ORIGINAL ARTICLE

Does cyberbullying occur simultaneously with other types of violence exposure?

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Objective: Our study aimed to verify whether cyberbullying victimization among adolescents occurs concomitantly with other forms of violence exposure (at home, at school and in the community).
Methods: A collaborative longitudinal study by Norwegian and Brazilian researchers was conducted in Itaboraí, a low-income city in southeast Brazil. At baseline, trained interviewers applied a semi-structured questionnaire to a population-based sample of 669 in-school adolescents (11-15 years old). The investigated types of violence exposure included cyberbullying, traditional bullying, severe physical punishment by parents and community violence (victimization and eye-witnessed violent events outside the home and school).
Results: In the previous six months, 1.9% of the adolescents had been victims of cyberbullying, and 21.9% had been victims of physical aggression, verbal harassment and/or social manipulation by peers. However, only 5.5% of the adolescents considered themselves bullying victims. In the previous 12 months, 12.4% of adolescents had suffered severe physical punishment, 14.0% had been victims of community violence, and 20.9% eye-witnessed community violence. Multivariable regression analysis showed that victimization by multiple types of traditional bullying and self-perceived bullying victimization were correlates of cyberbullying victimization, while suffering violence at home and in the community were not.
Conclusion: This study provides evidence of an association between cyberbullying, traditional bullying and self-perceived bullying among low-income Brazilian adolescents.

Keywords: Adolescence; cyberbullying; bullying; child abuse; community violence

Introduction

Interest in cyberbullying, the use of electronic communication to bully, has been increasing in the research community.[1] The use of modern technology has enabled the extension of "traditional" bullying from the real world into the virtual world.[2] However, most of the highly cited articles on the topic come from Northern Europe and Northern America, with relatively few publications from low-and-middle-income countries.[3]

Researchers should be aware of the existence of "poly-victims," i.e., adolescents victimized by different types of violence in different environments. Studies that investigate single forms of violence exposure are likely to underestimate the full burden of victimization and incorrectly specify the risk profiles of victims.[4] The overlap between traditional bullying and cyberbullying has been well documented.[1,2] However, studies examining the potential association between cyberbullying and other kinds of victimization are rare in the international literature and nonexistent in Brazil. Our study aimed to verify whether cyberbullying victimization occurs concomitantly with other forms of violence exposure among adolescents in a low-income Brazilian city.

Methods

A collaborative longitudinal study between Norwegian and Brazilian researchers (The Itaboraí Youth Study) investigated a population-based sample of 1,409 6-to-15-year olds at baseline (response rate = 87.8%). The study was conducted in Itaboraí, a low-income medium-size city in the state of Rio de Janeiro, Brazil. A three-stage probabilistic sampling procedure (random selection of census units, eligible households and target children) was used to generate sampling weights. At baseline, trained lay interviewers applied a semi-structured questionnaire to the mothers of all participating children (n=689, 6-10 years old) and to 680 of the 720 participating adolescents (94.4%) (11-15-years). More detailed information on the Itaboraí Youth Study methods can be found elsewhere.[5]

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Based on different biological aspects of puberty that mark its onset, different definitions of adolescence exist.[6] For the purposes of this study, participants between 11 and 15 years of age were considered adolescents, which was based on the minimum age requirements of internationally-used mental health screening instruments developed for adolescents, such as the Strength and Difficulties Questionnaire (SDQ)[7,8] and the Youth Self-Report (YSR/11-18).[9] Applying these screening instruments was part of the original study's methods.[5]

This paper analyzed baseline data (data repository: Norwegian Centre for Research Data) reported by in-school adolescents (n=669). Adolescents out of school (n=11) were not asked about bullying. Measures of the types of violence exposure are described below.

Measures

Based on previous work by Hinduja & Patchin,[10] who investigated *cyberbullying victimization* (main outcome of interest), nine items were considered: being ignored, being disrespected, being called names, being threatened, being e-mail bombed, being picked on, being ridiculed, being scared for safety, and being the target of rumors. The occurrence of at least one event more than once a week over the previous six months expresses repeated exposure to hostile/aggressive attitudes from peers. Our definition of cyberbullying agrees with that of Tokunaga[11]: "any behavior performed through electronic or digital media by individuals or groups that repeatedly communicates hostile or aggressive messages intended to inflict harm or discomfort on others."

Fifteen peer harassment items used in a Norwegian study of schoolchildren[12] were used to assess *traditional bullying*, including physical aggression (when another student has attempted to kick him/her, threatened him/her, attempted to trip him/her, or attempted to hit him/her), verbal harassment (when another student has called him/her names, teased him/her, teased him/her about his/her family, teased him/her because he/she was different, or tried to hurt his/her feelings), and/or social manipulation (when other pupils have ganged up on him/her, tried to make him/her hurt other people, tried to get him/her into trouble, made him/her do something he/she didn't want to do, threatened to tell on him/her, or told a lie about him/her). The occurrence of at least one event more than once in the past six months identified repeated exposure.

