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Initial Evidence for the Validity of the California Bullying Victimization Scale (CBVS-R) as a Retrospective Measure for Adults

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Childhood bullying is an important predictor of psychological and health outcomes in adulthood; however, validated retrospective measures of childhood bullying are lacking. This study investigates the psychometric properties of an adult retrospective version of the California Bullying Victimization Scale (CBVS). The CBVS self-report measure was developed for use with children and adolescents to assess the three definitional characteristics of bullying (aggression that is chronic, intentional, and involves an imbalance of power), without using the term “bullying.” In the current study, we evaluate patterns of retrospective reports of bullying victimization, and compare results to a common definition-first measure of bullying. Concurrent validity and 4-year stability are addressed. In the fall of 2012, entering first-year students at 4 universities in the United States ($N = 1,209$; 65.2% female) completed the California Bullying Victimization Scale–Retrospective (CBVS–R) as part of an online survey. In spring of 2016, participants at 2 universities who provided contact information ($N = 175$) completed a 4-year follow-up survey. Results support the validity of the CBVS-R as a retrospective self-report measure of bullying victimization experienced in childhood. In particular, the percent of respondents classified as being bullied (27.9%) and age- and gender-related patterns of victimization were consistent with known patterns of childhood bullying. In addition, respondents reporting childhood victimization indicated increased psychological distress in adulthood. However, stability of reports across a 4-year follow-up period were lower than expected ($\kappa = .38$). Implications for the use of retrospective reports of childhood bullying victimization are discussed.

Public Significance Statement

This study provides initial evidence for the validity of a retrospective self-report measure of childhood bullying victimization. Retrospective bullying assessments can be used to evaluate the long-term impact of bullying, as well as to identify adults who might benefit from interventions specific to their experiences with childhood bullying victimization.

Keywords: bullying, college, measurement, retrospective

Bullying victimization that occurs in childhood can have a range of adverse effects that persist long after the bullying has ended. Prospective studies of bullying that follow samples from childhood

into adulthood find that adults who experienced childhood bullying are more likely than their peers to report symptoms of depression and anxiety, lower levels of self-esteem, higher levels of substance use, difficulty building peer relationships, and poorer overall physical health (Copeland, Wolke, Angold, & Costello, 2013; Lereya, Copeland, Costello, & Wolke, 2015; Olweus, 1993; Sourander et al., 2009; Takizawa, Maughan, & Arseneault, 2014; Ttofi, Bowes, Farrington, & Lösel, 2014). A second body of literature has assessed the long-term impact of childhood bullying on adults using retrospective self-report methods and similarly found that adults who indicated they were previously bullied during their school-age years are at heightened risk of negative mental health outcomes (Campbell-Sills et al., 2017; Espelage, Hong, & Mebane, 2016; Holt et al., 2014; Meltzer, Vostanis, Ford, Bebbington, & Dennis, 2011; Russell, Ryan, Toomey, Diaz, & Sanchez, 2011; Schäfer et al., 2004).

Retrospective report methods are widely used in other areas of maltreatment research. Perhaps most notable is the Adverse Child-

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hood Experiences (ACEs) study, involving over 17,000 HMO members, which showed that retrospectively reported childhood adverse experiences were major risk factors for poor adult quality of life, multiple forms of physical illness, and premature death (Anda et al., 2006; Corso, Edwards, Fang, & Mercy, 2008; Felitti et al., 1998). These associations were so compelling that researchers have recommended that physicians consider routinely screening their adult patients for ACEs (Glowa, Olson, & Johnson, 2016). For both research and clinical purposes, retrospective assessments of childhood bullying that can be administered to adult populations might be similarly valuable. However, in contrast to extensive psychometric testing of adverse childhood experience questionnaires, there has been relatively little work on retrospective assessments of childhood bullying; previous retrospective studies have relied on measures that were not tested for that purpose.

Assessment of Bullying

Bullying is commonly defined as aggressive behavior that is (a) intentional, (b) repeated, and (c) involves an imbalance of power between the target and the aggressor. Effective assessment of each of these three components of the definition of bullying has been the topic of debate (Felix, Sharkey, Green, Furlong, & Tanigawa, 2011; Green, Felix, Sharkey, Furlong, & Kras, 2013; Greif & Furlong, 2006). Researchers studying childhood bullying have used two different methods of self-report to identify targets of bullying. First, the most common approach, which we call the definition-first method, provides a definition of bullying (i.e., behavior involving the three characteristics identified above) and then asks youths whether they have experienced bullying. The advantage of the definition-first approach is that it provides an explicit description of the target behavior. However, critiques of this approach have questioned whether youths can effectively retain all aspects of the definition when they respond to questions (Greif & Furlong, 2006). A concern is that students might inadvertently be influenced by their own prior notions of what the term “bullying” means and may respond to questions based on their interpretation of the word, rather than the definition provided (Felix et al., 2011; Furlong, Sharkey, Felix, Tanigawa, & Green, 2010). Supporting this concern, some studies have shown that students do not incorporate repetition or power imbalance in their personal conceptualizations of bullying and endorse definition-first questions by referencing victimization experiences that were not repeated or did not involve a power imbalance and, therefore, should not be classified as bullying (Finkelhor, Shattuck, Turner, & Hamby, 2016).

