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Psychometric Properties of the Suicide Behaviors Questionnaire-Revised (SBQ-R) in American Sign Language

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Cover Page Footnote

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Abstract

Limited research has focused on the risk of suicide within the deaf community, and no published studies to date report Suicide Behaviors Questionnaire–Revised (SBQ-R) scores in deaf populations. The purpose of this study was to adapt the SBQ-R into American Sign Language (ASL) for use with deaf individuals. After the translation protocol was completed, the SBQ-R in ASL (SBQ-R-ASL) was field-tested with a national sample of 340 deaf individuals. Data analysis indicated satisfactory validity and internal consistency, and a principal components analysis resulted in one factor. Field-test data revealed a mean SBQ-R-ASL score of 8.76, which is above published cutoff scores for suicide risk. These findings demonstrate a crucial need for the SBQ-R-ASL to be normed for deaf populations.

Keywords
Suicide, mental health, Suicide Behaviors Questionnaire-Revised, Deaf, American Sign Language

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Psychometric Properties of the Suicide Behaviors Questionnaire – Revised in American Sign Language

Clinically relevant research on suicide risk with deaf persons has been inconsistent and limited for reasons including, but not limited to, linguistic and cultural accessibility of measures, lack of norms based on deaf samples, selective samples, and limited focus on protective factors (Turner et al., 2007; Embree et al., 2012). A comprehensive literature search by Turner and colleagues (2007) identified five published studies related to suicide, suicide ideation, or suicide attempts in mostly small, unrepresentative samples of deaf individuals (e.g., students and psychiatric inpatients). More recent studies involved small samples of deaf individuals in substance use disorder (SUD) treatment (Embree et al., 2012) and deaf college students (Samar et al., 2009).

Deaf individuals who primarily use American Sign Language (ASL) may be at greater risk for suicide because they experience more inequalities and marginalization due to communication barriers, difficulty locating accessible mental health services (including mental health treatment), and loss of privacy and autonomy when using an interpreter during counseling sessions (Anderson et al., 2017; Embree et al., 2012; Fellinger et al., 2012; Kvam et al., 2007; Pretz et al., 2018). Additionally, deaf individuals face mental health treatment disparities because of a lack of providers who use ASL, cultural competence of the Deaf culture, available organizations that offer mental health treatment to deaf individuals, and providers in rural areas; ; and providers not accepting Medicaid or Medicare (Nolan et al., 2015). Stigma associated with mental health treatment may also hinder deaf individuals from seeking treatment (Pettis, 2013). Moreover, obtaining suicide attempt and suicide ideation data is problematic with deaf signers because suicide risk in deaf individuals is typically measured using instruments in spoken languages that have been normed for hearing persons in a verbal language.

The Suicide Behaviors Questionnaire–Revised (SBQ-R) is a self-report tool for assessing risk factors for suicide and future suicidality among adolescents ages 13–18 years and adults (Osman et al, 2001). The SBQ-R includes four items intended to assess specific risk factors: presence of suicidal thoughts and attempts, suicidal thought frequency, risk level, and likelihood of future suicidal attempts. The first item assesses lifetime suicide ideation, and items 2–4 assess current suicidal ideation (Ringer et al., 2017). The SBQ-R has very good internal consistency (Cronbach's alpha = .84) and strong sensitivity and specificity in identifying individuals with suicidal ideation (Osman et al., 2001; Ringer et al., 2017). However, more studies are needed to confirm the reliability and validity of the SBQ-R with diverse populations (Osman et al., 2001; Ringer et al., 2017).

The purpose of this study was to produce a video-based ASL version of the SBQ-R (SBQ-R-ASL), field-test the SBQ-R-ASL with a large national sample, and analyze the psychometrics of the instrument among deaf individuals. To create the SBQ-R-ASL, we used a five-step process: forward translation, back translation, reconciliation, cognitive debriefing, and field-testing (Wilson et al., 2020). The goals in developing the SBQ-R-ASL were to produce an instrument in ASL that (a) is normed for deaf individuals who use ASL preferentially, (b) can be administered without the use of interpreters, (c) does not require the use of written English, and (d) is accessible online to any deaf individual who communicates preferentially with ASL, regardless

of their location. This paper reports the results of the psychometric analyses of the online field test of the SBQ-R-ASL with a large, national, nonclinical sample of individuals who self-identify as deaf and use ASL preferentially. The SBQ-R is copyright protected, but free to use for purposes such as research and for our study.

