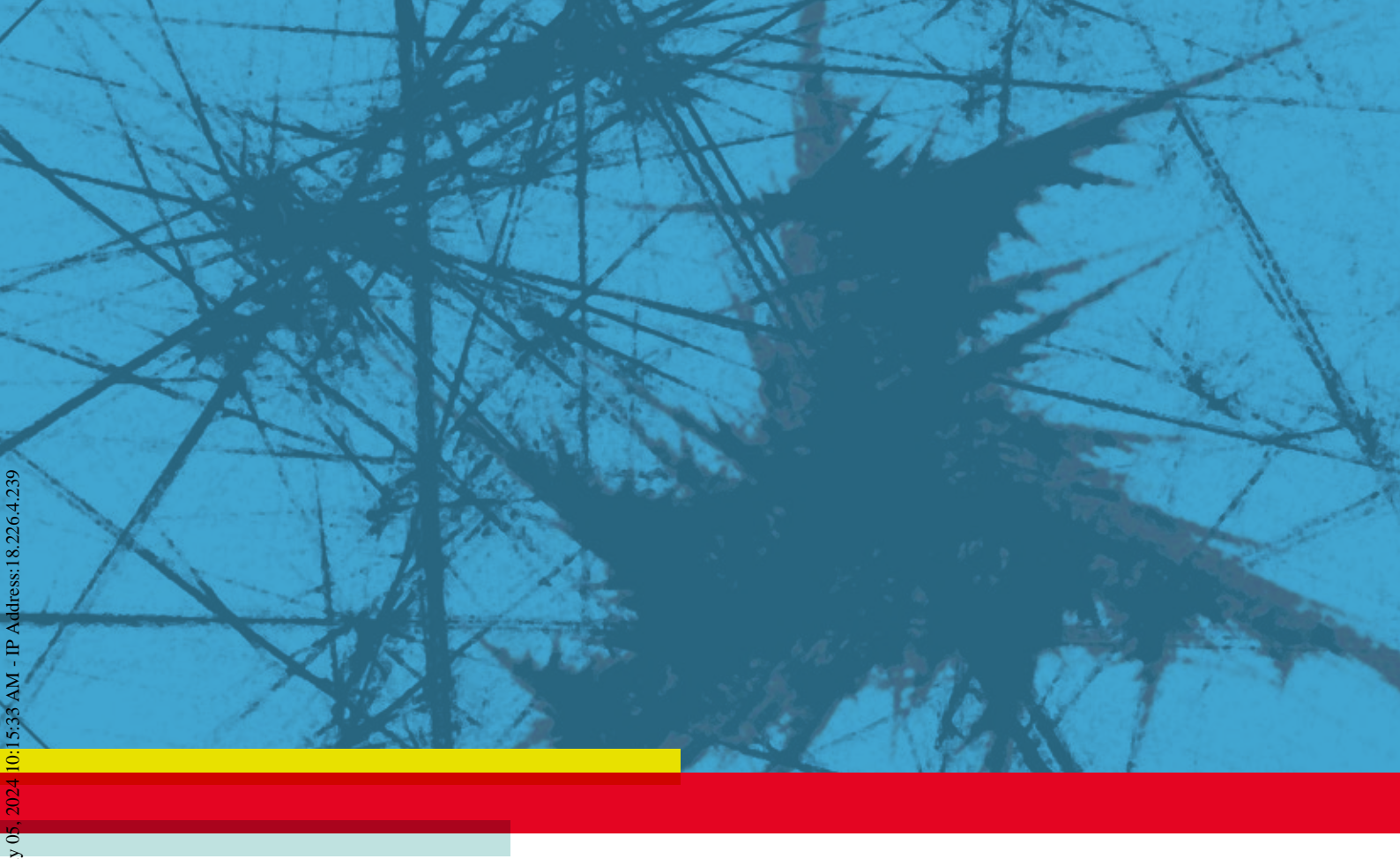


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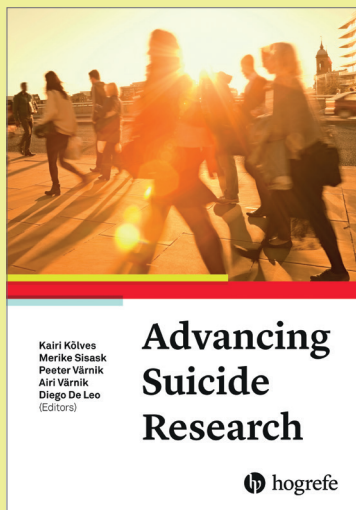
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Editorial

Doing the Right Thing – Ethical Issues in Designing Suicide Prevention Studies



Karl Andriessen 

Centre for Mental Health, Melbourne School of Population and Global Health, The University of Melbourne, Carlton, VIC, Australia

Research is essential to improve our understanding and prevention of suicidal behavior, and to alleviate its impact on society. While no one will question the usefulness of research in this field, designing and conducting suicide-related studies entails ethical issues, many of which are not straightforward to address (Hom et al., 2017; Nugent et al., 2019). Important ethical challenges arise from features that are central to suicide research, such as the involvement of participants who might have an increased risk of suicide and asking suicide-related questions of participants (Fisher et al., 2002; Oquendo et al., 2004; Pearson et al., 2001). As both researchers and institutional review boards or human research ethics committees (referred to here as “research ethics committees”) have a role in designing suicide prevention studies, this editorial discusses tensions that have been noted between these two parties and their views on dealing with ethical issues in suicide research. It advocates for the use of consensus recommendations encompassing evidence-based and lived-experience informed guidance and for thorough collaboration to enhance and sustain the design and conduct of ethical suicide research contributing to effective suicide prevention.

Tensions Between Researchers and Research Ethics Committees

The literature indicates that researchers often receive concerns from their research ethics committees regarding participant safety, specifically regarding the inclusion of people considered at risk of suicide, as there is a perception that this may cause undue distress and potentially conflict with the researcher’s duty of care (Gibson et al., 2013;

Lakeman & Fitzgerald, 2009a). However, research has demonstrated that participants can safely take part in suicide studies and that, in fact, asking questions about suicide may have beneficial effects for participants, such as providing a welcome opportunity to talk about their experiences (Andriessen et al., 2018; Bender et al., 2019; Blades et al., 2018). Nonetheless, this does not diminish the duty of care of the researcher, nor the primary responsibility of a research ethics committee to oversee the safety of participants and the ethical conduct of research (Guillemin et al., 2012; Hom et al., 2017). As such, on the one hand, researchers sometimes have viewed research ethics committees as being paternalistic and focused on protecting the institutions at the cost of obstructing research by excluding those who might benefit from the research (Edwards et al., 2004; Guillemin et al., 2012). On the other hand, research ethics committees worry that researchers may attribute too much discretionary power to the committees, while they rather see themselves as facilitators of high-quality research (Barnard et al., 2021; Klitzman, 2011). Thus, the tensions between researchers and research ethics committees appear to relate to diverging views on their responsibilities and roles in the research process, crystallized around ethical issues in designing and conducting suicide research.

Researchers and research ethics committees are typically guided by national research ethics guidelines, such as the US Federal Policy for the Protection of Human Subjects (Department of Health & Human Services, 2018) and the UK Policy Framework for Health and Social Care Research (NHS Health Research Authority, 2020). However, national ethical guidelines, often informed by the Declaration of Helsinki (World Medical Association, 2013), have not been designed for suicide research specifically. Therefore, for example, the Australian National Statement on Ethical Conduct in Human Research stipulates that:

“Their application should not be mechanical. It always requires, from each individual, deliberation on the values and principles, exercise of judgment, and an appreciation of context” (National Health and Medical Research Council, 2018, p. 11). Thus, it is important to examine experiences of researchers and research ethics committees to enhance our understanding of their views on how to conduct “good” suicide research.

Views of Researchers and Research Ethics Committees

Given the apparent sensitivities in this field of research, surprisingly few studies have investigated the experiences of researchers and research ethics committees in dealing with ethical issues. Studies that examined the feedback that researchers received from their research ethics committees when submitting suicide-related study applications revealed that most concerns relate to the ethical principles of safeguarding the health, well-being, and integrity of participants, the assessment of risks and benefits of research participation, participant competency and consent, and adequate risk management for a vulnerable population (Andriessen et al., 2019a, 2019b; Lakeman & Fitzgerald, 2009a). Thus, most concerns seem to address issues regarding potential harm to participants and researchers’ responsibility to participants, rather than, for example, concerns regarding researcher competency and the impact of suicide research on researchers.

