



Adolescents' Engagement with Crisis Hotline Risk-management Services: A Report from the Emergency Department Screen for Teen Suicide Risk (ED-STARS) Study

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Objective: This study examines the feasibility of a risk-management protocol for adolescent research participants at risk for suicide that relies on engagement with telephone crisis counselors. The study also examines whether engagement is moderated by adolescent demographics and clinical characteristics.

Method: Participants were 234 adolescents (83% female; 63% White) ages 12–18 ($M = 15.3$ years) drawn from the national study, Emergency Department Screen for Teens at Risk for Suicide (ED-STARS) Study One sample of adolescents randomized for 3-month telephone follow-up ($n = 2,850$). This study's sample was comprised of adolescents who completed the follow-up (69% retention), met study risk criteria, and were transferred to a crisis hotline for risk management. Engagement with a counselor was assessed by successful call connection, call duration, and information sharing.

Results: Ninety-four percent of calls resulted in a successful call transfer, and the majority of youth (84%) shared information with counselor about one or more coping strategies. Average call length was 12.6 min ($SD = 9.9$). Engagement did not vary by gender, race, age, ethnicity, or clinical characteristics.

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Conclusions: Adolescents' engagement with telephone risk-management services was strong, suggesting that this strategy can address safety. Further, findings suggest telephone risk-management services effectively engage youth across demographic and clinical subgroups.

Suicide is the second leading cause of death among adolescents in the United States (U.S.; Centers for Disease Control and Prevention, 2017[CDC]). More than 1,900 adolescents 13–18 years of age died by suicide in the United States in 2016 (Centers for Disease Control and Prevention, 2017), and many more reported suicide attempts (Kann et al., 2016). Given these numbers, it is not surprising that suicide prevention is a national priority (U.S. Department of Health and Human Services (HHS) Office of the Surgeon General and National Action Alliance for Suicide Prevention, 2012) and funding for suicide-related research has increased (National Institute of Mental Health, 2016).

Research related to youth suicide prevention often requires enrolling youth at risk for suicide and taking steps to ensure their safety. In such research, a risk-management protocol specifies how to respond when a participant is at highly elevated risk (King & Kramer, 2008; National Institute of Mental Health 2017 [NIMH]). To our knowledge, however, no studies to date have examined the extent to which suicidal adolescents engage in study-related risk-management services. To ensure that we are maintaining the safety of research participants, it is imperative to examine risk-management procedures, including their feasibility with youth participants. This may be particularly important in studies for which in-person assessment may not be viable (e.g., national data collection).

Past reports of study risk-management procedures have provided broad guidelines for including participants at high risk for suicide, emphasizing the importance of employing risk-management protocols to enhance the safety of research participants (National Institute of Mental Health, 2017). Detailed descriptions of risk-management protocols used in intervention research and clinical settings with adults are available (Brown, Bruce,

& Pearson, 2001; Linehan, Comtois, & Ward-Ciesielski, 2012), and some have even described how crisis hotlines or telephone-delivered assessments have been used with adult populations (Arias, Sullivan, Miller, Camargo, & Boudreaux, 2015; Belnap et al., 2015). However, while prior research has briefly described site-based clinical safety protocols for adolescents (Brent et al., 2009), to our knowledge, no previous published studies have reported study participants' engagement (e.g., duration of risk assessment and information sharing) with risk-management services.

In a study examining the effectiveness of a telephone-delivered intervention for treating depression in adults who had undergone coronary artery bypass surgery, risk-management procedures were implemented by trained research assistants (RAs) who were not mental health professionals (MHPs) (Belnap et al., 2015). During telephone-administered study assessments, RAs followed a risk-management protocol when the participant reported suicidal ideation or behavior. The protocol included automatic prompts for RAs when participants endorsed suicidal ideation or self-harm behavior that included suggested strategies and access to the study's psychiatrist for consultation. If the risk for self-harm was moderate or high, a safety plan was developed, which included a follow-up call by the RA within 2 h. In this study, 25% (74 of 302) of participants expressed thoughts of death or self-harm during risk assessment, but no additional information was provided regarding what information participants shared. Similarly, Arias et al. (2015) described the use of a crisis hotline to provide risk management for adults participating in an emergency department (ED)-based clinical trial focused on suicide prevention with a telephone follow-up assessment. Assessments were conducted

by trained research staff members who were not MHPs, and participants were transferred to a crisis hotline if they screened positive for current suicidal ideation, a recent suicide attempt without seeking healthcare, any imminent risk for hurting self or others, or were in need of crisis response resources. Findings indicated 16% ($n = 135$) of research participants were transferred to the crisis hotline. Of the transferred calls, 97% ($n = 131$) of research participants spoke with a crisis counselor, and calls were approximately 14 min in length. The extent to which participants shared coping strategies or sources of support with crisis counselors during calls and whether such a protocol is feasible for adolescents is unknown.