In response to these concerns, a behavior-based approach to self-report bullying assessment has been developed (Felix et al., 2011). Using this approach, students are presented with multiple questions about specific characteristics of bullying, but assessments do not use the term bullying. The California Bullying Victimization Scale (CBVS; Felix et al., 2011) was developed using the behavior-based approach, asking students about their experiences with several forms of intentional victimization, including whether that victimization was repeated and involved an imbalance of power between the student and their main aggressor. The CBVS is the first (and one of the only; Vessey, Strout, DiFazio, & Walker, 2014) measure of bullying to explicitly incor-

porate a measure of power imbalance. Previous research has found that, when administered to children, the CBVS scores demonstrate good test-retest reliability (Felix et al., 2011). Further, CBVS scores have demonstrated concurrent validity in comparison to measures of emotional distress and conduct problems (Sharkey et al., 2015).

Several studies have compared the CBVS to definition-first measurement strategies. First, a study comparing the CBVS to the Swearer Bullying Survey (Swearer & Cary, 2003), a definition-first measure, found that these two approaches classified similar rates of students as having been bullied (20 vs. 24% of fifth and sixth graders, 18 vs. 20% of seventh and eighth graders) and that there was moderate agreement in which students were identified (77–85% agreement, $\kappa = .34-.49$; Felix et al., 2011). Second, Green et al. (2013) compared the CBVS to the Olweus Bully/Victim Questionnaire (BVQ; Solberg & Olweus, 2003), a definition-first measure. Again, agreement was moderate (72% agreement, AUC = .72), and results indicated that the BVQ was more strongly associated with CBVS reports of repeated victimization and multiple forms of victimization than reports of power imbalance. Third, Sharkey et al. (2015) found that youth who endorsed the BVQ and also endorsed all of the definitional components of bullying on the CBVS reported more emotional distress and withdrawal than youth who endorsed only the CBVS or only the definition-first measure (without endorsing all criteria on the CBVS). Together, these results suggest that behaviorally based and definition-first measures identify overlapping subsets of youth as being bullied. In particular, behaviorally based measures might be more likely to identify youth meeting all criteria for having been bullied, though some of the students who report experiencing these criteria might not identify their experiences as bullying, *per se*. In contrast, students endorsing the definition-first measure might not meet criteria for having been bullied, but might be more deeply impacted by their victimization experiences. A yet unanswered question is whether these findings persist as adults reflect upon childhood peer victimization experiences.

Retrospective Assessment of Bullying

It is unclear whether patterns of victimization obtained by retrospective measures are consistent with known patterns of childhood bullying. In particular, large-scale and meta-analytic studies of bullying among children estimate that 11–35% of children report they were bullied within the previous few months (Messias, Kindrick, & Castro, 2014; Modecki, Minchin, Harbaugh, Guerra, & Runions, 2014; Nansel et al., 2001). Studies also show that bullying increases in middle school and declines in high school, but this finding is particularly true for physical bullying (e.g., hitting) and less true for rumors, gossip-spreading, and sexual victimization (Felix, Furlong, & Austin, 2009; Hymel & Swearer, 2015; Messias et al., 2014). In addition, recent studies indicate that males are more likely than females to report physical or verbal aggression, whereas females are more likely to report relational aggression (Dukes, Stein, & Zane, 2010; Hymel & Swearer, 2015; Swearer, Espelage, Vaillancourt, & Hymel, 2010; Wang, Iannotti, & Nansel, 2009). Even though most studies reviewed above used a definition-first approach and the word bullying in their measure, a study of students in Grades 5–12 responding to the CBVS similarly found these grade- and gender-related

differences (Felix et al., 2011). These patterns of victimization are important for retrospective measures to replicate.