After being asked about peer harassment events, the adolescents were then given a definition of bullying: "…when one or more school peers repeatedly do bad things to you, such as name-calling, threatening, hitting, spreading rumors about you, excluding you from the group or teasing you to hurt your feelings." One question investigating *self-perceived bullying victimization* was then asked: "How often have you been bullied in the past six months?" The frequency of more than once a week identified repeated exposure.

The occurrence of at least one of eight events investigated by the Brazilian version of the World Studies of Abuse in the Family Environment (WorldSAFE) Core Questionnaire was classified as *severe physical punishment from mother and/or father* in the previous 12 months.[13] These eight events included being hit with an object (e.g., stick, broom, cane, belt), being kicked, being choked manually or with an object, being smothered with hand or pillow, being burned, scalded or branded, being beaten, being threatened with a knife or gun, and being harmed with a knife or gun.

One or more positive responses to a series of items based on Richters & Saltzman's Survey of Exposure to Community Violence – Self Report Version[14] was considered *victimization and eye-witnessed community violence* in the previous 12 months. The 11 items included: being mugged, being chased by gangs or individuals, being picked-up, arrested or taken to the police station, receiving threats of serious physical harm, being beaten-up, being attacked or stabbed with a knife, being shot, being near a shoot-out, being sexually molested by a much older person, being present during a domestic break-in or attempted break-in, and receiving death threats. Eye-witnessed community violence was considered seeing another person in any of these situations.

Statistical analysis

Statistical analysis was performed by the corresponding author. Information on the study protocol can be found elsewhere.[5]

The absolute numbers of subjects were unweighted (referring to the sample) and all percentages were weighted (referring to the city population of in-school adolescents). Multivariable regression analysis was used to verify potential associations between cyberbullying (main outcome measure) and other types of violence exposure (at home, at school and in the community) when considering the effects of age and gender.

Ethical considerations

The Brazilian National Committee for Ethics in Research (process 25000.182992/2011-76) and the research ethics committee of Universidade Federal de São Paulo (UNIFESP; process 0324/11) approved the study. Written informed consent was obtained from the mothers of all participants, and written informed assent was obtained from all participating adolescents.

Results

This manuscript is focused on a representative sample of in-school 11-to-15-year olds (n=669; mean age: 13.0± 0.1 years; 51.7% girls). In the previous six months, 1.9% of the adolescents were victims of cyberbullying and 21.9% were victims of traditional bullying (physical aggression, verbal harassment and/or social manipulation). Concomitant physical aggression, verbal harassment and social manipulation affected 4.9% of adolescents. In our study, only 5.5% of the adolescents considered themselves to be bullying victims.

When examining victims of cyberbullying and/or traditional bullying (22.8% of the sample), the vast majority (91.5%) suffered only traditional bullying, while 4.1% suffered only cyberbullying and 4.5% suffered both.

Table 1 Logistic regression analysis examining the association between experiencing one or more cyberbullying events that occurred more than once a week in the past 6 months and being exposed to other types of violence considering age and gender (n=669 in-school adolescents)

Independent variables (self-reported)	Univariate analysis Crude OR (95%CI)	Multivariate analysis Adjusted OR (95%CI)	
		Model 1	Model 2
Types of school violence exposure in the past 6 months			
Three types* (vs. none)	9.77 (2.25-42.35)[†]	6.71 (1.38-32.74)[‡]	NA
One or two types (vs. none)	2.55 (0.62-10.50)	2.12 (0.60-7.55)	NA
Self-perceived bullying victimization in the past 6 months (more than once a week vs. less than once a week)	7.13 (2.33-21.83)[§]	NA	7.26 (1.58-33.36)[‡]
Severe physical punishment by one or both parents in the past 12 months (any event vs. none)	3.12 (0.84-11.52)	2.01 (0.48-8.39)	2.24 (0.53-9.58)
Types of community violence exposure in the past 12 months			
Victimization[∥] only (vs. none)	2.97 (0.44-19.92)	2.02 (0.36-11.20)	1.86 (0.33-10.51)
Eye-witnessed violence[¶] only (vs. none)	2.98 (0.61-14.64)	1.76 (0.48-6.51)	1.94 (0.45-8.40)
Both (vs. none)	6.04 (1.67-21.85)[†]	2.45 (0.48-12.41)	3.62 (0.70-18.75)
Age (years)	1.32 (0.86-2.02)	1.44 (0.89-2.30)	1.52 (0.87-2.66)
Gender (male vs. female)	1.22 (0.40-3.71)	1.07 (0.35-3.30)	1.30 (0.44-3.84)

95%CI = 95% confidence interval; NA = not applicable (variable not in the multivariate model); OR = odds ratio.
* Physical aggression, verbal harassment and social manipulation (at least one event of each type occurring in the past 6 months).
[†] p < 0.01; [‡] p < 0.05; [§] p < 0.001.
[∥] One or more victimization events in the past 12 months.
[¶] One or more eye-witnessed events in the past 12 months.