An improved understanding of possible variation in crisis response engagement related to participant demographics and clinical presentations could inform improvements to risk-management protocols, including whether adaptations are indicated for specific subgroups. Although not specific to research study risk management, previous research suggests possible differences in callers' risk-management engagement in relation to caller gender (Chandra & Minkovitz, 2006), race/ethnicity (Bardwell & Dimsdale, 2001), and symptom severity (De Leo, Cerin, Spathonis, & Burgis, 2005; Gould, Kalafat, Harrismunfakh, & Kleinman, 2007). Previous research indicates that adolescent and adult males are less likely to report psychological distress compared with their female counterparts (Chandra & Minkovitz, 2006), and females are more likely than males to use crisis hotlines and other forms of mental health services (Chandra & Minkovitz, 2006), suggesting gender may be an important factor influencing caller engagement.

Similar findings have been found regarding race and socioeconomic status (SES). Individuals from racial and ethnic minority groups are less likely to report negative affect (Bardwell & Dimsdale, 2001), and socially desirable responses have been found to be more common among lower SES adolescents (King, Hill, Wynne, & Cunningham, 2012). In their study of suicide risk screening in the emergency department (ED), King

et al. (2012) found that adolescents whose families received public assistance were less likely to report aggressive-delinquent behavior if randomly assigned to in-person follow-up (with discussion of screening results) rather than the provision of written resource information only (King et al., 2012). It also has been documented that adolescents with high symptom severity (i.e., multiple attempts and/or high suicidal ideation) tend to possess less favorable attitudes about treatment providers (De Leo et al., 2005). Such attitudes may negatively influence adolescents' willingness to engage with a crisis counselor as a part of a study's risk-management protocol.

The large-scale Emergency Department Screen for Teens at Risk for Suicide (ED-STARs; U01-MH-104311) provides a unique opportunity to address a gap in research on research study risk-management procedures. Using data from participants with broad U.S. geographic representation, this study makes use of crisis hotlines for managing youth suicide risk identified during telephone follow-up assessments. The primary aims of this secondary analysis are as follows: (1) to describe adolescents' engagement in these crisis hotline services and (2) to determine whether engagement is moderated by gender, race/ethnicity, severity of suicidal thoughts, history of lifetime multiple suicide attempts, impulsivity/aggression, drug use, and alcohol use. It was hypothesized that adolescents who are males, Black, or who show higher severity of suicidal thoughts and/or a lifetime history of multiple suicide attempts would engage less with telephone crisis hotline counselors. The analyses pertaining to impulsivity/aggression, drug use, and alcohol use were exploratory.

METHOD

Participants and Procedures

This analysis sample includes 234 adolescents, ages 12–18 years ($M = 15.3$, $SD = 1.5$), from the ED-STARs subsample of 2,850 adolescents who were randomized to 3-month follow-up interviews (enriched for suicide risk) and participated in these

interviews ($n = 1,957$, 69% of adolescents designated for follow-up). Participants in ED-STARS were recruited from 13 pediatric emergency departments (EDs) affiliated with the Pediatric Emergency Care Applied Research Network (PECARN) between June 26, 2015, and July 31, 2016. Adolescents in this study's sample met one or more suicide risk trigger criteria during their 3-month follow-up interview, requiring study risk management (referral for crisis hotline risk-management services). The pre-identified risk triggers included a suicide attempt or suicidal ideation with a plan or suicidal intent in the past three months (Figure 1). Additionally, for inclusion in the current study youth participation in follow-up was required.

This sample was comprised of predominantly female (83%, $n = 195$) and Caucasian (63%, $n = 131$; 24%, $n = 51$ Black or African

American; 10%, $n = 20$ Multiracial; 2%, $n = 4$ American Indian or Alaska Native; 1%, $n = 2$ Native Hawaiian or Other Pacific Islander; and 0.5%, $n = 1$ Asian) adolescents. In addition, nearly a quarter of adolescents (24%, $n = 48$) identified as Hispanic or Latino. Over half of youth (64%, $n = 145$) were in high school or high school graduates, and 36%, ($n = 81$) of youth were in grades 5–8. At baseline, nearly half (48%, $n = 107$) of participating families were receiving public assistance (i.e., food stamps, Medicaid). The majority of adolescents' mothers/stepmothers were either college graduates (40%, $n = 87$) or had completed some college/technical training (31%, $n = 68$). Regarding adolescents' fathers/stepfathers, 45% ($n = 92$) had completed high school or less, 20% had completed some college/technical training, and 35% were college graduates. The number of