Two studies, albeit with small sample sizes, indicate that retrospective self-report measures of bullying administered to adults have the potential to demonstrate reliability and validity. First, Rivers (2001) examined the stability of recall in retrospective reports of school bullying, specifically as it related to experiences of victimization associated with sexual minority status. Sixty adults in the United Kingdom, recruited through advertisements targeted to LGBTQ communities, completed surveys about school bullying experiences twice, at least a year apart. Data showed moderate correlations between the two assessment points in respondent reports of their age at the time of their first bullying experience ($r = .38$), the length of time they were bullied ($r = .43$), and specific forms of bullying (e.g., called names, teased, hit, or kicked; $\phi = .21-.58$). Second, Olweus (1993) compared teacher and peer nominations of bullying collected among 75 boys in Grades 6–9 who also provided retrospective self-reports of bullying when they were 23 years old. Results indicated that childhood victim status, based on independent teacher and peer nominations, was moderately correlated ($r = .58$) with retrospective self-reports of childhood bullying victimization in adulthood.

There are many challenges associated with the use of retrospective self-report assessments of bullying. One is related broadly to any retrospective reporting of adverse childhood experiences. These include whether adults can recall and report accurately on childhood events, as well as the extent to which retrospective reports might be influenced by current mood and functioning (for a review, see Hardt & Rutter, 2004). Another is that self-report measurement of bullying, even among children, has proven to be tricky. This is because of the complex definition of bullying and difficulty operationalizing measurement of intentionality and imbalance of power.

Study Aims

An increasing number of research studies on the long-term effects of bullying, as well as clinical interest in identifying prior bullying experiences among adults, necessitates attention to retrospective self-report methods. The current study presents preliminary evidence for the validity of the CBVS-R (California Bullying Victimization Scale–Retrospective) as a self-report measure for adults when recalling their childhood bullying victimization. Using data from a study of the association of retrospective report of bullying experience during the K–12 school grades with college outcomes (Holt et al., 2017), we assess several properties of the CBVS-R measure. First, we evaluate whether patterns of bullying victimization reported using this retrospective measure are consistent with well-established age and gender patterns in the literature. Second, as in a previous study using the CBVS (Felix et al., 2011), we evaluate the extent to which the sample of adults identified as having been previously bullied on the CBVS-R is consistent with the sample identified using a definition-first measure. We expect that these two approaches will identify similar percentages of victims who are overlapping, yet also identify significantly different subsets of study participants as having been previously involved in bullying (concurrent validity). Third, we assess the convergent validity of the CBVS-R by comparing the measure to assessments of mental health. In particular, we test whether spe-

cific components of the CBVS-R classification (i.e., repeated victimization, power imbalance) are associated with anxiety and depression, the problem types most consistently associated with differences in assessment approaches in Sharkey et al. (2015). Finally, in a subset of participants who completed a follow-up assessment, we assess measure stability.

Method

Study Design and Participants

In the fall of 2012, entering first-year students at four universities in the United States ($N = 8,419$) were invited to complete an online survey about their “adjustment to college.” As described in more detail elsewhere (Holt et al., 2017), one university sent e-mail invitations to all ($N = 4,631$) first-year students to participate (response rate = 13%), two universities invited random samples of 333 and 1,000 first-year students to participate by e-mail (response rates = 17 and 40%, respectively), and in one university e-mail invitations were sent in two of the university colleges and an advertisement was included in a student newsletter ($N = 2,455$, overall response rate = 53%). Of the 8,419 students invited to participate, 1,337 students completed the survey (15.9% response rate). The final sample with complete CBVS-R data for the current analysis was 1,209 (65.2% female). The majority of participants were 18 years old (85.7%), 12.4% of participants were 19 years old, and the remaining 1.8% reported that they were 20 or older. Respondents’ race/ethnicity was distributed as follows: 50.4% White/Caucasian, 23.6% Asian/Pacific Islander, 14.3% Biracial, 8.4% Latinx, 2.6% Black/African American, and 0.8% other ethnic/racial groups. In spring of 2016, participants at two universities who provided contact information ($N = 373$) were invited to complete a 4-year follow-up survey. A total of 175 students completed this follow-up survey (47% response rate) and provided data on bullying victimization at both time points. Compared with noncompleters, students completing the follow-up survey were significantly more likely to be female (74.7 vs. 63.6%, $\chi^2[1, 1209] = 8.14, p = .004$) and to identify as White/Caucasian (60.0 vs. 48.7%, $\chi^2[4, 1197] = 13.09, p = .011$). All procedures were approved by University Institutional Review Boards.