Finally, in the previous 12 months, 12.4% of adolescents suffered severe physical punishment, 14.0% were victims of community violence, and 20.9% eye-witnessed community violence. Among victims and/or eye-witnesses of community violence (25.5% of the sample), the majority (44.9%) were only eye-witnesses, while 18.1% were only victims, and 37.0% were both.

The multivariable regression analysis, shown in Table 1, indicates that victims of multiple types of traditional bullying were seven times more likely to be victims of cyberbullying (model 1). Adolescents that perceived themselves as victims of bullying were also seven times more likely to be victims of cyberbullying (model 2). Furthermore, exposure to violence at home and in the community were not associated with exposure to cyberbullying in either model after considering the effects of age, gender, and exposure to traditional bullying or self-perceived bullying.

Discussion

In our study, the prevalence of cyberbullying victimization was 1.9%, a much lower rate than exposure to traditional bullying (21.9%). These results agree with Olweus' assertion that the prevalence of cyberbullying is low compared to traditional bullying.[1] Because students suffering peer harassment do not always interpret it as acts intended to cause harm,[15] the rate of adolescent self-perceived bullying victimization was lower than the reported rate of victimization by traditional bullying (5.5 vs. 21.9%).

When considering the group of adolescents exposed to cyberbullying and/or traditional bullying, the great majority (91.5%) suffered only traditional bullying, while 8.6% suffered cyberbullying alone or concomitantly with traditional bullying. This suggests that in Brazilian low-income communities,

electronic communication by adolescents is not as widespread as in high-income communities and that harassment occurs more frequently in person.

It should be pointed out that regional and class-based inequalities in household Internet access persist in Brazil. The Information and Communication Technology Kids Online Brazil survey, conducted between 2013 and 2014 by the Regional Center for Studies on the Development of the Information Society (Centro Regional de Estudos para o Desenvolvimento da Sociedade da Informação [Cetic.br]),[16] focused on Internet use by children. This survey showed that the proportion of Internet users among 10- to 15-year-olds reached 75%, but among the children who had never accessed the web, 48% reported never having done so due to difficulties in acquiring and affording Internet access. Internet access, including mobile phones, was 81% for high socioeconomic status households and 8% for low socioeconomic status households.[17] Because our study was conducted with 11- to 15-year-olds living in a low-income city, limited Internet access may have affected our cyberbullying results, which should be considered a study limitation.

In addition, if the prevalence of cyberbullying were higher in Itaboraí, the association between cyberbullying and maltreatment would be significant, since exposure to violence at home was associated with cyberbullying when sampling weights were not applied. Studies have found an association between traditional bullying and maltreatment.[18] One hypothesis is that, to avoid retaliation, maltreated children learn not to react in the face of violence, and therefore, become an easy target for peer harassment.[19]

Among the adolescents exposed to community violence as victims and/or eye-witnesses, the majority (44.9%) were only eye-witnesses, 18.1% were only victims, and 37.0% were both. The fact that eye-witnessing community

violence was more frequent than direct victimization agrees with a previous study of American suburban middle-class adolescents, which used a similar instrument to measure community violence.[20]

Schwartz & Proctor, who also used a similar instrument,[21] investigated the relation between community violence exposure and peer group social maladjustment (peer rejection, bullying by peers and aggressive behavior) in 285 U.S. inner-city children in grades 4-6. The authors found that deficits in emotion regulation capacity mediated the association between community violence victimization and social difficulties with peers, including bullying victimization. They also found that eye-witnessed community violence was not linked to bullying by peers. In our study, the concomitant presence of victimization and eye-witnessed community violence was associated with cyberbullying in univariate analysis, but lost significance in the multivariable model. Again, a higher prevalence of cyberbullying in Itaboraí would have increased the probability of finding an association between cyberbullying and community violence. Because Internet access among low-income children is rapidly increasing, particularly through the growing use of mobile phones,[22] it will soon be possible to confirm the existence of an association between community violence and cyberbullying among low-income adolescents.

In conclusion, this study provides evidence of an association between cyberbullying, traditional bullying and self-perceived bullying victimization among low-income Brazilian adolescents, even when maltreatment and community violence are considered.

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Disclosure

The authors report no conflicts of interest.

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