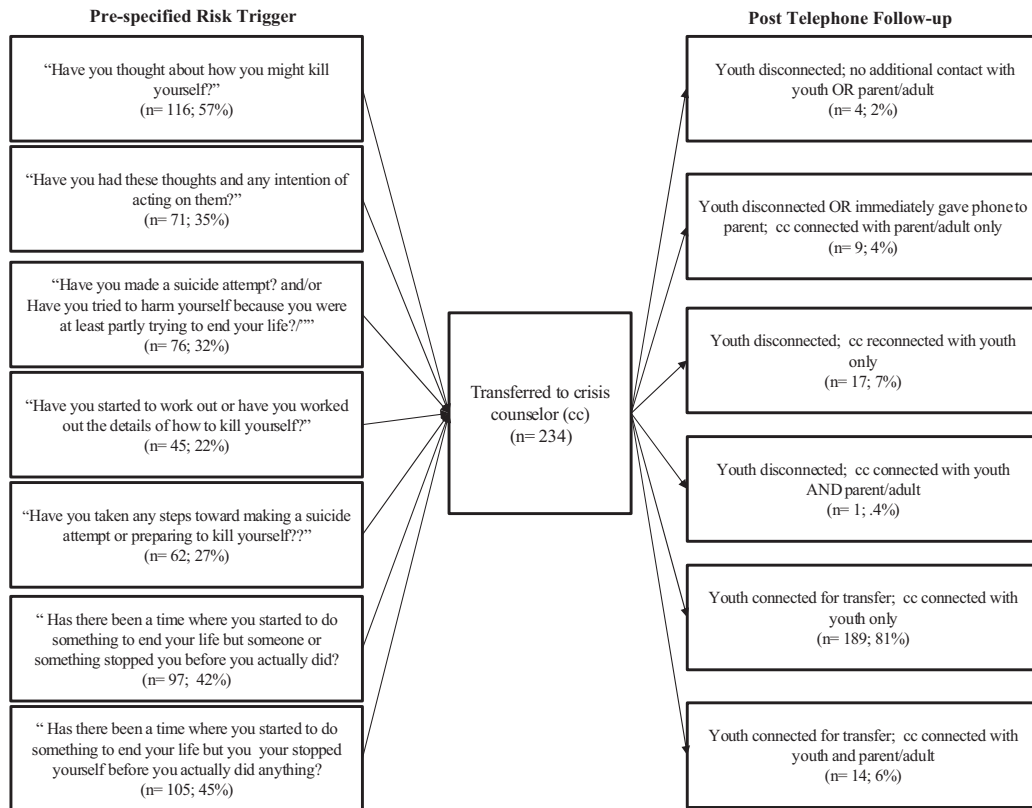


Figure 1. Risk-management protocol at 3-month telephone follow-up for ED-STARS Study.
 Note. N varied from 203 to 234 for adolescents responding to these questions; cc, crisis counselor.

adolescents who completed each study measure varied from 203 to 234.

At baseline, adolescents completed a self-report suicide risk survey and caregivers (or legal guardians) completed a brief survey about themselves and their adolescent (King et al., unpublished paper; National Institute of Mental Health, 2014). Adolescents identified for follow-up (enriched for higher risk) participated in 3-month computerized telephone follow-up interviews. Procedural details are available in previously published work (King et al., unpublished paper). The risk-management protocol for telephone follow-up assessments included prespecified risk triggers (Figure 1). When an adolescent was transferred to the telephone crisis hotline due to one of these triggers, information about the youth (name, location, etc.) was also sent to the crisis hotline via a secure online database and an effort was made to notify the parent of the transfer. A trained crisis counselor (CC) spoke with the youth (with option to speak with parent) to ascertain the extent of suicide risk, develop a safety plan, and provide resource information. If the call was disconnected during call transfer, the CC attempted (up to three times) to reconnect with youth and/or parent by telephone. If youth or parent did not answer, the CC left a message with information about mental health resources and the possible need to contact authorities if call was not returned in 15 min. Following this, the telephone interviewer's on-call supervisor was contacted to determine whether any additional intervention was needed (see Figure 1). In each case, the on-call supervisor indicated that further intervention was not needed. During the call, crisis counselors sought information regarding the youth's use of coping strategies, availability of social support, history of multiple suicide attempts, and assisted youth in developing a plan for managing suicidal thoughts or behavior. Additionally, crisis counselors recorded if youth experienced a successful call transfer, defined as connection to CC with no intentional hang-up during call transfer. Counselors completed call logs detailing adolescents' engagement in the crisis call, operationalized as

successful call transfer, duration of call (minute) as a continuous variable, and youth information sharing about use of coping strategies and availability of social support.