Methods

Participants

Research involving deaf populations who use ASL presents a variety of methodological challenges—such as historically small sample sizes, limited geographic distributions, and regional sign differences—and these challenges must be addressed with a general deaf population to produce accurate assessments and screeners that reflect the experience of this group (Crowe, 2002). Therefore, to expand the sample size and incorporate individuals from multiple geographic regions, participants who self-identified as deaf and used ASL preferentially were recruited through different avenues, including LISTSERVs of vocational rehabilitation (VR) counselors, social workers, educators, counselors, or other professionals who work with deaf consumers; national networks of members of the deaf community; and social media outlets hosted by leaders in the deaf community. Prospective participants were asked the following four questions to confirm their language preference and language comprehension:

- Question 1: What language do you understand the best?
- Question 2: What language are you most comfortable using?
- Question 3: If you had a choice, what language would you prefer to communicate in?
- Question 4: What language do you actually use most often?

Of the 435 prospective participants who completed the SBQ-R-ASL online, 340 deaf individuals from 42 states and the District of Columbia indicated that they understood ASL better than English (Questions 1, 2, and 3). Language comprehension was determined by asking prospective participants, “What language do you understand the best?” (Question 1). Those individuals who reported that they understood ASL best and preferentially used ASL were included in the participant sample (N = 340) and were included in the statistical analyses. All participants were treated in accordance with the ethical standards of the American Psychological Association, and this research project received approval from the Institutional Review Board (IRB) of Wright State University. Everyone who completed the field test received an electronic gift card worth $25.

Development of the SBQ-R Scale in ASL

To produce an appropriate and psychometrically sound measure of suicide risk for deaf ASL users, the research team, which included an expert panel comprising nationally recognized experts in instrument translation and assessment and native ASL users, applied a translation and validation protocol. This translation and validation protocol involved five basic steps: forward translation, back translation, reconciliation, cognitive debriefing, and field-testing. The translation and validation procedures for the SBQ-R-ASL were modeled after those used for other assessments adapted for use in ASL (Guthmann et al., 2017; Guthmann et al., 2012; Titus

& Guthmann, 2010; Wilson et al, 2020). The research team translated the English version of the SBQ-R into ASL. During the translation process, the research team aimed to use nationally representative ASL signs rather than local or regional signs. Using the commonality of national ASL signs ensured a large national sample was able to understand the SBQ-R in ASL.

Forward Translation

To conduct forward translation of the SBQ-R, a team consisting of five bilingual native and nonnative ASL signers from the eastern, midwestern and western parts of the United States translated the English instrument into ASL. Members of the forward translation team have worked with deaf individuals for 20 or more years in clinical and postsecondary settings; two members currently (at the time of this research) taught college-level courses in ASL. After the forward translation team reached consensus on the translated instrument, the research team filmed a deaf professional signing the SBQ-R-ASL instrument.

Back Translation

To conduct back translation of the SBQ-R-ASL, bilingual, native ASL users who had no prior exposure to the English version of the SBQ-R viewed the SBQ-R-ASL and wrote their understanding of the items and response choices in English. Thirty bilingual, native ASL users who either were deaf or were hearing children of deaf adults (CODAs) were recruited nationwide to view the SBQ-R-ASL via an online portal and perform the back translation. Of the 30 translators, 23 were women, 7 were men, 27 identified as deaf who use ASL preferentially, 3 identified as CODA, and all were from six states representing the eastern, mid-western and western parts of the United States. The translators individually viewed online videos of the SBQ-R-ASL instructions and items. A text box under each item allowed the translators to type the back translation in English and add comments.

