

Weight-based cybervictimization: Implications for adolescent health

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Summary

Background: Despite the ubiquity of cybervictimization among youth, attention to weight-based cybervictimization is scarce.

Aims: This study assessed the prevalence of electronic forms of weight-based peer victimization (i.e., cybervictimization) and its associations with adolescent health, as indicated by somatic symptoms, stress, depression, and sleep trouble.

Materials & Methods: A cross-sectional survey was conducted online with a community sample of 452 adolescents aged 11–17 years old ($M_{age} = 14.91$ years).

Results: Thirty-three percent of adolescents reported at least one experience of weight-based cybervictimization, with elevated rates among those with overweight (45%) and obesity (60%). Weight-based cybervictimization was associated with higher levels of somatic symptoms ($\beta = 0.24$; $p < 0.001$), stress ($\beta = 0.22$; $p < 0.001$), depression ($\beta = 0.27$; $p < 0.001$), and sleep trouble ($\beta = 0.20$; $p < 0.001$); these associations were consistent across adolescent weight status.

Discussion and Conclusion: Findings suggest that the health implications of weight-based victimization extend to the electronic context, and underscore the importance of addressing weight-based cybervictimization in antibullying initiatives to support healthy adolescent well-being.

KEYWORDS

adolescence, cybervictimization, health risk, weight stigma, weight-based mistreatment

Weight-based peer victimization (WBV) is common among adolescents across sociodemographic groups and prevalent across diverse body weights and sizes.^{1,2} The harmful short- and long-term emotional and physical health effects of WBV are well-documented.^{3,4} Common settings of WBV, including the school and home environment, have been recognized as both origins and intervention points for such targeted mistreatment.⁵ However, despite the ubiquity of cybervictimization among youth,⁶ attention to electronic forms of WBV (i.e., weight-based cybervictimization) has been largely absent, aside from evidence implicating high weight as a risk factor for cybervictimization in general.⁷

The current understanding of weight-based cybervictimization stems primarily from a 2013 study of weight loss treatment-seeking youth, documenting widespread prevalence (i.e., greater

than 58% incidence rate) and associated academic impairment;⁸ while this study provides foundational evidence, investigation of weight-based cybervictimization and its health-related implications is warranted in community samples of adolescents given that WBV targets and can compromise the health of youth of all body sizes.^{5,9} Moreover, the proliferation of electronic usage among adolescents in recent years,¹⁰ and a notable upsurge in physically distanced social communication amidst the COVID-19 pandemic,¹¹ underscores the importance of extending understanding of WBV to the electronic context.

To address these significant research gaps, the current study examined the prevalence and health correlates of weight-based cybervictimization among a community sample of adolescents. It was hypothesized that adolescents who experienced weight-based

cybervictimization would have poorer health (as indicated by somatic symptoms, stress, depression, and sleep trouble) compared to those who had not experienced weight-based cybervictimization. Given heightened prevalence of WBV among adolescents with higher weight,⁵ disparities in the occurrence and health correlates of weight-based cybervictimization were also examined.

1 | METHODS

1.1 | Participants and procedure

A cross-sectional study was conducted with a sample of 452 adolescents aged 11–17 years old ($M_{\text{age}} = 14.91$; 55% female; 69.9% White, 8.2% Black/African American, 8.0% Latino/a, 6.6% Multiethnic, 5.5% Asian American, and 1.8% other race/ethnicity) residing predominantly in the Northeast region of the U.S. Participant recruitment was conducted via the UCONN Kids in Developmental Science (KIDS) research database and word-of-mouth advertisements, via local teen organizations and schools. The study was advertised as an online survey assessing teen experiences at school, including questions related to teasing and bullying. Parents/guardians completed consent electronically and provided an email address for the survey weblink to be sent to their adolescents. Eligible youth (i.e., between the ages of 11 and 17) with parental consent in turn were reminded that participation was voluntary and provided assent prior to beginning the online questionnaire. Survey completion took place during the fall of 2020 and adolescents were

compensated for study participation with a \$10 e-gift card. Study protocols and procedures were approved by the University of Connecticut's Institutional Review Board. Additional details regarding the study methodology are reported elsewhere.¹²

1.2 | Measures

All survey measures were self-reported by adolescents in the online questionnaire (hosted by Qualtrics.com). Table 1 contains a full description of the survey measures and response options used to assess weight-based cybervictimization, health indicators, and covariates.