This study was approved by the Institutional Review Boards (IRBs) of participating sites. Written informed assent and consent were obtained from adolescents and parents/guardians, respectively. Exclusion criteria were as follows: (1) ward of the state; (2) previously enrolled in study; (3) non-English speaking; (4) medically unstable; and (5) cognitive impairments that interfered with informed assent and completion of self-report survey. Each adolescent participant was given a \$15 online or mailed gift certificate for participation.

Measures

Demographic Characteristics. Youth demographics (age, gender, and racial and ethnic identification) were assessed by participant self-report at baseline in the ED.

Youth Engagement. Youth engagement was assessed using telephone crisis hotline call logs. Counselors completed call logs detailing adolescents' engagement in the call, operationalized as (1) successful call transfer; (2) duration of call (minutes) as continuous variable; (3) and youth information sharing about use of coping strategies and availability of social support. Descriptions of successful telephone connection with crisis counselor (e.g., no intentional call disconnection), youth information sharing for adolescent identification of coping strategies, and availability of social support were coded as "present" or "not present." Each code was checked for reliability across three coders. A successful call transfer was defined as a telephone connection with the crisis counselor (CC) and participation in discussion with the CC without a participant-initiated disconnection. A successful call connection was coded as "not present" for any call where crisis counselors reported youth hung up during call transfer, even when crisis counselors called participants back and were able to speak with the parent, youth, or both. A

random sample of call records (25%) indicated a match between 93% and 95% across all coders. All call records were coded by two or more coders.

Suicidal Ideation and History of Lifetime Multiple Suicide Attempts. Columbia-Suicide Severity Rating Scale (C-SSRS) subscales (Posner et al., 2011) were incorporated into ED-STARS Study One baseline and 3-month follow-up surveys. We administered the 5-item Severity Rating Scale to youth, which assesses the severity of suicidal thoughts. Scores on this scale range from 0 to 5 (none to suicidal intent with plan). The Severity Rating Scale has documented excellent convergent validity and internal ($\alpha = .95$) consistency (Gipson, Agarwala, Opperman, Horwitz, & King, 2015; Posner et al., 2011). We also administered one C-SSRS Behavior subscale item to adolescents to assess lifetime history of multiple suicide attempts by 3-month follow-up. This consists of a yes/no question about history of multiple suicide attempts at 3-month follow-up.

Impulsivity/Aggression. At baseline, youth were administered a one-item Impulsivity/aggression adapted screening measure. This measure was adapted from the Impulsive-Premeditated Aggression Scale (Stanford, Houston, Villemarette-Pittman, & Greve, 2003), which has shown to have excellent internal consistency ($\alpha = .92$) and good concurrent validity. The measure consists of one yes- or no-item which states, "Over the past 6 months, have you had times when you became angry and enraged with others in a way that was out-of-control or inappropriate?" Youth were also administered the UPPS Impulsivity Behavior Scale-Urgency (Lynam, Whiteside, Smith, & Cyders, 2006). The 4-item Urgency subscale of the UPPS Impulsivity Behavior Scale assesses the propensity to experience strong impulses, often associated with negative affect. Responses are given on a 4-point scale ranging from disagree strongly (1) to agree strongly (4). This subscale has demonstrated high internal consistency ($\alpha = .91$).

Drug Use and Alcohol Use. At baseline, adolescents' drug use was assessed using the Drug Use Scale (DUS). The DUS assessed the

frequency over the past 3 months on a 5-point scale ranging from never (1) to almost daily (5) for the following categories: tobacco products, alcoholic beverages, nonprescription cough or cold medicine, cannabis, cocaine, methamphetamine, inhalants, hallucinogens, street opioids, prescription drug abuse, and illicit drug use. Adolescents' alcohol use was assessed using the Alcohol Use Disorders Identification Test-Consumption (AUDIT-C). The AUDIT-C is comprised of the first three items of the 10-item AUDIT, which assesses at-risk drinking and alcohol consumption in the past year. The AUDIT demonstrated strong internal consistency ($\alpha = .80$) and, compared to other brief screening tools, has shown excellent discrimination in identifying adolescents with alcohol use disorders using a cut-off of four or more (Liskola et al., 2018).