Reconciliation

To conduct the reconciliation, two bilingual, native English users (both women) on the expert panel compared the language and meaning of the original English items with the 30 English back translations. The expectation was that the original English text and the English back translations would have the same meaning. Each original English translated SBQ-R item along with the back translations was entered into a spreadsheet along with comments and feedback from the back translators. The reconciliation team reviewed each item one at a time looking for consistency in meaning across the back translations. SBQ-R items that lacked consistency in meaning between the two English versions—due to a misunderstanding, mistranslation, omission, or other irregularity—were flagged and compiled into a summary report for further review by the forward translation team. Those items that lacked consistency went through forward translation and back translation again until they were successfully reconciled.

Cognitive Debriefing

To conduct the cognitive debriefing, the research team interviewed deaf individuals who use ASL preferentially to obtain consumer feedback on the understandability of the items and

ascertain the ease with which the web-based instrument could be navigated. Twenty individuals who identified as deaf and use ASL preferentially completed the cognitive debriefing for the SBQ-R-ASL. Of these 20 individuals, 17 were female, 3 were male, and all came from seven states representing the eastern, midwestern, and western parts of the United States. Each participant completed the SBQ-R-ASL online and was subsequently interviewed using a structured protocol. During the interview, participants viewed the ASL video clips of each item and provided feedback on the clarity of the signing and their understanding of the meaning. All signed items on the SBQ-R-ASL successfully made it through the cognitive debriefing process without further need for retranslation.

Field-Testing

Lastly, the SBQ-R-ASL was field-tested using two samples of deaf persons, those who were currently (at the time of the test)VR consumers (n = 111) and those who were not (at the time of the test) VR consumers (n = 229). This research project was funded by a grant from the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR) and aimed at improving employment for individuals who are deaf. Thus, one goal of the project was to collect data from individuals who were receiving VR services and compare their responses to those from the general deaf population.

Procedure

Field-testing was conducted online, and participants were able to access the SBQ-R-ASL via a web browser. The resulting data was stored securely on a HIPAA-compliant server. Participants with low vision were able to scale the online instrument to a larger size, and all text was screen reader–compatible in keeping with web content accessibility guidelines recommended by the United Nations Convention on the Rights of Persons with Disabilities.

Because depression, anxiety, and other mental health issues are correlated with suicide ideation and suicide attempts (Bentley et al., 2016; Nepon et al. 2010; Roca et al. 2019), the SBQ-R-ASL scale was field-tested with other instruments in ASL, including the Patient Health Questionnaire-9 in ASL (PHQ-9-ASL; Kroenke et al., 2001), the General Anxiety Disorder-7 in ASL (GAD-7-ASL; Spitzer et al., 2006), and the Beck Depression Inventory II in ASL (BDI-II-ASL; Beck et al., 1996) to investigate criterion validity of the SBQ-R-ASL. Participants were required to give informed consent via a document presented in ASL before completing the SBQ-R-ASL and other instruments. Demographic information—gender, race, ethnicity, age, educational level, preferred language, cultural identification (culturally Deaf or not), and employment status (including whether the participant was currently a VR consumer)—was collected immediately prior to the SBQ-R-ASL and other instruments being administered. Consistent with the administration of all instruments on the ASL-STAR website, the SBQ-R-ASL was presented in ASL with English text below the videos.

Statistical Analyses

The research team used descriptive statistics to explore the sample and inferential statistics, including t tests and analyses of variance (ANOVAs), using SPSS 25.0.0.0 to compare and

identify differences between groups of participants. Each subgroup's data showed homogeneity of variance as required by the assumptions of these statistical tests. A power analysis revealed sufficient power to reject the null hypothesis. The researchers then conducted a principal components analysis to investigate the underlying factor structure of the SBQ-R-ASL. Cronbach's alpha was computed to obtain a measure of construct reliability (internal consistency). All inferential analyses used data from the four items on the SBQ-R-ASL: (a) Have you ever thought about or attempted to kill yourself? (b) How often have you thought about killing yourself in the past year? (c) Have you ever told someone that you were going to commit suicide or that you might do it? (d) How likely is it that you will attempt suicide someday?