Researchers must also deal with ethical concerns associated with the use of the Internet and social media in suicide research, for example, research aiming to identify risk factors for suicidal behavior or trial interventions (Bailey et al., 2020; Hokke et al., 2020). Specifically, the use of publicly available data from social media or online forums, as well as trialing online interventions, poses a few specific challenges (Kleiman et al., 2019; Michaels et al., 2015). One could argue that posting information online publicly implies consent for others to use that information. Nonetheless, there is still the question of what expectations the posters had when posting their data, whether such implied consent is applicable, for example, to minors, and what strategies researchers apply to deidentify the data used in their analysis and publications (Bailey et al., 2020; Conway & O’Connor, 2016; Park et al., 2022). Researchers may also face major ethical issues when they detect a study participant with an apparent acute risk of suicide, for example, based on participants’ social media postings, survey replies, or real-

time data (Nock et al., 2021; Podlogar et al., 2016). Thus, ethical challenges arise regarding (re-)identification of participants, how researchers decide and manage intervening in an online or technology-based environment, and what passive or active interventions would be appropriate, for example, ranging between providing online resources and outreach to study participants (Cosgrove et al., 2017).

Studies indicate that most researchers modify their ethics application in reply to the concerns they received from research ethics committees, including modifications regarding risk management, recruitment, or data storage (Andriessen et al., 2019a, 2019b; Bailey et al., 2020; Lakeman & Fitzgerald, 2009a). Researchers also consult their research ethics committee and/or provide them with evidence from the literature. Despite this additional work, most researchers tend to view the review process as having a positive impact on the research. Nonetheless, delays caused by the duration of the ethics approval process, and subsequent problems regarding additional costs or staffing, as well as changes to the study design have also been reported (Andriessen et al., 2019a, 2019b; Bailey et al., 2020; Moore et al., 2013).

To our knowledge, only two studies have investigated the views of representatives of research ethics committees in dealing with suicide-related study applications. Lakeman and Fitzgerald (2009b) reported concerns regarding potential harm to participants, the responsibility of researchers toward participants, and participants’ competency and consent. Barnard et al. (2021) reported that research ethics committees appreciate applications that demonstrate research merit and integrity, for example, by adopting appropriate research methods and justifying and managing potential risks. This study further reported that members of research ethics committees do not always possess adequate knowledge about suicide and suicide prevention. As such, members of research ethics committees also rely on personal views and experiences in the assessment and decision-making process (Barnard et al., 2021).

Toward a Dialogue

Overall, it seems that researchers and research ethics committees are mainly concerned about similar ethical challenges, and express a need and willingness to engage in a dialogue and to collaborate with each other (Mondragon Barrios et al., 2017). Such a dialogue may focus on ethical issues regarding study design, recruitment, consent, as well as risks associated with research participation and justification of those risks in suicide

research. Given that personal views may play a role in assessing suicide-related applications, a dialogue could also elucidate differences in moral views on how to balance the extent to which researchers should intervene if study participants are perceived as being at risk of suicide and the autonomy of a (potentially) suicidal individual. Also, the legal status of suicidal behavior in a given country could be considered in this context (Mishara & Weisstub, 2005, 2016).

Establishing a dialogue (which may include, for example, researchers joining a research ethics committee, or joint training sessions) may allow researchers to learn how their research ethics committees work and anticipate potential concerns (Guillemin et al., 2012; Wassenaar & Slack, 2016). It can provide opportunities to inform the research ethics committees about evidence from the literature, for example, regarding participant safety and participant experiences of having taken part in suicide studies (Biddle et al., 2013; Blades et al., 2018; Gibson et al., 2013). Establishing a dialogue may also facilitate the work of the research ethics committees and enhance their knowledge of suicide prevention (Barnard et al., 2021). Nonetheless, obtaining ethics approval may take time, and it is recommended that researchers should include sufficient time in the preparation of their study to navigate the ethics process (Andriessen et al., 2019b; Barnard et al., 2021). Rather than seeing the ethics process as an administrative hurdle, researchers can benefit from adequate research ethics training and use the ethics application process as an instrument to ensure a coherent and solid design of their studies.

Lived-Experience Informed Consensus Recommendations

Over the years, the active involvement of people with lived experience of suicide in co-design of suicide research and prevention has gained momentum (Krysinska et al., 2022; Watling et al., 2022). People with lived experience of suicide include those who have experienced suicidal thoughts, survived a suicide attempt, cared for someone through a suicidal crisis, or have been bereaved by suicide (Roses in the Ocean, 2022). The positive impacts of such involvement include enhanced quality and appropriateness of research questions and recruitment strategies, and more adequate interpretation and implementation of study findings (Brett et al., 2014; Grading et al., 2015). While the active involvement of people with lived experience of suicide may signify a paradigmatic shift by opening the research field to people with lived experience, it also bears

ethical challenges, for example, regarding psychological safety in the research team and power balance between lived-experience researchers and other researchers (Boote et al., 2002; Sangill et al., 2019). However, the boundaries between the two groups are not necessarily that sharp. A recent study that involved people with lived experience of suicide and suicide researchers found that about half of the researchers identified as having a lived experience of suicide (Krysinska et al., 2022).

The literature, as well as our own research in this field, revealed a need for more guidance regarding dealing with ethical issues in suicide studies (Andriessen et al., 2019a; Barnard et al., 2021; Hom et al., 2017). Therefore, our team, involving researchers with lived experience of suicide, surveyed two expert panels (i.e., people with lived experience of suicide and suicide researchers) to develop consensus recommendations for researchers when designing suicide prevention studies (Dempster et al., 2022). Participants rated a series of statements covering a range of topics, such as the use of national ethics guidelines, the involvement of people with lived experience of suicide in co-design of studies, involvement of high-suicide-risk participants, conducting suicide prevention research online and via social media, impact of research on participants and researchers, risks of research to participants and nonparticipants, asking participants suicide-related questions, and relationship between researchers and research ethics committee. Overall, there was strong agreement within and between the two groups of participants, resulting in highly endorsed recommendations, summarized in Table 1. The consensus recommendations expand the recommendations that are available from national guidelines for use in suicide prevention studies and constitute a novel and primary resource when designing suicide prevention studies (Dempster et al., 2022).

Interestingly, there was strong evidence of empathy from one group for the other (Dempster et al., 2022). While

Table 1. Summary of consensus recommendations

- Research must adhere to national ethics guidelines
- Ethical principles of merit, integrity, justice, beneficence, and respect should be factored into every suicide prevention research ethics application
- Support service information must be made available to all study participants, whether they are taking part in-person or online
- Description of risk to participants and strategies to mitigate and deal with the risks must be transparent and comprehensive
- Participants can only be asked questions that are relevant to the research
- Researchers must have appropriate training, support, and supervision to conduct the study and to prevent vicarious traumatization

people with lived experience focused on care and support for participants and researchers, researchers focused on participant risk management protocols and support services for participants. Furthermore, there was ample consideration for the ethical involvement of people with lived experience of suicide in the research process, and strong support for reflexive empathy and establishing a dialogue and collaboration between researchers and research ethics committees.

Panelists at a recent webinar – involving researchers, members of research ethics committees, and people/researchers with lived experience of suicide – on dealing with ethical issues in suicide prevention studies, welcomed the consensus recommendations as a useful tool in the design of suicide studies as well as to engage in a conversation with research ethics committees (Suicide Prevention Australia, 2022). The consensus recommendations were seen as especially useful for researchers who do not have other guidelines on or have little experience in conducting suicide prevention research. Nonetheless, while such recommendations can be used as a springboard, further work is needed to adopt them internationally and within local contexts.

Toward a Dialogue

Collaboration between researchers and research ethics committees, as well as genuinely involving people with lived experience of suicide in research, has been identified as contributing to ethical design of suicide research. It has also been noted that people who are involved in designing and conducting suicide research may wear different hats (e.g., as a person with lived experience of suicide, a researcher, and/or member of a research ethics committee). Thus, to enhance the ethical design of suicide prevention studies it is essential to transcend the old dichotomies of one group versus the other and consider the design of suicide studies in a dialogue. In addition to providing evidence from the literature to research ethics committees, researchers can include people with lived experience of suicide as a trustworthy source to communicate that involvement of (potentially) suicidal study participants can be beneficial for participants and the outcomes of the research, for example, in terms of establishing the effectiveness of interventions (Blades et al., 2018). Rather than asking whether potentially suicidal people can participate in studies, the ethical question is how to balance the potential risks and benefits of their participation with disadvantages and benefits of excluding those participants, and how to justify the risks (Suicide Prevention Australia, 2022).

