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# Validity of Suicidality Items From the Youth Risk Behavior Survey in a High School Sample

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## Abstract

The Youth Risk Behavior Survey (YRBS) is used by the United States Centers for Disease Control to estimate rates of suicidal thoughts and behaviors in adolescents. This study investigated the validity of the YRBS suicidality items by examining their relationship to criterion variables including loneliness, anxiety, depression, substance use, and other suicidality items. Participants were 386 high-school students. YRBS items assessing suicidal thoughts and behaviors demonstrated good convergent and discriminant validity.

## Keywords

YRBS, suicide, attempt, ideation, adolescents, validity

Suicidality is a major mental health problem among adolescents. Suicide is the third leading cause of death among Americans aged 10 to 24 and suicidal ideations are associated with many other health-risk behaviors (e.g., substance use, aggression), psychological disorders (e.g., depression, bipolar, anxiety), and distressing psychological states (e.g., loneliness; Afifi, Cox, & Katz, 2007; Brent et al., 1993; Johnson, Cohen, et al., 2002; Ohring et al., 1996). Obtaining accurate epidemiological data about suicidality in youth is essential for monitoring trends and assessing the extent of this public health problem.

The most comprehensive data on suicidal ideation and attempts in youth in the United States come from the Youth Risk Behavior Survey (YRBS). The YRBS is a national school-based survey conducted by the Centers for Disease Control (CDC, 2009). The middle school version of the YRBS includes three questions assessing suicidality throughout the lifetime, while the high school version includes four questions assessing suicidality in the past 12 months. The most recent assessment, in 2007, included over 14,000 high school students (Eaton et al., 2008). Importantly, estimates by the CDC regarding the prevalence of suicidal ideation and attempts in youth rely on YRBS suicide data (Eaton et al., 2008).

Despite the widespread use of the YRBS and its central role in estimating national trends in teen suicidality, the validity of YRBS suicide items has not been fully established. There is good support for the reliability of YRBS suicide items (Brener et al., 2002). Research on validity has thus far only examined correlations between YRBS suicide items and other health-risk behaviors such as substance use,

aggression and victimization, and risky sexual activity (Burge, Felts, Chenier, & Parrillo, 1995; Epstein & Spirito, 2009; Woods et al., 1997). The analyses in the present study were conceived to further explore the validity of the YRBS items. Specifically, we aimed to support the convergent and discriminant validity of YRBS suicide items by examining their relationship to suicidality items from other measures as well as measures of theoretically related constructs such as anxiety, depression, substance use, and loneliness.

## Method

The sample consisted of 386 students in Grades 9 through 12 from a high school in Long Island (Queens), New York. IRB approval, permission from parents, and assent from participants were obtained prior to administration of the study protocol. A total of 700 students were targeted; thus, the 386 represent a 55% response rate. Participants completed a series of validated questionnaires including the Patient Health Questionnaire for Adolescents (PHQ-A; Johnson, Harris, Spitzer, & Williams, 2002; Spitzer & Johnson, 1995), the McLean Screening Instrument for Borderline Personality Disorder (MSI-BPD; Zanarini et al., 2003), the UCLA Loneliness Scale (Russell, 1996), and the YRBS suicide questions from both the middle school

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**Table 1.** Associations of YRBS suicidality items with criterion variables

	Lifetime ideation	12-month ideation	Lifetime attempt	12-month attempt
In the last 2 weeks, have you often had thoughts that you would be better off dead or of hurting yourself in some way? (PHQ)	.51***	.57***	.34***	.40***
Has there been a time in the past month when you have had serious thoughts about ending your life? (PHQ)	.54***	.71***	.48***	.61***
Have you deliberately hurt yourself physically? Or, how about made a suicide attempt? (MSI-BPD)	.44***	.31***	.51***	.44***
Loneliness (UCLA—10 items) <sup>a</sup>	.35***	.31***	.20***	.20***
Current Anxiety Disorder (from PHQ—26 items)	.24***	.35***	.18**	.24***
Current Depressive Disorder (from PHQ—13 items)	.23***	.35***	.12*	.17**
Current Alcohol Abuse Symptoms (from PHQ—10 items) <sup>a</sup>	.12*	.12*	.19***	.12*
Frequency of Current Cigarette Use (from PHQ—1 item) <sup>a</sup>	.08	.13**	.11*	.10*
Frequency of Current Drug Use (from PHQ—1 item) <sup>a</sup>	.08	.12*	.15**	.15**

Note: For dimensional criterion variables point-biserial correlations ( $r_{pb}$ ) are reported. For dichotomous criterion variables, phi coefficients ( $\phi$ ) are reported. The Yates' correction was used to adjust the significance levels when expected cell counts were less than 5.

a. Denotes a dimensional variable. Other variables are dichotomous.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

and high school versions (CDC, 2009; Shanklin, Brener, McManus, Kinchen, & Kann, 2007).

