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Pediatric Emergency Department Visits for Mental Health Crisis: Prevalence of Cyber-Bullying in Suicidal Youth

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Abstract The objective of this work is to (1) study the prevalence of cyber-bullying amongst adolescents referred by Pediatric Emergency Department (PED) for urgent psychiatric assessment and (2) to examine the association between cyber-bullying and suicidal behavior to assist emergency department professionals in screening for risk and triage. This is a retrospective study of patients referred by PED to an urgent psychiatric clinic. Data was extracted for those with bullying victimization. Clinical variables included demographics, reason for referral, type of bullying, substance use, abuse, past psychiatric history, diagnosis and outcome. The cyber-bullying group was compared to those with traditional bullying and a group with no-bullying. Data analysis was conducted using Chi squares, multinomial and bimodal logistic regression. The urgent psychiatric clinic assessed 805 patients in 24 months, the prevalence of bullying was 26.9 % (n = 217). The prevalence of Cyber-bullying was 13.5 % (n = 109) and traditional bullying was 13.4 % (n = 108). Cyber-bullying victims have more suicidal ideation ($\chi^2 = 7.82$, $p = .005$; 85.3 vs. 69.4 %), more sexual abuse ($\chi^2 = 5.75$, $p = .02$; 29.4 vs. 15.7 %), more emotional abuse ($\chi^2 = 10.8$, $p = .01$; 30.3 vs. 12.0 %) and physical abuse ($\chi^2 = 6.13$, $p = .01$; 27.5 vs. 13.9 %) and a higher inpatient admission rate. Suicidal ideation is the presenting problem in more than two-thirds of patients, especially females, with history of cyber-bullying who present to the PED. Screening questions about cyber-bullying could assist emergency room professionals in establishing risk and making triage decisions.

Keywords Pediatric emergency · At-risk youth · Cyber-bullying · Suicidal behavior · Bullying · Mental health

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In Canada and the United States there has been a significant increase in the number of Emergency Department (ED) and Pediatric Emergency Department (PED) visits for mental health problems (Newton, Ali, Johnson, Haines, Rosychuk, Keaschuk, Jacobs, & Klassen, 2009; Sills & Bland, 2002). A majority of these visits are by adolescents presenting with self-harming behaviors, suicidal ideation, threats and attempts. Bullying victimization is one of the contributing, and at times, precipitating factor for ED visits. A meta-analytic study by Modecki, Minchin, Harbaugh, Guerra, and Runions (2014) showed that amongst 80 studies which reported prevalence of various types of bullying the prevalence of traditional bullying was 35 % and for cyber-bullying was 15 %. A study by S. Gan, Zhong, Das, J. Gan, Willis, and Tully (Gan et al. 2011) of American high school students showed that 55 % of students reported being bullied and of these 18 % reported cyber-bullying. These findings are consistent with a study by Olweus (2012) on large samples of students from the United States and Norway which found that cyber-bullying was considerably less prevalent than traditional bullying; despite its lower prevalence, cyber-bullying has gained much worldwide attention due to some highly publicized adolescent suicides.

Cyber-bullying is defined as the use of e-mail, mobile phones, text messages, and Internet sites to threaten, harass, embarrass, or socially exclude peers (Hinduja & Patchin, 2006, 2009). Cyber-bullying, unlike traditional bullying, provides anonymity to the perpetrator, and has the potential for a much wider dissemination. Whereas traditional bullying occurs primarily at school cyber-bullying can occur anytime and anywhere (Slonje & Smith, 2008; Li, 2005; Tokunaga, 2010). Although research has shown that traditional bullying may have an association with depression, suicidal ideation and non-fatal suicidal behavior (Kaltiala-Heino, Rimpela, Marttunen, Rimpela, & Rantanen, 1999; Kim & Leventhal, 2008), research on cyber-bullying (a more recent type of bullying) is just beginning to identify an association between cyber-bullying and mental health problems; some researchers like Dooley, Pyzalski, and Cross (2009) suggest that despite its lower prevalence, cyber-bullying may be more psychologically distressing than traditional school bullying. Several studies have identified increased depression, suicidal ideation, and non-fatal suicidal behavior amongst those who have experienced cyber-bullying (Schneider, O'Donnell, Stueve, & Coulter, 2012; Goebert, Else, Matsu, Chung-Do, & Chang, 2011; Hinduja & Patchin, 2010; Sampasa-Kanyinga, Roumeliotis, & Xu, 2014). The aim of this study was to examine the prevalence of cyber-bullying amongst adolescents who were referred to and assessed at a hospital-based adolescent psychiatric urgent clinic, and to explore variables that may inform assessment and decision making in the PED.