Conclusion

Suicide prevention research comprises various research designs and evaluations of prevention programs. While research in this field is imperative for improving suicide prevention across target populations and settings, there are multiple ethical challenges inherent to research with people considered at risk of suicide. Ethical design of suicide prevention studies can benefit from the use of consensus recommendations and a collaborative approach involving researchers, members of research ethics committees, and people with lived experience of suicide. A collaborative approach and reflexive empathy may allow the different parties to learn about each other and to overcome tensions stemming from confusion about each other's role in the design of suicide prevention studies. Adopting consensus recommendations to local contexts and settings may further enhance and sustain the ethical design and conduct of suicide prevention studies.

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ORCID

Karl Andriessen

 <https://orcid.org/0000-0002-3107-1114>

Karl Andriessen

Centre for Mental Health
Melbourne School of Population and Global Health
The University of Melbourne
207 Bouverie Street
Carlton, VIC, 3053
Australia
karl.andriessen@unimelb.edu.au

Karl Andriessen, PhD, is a senior research fellow at the Centre for Mental Health, Melbourne School of Population and Global Health, The University of Melbourne, Australia. He leads the program of research on ethical issues in suicide research, and is internationally mostly known for his work in the field of suicide bereavement and postvention.

Caring Transitions – A Care Coordination Intervention to Reduce Suicide Risk Among Youth Discharged From Inpatient Psychiatric Hospitalization

Kim Gryglewicz¹, Amanda Peterson², Eunji Nam³, Michelle M. Vance⁴, Lisa Borntrager¹, and Marc S. Karver²

¹School of Social Work, College of Health Professions and Sciences, University of Central Florida, Orlando, FL, USA

²Department of Psychology, University of South Florida, Tampa, FL, USA

³Department of Social Welfare, Incheon National University, Incheon, South Korea

⁴Department of Social Work & Sociology, North Carolina A&T State University, Greensboro, NC, USA

Abstract. *Background:* Suicide risk following youth psychiatric hospitalization is of significant concern. This study evaluated Linking Individuals Needing Care (LINC), a theory-driven, comprehensive care coordination approach for youth discharged from crisis services. *Aims:* To pilot LINC's potential effectiveness in increasing service utilization and decreasing suicide risk. *Method:* Participants were 460 youth patients who received LINC for approximately 90 days following discharge from crisis services. Service utilization, depressive symptoms, and suicide-related variables were measured at baseline and 30, 60, and 90 days after baseline. *Results:* Patients significantly increased the use of various beneficial, least restrictive services (individual therapy, medication management, and non-mental health supports) over the 90-day intervention. Significant decreases were observed in depressive symptoms, suicide ideation, and engagement in suicide-related behaviors. *Limitations:* Absence of a comparison group and nonparticipating families limit causal conclusions and generalizability. *Conclusions:* LINC may be a promising new approach following inpatient hospitalization that can engage and retain youth in services, likely resulting in improved treatment outcomes. This approach was designed emphasizing patient engagement, suicide risk assessment and management, safety planning, community networking, referral/linkage monitoring, coping and motivational strategies, and linguistic/culturally responsive practices to meet service and support needs of high-risk suicidal youth.

Keywords: care coordination, treatment engagement, post-discharge care, service utilization, suicide-related outcomes

In the United States, rates of suicide and self-injurious thoughts and behaviors (SITBs) have been rising, especially among adolescents, whose mortality rate has increased by 76% in the last decade (Curtin & Heron, 2019; Plemmons et al., 2018). Consequently, US hospital encounters for SITBs have nearly doubled (Plemmons et al., 2018), while the utilization of mental health services remains low (Hom et al., 2015), particularly following discharge from psychiatric hospitalization (Fontanella et al., 2020). Given that lack of engagement/retention in mental health services is a significant predictor of subsequent youth suicide risk (Cyzk & King, 2015; Mirkovic et al., 2020; Wolff et al., 2018), there is a need to improve access and follow-up care.

Care coordination is a public health approach involving timely and coordinated strategies to address service

utilization barriers and health outcomes (McDonald et al., 2007). These interventions have been found to decrease hospital readmissions, increase service engagement, and improve health and service satisfaction (Gelkopf et al., 2016; Gorin et al., 2017; Grupp-Phelan et al., 2019). Unfortunately, most studies investigating care coordination strategies have primarily focused on adults (e.g., Motto & Bostrom, 2001; Wang et al., 2016), not on high-risk youth, and have not integrated principles/components across theoretical frameworks to teach providers (e.g., care coordinators) how to engage patients and address service utilization barriers.

To address these gaps, an innovative, theory-driven care coordination intervention (Linking Individuals Needing Care [LINC]) was developed. This intervention

incorporates engagement and service use principles from multiple health care theories (Andersen & Davidson, 2007; Karver et al., 2006; Miller & Rollnick, 2002; Salzer et al., 1997), with lessons learned from prior research (e.g., Tricco et al., 2014) and consumer input (Gryglewicz et al., 2015). LINC, a 90-day intervention, infuses suicide risk management and care coordination strategies via caring contacts provided in any mode of communication. Considering naturalistic studies of youth discharged from inpatient care show that mental health functioning and risk of SITBs and psychiatric rehospitalization remains elevated after care (Czyz & King, 2015; Mirkovic et al., 2020; Wolff et al., 2018), this study addresses an important gap in the literature as it seeks to evaluate a theoretical and consumer-driven, clinical intervention designed to reduce subsequent suicide risk among a vulnerable population of youth.

Thus, the aim of the study was to evaluate the utility and potential effectiveness of implementing the LINC intervention in inpatient settings providing emergency care to suicidal youth. It was hypothesized that patients exposed to the intervention would report increased engagement (retention) in formal (mental health) and informal (non-mental health) services and experience decreased depressive symptoms and SITBs.

Method

Study Design

A longitudinal pilot study was conducted with at-risk youth during and following inpatient psychiatric hospitalization for suicide risk.

Sample and Setting

Participants were recruited from inpatient facilities at three behavioral health organizations in one southeastern state in the United States. Upon inpatient admission, intake coordinators screened patients using the Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001). Patients with a score of 10+ and/or who indicated suicide risk were further assessed by therapists using the Columbia Suicide Severity Rating Scale (C-SSRS; Posner et al., 2011) and a clinical assessment. Patients were eligible to participate in the study if they met the following criteria: (a) positive endorsement of SITBs, (b) self-report of multiple risk factors (e.g., history of non-suicidal self-injury, victimization, and substance use),

and/or (c) need for intensive support due to recurrent psychiatric hospitalizations and/or mental health or SITB history. A total of 1,125 patients between the ages of 10 and 17 ($M = 14.6$, $SD = 1.8$) met the study criteria, of whom 75.2% were female, 82.5% heterosexual, and 80.4% non-Hispanic (18.4% African American/Black and 15.9% multiracial). More than 86% of participants had a mood disorder, and 64% had a family history of mental illness. For 827 (73.5%) patients, contact with parents was made, which resulted in 460 youth/parents assenting/consenting for receipt of the LINC intervention and participation in the research study conducted between July 2016 and May 2020 (among nonparticipants, 280 parents perceived care was not needed and 87 were not interested). Study protocols were approved by a university institutional review board.

Intervention

Caring contacts were made during inpatient hospitalization, within 24–72 h of discharge, followed by weekly sessions for 30 days, and then monthly (up to approximately 90 days). At each contact, providers assessed and managed suicide risk (care/safety plans), identified service use needs/barriers, and utilized linguistic and culturally responsive strategies (e.g., individualized care monitoring plans, age and language-appropriate screening and assessment measures, collaborative decision-making, and inclusion of culture/preferences in care plans) to (a) build rapport, (b) increase symptom distress awareness and knowledge of help-seeking strategies and service navigation, (c) connect and coordinate referrals to community services, (d) motivate and encourage continued use of therapeutic supports, and (e) strengthen use of coping skills and other resources aimed to foster resiliency (an important component of evidence-based treatments for youth with depression/suicide risk; Barrett et al., 2017). Contacts were made via phone or in-person. Educational resources and a listing of community resources were provided to patients at discharge and check-in points. Providers delivering the intervention received an 8-h, face-to-face, skills-based training (using experiential techniques), three 6-h “booster” trainings, and bimonthly supervision (1-h phone sessions) from the lead author and two suicide prevention training experts during the study period. A random review of patient records (30%) was conducted to assess treatment fidelity by the lead author and a trained research assistant. Fidelity was calculated by taking the average percent of endorsed care coordination strategies observed across cases (i.e., 90.53%). Interrater reliability of the rating of fidelity between coders was good ($\kappa = .782$, $p < .001$).