Data Analyses

Descriptive statistics are used to describe participant baseline characteristics, responses to risk-management trigger questions at follow-up, and engagement with crisis hotline services. Fisher's exact test and the Kruskal-Wallis test were also used to analyze differences in crisis response engagement in relation to adolescents' age, gender, race, ethnicity, severity of their suicidal thoughts, history of multiple suicide attempts, impulsivity/aggression, and drug and alcohol use. Due to the low numbers in several racial subgroups, comparisons involving race were conducted between those who identified as White (vs. all others) and those who identified as Black (vs. all others). Data analyses were generated using SAS software, version 9.4. Copyright © [2013] SAS Institute Inc (2013).

RESULTS

Baseline Risk Triggers for Transfer to Crisis Hotline of Sample

Regarding risk triggers for transfer to the crisis hotline, the majority of transferred adolescents (57%) reported thoughts about

how they might kill themselves in the past 3 months (see Figure 1). Seventy-six participants (32%) reported a suicide attempt in the past 3 months, and almost half (45%) reported that there had been a time when they started to do something to end their life but stopped before they actually did anything in the past 3 months.

Participant Engagement: Overall and by Demographic and Clinical Characteristics

Ninety-four percent of calls resulted in a successful call transfer of the adolescent from the telephone follow-up interviewer to a crisis hotline counselor (see Figure 1). For four participants (2%), the call transfer was successful, but youth abruptly disconnected the call and there was no additional contact with youth or parent. Nine youth participants (4%) disconnected the call after call transfer or immediately gave phone to parent and the CC reconnected with parent/or adult only. A total of 17 youth participants (7%)

disconnected after call transfer and the CC reconnected with youth only. Participants engaged in crisis calls for an average of 13 min ($M = 12.6$; $SD = 9.9$), and the substantial majority of youth (84%) shared information about one or more coping strategies they could use with the CC. In addition, 35% of youth shared a specific source of support during the call (see Table 1).

There were no significant differences in crisis response engagement with youth based on gender, race, ethnicity, or age. Regarding clinical characteristics, there were no significant differences in crisis response engagement with youth based on severity of suicidal thoughts, history of multiple suicide attempts, impulsivity/aggression, drug use, or alcohol use (see Table 2).

DISCUSSION

In this report, we describe the risk-management protocol used for telephone

TABLE 1
Risk-Management Engagement by Demographic Characteristics

	Successful call transfer %	<i>p</i>	Coping strategy %	<i>p</i>	Source of support %	<i>p</i>	Duration of call (minutes) Median (IQR)	<i>p</i>
Overall	94%		84%		35%		9.8 (6.5, 15.9)	
Age group		.57 ^a		.29 ^a		.41 ^a		.49 ^b
12–14	96%		87%		32%		10.4 (6.6, 16.8)	
15–17	93%		82%		38%		9.7 (6.3, 15.8)	
Gender		.24 ^a		.47 ^a		.86 ^a		.76 ^b
Male	90%		79%		36%		10.4 (6.9, 16.6)	
Female	95%		85%		34%		9.8 (6.4, 15.9)	
Race: White		.06 ^a		.25 ^a		.37 ^a		.67 ^b
Yes	97%		86%		36%		9.7 (5.9, 16.3)	
No	90%		79%		29%		9.8 (6.9, 15.8)	
Race: Black		.08 ^a		.28 ^a		.87 ^a		.43 ^b
Yes	88%		78%		31%		11.7 (6.4, 16.9)	
No	96%		85%		34%		9.6 (6.3, 15.9)	
Ethnicity		.74 ^a		.83 ^a		1.00 ^a		.83 ^b
Hispanic/Latino	96%		81%		33%		9.3 (6.6, 15.3)	
Not Hispanic/Latino	93%		83%		32%		9.8 (6.3, 16.2)	

^aFisher's exact test.

^b*p*-value is based on the Wilcoxon rank-sum test; *N* varied from 203 to 234 for adolescents responding to these questions.

follow-up interviews with adolescents in ED-STARS, a large-scale multisite study. The risk-management protocol involved the transfer of youth who met prespecified risk triggers to a telephone hotline service where a crisis counselor was available to assess the severity of suicide risk and assist the youth in considering how to manage suicidal thoughts and impulses. Findings indicate most participants (84%) shared information with the CC about one or more coping strategies they could use and spoke with the CC for approximately 13 min ($SD = 9.9$). Prior research examining the effectiveness of suicide prevention interventions that ask patients to identify coping strategies and sources of support has found patients participating in these interventions experience reduced suicidal behavior (Stanley et al., 2018) and increased treatment engagement when compared to usual care or no intervention (Stanley et al., 2018). The present findings, coupled with previous research findings, depict active engagement from youth participants and suggest the study's risk-management protocol is likely to be achieving the larger goal of enhancing safety among participants at risk for suicide.