Method

Research Ethics Board Approval was obtained prior to initiation of this study.

Participants

This is a two-year retrospective study of adolescents (N = 805) seen between October 2012 and September 2014 in the Child and Adolescent Mental Health Urgent Consult Clinic (CAMHUCC) of the Division of Child and Adolescent Mental Health at Hotel Dieu Hospital in Kingston, Ontario, Canada. Participants for this study were 218 (female = 172; male = 46) patients with bullying victimization; 109 patients who have been victims of cyber-bullying, and 109 patients who have been victims of traditional bullying. Most of the victims of cyber-bullying were also victims of verbal and/or physical bullying. The three groups were well-matched on gender (±50 % female) and age (±14.5 years). The age of participants range from 5 to 17 years of age ($M = 14.46$, $SD = 1.81$). Female participants ages ranged from 8 to 17 ($M = 14.48$, $SD = 1.62$). The ages of male participants, on the other hand ranged from 5 to 17 ($M = 14.39$, $SD = 2.42$). The study variables included: age, gender, reason for referral, substance abuse, physical and sexual abuse and type of bullying, past psychiatric history and outcome.

Statistics

Data were analyzed descriptively using frequency and percent distribution. χ^2 analysis was used to identify associations between study variables and bullying victimization, and multinomial regression was used to quantify effect size for study variables associated with victims of cyber-bullying and traditional bullying in comparison to non-bullied adolescents. Bimodal logistic regression was used to quantify the effect size for cyber-bullying victimization in comparison to traditional bullying victimization. Data analysis was conducted using SPSS 23. Statistical significance was set at $p \leq .05$.

Results

The prevalence of any type of bullying was 26.9 %. The prevalence of cyber-bullying was 13.5 % and traditional bullying was 13.4 %. Suicide threat/attempt (n = 93) and depressed mood (n = 19) were the reason for referral in 75 % of the cyber-bullying group as compared to 57.7 % for traditional bullying and 56.8 % for the non-bullied group. Substance use/abuse was reported by 32.1 % (n = 35) of the cyber-bulling group, 26.6 % (n = 29) of the traditional bullying group and by 43.1 % (n = 47) of the non-bullied group. Cyber-bullying and traditional bullying was reported by 33.33 % of females (n = 86) and males (n = 23). Physical abuse was reported in 27.5 % (n = 30) of the cyber-bullying group as compared to 14.7 % (n = 16) for traditional bullying and 18.3 % (n = 20) for the non-bullied group. Emotional abuse was reported in 30.3 % (n = 33) of the cyber-bullying group as compared to 12.8 % (n = 14) for traditional bullying and 18.3 % (n = 20) for the non-bullied group. Sexual abuse was reported in 29.4 % (n = 32) of the cyber-bullying group as compared to 15.6 % (n = 17) for traditional bullying and 12.8 % (n = 14) for the non-bullied group. χ^2 analysis suggested victims of bullying were more likely to have suicidal ideation (77.4 vs. 57.8 %; $\chi^2 = 13.52$, $p < .001$) and sexual abuse (22.6 vs. 12.8 %; $\chi^2 = 4.41$, $p = .04$) than patients who had not been bullied. Conversely, χ^2 results suggested bullying victims were less likely to report substance abuse (29.5 vs. 43.1 %; $\chi^2 = 6.00$, $p = .01$) than patients who had not been bullied. Gender was not found to be associated with either

cyber-bulling or traditional bulling victimization ($\chi^2 = .000$, $p = 1.00$).

Results of the multinomial regression analyses indicated suicidal ideation, sexual abuse and absence of substance abuse were associated with bullying victimization (Table 1). Relative to patients who were not bullied, victims of cyber-bullying were 77.2 % more likely to have suicidal ideation and 64.7 % more likely to be victims of sexual abuse.

Group analysis of bullying victimization using binomial regression showed cyber-bullying to be strongly associated with suicidal ideation and being a victim of emotional abuse (Table 2). The Hosmer and Lemeshow Test indicated model fit (χ^2 (3) = 2.566, $p = .463$). Relative to traditional bullying group, study participants in the cyber-bullying group (n = 93) were 2.562 times more likely to have suicidal ideation and 2.58 times more likely to be victims of emotional abuse.