Results

A total of 340 deaf individuals from 42 states and the District of Columbia completed the SBQ-R-ASL online. Their ages ranged from 19 to 69 years, with most (54.1%) falling between the ages of 25–34; the remaining participants fell within the ages 19–24 years (8.3%), 35–44 years (28.4%), 45–64 years (8.6%), and 65–69 years (0.6%). Of these 340 participants, 165 (48.5%) were male and 175 (51.5%) were female. In addition, 285 (83.8%) of the participants reported being White/Caucasian, 43 (12.6%) reported being Black/African American, and the remaining 12 (3.6%) indicated membership in other or multiple racial groups. A total of 96 participants (28.2%) identified as Hispanic/Latino. Of this sample, 121 (35.6%) identified as Culturally Deaf, which was defined as "Deaf community member, go to all-Deaf events, have used ASL since you were young, and have a strong Deaf identity."

In terms of education, 1.2% reported having an eighth grade education or less, 8.7% completed some high school, 26.7% earned a high school diploma only, 18.6% completed some college or university, 33.4% earned a college or university degree, 3.8% completed some postbaccalaureate education, and 7.6% finished a postbaccalaureate degree. Over 77% of the participants were employed and, of these, 65.0% were employed full-time. A total of 37 (10.9%) were students.

Reliability and Factor Analysis

The primary objective of this study was to analyze the psychometric properties of the SBQ-R-ASL and examine its factor structure. Cronbach's alpha for the ASL version of the SBQ-R is .806, which indicates good internal consistency. A principal components analysis was conducted, and the principal components extraction produced one factor with an eigenvalue of 2.69, which accounted for 67.2% of the variance. The factor loadings for all four questions were high, greater than 0.73 (Table 1).

Descriptive Statistics

Respondents took approximately 3.4 minutes on average to complete the SBQ-R-ASL, and the mean score for the SBQ-R-ASL was 8.76 with a standard deviation of 3.13. This mean score is above the suicide-risk cutoff for nonclinical samples (i.e., samples from the general population) of 7 and above the cutoff for clinical samples of 8 (Osman et al., 2001). Mean scores, standard deviations, and ranges for scores on the PHQ-9-ASL, GAD-7-ASL, and BDI-II-ASL are listed in Table 2. For this sample, the mean PHQ-9-ASL score is in the moderate range (10–14) for

severity of depression, using published PHQ-9 cutoff criteria (Kroenke et al., 2001). The mean GAD-7-ASL score is in the mild range (5–9) for anxiety, according to published data on the GAD-7 (Spitzer et al., 2006). The participants' mean BDI-II-ASL score is in the minimal range (0–14) for depression on the BDI-II (Beck et al., 1996).

C**riterion Validity Analysis**

Criterion validity was examined by correlating scores on the SBQ-R-ASL with other ASL instruments that purport to predict the same or related constructs. For that reason, the PHQ-9-ASL, GAD-7-ASL, and BDI-II-ASL were administered in the field test with the SBQ-R-ASL. Pearson correlational analyses were conducted between the SBQ-R-ASL scores and the PHQ-9-ASL, GAD-7-ASL, and BDI-II-ASL scores. Significant, positive correlations between SBQ-R-ASL and PHQ-9-ASL, GAD-7-ASL, and BDI-II-ASL were computed, indicating excellent construct validity for the SBQ-R-ASL—for PHQ-9-ASL, $r(338) = .722$, $p < .001$; for GAD-7-ASL, $r(338) = .627$, $p < .001$; for BDI-II-ASL, $r(23) = .763$, $p < .001$.

Demographic Analyses of SBQ-R-ASL Scores

Inferential tests of mean differences among demographic groups were also conducted. Table 3 shows the means for each demographic group examined. Men had significantly higher scores on the SBQ-R-ASL than women, $t(338) = 3.24$, $p < .001$. A Pearson correlational analysis revealed that younger deaf participants had significantly higher SBQ-R-ASL scores than older deaf participants, $r(338) = -.363$, $p < .001$. An ANOVA comparing five age groups (24 and younger, 25–34, 35–44, 45–54, 55 and older) detected a significant difference among age groups, with the younger age groups having significantly higher SBQ-R-ASL scores, $F(4,335) = 13.86$, $p < .001$.