Measures

California Bullying Victimization Scale–Retrospective (CBVS-R). Childhood bullying experiences were assessed using a retrospective version of the California Bullying Victimization Scale (CBVS; Felix et al., 2011), which does not use the word bullying and was originally developed for students in Grades 5–12. The reliability and validity of the CBVS score have been documented in previous studies with both children and adolescents (Atik & Guneri, 2012; Felix et al., 2011). Addressing the three fundamental components of bullying, the CBVS-R asks about childhood peer victimization that is (a) intentional, (b) repeated, and (c) involves a power imbalance between target and aggressor. The CBVS-R first assesses the presence of eight specific types of victimization: teasing, rumor spreading, social exclusion, hitting, threatening, sexual jokes/gestures, stealing, and online aggression. In the question stem, respondents are asked to indicate whether each form of victimization was enacted “in a mean or hurtful way.”

Table 1

Item-Level Descriptive Statistics of Victimization Experienced 2–3 Times or More per Month by Males (M) and Females (F) (N = 1,209)

Victimization type	School level					
	Elementary (n = 202)		Middle (n = 298)		High school (n = 263)	
	Males (%)	Females (%)	Males (%)	Females (%)	Males (%)	Females (%)
Teased	15.9	10.4**	18.5	16.6	7.4	9.8
Rumors	3.8	3.9	7.8	9.8	5.7	11.0**
Ignored	9.5	7.9	13.1	13.6	8.8	14.1**
Hit	2.1	1.9	4.0	1.5**	3.1	.9**
Threatened	1.9	.9	3.3	1.5*	3.3	2.7
Sexual comments	1.7	.9	4.0	3.4	4.0	7.1*
Property	1.4	.6	1.4	.6	1.7	.8
Internet	.0	.4	1.4	3.6*	1.9	4.4*
Any (at least 1)	17.8	15.9	23.8	24.9	16.9	23.9**

Note. Participants could indicate experiencing victimization at multiple school levels and be included in more than one column.

* $p < .05$. ** $p < .01$.

to establish that victimization was intentional. Next, for each form of victimization endorsed, respondents are asked to indicate the frequency of that form when it was “at its worst” on a 5-point scale (*a few times a year, about once a month, 2 or 3 times a month, about once a week, several times a week*) as well as the times in their lives when each form of victimization took place (*elementary school, middle school/junior high, or high school*). Respondents who reported at least one form of victimization were prompted to answer additional questions to indicate whether the main person who was the aggressor during childhood was perceived to have a power advantage by virtue of being (a) *more popular*, (b) *more intelligent*, (c) *physically stronger*, (d) *more attractive*, (e) *more athletic*, (f) *having more money*, or (g) *being older* than the respondent. This list of seven potential power advantages was included in a study by Green et al. (2013) and expanded from the list of three reported by Felix et al. (2011). Respondents were categorized as victims of bullying if they endorsed at least one form of intentional victimization, repeated victimization (at least 2 to 3 times per month at the time when it was at its “worst”), and indicated that the aggressor had a power advantage in at least one domain. We also calculated a *total victimization* score by summing the eight types of victimization for each participant; this score was calculated for elementary, middle, and high school. Participants completed the CBVS-R in fall 2012 and spring 2016.

Definitional measure of bullying. After completing the CBVS-R, participants responded to the following *yes* or *no* question derived from the Swearer Bullying Survey (Swearer & Cary, 2003): “Bullying happens when someone hurts or scares another person on purpose and the person being bullied has a hard time defending himself or herself. Usually, bullying happens over and over. Did anyone bully you at school?” One-item definitional measures of bullying have been used in prior research to document the prevalence of bullying (Due & Holstein, 2008; Nansel et al., 2001; Schneider, O’Donnell, Stueve, & Coulter, 2012).

Depression. Current levels of depression were assessed using the 9-item Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001), a measure from the Primary Care Evaluation of Mental Disorders (PRIME-MD; Kroenke, Spitzer, Williams, & Löwe, 2010). This brief self-report measure is a commonly used screening tool used to evaluate the severity of depression and has

demonstrated adequate reliability and validity (Kroenke et al., 2001). The questionnaire items ask how often respondents have experienced symptoms in the preceding two weeks. Examples of symptoms include: “feeling down, depressed, or hopeless” and “little interest or pleasure in doing things.” Participants choose from four response options: 1 (*not at all*), 2 (*several days*), 3 (*more than half the days*), and 4 (*nearly every day*). A total score is calculated by summing the nine questionnaire items. Cronbach’s α for the current sample indicated good internal consistency ($\alpha = .88$).

Anxiety. Current levels of anxiety were assessed using the Generalized Anxiety Disorder 7-item scale (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006). Like the PHQ-9, this brief self-report measure was from the PRIME-MD and has demonstrated adequate score reliability and validity (Spitzer et al., 2006). Questionnaire items address symptoms, for example “feeling nervous, anxious or on edge,” and prompt respondents to rate how often they have experienced each symptom in the preceding 2 weeks, using the same 4-point scale as the PHQ-9. The seven items are summed for a total score. Cronbach’s α for the current sample indicated good internal consistency ($\alpha = .91$).

