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The development of a new cyberbullying attitude measure

Christopher P. Barlett [a, *], Kaitlyn Helmstetter [a], Douglas A. Gentile [b]

[a] Gettysburg College, United States
[b] Iowa State University, United States

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ABSTRACT

Three studies were conducted to validate a new positive attitude towards cyberbullying measure. Our developed measure is a self-report assessment that consists of nine items. Study 1 (N = 166) used exploratory factor analysis and found two distinct factors: Harmful Cyberbullying Attitudes (HCA; five items) and General Cyberbullying Characteristics (GCC; four items) that both had adequate reliability. The factor structure was replicated using confirmatory factor analysis in Study 2 (N = 336). Additionally, our new measure correlated significantly with existing measures of cyberbullying attitudes and cyberbullying behaviors. Finally, Study 3 (N = 159) further replicated the results of Study 2 and also showed that our HCA measure predicted cyberbullying perpetration above and beyond other cyberbullying attitude measures. Overall, our research suggests that our new cyberbullying attitude measure is reliable and valid.

Cyberbullying is defined as repeated behavior intended to inflict harm on individuals or groups delivered via electronic media (Tokunaga, 2010). The past decade has seen a burgeoning growth of empirical research elucidating the psychological mechanisms that predict cyberbullying perpetration (see Kowalski, Giumetti, Schroeder, & Lattanner, 2014 for a meta-analysis). Although several variables reliably predict cyberbullying perpetration, the development and accessibility of positive attitudes towards cyberbullying has emerged as a key predictor of cyberbullying perpetration (Barlett & Gentile, 2012; Barlett, 2015; Barlett, Gentile, & Chew, 2016; Boulton, Lloyd, Down, & Marx, 2012; Doane, Pearson, & Kelley, 2014; Heirman & Walrave, 2012). An important challenge for researchers studying cyberbullying in an ever-changing technological landscape is creating, implementing, and/or locating reliable and updated self-report questionnaires that are easy to administer. Several recent empirical and review papers have made similar strides in reviewing and assessing measures of cyberbullying perpetration (Berne et al., 2013; Patchin & Hinduja, 2015; Thomas, Connor, & Scott, 2014; Ybarra, Boyd, Korchmaros, & Oppenheim, 2012) with the aim of rigorously testing such questionnaires using a variety of statistical tests aimed at testing reliability, validity, and the factor structure of these measures. Although several cyberbullying attitude measures have been created and implemented none of them have been put through such empirical statistical rigor. Reliability and predictive validity evidence has been shown in the empirical work using a pro-cyberbullying attitude measure, we argue that such evidence is ad hoc and exploratory. Therefore, the purpose of the current work is to create a new cyberbullying attitude measure while statistically testing the internal consistency, factor structure, and validity.

1. The existing cyberbullying attitude measures

We are aware of five published self-report measures of pro-cyberbullying attitudes; however, the evidence of empirical validation has been slow in coming. The first is the Barlett and Gentile (2012) cyberbullying attitude measure, which is a nine item self-report assessment. Although Barlett et al. (2016) showed that the correlation between early cyberbullying attitudes and later cyberbullying behavior was significant – showing predictive validity – there are several limitations with this measure. Barlett (2015) noted poor reliability with this measure, and several of the items of this measure must be updated. For instance, one item references "MySpace", a social networking website that is rarely used today. The second is the 20-item cyberbullying attitude measure employed by Barlett et al. (2014). Unlike the Barlett and Gentile (2012) assessment, this questionnaire has good internal consistency and updated items. Furthermore, Barlett et al. (2014) found evidence for predictive validity. However, this measure has a large number of items, which may limit the ability to administer this

* Corresponding author.
E-mail address: cbarlett@gettysburg.edu (C.P. Barlett).

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scale. Third is the cyberbullying attitude measure used by Doane et al. (2014), which asks participants to rate the valence (i.e., good or bad, harmful or beneficial, and unenjoyable or enjoyable) of several cyberbullying behaviors. Although this measure has been shown to correlate with cyberbullying behavior (predictive validity), this scale has several limitations including a large number of items (e.g., if six cyberbullying items are used, this scale becomes an 18-item questionnaire) and the internal consistency of this measure is unknown as it was not reported in the Doane et al. (2014) study. Fourth is the Heirman and Walrave (2012) measure. This is a four item questionnaire that has good reliability; however, the correlation between cyberbullying attitudes and perpetration was never reported – thus providing no evidence of validity. Finally, Boulton et al. (2012) had participants indicate their attitudes to examples of cyberbullying behaviors on several items (e.g., "The behavior is not so bad"). This measure is limited by only showing significant correlations with certain types of cyberbullying behaviors (i.e., social network bullying and text bullying), but not others (i.e., multimedia upload bullying), making the predictive validity evidence of this measure unreliable. Also, Boulton et al. (2012) did not report internal consistency and the number of items could get large as the number of cyberbullying behaviors increase.

