means or through electronic means, they experience associated psychosocial difficulties.[4,7,8,11] Research is needed to examine the factors that may increase or decrease the impact of electronic aggression. Attention should be given to how the potential negative effects of electronic aggression may vary by: the type or severity of aggression (e.g., threats, rumors, posting of embarrassing photographs); the mechanism (e.g., instant messaging, website, text messaging); the length of time over which the aggression occurs; the number of people who are aware of the aggression (e.g., all of the students in a victim's class vs. just the victim); characteristics and relationship of the perpetrator and victim (e.g., age, known to victim, off-line contact, mental health); and contextual factors (e.g., where and with whom the victim experiences or the perpetrator commits the aggression).

8. **Prevention and Intervention Strategies.** No strategy or program has been evaluated for its effectiveness in addressing electronic aggression victimization or perpetration. Individual strategies and strategies used in combination need to be evaluated for their effectiveness using longitudinal, controlled trials. Attention is needed to the individual and contextual factors that may influence perpetration via new media, such as anonymity, detachment, and power in order to inform the development of treatment and prevention strategies. Use of technology and the impact of electronic aggression transcend environments and interpersonal relationships, so collaboration between young people, parents, and schools is critical to the development of comprehensive, effective strategies. In the development of prevention approaches, attention should be given to the development of strategies that encourage young people to report electronic aggression and seek adult support rather than those that punish young people for disclosure.[9] Young people's affinity for and proficiency with new technology suggests that technology may be an engaging and effective intervention tool to consider in the development and evaluation of prevention approaches.



Conclusion

Electronic media create tremendous positive social and learning opportunities for adolescents, but new technology also comes with some degree of risk. With the development of new cell phones that are small enough to fit into young children's hands and that are designed to be visually attractive to a younger audience, more and younger children will become competent and frequent users of new technology. This growth will likely contribute to the continued increase of electronic aggression. Accordingly, research needs to continue and be attentive to some of the issues raised in this brief to gain a better understanding of electronic aggression prevalence, etiology, and prevention. As this field moves forward, it must be rapid and flexible enough to keep up with the evolving nature of technology, or it will be limited to knowledge, intervention strategies, and policies that are outdated and restricted in application potential. Researchers are encouraged to partner with young people, parents, and educators who are "on the front lines" and may be more aware than researchers of individual and contextual factors that are associated with electronic aggression.

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Addendum

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