Data Collection

Therapists and/or unit supervisors met with eligible youth/parents within 24–48 h of admission to explain the study and refer to LINC care coordinators. If this was not possible (e.g., discharge occurred over weekend), care coordinators contacted youth/parents by phone within 72 h of discharge. Youth assent/parental consent was obtained prior to study enrollment. Mental health, suicide risk, and service utilization measures were collected from participants at baseline (prior to intervention) and at 30, 60, and 90 days from baseline via phone and/or in-person interviews. *Mental health* was measured by the PHQ-9 (Kroenke et al., 2001), a 9-item scale used to assess depression severity (0- to 3-point scale; total scores 0–27). The measure has been shown to be reliable and valid with adolescents (Richardson et al., 2010; $\alpha = .84$, current sample) and was included in the study due to the strong correlation between depression and utilization of crisis services (Plemmons et al., 2018), subsequent suicide risk, and mortality (King et al., 1995; Schlagbaum et al., 2020). The C-SSRS Screen Version, a six question (yes/no) semistructured clinical interview (Posner et al., 2011), was used to assess *suicidal ideation* (SI; items 1–5 were added to create a SI score [ranged from 0 to 5], $\alpha = .76$, current sample) and *suicide-related behavior* (suicide attempts, aborted/interrupted attempts, plans; SRB [item 6]). The C-SSRS demonstrates strong convergent, divergent, and predictive validity for SRB during treatment for adolescents (Posner et al., 2011). *Service utilization* was assessed using the LINC Care Coordination Monitoring Form (Gryglewicz et al., 2018), a dichotomous (yes/no) measure used to monitor engagement in six different services: individual therapy, family therapy, medication management, non-mental health supports (e.g., after school activities), school services (e.g., counseling), and other services (e.g.,

faith-based). The number of *readmissions* to inpatient facilities was obtained via agency records. Patient records, including demographics and related measures, were de-identified to protect patient anonymity.

Data Analysis

Descriptive statistics, χ^2 tests, and *t*-tests were used to examine service use patterns and outcomes at baseline and at 30, 60, and 90 days. Mixed-effects linear regression analyses were performed to examine changes in depressive symptoms and SI, and mixed-effects logistic regression analyses were performed to examine changes in SRB and service utilization (i.e., six different services). In the regression models, demographic and clinical characteristics and baseline outcomes were adjusted for. As measurement occurred every 30 days, “time” in the current study means 30 days. A random effect of BHOs was included in models to account for nested structure of the data. *t* tests and χ^2 comparisons between participants who remained in the intervention and those who did not indicated no differences between groups on demographic and baseline mental health/suicide risk measures. Stata SE 15.1 was used for data analysis (StataCorp, 2017).

Results

Service Utilization Patterns

Most participants remained in the intervention and study: 90.4% ($n = 416$) at 30 days, 80.2% ($n = 369$) at 60 days, and 67.6% ($n = 311$) at 90 days. Their use of nonresidential services increased from 79% at baseline to 86% at 90 days.

Table 1. Service use patterns for baseline and follow-up

	Baseline ($n = 364$ –369)		30 days ($n = 342$ –346)		60 days ($n = 315$ –317)		90 days ($n = 296$ –298)	
	SU (%)		SU (%)		SU (%)		SU (%)	
Any service use	286 (78.57)		304 (88.89)*		284 (90.16)*		254 (85.81)	
By type								
Individual therapy	185 (50.41)		232 (67.25)*		229 (72.47)*		213 (71.48)*	
Family therapy	14 (3.81)		38 (11.05)*		30 (9.49)*		25 (8.45)	
Medication	229 (62.40)		229 (66.57)*		232 (73.42)*		196 (65.77)*	
Non-MH	5 (1.37)		25 (7.29)*		21 (6.67)		22 (7.43)	
School services	28 (7.59)		50 (14.45)*		46 (14.56)*		39 (13.09)*	
Other support	74 (20.05)		120 (34.39)*		101 (31.86)*		94 (31.54)*	
	<i>M (SD)</i>	<i>N</i>	<i>M (SD)</i>	<i>N</i>	<i>M (SD)</i>	<i>N</i>	<i>M (SD)</i>	<i>N</i>
No. of services used	1.45 (1.01)	364	2.00 (1.17)	342	2.08 (1.16)	315	1.96 (1.24)	296

Note. SU = youth who utilized services; *N* = youth who reported their patterns of service utilization. *Statistically significant increases from baseline, $p < .05$ level according to χ^2 goodness-of-fit tests.

Table 2. Summary of mixed-effects logistic regression model predicting change over time in service use

	Individual therapy		Family therapy		Medication		Non-MH		School services		Other services	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Time (30 days)	1.54***	1.31, 1.82	1.32*	1.01, 1.73	1.24*	1.04, 1.48	1.54**	1.19, 2.00	1.48**	1.17, 1.87	1.30**	1.09, 1.57
PHQ9 (baseline)	0.96*	0.92, 0.99	1.04	0.95, 1.13	1.08*	1.01, 1.15	1.02	0.96, 1.08	1.11*	1.02, 1.20	1.06	0.99, 1.13
CSSRS-ideation (baseline)	1.19*	1.02, 1.40	1.13	0.83, 1.53	1.28*	1.01, 1.61	1.18	0.92, 1.50	0.76	0.56, 1.02	1.03	0.80, 1.34

Note. *** $p < .001$, ** $p < .01$, * $p < .05$ (two-tailed). CSSRS = Columbia Suicide Severity Rating Scale; OR = odds ratio; PHQ9 = Patient Health Questionnaire; CI = confidence interval (lower, upper). Model adjusted for demographics.

By the type of services, at 90 days, 71% were linked to individual therapy, 8% family therapy, 66% medication management, 7% non-mental health services, 13% school services, and 32% other informal supports. These increases were statistically significant at $p < .05$ level with the exception of family therapy and non-mental health services (Table 1). In general, youth were linked to one or two nonresidential services. Moreover, most youth (84.1%) were not readmitted for inpatient psychiatric care over the 90 days. Approximately 12% of youth were readmitted once, and 3.9% experienced two or more readmissions.

Table 2 presents mixed-effects logistic regression results predicting change over time in service use patterns while holding demographic and clinical characteristics, baseline depressive symptoms, and SI constant. Time was a significant predictor of all services, suggesting service use significantly increased over 90 days. For every 30 days of the intervention, the odds of receiving individual therapy increased by 54%, family therapy by 32%, medication management by 24%, non-mental health support by 54%, school services by 48%, and other services by 30%. Also, baseline depression and SI were associated with the use of some services. Youth with higher depressive symptoms at baseline were less likely to receive individual therapy, but more likely to receive medication management and school services. Youth with higher SI at baseline were more likely to receive individual therapy and medication management.

Mental Health and Suicide-Related Outcomes

Depressive symptoms and SI on average decreased by 65% and 86%, respectively. Youth engaging in SRB (last 30 days)

also decreased by 84% (Table 3). Mixed-effects regression analyses indicated that such decreases were statistically significant, even adjusting for demographic and clinical characteristics, baseline depressive symptoms, and SI (Table 4). Specifically, for every 30 days, depressive symptoms decreased an average of 3.75 points, SI decreased an average of 0.84 points, and the odds of engaging in SRB decreased 54%. Depressive symptoms and SI at baseline were significantly associated with treatment outcomes. Youth with higher baseline depressive symptoms were likely to have elevated depressive symptoms and SI over time, but baseline depressive symptoms were not related to SRB during the intervention. Youth with higher baseline SI were more likely to have higher SI over time and engage in SRB. However, baseline SI was not associated with changes in depressive symptoms over time.

Discussion

Given that prior research has indicated the risk of SITBs and psychiatric rehospitalization remains elevated following discharge from inpatient hospitalization (Czyz & King, 2015; Mirkovic et al., 2020; Wolff et al., 2018), the aim of the present study was to examine whether participation in the LINC intervention was followed by improved engagement in services and mental health outcomes for at-risk youth. Overall, patients receiving the LINC intervention had sustained and large reductions in depressive symptoms and SITBs postdischarge. While higher baseline symptoms predicted later symptom levels, when controlled for, patients still had significant decreases across all symptom domains (compared to baseline), which suggests that improvements may not have been just regression to the mean.