Our hypotheses regarding an association between crisis call engagement and adolescent gender, race, ethnicity, and age were not supported. Findings related to adolescent participants' gender, race, ethnicity, and age did not yield differences in engagement with the suicide risk-management services. While males are less likely to report psychological distress than females (Chandra & Minkovitz, 2006), the study's use of a crisis hotline, where youth do not have to speak face-to-face with CC, may make it easier for male participants to report their experiences of distress and engage with CC. Similarly, adolescence is a developmental period where the use of social media and mobile technology is more common means of communication than in-person meetings (Yonker, Zan, Scirica, Jethwani, & Kinane, 2015). This may explain adolescents' familiarity and, possibly, increased comfort with communicating with crisis counselors via telephone compared with in-person interviews.

Findings related to race and ethnicity did not reveal a difference in participants' engagement with CC. This finding is inconsistent with past studies demonstrating disparities in mental health service use between racial and ethnic minority youth and their White peers (Caldwell, Assari, & Breland-Noble, 2016). Despite the historical maltreatment of Blacks in the United States by medical providers (Boulware, Cooper, Ratner, LaVeist, & Powe, 2003), the current study's risk-management protocol (i.e., transfer to CC and speaking to CC by phone) may help minimize mistrust, a common barrier to mental health service use among Black youth and families (LaVeist, Nickerson, & Bowie, 2000). However, prior research has demonstrated that the perceived race of the telephone interviewer has effects on participants' survey responses (Liu, 2016). Future research should investigate how perceptions of crisis counselors' demographic characteristics may impact caller engagement. Moreover, future research should recruit larger samples of Black youth to examine facilitators to treatment engagement so that future risk-management procedures effectively safeguard participants across racial and ethnic subgroups.

Regarding clinical characteristics, findings related to severity of suicidal thoughts, a history of multiple suicide attempts, impulsivity/aggression, drug use, and alcohol use did not yield differences in engagement with the suicide risk-management services. Youth with greater severity of suicidal thoughts and with a history of multiple suicide attempts may be in such great need of intervention that they are also able to effectively engage with CC when following risk-management protocol. Similarly, youth who endorse greater impulsivity/aggression or engage in drug or alcohol use may also be in need of additional support, enhancing ones' ability to engage with a CC. These findings suggest current risk-management services are effectively engaging these clinical subgroups of youth.

Previous studies suggest safety planning that includes the identification of practical coping strategies for suicide risk are vital

TABLE 2
Risk-Management Engagement by Clinical Characteristics

	Successful call transfer		Coping strategy		Source of support		Duration of call (minutes)	
	%	<i>p</i>	%	<i>p</i>	%	<i>p</i>	Median (IQR)	<i>p</i>
Impulsivity/aggression-baseline		.58 ^a		1.00 ^a		1.00 ^a		.15 ^b
Yes	95%		85%		35%		9.0 (6.4, 14.0)	
No	93%		84%		35%		10.4 (6.9, 17.3)	
Drug use-baseline		.15 ^a		.72 ^a		1.00 ^a		0.45 ^b
Yes	96%		85%		34%		9.7 (6.6, 15.4)	
No	91%		83%		35%		10.1 (6.4, 16.8)	
Risky alcohol use-baseline		.53 ^a		.44 ^a		1.00 ^a		0.052 ^b
Yes	92%		77%		31%		7.4 (5.5, 8.5)	
No	95%		85%		35%		10.0 (6.6, 16.2)	
History of lifetime multiple suicide attempts-3-month		.26 ^a		.58 ^a		.07 ^a		.78 ^b
Yes	96%		85%		39%		9.8 (6.3, 16.2)	
No	92%		82%		27%		9.7 (6.9, 15.8)	

^aFisher's exact test.

^b*p*-value is based on the Wilcoxon rank-sum test; N varied from 203 to 234 for adolescents responding to these questions.

for maintaining safety and decreasing suicide risk (Glenn, Franklin, & Nock, 2015). In ED-STARS, a centralized crisis hotline service was incorporated into the risk-management protocol for 3-month telephone follow-up interviews. Although an in-person risk-management strategy is recommended for studies that involve in-person follow-up assessments (National Institute of Mental Health, 2017), hotline crisis counselors' training specific to immediate coping strategies, available resources, and safety planning makes them well-suited for conducting telephone-based risk-management services.

Despite this study's notable strengths, including addressing a significant gap in our understanding of research study risk management, findings should be considered in the context of study limitations. Although the study sample was drawn from 13 pediatric emergency departments in the United States with broad geographic representation, it was not a nationally representative sample.