Results

Rates of Peer Victimization

Descriptive statistics were calculated to identify the percent of respondents who indicated that victimization occurred at each school level (elementary, middle, or high school) and by gender, because of well-established gender and grade-level changes in reported bullying victimization. Participants could report victimization at one, two, or all three school levels. Teasing was the most frequently reported form of repeated victimization in elementary (12.3%), middle (17.3%), and high school (9.8%), with significant differences between males and females in elementary school, $\chi^2(1, 1,209) = 7.71, p = .006$. Reports of being repeatedly teased, ignored, and hit increased from elementary to middle school and then decreased in high school. Reports of repeated rumors, threats, sexual comments/gestures, stealing, and Internet victimization were most fre-

quent in high school. As shown in Table 1, female high school students more often than males reported relational victimization (rumors and being ignored), sexual victimization, and online victimization. Males reported physical victimization (being hit, being threatened) in middle and high school more often than females. Data on the frequency of overall victimization reported at each of the three school levels is presented in Table 2.

Respondents who indicated repeated victimization (at least 2–3 times a month) and also reported that the main aggressor had a power advantage in one or more categories were classified as victims of bullying. Among those reporting repeated victimization ($N = 416$), respondents reported that aggressors were: more popular (48.3%), stronger (42.7%), more athletic (33.4%), had more money (31.5%), more attractive (28.0%), older (14.3%), and smarter (6.0%). The CBVS-R classification identified 27.9% of the sample ($n = 337$) as targets of bullying. Males and females were equally likely to be classified as targets of bullying (28.3% of males, 27.6% of females).

Comparison of Measurement Strategies

To test concurrent validity, respondents classified as childhood victims of bullying on the CBVS-R were compared with respondents identified as childhood victims of bullying using the “definition-first approach,” as measured by the Swearer Survey (Swearer & Cary, 2003). The percent of respondents classified as being bullied in childhood were similar in the definition-first measure (27.1%) and the CBVS-R (27.9%). However, as in past research with adolescents (Felix et al., 2011), there were significant differences in which students were identified using each of these measurement approaches. In total, 61% of respondents indicated they were not victims of bullying on either measure and 16% reported they were victims of bullying on both measures. However, 12% reported bullying victimization only on the CBVS-R and 11% reported bullying victimization only on the definition-first measure. The total percent agreement was 76.9% ($\kappa = .419$).

Thus, respondents were categorized into four groups based on their endorsement of (a) neither the CBVS-R or the definition-first measure (61%), (b) the CBVS-R only (12%), (c) the definition-first measure only (11%), and (d) both measures

(16%). A χ^2 test indicated that there were no significant gender differences across these four groups. Results of one-way analysis of variances (ANOVAs) indicated significant differences across these four groups on measures of depression (PHQ-9; $F(3, 1179) = 24.9, p < .001$), and anxiety (GAD-7; $F(3, 1180) = 25.3, p < .001$). Participants in the group that did not endorse either measure of bullying had significantly lower depression scores ($M = 4.18, SD = 4.11$) than the other subgroups. The no bullying group also had significantly lower anxiety scores ($M = 2.83, SD = 3.87$) than the CBVS-R only and the both group (though not the definition-first measure only group). Rates of depression and anxiety were higher among participants endorsing the CBVS-R only ($M = 6.61, SD = 5.91$ for PHQ-9; $M = 4.81, SD = 3.74$ for GAD-7) than those endorsing the definition-first measure only ($M = 5.64, SD = 5.19$ for PHQ-9; $M = 3.74, SD = 4.18$ for GAD-7), but these differences were nonsignificant. Those endorsing both the CBVS-R and definition-first measure reported significantly higher PHQ-9 and GAD-7 scores ($M = 7.19, SD = 6.37$ for PHQ-9; $M = 5.61, SD = 5.29$ for GAD-7) than those in the no victimization and definition-first measure only groups (though not the CBVS-R only group).

Convergent Validity

We evaluated the convergent validity of the CBVS-R in comparison to measures of current depression and anxiety by estimating a series of point-biserial correlations (see Table 3). Bullying victimization classification on the CBVS-R was moderately and significantly associated with higher depression, $r = .23, p < .001$ and anxiety, $r = .23, p < .001$. These patterns persisted in samples stratified by gender.