Table 3. Depressive symptoms and suicide-related outcomes for baseline and follow-up

	Baseline			30 days			60 days			90 days		
	N	Outcome	Range	N	Outcome	Range	N	Outcome	Range	N	Outcome	Range
PHQ9 (M, SD)	448	16.65 (6.23)	0–27	268	7.29 (5.41)	0–25	247	6.75 (5.28)	0–25	267	5.88 (5.43)	0–27
CSSRS-ideation (M, SD)	401	2.94 (1.58)	0–5	254	0.47 (1.08)	0–5	232	0.50 (1.15)	0–5	240	0.42 (1.06)	0–5
CSSRS-attempt (N, %)	405	156 (38.52)	—	257	23 (8.95)	—	237	30 (12.66)	—	242	25 (10.33)	—

Note. CSSRS = Columbia Suicide Severity Rating Scale; PHQ9 = Patient Health Questionnaire; N = youth who self-reported.

Table 4. Summary of mixed-effects linear and logistic regression model predicting change over time in PHQ9, CSSRS-ideation, and CSSRS-attempt

	PHQ9		CSSRS-ideation		CSSRS-attempt	
	B	95% CI	B	95% CI	OR	95% CI
Time (30 days)	−3.75***	−4.02, −3.47	−0.84***	−.92, −.77	0.46***	.37, .57
PHQ9 (baseline)	0.49***	.43, .55	0.02*	.01, .03	0.98	.94, 1.02
CSSRS-ideation (baseline)	0.16	−.08, .39	0.40***	.35, .45	1.88***	1.58, 2.25

Note. * $p < .05$, *** $p < .001$ (two-tailed). B = unstandardized coefficients; CSSRS = Columbia Suicide Severity Rating Scale; OR = odds ratio; PHQ9 = Patient Health Questionnaire. Model adjusted for demographics.

Of note, the most rapid changes in depressive symptoms and SITBs occurred in the first 30 days of the intervention. This finding has important clinical implications given suicide risk and mortality rates are elevated during the first few weeks and months following discharge from psychiatric care (Chung et al., 2019).

Additionally, youth had a low rate (16%) of inpatient readmission. This is notable given that compared to other studies (used as a benchmark) without post-discharge care, youth rehospitalization rates are significantly higher (28–43%; Adrian et al., 2020; Czyz & King, 2015; James et al., 2010). Furthermore, use of nonresidential services is quite low following discharge from inpatient or emergency department settings, with only 25–61% (Adrian et al., 2020; James et al., 2010; Sobolewski et al., 2013) receiving non-intensive services, far lower than nonresidential service use (78–90% at different time points) in the current sample. In fact, there was increased engagement in formal and informal services compared to baseline. The increased/sustained use of nonresidential services with the decreased use of restrictive services suggests that providers successfully built rapport and utilized strategies to motivate, encourage, and reinforce help-seeking behavior and engagement in supportive services, which are key components of the intervention.

Considering several elements of the intervention are particularly innovative compared to prior efforts, there may be multiple mechanisms of change that could explain the beneficial effects observed. Positive results could be due to the emphasis during provider training on rapport building, motivational/empowerment, and service navigation skills (Andersen & Davidson, 2007; Karver et al., 2006; Miller & Rollnick, 2002; Salzer et al., 1997). For example, numerous studies have found significant associations between treatment process variables and youth service utilization/participation and outcomes, with the establishment of the therapist–patient relationship being a salient factor (Karver et al., 2018). Given that providers developed relationships with patients prior to discharge (during a period of high emotional intensity) and maintained contact over time, they may have had the opportunity to develop genuine and trusting bonds while also establishing credibility. This may have facilitated other

helping processes, such as increasing comfort with identifying triggers/stressors and modifying beliefs that services can be beneficial, which could have led to increased motivation to utilize appropriate coping strategies to keep themselves safe. Furthermore, being trained to identify and reassess suicide risk and communicate concerns of safety to patients (in an empathic/nonjudgmental manner) placed providers in a position to continuously enhance safety plans and reevaluate needs, service barriers, and the utility of coping resources, including service use referrals/linkages. Thus, youth in need of interventions may have been identified and responded to sooner than they would have been without such services, thereby decreasing the need for use of more restrictive levels of care.

Limitations and Future Research

The absence of a comparison group limits the ability to conclude the intervention caused observed changes. It is possible that other factors (e.g., supportive families and developed coping skills) contributed to the outcomes observed. Another limitation is more than 40% of parents did not consent to participate. It is unclear if parents possessed negative attitudes about the intervention and experienced conflicting demands on time and/or if their children exhibited poorer mental health, had increased suicide risk, or may have been more resistant to change compared to consenting parents. Therefore, it is unknown if changes in service utilization, depressive symptoms, and SITBs would generalize to all patients in these settings. Conversely, it is worth noting many of the youth with the highest levels of symptoms were the most likely to utilize a variety of services which is quite atypical relative to the prior literature (Hom et al., 2015). Nonetheless, future research should include randomized control trials to determine if results can be attributed to the LINC intervention. Future research could also examine adaptations to the mode of delivery (e.g., telehealth), include longer follow-up periods, and explore the potential differential impact of the intervention on diverse cultural groups and settings.

Conclusions

This study provides preliminary evidence to suggest that a care coordination intervention utilizing patient engagement, case management, suicide risk assessment and management, safety planning, and motivational and resiliency-building strategies can have a potential effect in engaging and retaining at-risk youth in services and reducing suicide risk during a high-risk period. The findings underscore the importance of providing immediate and intensive follow-up care in which patient symptoms, needs, and service barriers are monitored and assessed over time. Specifically, building a therapeutic alliance immediately following admission to inpatient care helps to establish credibility, rapport, and trust – qualities needed to engage, motivate, and empower youth and their families to work on a plan of care to keep youth safe. As health and behavioral health systems seek to improve suicide care, care coordination interventions utilizing warm hand-offs, active engagement, psychosocial education/advocacy, community asset mapping/networking, and assessment/monitoring of patient/family needs, service linkages, and mental health/suicide risk management may be an effective means to standardizing care.

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Kim Gryglewicz

School of Social Work
College of Health Professions and Sciences
University of Central Florida
12805 Pegasus Drive, HPA 1
Orlando, FL 32816
USA
kgryglew@ucf.edu

Kim Gryglewicz, PhD, MSW, is an associate professor in the School of Social Work at the University of Central Florida, Orlando, FL, USA. Her research focuses on studying risk and resiliency factors for suicide, translation and dissemination prevention research, and evaluation of suicide prevention strategies.

Amanda Peterson is a clinical psychology doctoral graduate student at the University of South Florida, Tampa, FL, USA. Her primary research interests involve better understanding of suicide risk factors and improving suicide prevention programming for youth and adults.

Eunji Nam, PhD, is an assistant professor of social welfare at Incheon National University, Incheon, South Korea. Her areas of interest include young adults with mental health conditions, mental health service utilization, and program development and evaluation.

Michelle M. Vance, PhD, MSW, is an assistant professor in the Department of Social Work/Sociology at North Carolina Agricultural and Technical State University in Greensboro, NC, USA. She engages in health disparities research that centers on race and gender, and their impact on mental health outcomes for youth and adults.

Lisa Borntrager, MSW, is a research associate at the Center for Behavioral Health Research and Training at the University of Central Florida, Orlando, FL, USA. Her research interests include suicide prevention/intervention, program evaluation, health and mental health disparities, and evidenced-based practices/interventions.

Marc S. Karver, PhD, is an associate professor of clinical psychology at the University of South Florida, Tampa, FL, USA. He specializes in examining core processes (e.g., intervention engagement) in youth mental health services and improving prevention, assessment, and intervention services for suicidal youth and young adults.