We believe that in certain circumstances these five cyberbullying attitude measures can be useful, but not in others. For instance, some longitudinal work may not have the space available to include an 18–20 item measure along with their other assessments. It is not our intention to criticize these measures or the studies that have used these measures to estimate cyberbullying attitudes. However, it is clear that these measures have limitations, and our aim is to develop a cyberbullying attitude measure that is reliable, valid, and has a small number of items, thereby addressing the limits of the aforementioned assessments. Further, we will submit our measure to the rigors of appropriate scale validation statistical techniques – which has yet to be done for the previous self-report cyberbullying attitude measures.

1.1. Overview of the current research

Three studies were conducted to develop and validate a new cyberbullying attitude measure. All three studies examined reliability, distributional properties, and sex differences in our new measure. The factor structure of our new measure was assessed in Studies 1 (exploratory) and 2 (confirmatory). Studies 2 and 3 correlated our new measure with three other existing cyberbullying attitude measures (concurrent validity) and cyberbullying perpetration (predictive validity) measures. Finally, Study 3 tested the incremental validity of our new measure against other similar measures to examine whether our new measure better predicted cyberbullying perpetration.

2. Study 1

The first study was conducted to examine the factor structure, distributional properties, and internal consistency of a new cyberbullying attitude measure.

3. Method

3.1. Participants

One hundred and sixty-six (59.60% female) undergraduate students from a small liberal arts US college participated in the current study. The majority of the participants were Caucasian (71.1%). The average age of the sample was 20.13 ($SD = 1.13$). The majority of the students were in their third or fourth years of their undergraduate education (52.10%). Due to the brevity of the study, no incentives were provided.

4. Materials

Demographics. A demographic questionnaire was used to assess participant's age, sex, ethnicity, and year in school.

Cyberbullying Attitudes. We created a new positive attitude towards cyberbullying measure. This measure consisted of ten items. Participants were asked to indicate their level of agreement to the items on a 1 (*strongly disagree*) to 5 (*strong agree*) rating scale. All items were summed such that higher scores indicate higher pro-cyberbullying attitudes (Table 1 displays the relevant items).

4.1. Procedure

Members of a research team administered paper-pencil versions of the short survey to other students on campus. Each research assistant would approach another student on campus to ask whether they would complete a short survey. If the individual agreed, participants completed the informed consent before the demographic and cyberbullying attitude questionnaires. Once finished, participants were thanked and fully debriefed.

5. Results

5.1. Exploratory factor analysis

An exploratory factor analysis with Varimax rotation showed that the 10-item scale yielded two factors; however, one item ("If someone wrongs me, it is best to attack them online rather than in person") did not load onto a single factor above 0.50. When this item was removed, an identical factor analysis showed that two factors were retained that accounted for 51.10% of the variance. Table 1 displays the factor loadings for each item on their respective factor. We labeled Factor 1 Harmful Cyberbullying Attitudes (HCA; $\alpha = 0.71$) and Factor 2 General Cyberbullying Characteristics (GCC; $\alpha = 0.62$).

5.2. Descriptive information

Frequency statistics for both factors showed that both HCA ($Z = 12.79$, $p < 0.05$) and GCC ($Z = 4.20$, $p < 0.05$) were significantly positively skewed. The means for HCA ($M = 6.37$; $SD = 2.32$) and GCC ($M = 8.08$, $SD = 2.57$) were near the floor of each factor, but a substantial range of scores was found (HCA: 5–19; GCC: 4–16).

5.3. Correlations

Both parametric (Pearson correlation) and non-parametric (Spearman correlation) tests showed that HCA and GCC significantly correlated with each other ($r = 0.49$, $p < 0.001$; $rho = 0.48$, $p < 0.001$, respectfully).

5.4. Sex differences

Both parametric (independent *t*-test) and non-parametric (Mann-Whitney U) tests showed significant sex differences. For HCA, males scored ($M = 7.40$, $SD = 2.98$) significantly [$t(162) = 5.12$, $p < 0.05$, $d = 0.80$; Mann-Whitney U = 1899.50, $Z = 5.04$, $p < 0.05$] higher than females ($M = 5.65$, $SD = 1.32$). For GCC, males ($M = 9.00$, $SD = 2.74$) scored significantly [$t(162) = 3.98$, $p < 0.05$, $d = 0.63$; Mann-Whitney U = 2135.50, $Z = 3.76$, $p < 0.05$] higher than females ($M = 7.44$, $SD = 2.25$).