To identify which of the definitional components of the CBVS-R were most strongly associated with depression and anxiety, we analyzed anxiety and depression scores among participants who did and did not report repeated victimization and power imbalance. First, we identified whether endorsement of repeated victimization (i.e., 2–3 times per month or more) was specifically associated with anxiety and depression. We took the subset of participants who endorsed any victimization at any school level paired with power imbalance then, compared those who reported repeated victimization (i.e., 2–3 times a month or more) to those who reported victimization fewer than two times per month. Among participants reporting any victimization paired with power imbalance, those indicating repeated victimization reported significantly higher rates of anxiety, $t(928) = 6.48, p < .001$, and depression, $t(930) = 6.91, p < .001$, than those reporting infrequent victimization.

Second, we identified whether endorsement of power imbalance was specifically associated with anxiety and depression. We took the subset of participants who reported repeated victimization (i.e., 2–3 times per month or more) then, compared those who reported a power imbalance to those who did not endorse a power imbalance. Among participants reporting repeated victimization, those also reporting a power imbalance indicated significantly higher anxiety, $t(406) = 2.09, p = .037$, but not depression scores, compared with participants who experienced repeated victimization but reported no power imbalance.

Table 2

Distribution of Victimization Experiences Reported Across School Levels Among Those Reporting Repeated Victimization in Fall of First Year ($n = 407$)

School level	Peer victims
	n (%)
Elementary only	36 (8.8%)
Middle only	57 (14.0%)
High only	65 (16.0%)
Elementary and middle	51 (12.5%)
Elementary and high	8 (2.0%)
Middle and high	83 (20.4%)
Elementary, middle, and high	107 (26.3%)

Note. An additional nine participants reported that they experienced repeated victimization, but either indicated that it occurred only in college or did not respond to questions about the school level at which it occurred.

Table 3
Point-Biserial Correlations of CBVS-R Bullying Victimization Classification With Measures of Psychological Distress

Psychological distress	Bullying (CBVS-R)		
	Total sample	Females	Males
Depression (PHQ-9)	.23**	.23**	.22**
Anxiety (GAD-7)	.23**	.24**	.21**

Note. CBVS-R = California Bullying Victimization Scale-Retrospective; PHQ-9 = 9-item Patient Health Questionnaire; GAD-7 = Generalized Anxiety Disorder 7-item scale.

** $p < .01$.

Four-Year Stability

Finally, we assessed the stability of the CBVS-R comparing reports of bullying in childhood (i.e., not at college) during the first assessment (fall of first year of college) with the same assessment of childhood victimization completed 4 years later (spring of fourth year of college) in a subsample of respondents who completed assessments at both time points ($N = 175$). Of respondents in this subsample, 32.0% were classified by the CBVS-R as bullying victims in childhood based on their responses to the survey in their first-year of college and 37.1% were classified as bullying victims in childhood based on responses to the survey in their fourth year of college. Overall there was 72.0% agreement ($\kappa = .383, p < .001; r = .39, p < .001$) in reports of childhood bullying across time points.

Discussion

Although many studies have collected retrospective self-reports of bullying, to our knowledge, this is the first to study the psychometric properties of a retrospective measure of bullying victimization with adults. At the time of the first retrospective assessment, participants had recently matriculated from high school, which presumably offered the optimal point in time to ask about K–12 childhood bullying experiences. The behaviorally based method of the CBVS-R is designed to address some of the limitations of existing measures of bullying victimization, specifically by explicitly measuring power imbalance to distinguish bullying victimization from the broader class of peer victimization. This differentiation has been highlighted in prior research (Finkelhor et al., 2016; Green et al., 2013; Ybarra, Espelage, & Mitchell, 2014) as an important area of investigation because of implications for understanding the diverse outcomes associated with peer victimization.

Further, the CBVS-R does not use the word bullying. Results suggest that some students might be impacted by the actual victimization they experienced, as compared with others who may be more affected by their self-perception or identity as a target of bullying (Sharkey et al., 2015). Identifying how college students define and conceptualize their childhood peer experiences has implications for understanding the narrative that they have constructed of K–12 life that might influence their perspectives when entering a new college context. Several findings from this study suggest that the CBVS-R demonstrates promise as a valid retrospective measure of bullying that can be used to identify respondents at risk for negative psychological outcomes.

Rates and Patterns of Peer Victimization

The estimated prevalence of bullying victimization identified using the CBVS-R (27.9%) and its demographic patterns were generally consistent with prior studies conducted during childhood. Although prevalence estimation in previous research has varied (i.e., 11–35%), likely because of sampling and measurement differences, recent large-scale studies suggest that one-quarter to one-third of student populations report bullying in the past several months (Due & Holstein, 2008; Messias et al., 2014).