Pet Attachment and the Interpersonal Theory of Suicide

Valerie J. Douglas¹, Mun Yee Kwan², and Kathryn H. Gordon¹

¹Psychology Department, North Dakota State University, Fargo, ND, USA

²Department of Psychology, Sociology, and Social Work, West Texas A&M University, Canyon, TX, USA

Abstract. *Background:* Pet ownership is often assumed to have mental health benefits, but the effect of pets on suicide risk has a scant literature. *Aims:* Using the interpersonal theory of suicide, we examined the relationships between perceived burdensomeness (PB), thwarted belongingness (TB), overall attachment to one's pet, pet attachment avoidance or anxiety, and suicide risk. The following three hypotheses were investigated: (1) Higher attachment would be indirectly associated with lower suicide risk via lower TB and lower PB; (2) attachment would be associated with higher suicide risk, as conditioned on attachment avoidance/anxiety; and (3) attachment avoidance/anxiety would be associated with higher suicide risk via higher TB/PB. *Method:* Undergraduates ($N = 187$) completed surveys, and indirect effect and conditional effect analyses were utilized. *Results:* Overall attachment was associated with lower PB, which was associated with lower suicide risk. The relationship between overall attachment and suicide risk was not conditional upon attachment anxiety/avoidance. Attachment avoidance was associated with increased levels of TB, which was associated with increased suicide risk. Attachment anxiety was associated with increased suicide risk via TB and PB. *Limitations:* We used a university sample that had limited access to pets. *Conclusions:* Findings suggest that pet ownership may provide mixed associations with suicide risk.

Keywords: pet ownership, companion animal, suicide risk, interpersonal theory of suicide, attachment theory

The media and public often claim that pets can work wonders for physiological or psychological problems, ranging from hypertension to loneliness (Allen, 2003). People may feel compelled by these claims because they fit with their personal experiences of enjoying their pets (Herzog, 2011). Often, individuals assume pet ownership confers a “blanket” positive effect for everyone and for whatever health concern is at hand, especially psychiatric concerns. This so-called “pet effect” does have support from some studies (Allen, 2003), but it does not have as much empirical backing as assumed. In the general pet ownership literature, some studies support positive benefits for different populations. Having pets has been associated with decreased loneliness in rural adolescents (Black, 2012), unmarried women living alone (Zasloff & Kidd, 1994), older adults living alone (Stanley et al., 2014), and older women (Krause-Parello, 2012). However, a systematic review of this literature reported mixed results (Brooks et al., 2018) and casts doubt on the idea that having pets is always helpful. In addition, minimal research has investigated the link between suicide and pet ownership, with an epidemiological letter to the editor finding no link between ownership and suicide deaths (Batty & Bell, 2018). To understand in what circumstances pet ownership is detrimental or helpful for suicide risk, investigation of related variables is imperative.

One such variable is attachment to one's pet. In the broadest definition of the term, pet attachment is the perceived strength and quality of the bond to one's pet (Johnson et al., 1992). When examining the strength of pet attachment, it has been found that the relationship is much more complicated. Some studies have found that pet attachment does not exert an effect: such as when examining loneliness in unmarried women living alone (Zasloff & Kidd, 1994) and loneliness and depression in adults living alone (Antonacopoulos & Pychyl, 2010). Other studies have found that increased pet attachment is detrimental. Higher pet attachment is associated with increased depressed mood in older women (Krause-Parello, 2012), higher levels of depression and loneliness in adults living alone (Antonacopoulos & Pychyl, 2010), and increased depression in rural older adults (Miltiades & Shearer, 2011).

It may be the type of attachment, rather than the strength of attachment, that determines whether pets are helpful or harmful to mental health (Zilcha-Mano et al., 2011). Using a two-dimensional model of attachment based on Bowlby's (1969) attachment theory, Zilcha-Mano et al. (2011) proposed that pet attachment anxiety or pet attachment avoidance orientation levels are better indicators of pet ownership effects on mental health. An anxious attachment style is associated with worries that the attachment partner will not be supportive or available

when needed, and thus, the individual tries to maximize proximity to the attachment partner (in this case, an animal). An avoidant attachment style is associated with the individual striving to be self-reliant because the individual is distrustful of the attachment partner's intentions (again, a pet in this case; Zilcha-Mano et al., 2011).

Multiple studies have found that people who were low in pet attachment avoidance or anxiety consistently had better outcomes for psychological well-being and psychological distress (e.g., Zilcha-Mano et al., 2011, 2012). Specifically, pet attachment anxiety was linked to lower psychological well-being and greater psychological distress (Zilcha-Mano et al., 2011). The researchers also conducted an experimental study to see how pet attachment orientation would influence stress (Zilcha-Mano et al., 2012). They found that, in general, participants who had their pet in the room or who were instructed to think of their pet were able to generate more goals they wanted to pursue, were more confident they could achieve these goals, and had a lower increase in blood pressure when completing a stressful task, as compared to a control group who thought of an acquaintance. However, when specifically looking at those high in attachment avoidance, the opposite of these results was found. Compared to those with elevated avoidance scores in the control condition, those with elevated avoidance in the pet condition generated fewer goals, had less confidence in achieving these goals, and had elevated blood pressure while completing a stressful task. This study suggests that, for individuals with increased pet attachment avoidance, the presence of their pets can increase stress instead of alleviating it (Zilcha-Mano et al., 2012).

As stated before, there is minimal research investigating the effect of pet ownership on suicide risk, let alone investigating variables such as pet attachment on the relationship. To begin to parse apart these relationships, we utilized the interpersonal theory (IPT) of suicide as our framework (Chu et al., 2017; Van Orden et al., 2010). The IPT posits that multiple factors must converge before a person attempts or dies by suicide. To begin, an individual must feel disconnected from others and that they have no reciprocal, caring relationships (thwarted belongingness [TB]). The individual must simultaneously experience self-hatred to the point that they erroneously believe they are a burden on others and that others would be better off without them (perceived burdensomeness [PB]). When an individual experiences hopelessness about these states ever changing, it results in a desire for suicide. Although PB, TB, and hopelessness are necessary, they are not sufficient for someone to die by suicide or to make a lethal/near-lethal attempt. The individual must also display capability for suicide such as a low fear of death and a high pain tolerance (Chu et al., 2017; Van Orden et al., 2010), qualities that are believed to emerge from genetic

factors and painful, provocative life experiences (Chu et al., 2017).

In the current study, we investigate TB and PB in particular due to attachments people can feel toward their pets. For example, pet owners often indicate that their pet provides them with companionship or a creature to love (Anderson, 2014). Therefore, having a pet could increase one's sense of belongingness and thereby buffer suicidal desire. Taking care of a pet could also affect one's perception of being a burden, as pet owners often feel responsibility, a sense of purpose, and reciprocity in caring for their pets (Langfield & James, 2009). This sense of responsibility or purpose could potentially alleviate feelings of being a burden and therefore also buffer against suicidal desire. Pet owners have been found to "humanize" their pets and thus view the animals on par with fellow humans (Uccheddu et al., 2019), which suggests that pet ownership may buffer the effects for individuals experiencing TB and PB, depending on the attachment relationship to the animal.

The current study investigates how pet ownership and attachment to one's pet relates to suicide risk. Many of the studies discussed above examined these variables in non-college aged adults, and thus, it is important to expand this line of research into this population, as we do in this study. First, it was hypothesized that overall pet attachment would be negatively, indirectly associated with suicide risk through TB and PB (Hypothesis 1). This was hypothesized due to the earlier theorized positive associations of pet ownership on belongingness and burdensomeness. Second, it was hypothesized that the relationship between overall pet attachment and suicide risk would be conditioned on pet attachment avoidance and anxiety, with the relation of overall pet attachment and suicide risk weakening at higher levels of avoidance or anxiety and thus reducing the protective association of overall pet attachment (Hypothesis 2). This was based on findings that pet attachment anxiety is inversely related to psychological well-being and positively correlated to psychological distress and that those with an avoidant pet attachment style tend to have a lower attachment bond to their pets (Zilcha-Mano et al., 2011). Similarly, Hypothesis 3 predicted that pet attachment anxiety or avoidance, respectively, would be indirectly associated with suicide risk to increase risk via PB and TB.

Method

Participants

The data set included 269 participants; 187 participants who indicated "yes" they owned pets were included ("Do

you own any pets? Do not count roommate's pets.") via a filter. Participants were recruited from a pool of undergraduate students, and 68.4% indicated they lived in university housing which, by default, does not allow most pets, 42.8% indicated that they lived with their pets all year, and 33.7% indicated they were the primary caretaker of their pet. For types of pets, 82.9% indicated they owned a dog, 33.7% owned a cat, 7.5% owned fish, 3.2% owned a lizard, 0.5% owned an amphibian, 2.7% owned a rodent, and 3.7% owned some other type of pet. Participants were between the ages of 18–25 years ($M = 18.89$; $SD = 1.24$); 71 identified as men, 115 as women, and 1 as transgender (see ESM 1 for means and t tests).