With respect to race, there was no significant difference in SBQ-R-ASL scores between Black and White participants, $t(326) = 0.51$, n.s. However, an ANOVA comparing Black, White, and Other (Asian, Native American, and biracial) participants revealed a significant difference among the three groups, as participants in the Other racial group had significantly lower SBQ-R-ASL scores than Black and White participants, $F(2,336) = 3.80$, $p = .02$. No difference in SBQ-R-ASL scores were obtained from Latinx and non-Latinx participants, $t(338) = 0.17$, n.s. Similarly, a *t*-test comparison of respondents who identified themselves as Culturally Deaf with participants who revealed no significant difference, $t(303) = -0.92$, n.s.

Educational achievement had a significant effect on SBQ-R-ASL scores, as participants who completed a graduate degree had a significantly lower score than the other, less well-educated participants, $F(6,333) = 3.81$, $p = .001$. Participants who were employed full-time had significantly higher SBQ-R-ASL scores than those who were employed part-time or who were unemployed, $F(2,337) = 23.73$, $p < .001$. Additionally, participants who were current VR consumers had significantly higher SBQ-R-ASL scores than those who were not, $t(338) = 3.65$, $p < .001$. Table 3 displays the differences among group means.

Discussion

The aim of this paper was to contribute to the growing body of literature on the SBQ-R for deaf populations. To date, suicide risk in deaf individuals has commonly been measured using instruments in English or other spoken languages that are normed for hearing persons. The SBQ-R-ASL, as well as other behavioral and career interest instruments in ASL which have been normed for deaf individuals, is available on our website (https://www.REDACTED FOR REVIEW.com) free of charge for use by other investigators who may want to conduct research on these instruments. Given the shortage of behavioral instruments in ASL, those on our website, which have been developed in the state-of-the-science process described above, are also available for use by counselors and other professionals who work with individuals for whom ASL is the preferred language. To this end, the psychometric properties and dimensionality of the SBQ-R-ASL could provide progress toward validating this assessment for clinical utility and translational research. In this study, extraction data for the SBQ-R-ASL produced one factor with an eigenvalue of 2.69. This factor included component correlations that were all high positive (above .735). The SBQ-R-ASL also demonstrated acceptable internal consistency. The sample size provided sufficient power to detect significant differences among subgroups.

Suicide is a significant public health issue in the United States. In the general population in 2019, suicide was the second-leading cause of death for individuals ages 15–34 years, the fourth-leading cause of death for individuals 35–44 years, the fifth-leading cause of death for individuals 45–54 years, and the eighth-leading cause of death for those 55–64, according to data from the Centers for Disease Control and Prevention (2021). Data from a nationally representative, general population sample of 5,877 respondents ages 15 to 54 years revealed that 13.5% reported lifetime suicide ideation, 3.9% had a suicide plan, and 4.6% had made a suicide attempt (Kessler et al., 1999.) A review based on 2015 National Survey on Drug Use and Health data reported an annual prevalence of 0.6% for suicide attempts and an annual prevalence of 4.0% for suicide ideation in the United States (Piscoppo et al., 2016).

The scant literature on the rate of suicide attempts and suicide ideation in deaf populations is inconclusive. Samar and colleagues (2009) reported equivalent suicide ideation rates in deaf and hearing college students. Whereas deaf and hearing male students had equivalent suicide attempt rates, significantly higher suicide attempt rates were seen in deaf female students than in hearing female students (Samar et al., 2009). The rate of lifetime suicide attempts was reported as 30% among deaf college students (Turner et al., 2007) and 42% among deaf adults with SUD (Embree et al., 2012), significantly higher than that reported for the respective hearing general populations (Piscoppo et al., 2016). However, college students in general have higher rates of suicide ideation (24%) and suicide attempts (9%) than the general population (Liu et al., 2019). Likewise, for the general population, suicide risk is 2 to 11 times higher for individuals with SUD than for people without SUD (Lynch et al., 2020).