Patterns of peer victimization that emerged in the retrospective reports were also consistent with patterns typically reported in research among children. In particular, as was found in the child version of the CBVS (Felix et al., 2011), retrospective reports of most forms of peer victimization increased from elementary to middle school and then decreased in high school. The few forms of peer victimization that increased from middle school to high school were consistent with some other research that has found, for example, that cyber-victimization (Messias et al., 2014) and sexual victimization (Felix et al., 2009) increase in high school. Patterns of reports by gender were also generally consistent with prior research; females reported higher rates of relational and sexual harassment victimization, whereas males reported higher rates of physical victimization (Felix et al., 2009; Hymel & Swearer, 2015; Swearer et al., 2010).

Comparison of Measurement Strategies

Next, we compared reports on the CBVS-R to retrospective reports on a definition-first measure of bullying. As in the child version of the CBVS (Felix et al., 2011), we found that these two measures estimated a similar prevalence of bullying victimization, but identified different subsets of respondents reporting bullying victimization. This finding is consistent with previous evidence (Felix et al., 2011) suggesting that the method used to assess bullying has an impact on respondent reporting patterns. Respondents who endorsed the definition-first measure might have a self-perception of being a recipient of bullying, which made them more likely to identify with that term and the related definition (Sharkey et al., 2015). By not using the word bullying, the CBVS-R is designed to identify respondents who have experienced all the definitional experiences of bullying, even if they do not conceptualize those experiences as bullying, per se. By explicitly requiring respondents to endorse a form of power imbalance, however, the CBVS-R limits bullying victims to respondents who perceive themselves to have reduced social status or a power disadvantage in one of seven domains. We found no significant differences in gender or depression and anxiety scores among respondents who endorsed the CBVS-R only and the definition-first measure only, suggesting that both measures identify groups of students experiencing psychological distress.

A particularly important finding is that students who endorse both the CBVS-R and the definition-first measure report the highest levels of anxiety and depression. This finding is consistent with a prior study among children (Sharkey et al., 2015) and suggests that respondents in the most distress are those who both indicate that they experienced repeated aggression by someone more powerful and also perceive themselves to be a victim of bullying. The finding that these measurement approaches interact to identify the highest risk group indicates a need for deeper understanding of how victimization experi-

ences and the narrative constructed around them are associated with long-term outcomes. Clinicians and researchers could consider coadministering the two assessment methods to identify respondents with the highest need for clinical care. However, for practical screening purposes it also appears that either method will identify those in this highest risk subgroup. More research is needed to identify factors that differentiate the groups with inconsistent responses on these two types of measures.

Association With Adult Mental Health

In analyses examining the CBVS-R association with adult mental health, results indicated that classification as a bullying victim on the CBVS-R was significantly associated with depression and anxiety among college students. These patterns persisted in subgroups stratified by gender, but were slightly higher for females, suggesting that the CBVS-R endorsement by females might be more strongly associated with psychological distress than for males. Further, analysis of two of the core components of the definition of bullying—power imbalance and repeated victimization—indicated that students endorsing both of these components reported higher ratings of anxiety than students endorsing only one of them. Those indicating repeated victimization also reported they had higher rates of depression than their peers who indicated experiencing a power imbalance, but no repeated victimization. This result supports the importance of independent assessments of power imbalance and repetition of victimization in identifying the group of students at greatest risk for negative psychological outcomes.

Long-Term Stability of Retrospective Report

Finally, stability in retrospective self-reports of repeated victimization was lower than what one would hope for to feel confident in the accuracy of retrospective reports of bullying. In particular, it was a little lower than the range reported in one previous study evaluating retrospective self-reports of adverse childhood experiences (κ values for the prior study ranged from .41 to .86; Dube, Williamson, Thompson, Felitti, & Anda, 2004; for the current study $\kappa = .38$). Our findings, however, were comparable with a 1993 study by Olweus, in which self-report of childhood victim status in ninth grade and at age 23 were moderately correlated ($r = .42$ in the Olweus study, $r = .39$ in the current study) and similar to a recent study comparing prospective and retrospective reports of adverse childhood experiences ($r = .47$; $\kappa = .31$; Reuben et al., 2016). Consistent with some prior studies of traumatic events, results also indicate an increase in reporting of bullying from the first to the second assessment (Krinsley, Gallagher, Weathers, Kutter, & Kaloupek, 2003).