Procedures

The participants completed the study on Qualtrics for class credit via the psychology department participant pool, the study was approved by the university's Institutional Review Board, and participants gave electronic consent and were electronically debriefed.

Measures

TB and PB

The Interpersonal Needs Questionnaire (INQ; Van Orden et al., 2012) was used to measure TB and PB. The INQ is a 15-item measure that utilizes a 7-point Likert-type scale. The INQ has adequate reliability and validity (Van Orden et al., 2012) with a Cronbach's α of .91 for PB and .85 for TB in the current sample.

Pet Attachment Orientation

The Pet Attachment Questionnaire (PAQ; Zilcha-Mano et al., 2011) was utilized to measure the anxious or avoidant attachment type of the participant. The PAQ is a 26-item measure that utilizes a 7-point Likert-type scale that assesses the participant's agreement of the item's description of the relationship they have with their pet. The PAQ has been determined to have adequate construct, convergent, and discriminant validity (Zilcha-Mano et al., 2011) and a Cronbach's α of .75 in the current sample for avoidance and .86 for anxiety.

Overall Attachment

The Lexington Attachment to Pets Scale (LAPS; Johnson et al., 1992) measures the strength of one's emotional bond to their favorite pet. The LAPS is a 23-item, 5-point Likert-type scale in which participants indicate how much they agree to a statement about their relationship to their pet. The LAPS has displayed adequate construct validity and

has a Cronbach's α of .94 in the current sample. The LAPS and PAQ are moderately correlated (Zilcha-Mano et al., 2011). However, Zilcha-Mano et al. (2011) believe that the LAPS measures attachment or bond strength and the PAQ measures attachment orientation and that these two features are different constructs. Thus, the authors believe that the two measures are assessing two different facets of the bond between owners and their pets.

Suicide Risk

The Suicidal Behaviors Questionnaire-Revised (SBQ-R; Osman et al., 2001) uses four items to assess the participants' perceptions of the likelihood that they will attempt suicide, lifetime suicidal ideation and attempts, threat of suicidal behavior, and ideation over the past year in four items. The SBQ-R has adequate validity and reliability (Osman et al., 2001) and had a Cronbach's α of .79 in the current sample. Using a cutoff score of 7 for nonclinical samples (Osman et al., 2001), 18.7% of the sample were at elevated suicide risk.

Statistical Analysis

All variables were examined for accuracy of data entry, missing values, and normality. The hypotheses were tested using bootstrap analyses via the PROCESS macro in SPSS using 10,000 randomly generated samples, and relationships were considered significant if the 95% CI did not include 0 (Hayes, 2017). All analyses investigating TB and PB were conducted separately due to issues of multicollinearity (Mitchell et al., 2016). Hypothesis 1 investigated the relation of overall attachment on suicide risk via TB and PB via two separate indirect effect analyses (PROCESS Model 4). For Hypothesis 2, two separate analyses (PROCESS Model 1) investigated the conditional effects of attachment avoidance and anxiety, respectively, had on the relationship between overall attachment and suicide risk. Hypothesis 3 was probed using four separate analyses (PROCESS Model 4) of the indirect effects of pet attachment avoidance and anxiety on suicide risk via TB and PB.

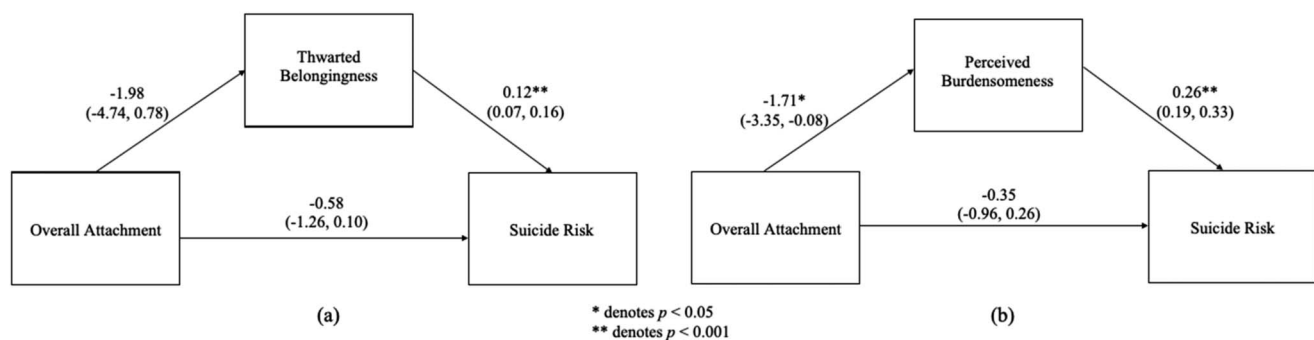
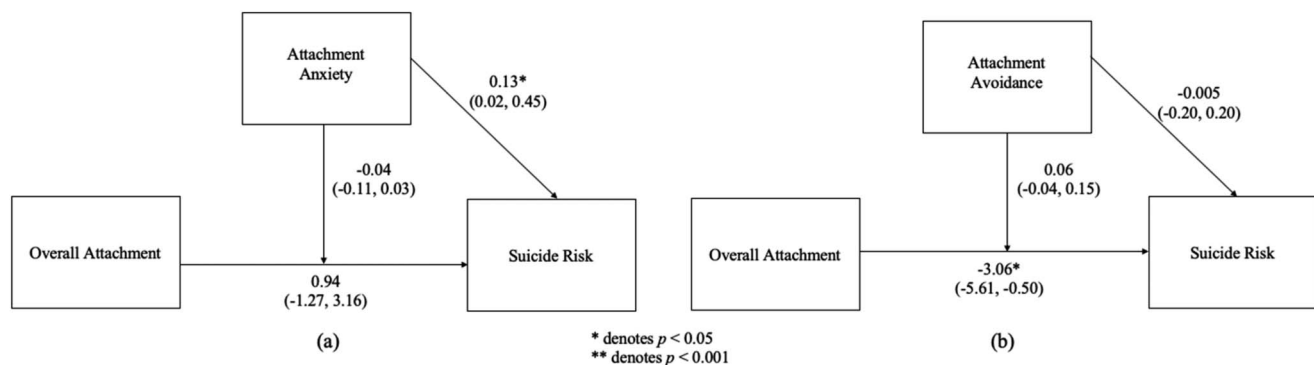
Results

Descriptive and bivariate correlations are shown in Table 1. Point estimates (midpoints) and 95% CI for paths are presented in the figures. Concerning Hypothesis 1, overall attachment was indirectly associated with suicide risk via PB (see Figure 1a; point estimate = -0.45 , 95% CI = -0.91 , -0.04), but not via TB (see Figure 1b; point

Table 1. Descriptive statistics and bivariate correlations

Variables	1	2	3	4	5	6
1. Overall attachment	—					
2. Anxious attachment	−0.36**	—				
3. Avoidant attachment	0.61**	0.05	—			
4. Perceived burdensomeness	−0.20*	0.34**	0.08	—		
5. Thwarted belongingness	−0.13	0.34**	0.19*	0.71**	—	
6. Suicide risk	−0.20*	0.29**	0.07	0.63**	0.46**	—
<i>M</i>	1.86	36.11	22.54	10.77	19.05	4.50
<i>SD</i>	0.57	12.27	7.06	5.51	8.79	2.34
Observed range	1–3.87	13–70	13–43	7–33	8–44	3–13

Note. * $p < .05$; ** $p < .01$.