Discussion

This is a study of adolescents referred by PED for urgent psychiatric assessment. The prevalence and gender of any type of bullying (26.9 %) is consistent with other Canadian studies (Paglia-Boak, Adlaf, Hamilton, Beitchman, & Wolfe, 2014; Prince, Wilmore, Ali, Leikin, & Ray, 2011); however, our results differ from previous studies in that unlike studies which reported lower prevalence of cyber-bullying (Gan et al., 2011; Olweus, 2012), the prevalence for cyber-bullying and traditional bullying in our study were the same (13.5 %). This may be explicable in that our sample was drawn from referrals by PED to a speciality risk-assessment clinic. This clinic's assessment includes screens for known risk indicators for suicide such as substance abuse, sexual, emotional and physical abuse and types of bullying. Another explanation may be the difference in the reporting of cyber-bullying; previous research by Gan et al. (2011) has shown that victims may under report cyber-bullying for fear that they may not be taken seriously, or their lack of awareness and knowledge about internet safety which might increase vulnerability (Mishna, Cook, Gadalla, Daciuk, & Solomon, 2010). In our study, the clinicians asked direct questions about various methods of cyber-bullying; this may also have led to a higher rate of positive responses.

Our finding of suicidal ideation and bullying is consistent with previous cross-sectional studies which report that traditional bullying confers a risk of suicidal ideation and non-fatal suicide attempts (Schneider et al., 2012; Hinduja & Patchin, 2010). The results of our study differ in that 75 % of the cyber-bullied group presented with suicidal ideation whereas there was little difference between the traditional and non-bullied groups. Suicidal behavior and suicide does not have a single cause, but rather an interplay of social, biological and psychological factors that contribute to it (Sinyor, Schaffer, & Cheung, 2014); our result is understandable as the cyber-bullied group had significantly more emotional and sexual abuse with a higher level of psychological distress manifesting in increased suicidal ideation (Dooley et al., 2009). This combination of risk factors may also explain the higher rate of admission for the cyber-bullied group when compared to traditional and non-bullied groups.

This study has a number of limitations: first this a retrospective review of data, and the data was not gathered for

Table 1 Multinomial logistic regression analysis of study variables

Study variables[a]	β	SE	Wald	*p* value	Odds ratio	95 % CI	
Cyber bullying							
Intercept	1.065	0.41	6.755	.009			
Suicidal ideation	−1.478	0.343	18.527	.000	0.228	0.116	0.447
Substance abuse	0.836	0.313	7.109	.008	2.306	1.248	4.263
Physical abuse	0.19	0.462	0.169	.681	1.209	0.489	2.993
Emotional abuse	−0.658	0.389	2.858	.091	0.518	0.241	1.111
Sexual abuse	−1.041	0.459	5.153	.023	0.353	0.144	0.867
Traditional bullying							
Intercept	−0.256	0.466	0.3	.584			
Suicidal ideation	−0.533	0.291	3.369	.066	0.587	0.332	1.037
Substance abuse	0.796	0.305	6.805	.009	2.217	1.219	4.032
Physical abuse	0.328	0.498	0.434	.51	1.389	0.523	3.686
Emotional abuse	0.263	0.427	0.381	.537	1.301	0.564	3.003
Sexual abuse	−0.661	0.494	1.787	.181	0.517	0.196	1.36

[a] The reference category is non-bullied group

Table 2 Binomial regression analysis of study variables

Study variables[a]	*B*	*SE*	Wald	*df*	*p* value	Odds ratio	95 % CI	
Suicidal ideation	0.941	0.353	7.103	1	.008	2.562	1.283	5.118
Substance abuse	0.037	0.324	0.013	1	.91	1.037	0.549	1.959
Physical abuse	0.091	0.462	0.039	1	.843	1.096	0.443	2.712
Emotional abuse	0.948	0.402	5.568	1	.018	2.58	1.174	5.668
Sexual abuse	0.392	0.43	0.828	1	.363	1.479	0.636	3.439

[a] The reference category is traditional bullying victimization

the sake of research into cyber-bullying specifically; therefore, some specifics about type or duration of bullying is missing. Second, some of the subjects had combinations of different types of bullying, and were included amongst the sample for this study. Finally, a larger study of cyber-bullied youth would provide more robust data on its significance as a risk factor.

Conclusion

Bullying, specifically cyber-bullying, is one of a number of psychosocial risk factors which combined with other factors for suicidal behavior lead to visits to PED. The inclusion of screening questions about cyber-bullying and sexual and emotional abuse in the ED examination may aid PED professionals in triage decisions for mental health services.

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