1.3 | Analytic plan

Analyses were conducted in SPSS (version 27) and missing data were handled using listwise deletion. Prevalence estimates of weight-based cybervictimization are presented first, including comparisons across weight status (i.e., underweight, “normal” weight, overweight, and obese). Associations between weight-based cybervictimization and each health indicator (i.e., somatic symptoms, stress, depression, and sleep trouble) using general linear modelling are subsequently described. Regression analyses adjusted for adolescent gender, race/ethnicity, grade level, and weight status, and tests of moderation investigated differences as a function of weight status.

TABLE 1 Description of survey measures

	Survey items or description
Weight-based cybervictimization	Eight items (see Data S1), preceded by a detailed definition of bullying, ¹³ measured experiences of name calling, insults, exclusion, rumour spreading, threats and hurtful treatment by peers on social media/online or via text because of body weight (e.g., How often have your peers called you mean or hurtful names because of your weight on social media/online or via text?) adapted from the previous assessment of weight-based victimization ⁸ and informed by established adolescent cyberbullying scales. ¹⁴ Prevalence of each of the eight items was assessed by distinguishing responses of “once or twice,” “a few times,” “almost every week,” “almost every day,” from “never,” and a dichotomous variable was computed to reflect at least one (1) vs. no (0) experiences of weight-based cybervictimization.
Somatic symptoms	Seven items adapted from the National Longitudinal Study of Adolescent Health, ¹⁵ rated on a 5-point scale (1 = <i>never</i> to 5 = <i>everyday</i>), assessed frequency of the following in the last month: dizziness, headaches, chest pain, stomachaches, very tired for no reason, nausea, and poor appetite. Cronbach $\alpha = 0.85$.
Stress	Three items adapted from the brief version of the Perceived Stress Scale, ¹⁶ for example, “In the last month, how often have you felt unable to control important things in your life?” were rated on a 5-point scale (1 = <i>never</i> to 5 = <i>always</i>). Cronbach $\alpha = 0.90$.
Depression	Ten items (one item pertaining to suicidality excluded) rated on a 4-point scale (1 = <i>hardly ever</i> to 4 = <i>all of the time</i>) assessing the frequency of various depressive symptoms in the past month (e.g., “low mood, sadness, feeling blah or down, depressed, and just cannot be bothered”) were derived from Kutcher's Adolescent Depression Scale. ¹⁷ Cronbach $\alpha = 0.92$.
Sleep trouble	Three items, rated on a 5-point scale (1 = <i>never</i> to 5 = <i>always</i>), assessed the frequency of sleep problems in the last month (e.g., “how often have you had trouble falling asleep?”). Cronbach $\alpha = 0.80$.
Covariates	Adolescent-reported gender (<i>female</i> [reference group], <i>male</i> , <i>transgender/another gender identity</i>), race/ethnicity (<i>Black/African American</i> , <i>Asian American</i> , <i>Latino/a</i> , <i>Multiethnic/another racial/ethnic identity</i> , <i>White</i> [reference group due to largest size]), grade level (<i>middle school</i> [reference group], <i>high school</i>), weight status (CDC BMI percentile categories derived from self-reported height, weight, age, sex: <i>obese</i> , <i>overweight</i> , “ <i>normal</i> ” weight [reference group], <i>underweight</i>).

TABLE 2 Associations between weight-based cybervictimization and adolescent health

Predictors	Somatic symptoms		Stress		Depression		Sleep trouble	
	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>
Weight-based cybervictimization	0.24	<0.001	0.22	<0.001	0.27	<0.001	0.20	<0.001
Gender								
Male	-0.26	<0.001	-0.27	<0.001	-0.25	<0.001	-0.19	<0.001
Transgender/other	0.09	0.038	0.08	0.055	0.11	0.015	0.13	0.007
Race/ethnicity								
Black/African American	0.02	0.726	-0.08	0.081	0.01	0.824	0.04	0.447
Asian American	0.04	0.340	0.10	0.023	0.11	0.012	0.07	0.129
Latino/a	0.00	0.942	-0.04	0.311	0.01	0.788	-0.03	0.548
Multiethnic/other	0.05	0.315	0.04	0.371	0.14	0.002	-0.01	0.767
Grade level								
High school	0.19	<0.001	0.26	<0.001	0.18	<0.001	0.17	<0.001
Weight status								
Underweight (BMI <5th %ile)	0.03	0.451	0.05	0.261	0.02	0.609	0.01	0.871
Overweight (BMI 85-94.9th %ile)	0.00	0.954	-0.01	0.783	-0.03	0.570	-0.01	0.864
Obese (BMI \geq 95th %ile)	-0.02	0.672	0.09	0.040	0.13	0.004	0.14	0.004

Note: Weight-based cybervictimization (0 = no experiences of weight-based cybervictimization, 1 = at least one experience of weight-based cybervictimization). Gender reference group = female. Race/ethnicity reference group = white. Grade level reference group = middle school. Weight status reference group = "normal" weight.