The mean score on the SBQ-R-ASL for all 340 deaf participants was 8.76, which is above the suicide-risk cutoff of 7 for nonclinical samples (i.e., samples from the general population) and above the cutoff of 8 for clinical samples (Osman et al., 2001). Similarly, the mean PHQ-9-ASL score (M = 11.09) for this sample of deaf participants is in the moderate range (10–14) for severity of depression (Kroenke et al., 2001). These findings demonstrate a crucial need for the

English and ASL versions of the SBQ-R to be normed for deaf populations. Lund and colleagues (2019) reported significantly higher SBQ-R scores in individuals with nonpsychiatric disabilities (M = 6.95) compared to those without disabilities (M = 5.76). No published studies to date report SBQ-R scores in deaf populations.

Although it may be likely that there is a much higher risk for suicide and depression in the general deaf population, further research is needed to clarify this observation. Nonnative English speakers with low literacy often have difficulty comprehending ordinal scaling, such as selecting among responses like "always," "often," or "sometimes" (Flaskerud, 2012), which might result in different normative scores for deaf individuals. The next step requires comparing SBQ-R-ASL scores in two deaf subpopulations, the deaf subpopulation that is being admitted for treatment for suicide risk and the deaf subpopulation that is not in treatment. To date, the true prevalence of suicide risk, ideation, and attempts in deaf subpopulations is unknown, and no norms have been established to determine which instruments are most appropriate for use with this population.

Other investigators have reported associations between suicide risk and education, employment, and VR status. Similar to our study, previous research has indicated that lower education attainment is related to higher rates of suicide ideation (Kim et al., 2020; Øien-Ødegaard et al., 2021). However, Ko et al. (2020) reported that individuals with suicide ideation and lower education attainment were less likely to recognize they needed assistance or receive assistance for suicide ideation. Moreover, suicide decreases with age among individuals with lower education attainment (Lorant et al., 2021). None of these studies included deaf individuals or ASL users.

In the present study, those who were employed full-time had significantly higher SBQ-R-ASL scores. Previous research indicated that individuals with full-time employment tend to have less of a risk of suicide ideation than those that are unemployed; however, those with full-time employment are less likely to seek assistance for suicide ideation (Faria et al., 2020; Ko et al., 2020). Furthermore, as unemployment duration increases suicide ideation also increases, although social support may be a protective factor for those individuals experiencing suicide ideation and unemployment (Faria et al., 2020).

In our study, deaf individuals utilizing VR services had higher SBQ-R-ASL scores than those who did not utilize VR services. When compared to individuals with other disabilities, deaf individuals experience higher rates of being placed on waiting lists to receive VR services, and fewer receive preemployment transition services or specialized training (Palmer et al., 2021). The lack or delay of services and skills attainment earlier in life may add to the extra stress of maintaining a full-time position, which would increase suicide ideology among middle-aged adults. To exacerbate the situation, VR counselors and professionals observe high rates of nonsuicidal self-injury and suicide ideation among individuals with disabilities. However, VR counselors express being underprepared and undertrained in addressing suicide ideology (Lund et al., 2017, 2018, 2020). Therefore, there is need to provide tools such as the SQB-R-ASL for VR counselors to assist with identifying suicide ideation and suicide attempts among individuals who preferentially use ASL (Embree et al., 2012; Lund et al., 2017, 2020). Also, additional research exploring the connection between suicide ideation, employment status, education

attainment, and VR use among individuals who primarily use ASL would aid in developing training for VR consumers.