The YRBS suicide items consisted of two questions that assessed lifetime ideation ("Have you ever seriously thought about killing yourself?") and "Have you ever made a plan about how you would kill yourself?") and one question that assessed lifetime attempts ("How many times have you actually tried to kill yourself?"). Endorsing either thinking about or planning an attempt was coded as ideation. Similar YRBS questions were asked for the past 12 months. The criterion variables included two questions from the PHQ-A, which assess recent suicide ideation and an item from the MSI-BPD, which assesses lifetime self-harm or suicide attempt, as well as scores on the UCLA Loneliness Scale, and symptoms of depressive, anxiety, and substance use disorders based on the PHQ-A.

## Results and Discussion

Suicidality rates in the current sample were slightly lower than in the New York City sample collected by the CDC (Eaton et al., 2008). The prevalence of ideations within the last 12 months in our sample (10.2%) was comparable to the CDC's New York City sample (11.8%), whereas the prevalence of attempts in the last 12 months in our sample (3.5%) was lower than the New York City sample (7.5%).

To examine relationships between YRBS items and criterion variables, phi coefficients ( $\phi$ ) were utilized for dichotomous criterion variables and point-biserial correlations ( $r_{pb}$ ) were utilized for dimensional criterion variables.

### Convergent Validity

As shown in Table 1, the YRBS suicidality items displayed consistent agreement with other suicidality items ( $\phi$  ranged

between .31 and .71), supporting the convergent validity of the YRBS. Regarding convergence with theoretically related psychological variables, all YRBS ideation and attempt items exhibited significant associations with measures of depression, anxiety, and loneliness ( $\phi$  and  $r_{pb}$  ranged between .12 and .35; see Table 1 for details). Because both depression and anxiety scores reflected current psychological functioning, it follows that they more strongly related to 12-month ideation ( $\phi = .35$  and .35) and attempt ( $\phi = .17$  and .24) items than to lifetime ideation ( $\phi = .23$  and .24) and attempt ( $\phi = .12$  and .18) items. In addition, YRBS suicide attempt items exhibited small but significant associations with cigarette, drug, and alcohol use ( $r_{pb} = .10$ -.19).

### Discriminant Validity

Consistent with item content, and in support of discriminant validity, YRBS 12-month items tended to be more strongly associated with *current* suicidality items from other measures as compared to YRBS lifetime items. For example, the relationships of YRBS 12-month ideation and attempt items to PHQ-A past-month ideation ( $\phi = .71$  and .61, respectively) were larger than the corresponding association for YRBS lifetime ideation and attempt items ( $\phi = .54$  and .48, respectively). Also consistent with discriminant validity, YRBS ideation items tended to be more strongly associated with *ideation* items from other measures ( $\phi = .51$ -.71) than were YRBS attempt items ( $\phi = .34$ -.61). Similarly, lifetime and 12-month YRBS attempt items tended to be more strongly associated with the MSI-BPD attempt/self-harm item ( $\phi = .51$  and .44, respectively) than were YRBS ideation items ( $\phi = .44$  and .31, respectively). For these analyses, differences between the phi coefficients being compared were significant or marginally significant (ps ranged between .000 and .160).

## Conclusions and Limitations

Overall, results supported the convergent and discriminant validity of the YRBS suicide items. Consistent with convergent validity, the YRBS items were most highly correlated with other items measuring suicidality and also significantly correlated with psychological constructs known to confer suicide risk. Consistent with discriminant validity, YRBS items were more strongly associated with criterion items that were temporally similar (current vs. lifetime) and with criterion items that measured the same type of suicidality (ideation vs. behavior). YRBS suicide items were less strongly related to substance use criterion variables than expected. This may be attributable to the low prevalence of hard drug use and substance abuse diagnoses in our sample or to other unique sample characteristics.

These results lend preliminary support to the validity of YRBS suicide items as measures of recent and lifetime suicidal thoughts and behavior in adolescents and support the continued use of these items by the CDC and others for estimating teen suicidality. Regarding clinical utility, the YRBS suicide items may potentially be useful as a quick and well-worded entry to assessing suicide history; however, they do not assess current suicidality, limiting their usefulness in that setting. Despite the positive findings regarding the validity of the YRBS suicide items, it is important to note the following three limitations. First, though the use of single item criterion measures of suicidality facilitates data collection from a large sample, future research would benefit from utilizing better established measures of suicidality. Second, the lower response rate (55%) compared to the overall CDC YRBS response rate of (68%) may somewhat limit the generalizability of the results (Eaton et al., 2008). Third, because our measures do not assess the medical severity of attempts, findings do not address whether the validity of the YRBS suicide attempt questions varies based on the severity of the attempt. Future research should explore generalizability of the findings to other samples, including middle school students and students in other geographical regions.

## Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

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