Abbreviation: BMI, body mass index.

2 | RESULTS

Weight-based teasing and name-calling on social media, online, and via text were the most common forms of weight-based cybervictimization experienced by adolescents across weight status, while forms of exclusion (e.g., ignoring) and threats because of weight were less common. Overall, 33% of adolescents reported at least one experience of electronic weight-based peer mistreatment. Differences in the prevalence of weight-based cybervictimization emerged as a function of weight status, ($\chi^2(3) = 23.57$; $p < 0.001$), with elevated rates documented among those with overweight (45%) and obesity (60%).

Regression models displaying health implications of weight-based cybervictimization are displayed in Table 2. Over and above sociodemographic covariates and weight status, adolescents who experienced weight-based cybervictimization reported higher levels of somatic symptoms ($\beta = 0.24$; $p < 0.001$), stress ($\beta = 0.22$; $p < 0.001$), depression ($\beta = 0.27$; $p < 0.001$), and sleep trouble ($\beta = 0.20$; $p < 0.001$) compared to their peers who had not been victimized for their weight electronically. Two-way interactions (i.e., weight-based cybervictimization \times weight status) testing whether associations between weight-based cybervictimization and health varied as a function of body weight were non-significant for each of the four health outcomes, suggesting consequential health implications regardless of adolescent weight status.

3 | DISCUSSION

Results of this study suggest that the health implications of WBV may extend to the electronic context. Similar to face-to-face forms of

WBV, our findings indicate that despite elevated prevalence among youth with higher weight, adolescents across the spectrum of body weight are vulnerable to weight-based cybervictimization, which we also found to adversely contribute to somatic symptoms, stress, depression, and sleep trouble regardless of weight status. The consistent links between weight-based cybervictimization and adolescent health in the present investigation align with previously documented health consequences of general cybervictimization.¹⁸ Given that victimization targeting individual characteristics (e.g., body weight) can be even more detrimental to health than global forms of mistreatment,¹⁹ increased attention to weight-based cybervictimization is clearly warranted, particularly in light of increases in the stigmatization of weight during the COVID-19 pandemic.¹²

The community sample in this study allows for generalization of experiences of weight-based cybervictimization to non-clinical populations, and is a strength of the current investigation; however, future studies are needed with greater sample diversity and representation across racial/ethnic groups. Additionally, while the present investigation provides novel insights about WBV in the electronic context, our study is limited by its cross-sectional design and reliance on self-report measures, which likely contributed to high intercorrelations among the four health indicators (r 's = 0.60–0.79). Future research should consider objective health assessments and utilize longitudinal methods to compare health-related trajectories of adolescents experiencing WBV across multiple contexts (e.g., in-person only, electronic only, in-person, and electronic).

Findings from the present study underscore the importance of addressing weight-based cybervictimization in antibullying initiatives

to support healthy adolescent well-being. With growing recognition of the ubiquity of general cybervictimization among youth,⁶ it is important that awareness of electronic forms of WBV are acknowledged and intervention efforts are advanced. Through education and training, healthcare providers, parents, and teachers should be equipped with resources to support youth who are targets of weight-based cybervictimization, and to encourage adolescents themselves to engage in dissenting behaviour (e.g., challenge the bully and support the victim) during instances of weight-based cybervictimization.²⁰

CONFLICT OF INTEREST

Dr. Lessard reports grants from Society for Research in Child Development, during the conduct of the study; Dr. Puhl has nothing to disclose.

AUTHOR CONTRIBUTIONS

The authors' responsibilities were as follows, **Leah M. Lessard**: Conceptualization, Methodology, Formal Analysis, Investigation, Project Administration, Funding Acquisition; **Rebecca M. Puhl**: Methodology, Supervision. All authors were involved in writing the paper and provided final approval of the submitted manuscript. The study was supported by the Society for Research in Child Development Small Grant (PI: Lessard).

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

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