Suicide research is difficult because suicide has multifactorial characteristics and a relatively low incidence, despite the number of suicide deaths rising in the United States (De Beurs et al., 2019; Nugent et al., 2019). More research is needed to explain the multifactorial characteristics of suicide among deaf individuals who primarily use ASL. Additionally, psychological tests are only one element of psychological assessments and psychotherapy. Clinicians know that these screeners should never be used in isolation, but rather as an opportunity to understand more about a person's experiences and treatment needs (Hays, 2017). Clinicians could utilize item responses and results of the SBQ-R-ASL to better understand suicidal ideation and suicide attempts among deaf individuals who preferentially use ASL.

Limitations

This project has limitations, including participant selection methods and generalizability, and thus presents opportunities for additional research. Online testing is for individuals who have basic technical literacy, and although every effort was made to ensure that access was possible through all major platforms and browsers, this method still requires internet access. Participants also self-selected by responding to email invitations to complete the field-testing. Enrollment in the study was cut off when 450 people completed the field test. Thus, participants tended to be individuals who are actively online, able to respond to email, and are motivated to participate in research.

More research is needed to assess the efficacy of the SBQ-R-ASL for use with deaf ASL users in various settings (e.g., mental health treatment, general population, etc.). Future research should also focus on developing norms on the SBQ-R-ASL for homogenous clinical samples, such as deaf individuals diagnosed with major depression and anxiety. Lastly, equivalence studies should be conducted to compare responses to English and ASL versions of the SBQ-R-ASL instrument.

Conclusions

Few assessment instruments are available for deaf ASL users, including assessment tools for suicide ideation and suicide attempts. In our study, the SBQ-R was interpreted using an iterative process to create the SBQ-R-ASL. The results of the psychometric analysis of the SBQ-R-ASL indicate that the assessment instrument can be used to measure suicide ideation and suicide attempts among deaf ASL users. Therefore, the SBQ-R-ASL can be utilized among clinicians who work with deaf clients who use ASL to better understand the client's treatment needs. More research is needed for the SBQ-R-ASL to be normed for deaf subpopulations.

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Table 1. Component matrix resulting from a principal components analysis for the SBQ-R-ASL

DAST-ASL Questions	Factor 1
1. Have you ever thought about or attempted to kill yourself?	.857
1. How often have you thought about killing yourself in the past year?	.848
2. Have you ever told someone that you were going to commit suicide, or that you might do it?	.831
3. How likely is it that you will attempt suicide someday?	.735

Table 2. Descriptive statistics for participant scores on the SBQ-R-ASL, PHQ-9-ASL, GAD-7-ASL, and BDI-II-ASL

Instrument	*N*	Minimum score	Maximum score	Mean	SD
SBQ-R-ASL	340	3	15	8.76	3.13
PHQ-9-ASL	340	0	27	11.09	5.48
GAD-7-ASL	340	0	21	7.96	3.87
BDI-II-ASL	26	0	37	7.19	9.39

Table 3. Mean SBQ-R-ASL scores for demographic groups

Demographic Group	*n*	Mean (SD)
Gender		
Male	165	9.3 (3.2)
Female	175	8.2 (3.0)
Age Group		
24 and below	28	9.3 (3.7)
25–34	184	9.7 (2.7)
35–44	97	8.0 (2.9)
45–54	29	6.8 (3.2)
55 and above	2	4.8 (2.9)
Race		
White	285	8.9 (3.0)
Black	43	8.6 (3.4)
Other	12	6.3 (3.9)
Latinx		
Yes	96	8.8 (2.7)
No	244	8.7 (3.3)
Cultural Identification		
Culturally Deaf	121	8.6 (3.4)
Deaf	219	8.9 (2.9)
Educational Attainment		
Eighth grade or less	4	10.0 (0.6)
Some high school	30	8.8 (2.7)
High school degree	91	8.7 (3.0)
Some college	63	9.3 (2.8)

Bachelor's degree	113	9.0 (3.4)
Some graduate school	13	8.5 (3.0)
Graduate degree	26	5.7 (2.8)
Employment Status		
Employed full-time	170	9.6 (3.0)
Employed part-time	92	7.3 (3.2)
Unemployed	78	7.3 (2.8)
VR Consumer Status		
Yes, currently	111	9.6 (3.3)
No, currently	229	8.3 (3.0)