Further, the relatively small sample size for certain demographic subgroups presented limitations in examining crisis response engagement for these subgroups (e.g., American Indian) due to limited statistical power. In addition, although the qualitative data available from crisis call records enriched our study, the variability in crisis counselors' call-content data, particularly related to information shared by adolescents, required us to collapse call-content data into two categories (i.e., youth reported coping strategy and youth reported source of support) for which highly reliable coding was possible. Additionally, the current study did not examine whether or not participants' suicidal ideation and/or behavior improved or worsened after speaking with a CC. Future research should examine how high-risk adolescents' symptoms change following a crisis hotline intervention, within the context of a research study's risk-management protocol.

CONCLUSION

This study describes and examines use of a telephone crisis hotline for risk management with adolescent research participants at elevated risk for suicide, addressing a gap in research on risk management in research studies with adolescents at elevated risk for suicide. Study results indicate that adolescents actively engaged in crisis hotline

services when they were referred for these services during telephone follow-up interviews. These findings lend empirical support to the recommendations that crisis hotlines can play an integral part in the risk management of youth participants at high risk for suicide, particularly in a study that incorporates telephone follow-up interviews where an in-person risk-management protocol is less feasible.

REFERENCES

- ARIAS, S. A., SULLIVAN, A. F., MILLER, I., CAMARGO, C. A., & BOUDREAUX, E. D. (2015). Implementation and use of a crisis hotline during the treatment as usual and universal screening phases of a suicide intervention study. *Contemporary Clinical Trials, 45*, 147–150.
- BARDWELL, W. A., & DIMSDALE, J. E. (2001). The impact of ethnicity and response bias on the self-report of negative affect. *Journal of Applied Biobehavioral Research, 6*, 27–38.
- BELNAP, B. H., SCHULBERG, H. C., HE, F., MAZUMDAR, S., REYNOLDS, C. F., & ROLLMAN, B. L. (2015). Electronic protocol for suicide risk management in research participants. *Journal of Psychosomatic Research, 78*, 340–345.
- BOULWARE, L. E., COOPER, L. A., RATNER, L. E., LAVEIST, T. A., & POWE, N. R. (2003). Race and trust in the health care system. *Public Health Reports, 118*, 358–365.
- BRENT, D. A., GREENHILL, L. L., COMPTON, S., EMSLIE, G. J., WELLS, K., WALKUP, J. T., ET AL. (2009). The treatment of adolescent suicide attempters atudy (TASA): Predictors of suicidal events in an open treatment trial. *Journal of the American Academy of Child and Adolescent Psychiatry, 48*, 987–996.
- BROWN, G. K., BRUCE, M. L., & PEARSON, J. L., & Group, P. S. (2001). High-risk management guidelines for elderly suicidal patients in primary care settings. *International Journal of Geriatric Psychiatry, 16*, 593–601.
- CALDWELL, C. H., ASSARI, S., & BRELAND-NOBLE, A. M. (2016). The epidemiology of mental disorders in African American children and adolescents. In A. Breland-Noble, C. Al-Mateen, & N. Singh (Eds.), *Handbook of mental health in African American youth* (pp. 3–20). New York City, NY: Springer.
- Centers for Disease Control and Prevention (2017). Web-based Injury Statistics Query and Reporting System (WISQARS). Retrieved December 3, 2018 from www.cdc.gov/ncipc/wisqars.
- CHANDRA, A., & MINKOVITZ, C. S. (2006). Stigma starts early: Gender differences in teen willingness to use mental health services. *Journal of Adolescent Health, 38*, 754.e751–754.e758.
- DE LEO, D., CERIN, E., SPATHONIS, K., & BURGIS, S. (2005). Lifetime risk of suicide ideation and attempts in an Australian community: Prevalence, suicidal process, and help-seeking behaviour. *Journal of Affective Disorders, 86*, 215–224.
- GIPSON, P. Y., AGARWALA, P., OPPERMAN, K. J., HORWITZ, A., & KING, C. A. (2015). Columbia-suicide severity rating scale: Predictive validity with adolescent psychiatric emergency patients. *Pediatric emergency care, 31*, 88.
- GLENN, C. R., FRANKLIN, J. C., & NOCK, M. K. (2015). Evidence-based treatments for self-injurious thoughts and behaviors in youth. *Clinician's Research Digest: Child and Adolescent Populations, 33*, 3.
- GOULD, M. S., KALAFAT, J., HARRISMUNFAKH, J. L., & KLEINMAN, M. (2007). An evaluation of crisis hotline outcomes. Part 2: Suicidal callers. *Suicide and Life-Threatening Behavior, 37*, 338–352.
- KANN, L., MCMANUS, T., HARRIS, W. A., SHANKLIN, S. L., FLINT, K. H., HAWKINS, J., ET AL. (2016). Youth risk behavior surveillance — United States, 2015. *MMWR Surveillance Summaries, 65*, 1–174.
- KING, C. A., GRUPP-PHELAN, J., BRENT, D., DEAN, M., WEBB, M., & CASPER, C. (unpublished paper). Predicting 3-month risk for adolescent suicide attempts among pediatric emergency department patients.
- KING, C. A., HILL, R. M., WYNNE, H. A., & CUNNINGHAM, R. M. (2012). Adolescent suicide risk screening: The effect of communication about type of follow-up on adolescents' screening responses. *Journal of Clinical Child & Adolescent Psychology, 41*, 508–515.
- KING, C. A., & KRAMER, A. C. (2008). Intervention research with youths at elevated risk for suicide: Meeting the ethical and regulatory