There are several possible reasons for discrepancies in college students' reports from Year 1 to Year 4. Participants may have recalled peer victimization at both time points, but with a different frequency at each time point, such that the CBVS-R (that requires victimization at least 2–3 times a month) did not classify it as bullying at both points in time. However, we assessed several different ways of comparing victimization reported at both time points (i.e., in high school only, any frequency) and stability remained in the same range. Events occurring at the time of one survey, but not the other, in the

respondent's life (i.e., current mental health problems or peer relationships) might have biased childhood recall accounts. For example, some studies have found that current mood states and posttraumatic stress influence retrospective reporting of trauma experiences (Engelhard, van den Hout, & McNally, 2008; Hardt & Rutter, 2004); however, in other studies this does not appear to be the case (Pinto, Correia, & Maia, 2014). In addition, peer victimization or other trauma that occurred during the first-year college might have altered awareness of past experiences, making it either more or less likely that respondents would effectively recall childhood bullying. Other college experiences such as taking psychology courses, undergoing therapy, or participating in training to address bullying might help respondents better understand and redefine their past experiences. Finally, it is possible that for some students, memories of experiences before college fade and become less important such that they are difficult to recall with consistency (Dekel & Bonanno, 2013; Reuben et al., 2016). Each of these are possible points for follow-up investigation. For example, structured interviews with college students in Year 1 and Year 4 that asked about peer victimization and definitional components involved in the self-report of bullying might provide insight into whether there were global changes in recall or alterations in details (e.g., frequency) over time. A prospective study documenting bullying victimization throughout a participant's childhood and adolescence with follow-up retrospective reports would be the most rigorous method for establishing the validity of retrospective self-report of bullying victimization.

Limitations and Future Directions

This study is the first, to our knowledge, to examine the psychometric properties of a retrospective assessment of childhood bullying. Results suggest that the CBVS-R has initial promise as an assessment tool, however, there were several limitations to the current study. First, results of this study are based on self-report measures of bullying victimization only. Many researchers of bullying victimization among children have advocated for a multi-informant approach, particularly incorporating peer nomination (Cornell & Brockenbrough, 2004). In the case of adult retrospective reporting, it is possible that siblings or parents could provide important perspectives regarding childhood victimization, but collecting these reports would also seem to impose logistical and potentially ethical challenges, without certainty that they would improve accuracy.

Second, the CBVS-R asked respondents about victimization at different school levels in their childhood, however, it only asked questions about frequency and the power advantage at the time that the respondent perceived the victimization to be "at its worst." Because these questions were only asked once, we were not able to identify whether victimization met criteria for bullying at each school level. In future research, these follow-up questions could be asked at each school level, though that would lengthen the scale. Third, although the 4-year follow-up period allowed us to assess long-term stability, the results raise questions about the stability of the measure and whether adults can accurately report their childhood bullying experiences. As noted above, this may reflect a larger problem of stability of retrospective reports of childhood victimization (Dube et al.,

2004). Fourth, as in many longitudinal studies, the attrition rate is high for the 4-year follow-up. There may have been systematic bias in which students were likely to complete the follow-up survey. Finally, measures used in the convergent validity analysis included only indicators of internalizing (anxiety and depression) problems. We were, therefore, unable to identify whether there were distinctions between internalizing and externalizing outcomes, as was done in a prior study (Sharkey et al., 2015).

The results of this study have implications for future research. In general, more research is needed on the accuracy of recall of victimization experience and whether the accuracy of recall over time is associated with key clinical outcomes. For example, does decreased accuracy of recall as students progress through college suggest that adjustment has been positive and childhood bullying has diminished in its salience? Alternatively, students might alter their reporting of childhood victimization experiences if more recent stressors or traumas overshadow those early experiences.

Further research is also needed on the challenges of measuring power imbalance in retrospective measures of bullying. The CBVS-R attempts to infuse questions about power imbalance because there is evidence among children that power imbalance is associated with poorer life outcomes (Finkelhor et al., 2016; Green et al., 2013; Ybarra et al., 2014). However, the optimal method for assessing power imbalance remains unclear and future research will benefit from exploring whether the way power disadvantage is measured best captures experiences with power in these dynamic peer relationships. In particular, the nature and form of power imbalance might change over the course of development such that whether and how adults retrospectively reflect on their experiences of power (or powerlessness) might be qualitatively different than the experiences of children. Such dynamics might be critical to understanding heterogeneity in bullying victimization experiences and whether feelings of powerlessness persist in other domains of functioning.

Another consideration is whether behaviorally based measurement should be paired with definition-first measures. Clinicians working with adults could consider whether one of these methods alone will be sufficient to identify and respond to the needs of those who experience distress related to childhood bullying. Finally, just as research on the ACEs has sparked conversation about the importance of retrospectively evaluating childhood maltreatment and victimization (Glowa et al., 2016), we hope that measurement tools like the CBVS-R can facilitate discourse related to the long-term effects of bullying victimization. Without validated measurement tools, these discussions are limited and might not fully capture the complexities of bullying dynamics that are most relevant to long-term wellbeing.

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