challenges of informed consent and assent. *Suicide and Life-Threatening Behavior*, 38, 486–497.

LAVEIST, T. A., NICKERSON, K. J., & BOWIE, J. V. (2000). Attitudes about racism, medical mistrust, and satisfaction with care among African American and white cardiac patients. *Medical Care Research and Review*, 57(Suppl 1), 146–161.

LINEHAN, M., COMTOIS, K., & WARD-CIESIELSKI, E. (2012). Assessing and managing risk with suicidal individuals. *Cognitive and Behavioral Practice*, 19, 218–232.

LISKOLA, J., HARAVUORI, H., LINDBERG, N., NIEMELÄ, S., KARLSSON, L., KIVIRUUSU, O., ET AL. (2018). AUDIT and AUDIT-C as screening instruments for alcohol problem use in adolescents. *Drug and Alcohol Dependence*, 188, 266–273.

LIU, M. (2016). The effect of the perception of an interviewer's race on survey responses in a sample of Asian Americans. *Asian American Journal of Psychology*, 7, 167.

LYNAM, D. R., SMITH, G. T., WHITESIDE, S. P., & CYDERS, M. A. (2006). *The UPPS-P: Assessing five personality pathways to impulsive behavior*. West Lafayette, IN: Purdue University.

National Institute of Mental Health (2014). Personalized screen to ID suicidal teens in 14 ERs. Science Update. Retrieved December 3, 2018 from <https://www.nimh.nih.gov/news/science-news/2014/personalized-screen-to-id-suicidal-teens-in-14-ers.shtml>.

National Institute of Mental Health (2016). NIMH funds 3 'Zero Suicide' grants. Science Update. Retrieved December 3, 2018 from <https://www.nimh.nih.gov/news/science-news/2016/nimh-funds-3-zero-suicide-grants.shtml>.

National Institute of Mental Health (2017). Conducting research with participants at elevated risk for suicide: Considerations for researchers. Retrieved December 3, 2018 from <https://www.nimh.nih.gov/funding/clinical-research/conducting-research-with-participants-at-elevated-risk-for-suicide-considerations-for-researchers.shtml>.

nimh.nih.gov/funding/clinical-research/conducting-research-with-participants-at-elevated-risk-for-suicide-considerations-for-researchers.shtml.

POSNER, K., BROWN, G. K., STANLEY, B., BRENT, D. A., YERSHOVA, K. V., OQUENDO, M. A., ET AL. (2011). The Columbia-Suicide Severity Rating Scale: Initial validity and internal consistency findings from three multisite studies with adolescents and adults. *American Journal of Psychiatry*, 168, 1266–1277.

SAS Institute Inc (2013). SAS[®] 9.4 Interface to ADABAS: Cary, NC: SAS Institute Inc.

STANFORD, M. S., HOUSTON, R. J., VILLEMARETTE-PITTMAN, N. R., & GREVE, K. W. (2003). Premeditated aggression: Clinical assessment and cognitive psychophysiology. *Personality and Individual Differences*, 34, 773–781.

STANLEY, B., BROWN, G. K., BRENNER, L. A., GALFALVY, H. C., CURRIER, G. W., KNOX, K. L., ET AL. (2018). Comparison of the safety planning intervention with follow-up vs usual care of suicidal patients treated in the emergency department. *JAMA Psychiatry*, 75, 894–900.

U.S. Department of Health and Human Services (HHS) Office of the Surgeon General and National Action Alliance for Suicide Prevention. (2012). National strategy for suicide prevention: Goals and objectives for action. Washington, DC: Health and Human services.

YONKER, L. M., ZAN, S., SCIRICA, C. V., JETHWANI, K., & KINANE, T. B. (2015). "Friending" teens: systematic review of social media in adolescent and young adult health care. *Journal of Medical Internet Research*, 17(1), e4.

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