**Figure 1.** Model of the relationship between overall attachment and suicide risk with the indirect effects of (panel a) TB and (panel b) PB. Point estimates (midpoints) and 95% CI are presented. PB = perceived burdensomeness, TB = thwarted belongingness.**Figure 2.** Model of the relationship between overall attachment and suicide risk with the direct effect of (panel a) avoidant attachment and (panel b) anxious attachment. Point estimates (midpoints) and 95% CI are presented.

estimate = -0.23 , 95% CI = $-0.65, 0.07$). For Hypothesis 2, neither attachment anxiety (see Figure 2a; point estimate = -0.04 , 95% CI = $-0.11, 0.03$) nor avoidance (see Figure 2b; point estimate = 0.06 , 95% CI = $-0.04, 0.15$) conditioned the relationship between overall attachment and suicide risk. As a follow-up analysis, we investigated the link between overall attachment and suicide risk without any of the other variables via a linear regression (all assumptions met) and found that overall

attachment was negatively associated with suicide risk, $F(1, 152) = 5.00$, $\beta = -0.70$ (95% CI = $-1.32, -0.08$), $p = .03$. For Hypothesis 3, attachment avoidance was positively, indirectly associated with suicide risk via TB (see Figure 3a; point estimate = 0.03 , 95% CI = $0.01, 0.06$), but not via PB (see Figure 3b; point estimate = 0.02 , 95% CI = $-0.01, 0.05$). PB was directly, positively associated with suicide risk. Attachment anxiety affected suicide risk via TB and directly (see Figure 4a; point estimate = 0.03 ,

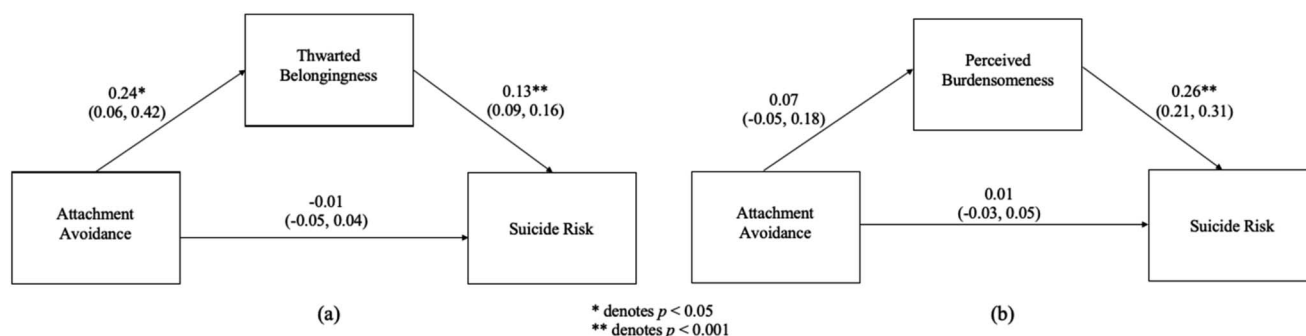


Figure 3. Model of the relationship between avoidant attachment and suicide risk with the indirect effects of (panel a) TB and (panel b) PB. Point estimates (midpoints) and 95% CI are presented. PB = perceived burdensomeness, TB = thwarted belongingness.

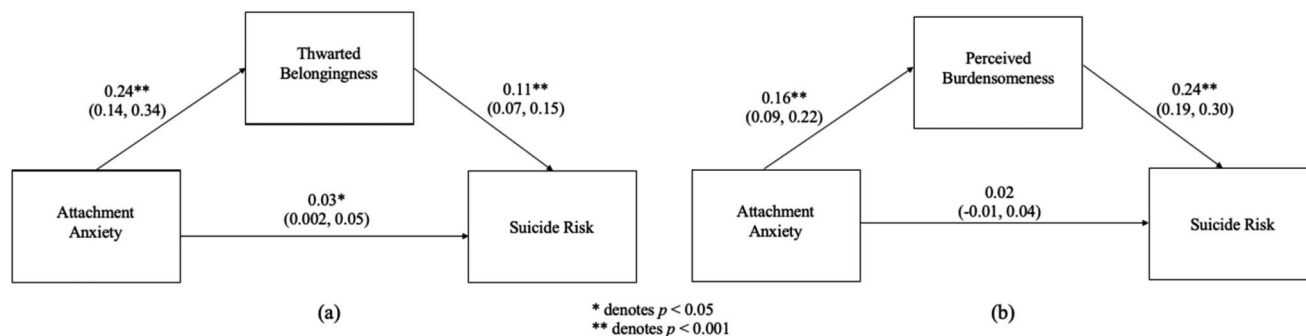


Figure 4. Model of the relationship between anxious attachment and suicide risk with the indirect effects of (panel a) TB and (panel b) PB. Point estimates (midpoints) and 95% CI are presented. PB = perceived burdensomeness, TB = thwarted belongingness.

95% CI = 0.01, 0.05). Attachment anxiety was indirectly, positively associated with suicide risk via PB (see Figure 4b; point estimate = 0.04, 95% CI = 0.02, 0.06).

Discussion

The effects of pet ownership on mental health and suicide risk are understudied. The current study examined the relationships between attachment to one's pet and suicide risk via TB and PB from the IPT (Van Orden et al., 2010). We hypothesized that overall pet attachment would negatively, indirectly affect suicide risk via TB and PB. Overall attachment was found to have no relation to suicide risk when examining the indirect associations via TB; however, TB was positively, directly associated with suicide risk. Increased overall attachment was associated with lower PB, whereas PB had a positive relationship to suicide risk. This suggests that when looking at overall attachment to one's pets, there may be a beneficial association on suicide risk via the PB pathway.

Next, we hypothesized that overall pet attachment would directly affect suicide risk to increase risk as

conditional upon pet attachment anxiety and avoidance, by reducing the protective association of overall pet attachment. Attachment anxiety did not moderate the relationship between overall attachment and suicide risk but had a positive association with suicide risk. This suggests that attachment anxiety may be a risk factor despite not affecting the main relationship at hand. Attachment avoidance did not moderate the positive association between overall attachment and suicide risk. A follow-up analysis found an overall negative effect of overall attachment on suicide risk, with higher overall attachment being associated with lower risk.

We then examined the hypothesized indirect associations of attachment anxiety and avoidance on suicide risk via PB and TB. Attachment avoidance was associated with increased TB, which was associated with increased suicide risk, whereas no direct or indirect associations were found when PB was included. In the context of attachment theory, those with an avoidant attachment style are distrustful of an attachment partner's intentions and strive to be self-reliant (Bowlby, 1969), so it would be consistent that avoidance would predict one not feeling like they belong, even with their animal. Attachment anxiety's relationship with suicide risk was mediated by both TB and PB. Also, even when

accounting for TB, attachment anxiety directly affected suicide risk. These results are in congruence with previous research that found attachment anxiety was associated with lower psychological well-being and greater psychological distress (Zilcha-Mano et al., 2011).

Overall, these preliminary results suggest that the IPT should be investigated within the context of human and animal relationships as overall attachment and attachment style to pets may affect a person and their suicide risk in different ways. For example, someone who overall is attached to their pet and has lower levels of attachment anxiety or avoidance may have neutral or positive associations. However, those who display higher levels of attachment avoidance or anxiety may not see the same neutral or beneficial associations and may, in some contexts, see a detrimental association. These preliminary results will need to be replicated and extended to assess any temporality or causality in these relationships as the current study is limited by its cross-sectional nature.

Future directions will need to expand into the predictive feasibility of pet attachment and suicide risk as this could tangibly assist clinicians. Psychologists in the United States have increasingly been pressured and engaged in practices such as “prescribing” emotional support animals and comfort animals to individuals who have mental health problems (Younggren et al., 2020). For clinicians who are trying to assess if a pet may be helpful or harmful for a client, they will want to know potential ramifications before a pet is brought on board. One limitation of this model is that we are measuring pet attachment to already existing relationships. Future research will need to examine if there are any feasible proxies to examine (e.g., would human relationship attachment styles be indicators of pet attachment styles?) or if the PAQ is useful when a participant is instructed to imagine how they may feel regarding a future pet. However, for clinicians who are attempting to determine whether an emotional support animal has a demonstrable beneficial effect on the owner and their specific psychiatric disability (Younggren et al., 2020), examining the attachment style to the pet may be useful.

The current study has limitations that should be considered when interpreting the findings. The INQ and SBQ-R have different time frames (recent vs. lifetime) that may affect results. The sample was recruited from a university population, and the majority of participants indicated they lived on campus (which is normally pet-free), the majority indicated they did not live with their pets all year, and the majority indicated that they were not the primary caregivers of their pets. This suggests that the participants may have limited exposure to their pets, and thus, their relationship with their pet may not be that prominent in their day-to-day life, limiting the potential effect of owning a pet on their risk. A community sample, who would be more likely to live with

and be exposed to their pet daily, may have a more prominent relationship with their pets and may see stronger or different associations. If this is true, however, the presence of any associations for a sample who is not normally exposed to their pet suggests that the relationship one has with their pet may be an important one.

Overall, when examining the results of this study, it suggests that pet ownership may have a complex relationship to suicide risk, at least when viewing it through the lens of the IPT. As this is the first study to directly examine the relationships between pet ownership and associations with suicide risk via the TB and PB, these results need to be replicated to assess for robustness and fully explore the relationships between these constructs. Clinicians may believe the “pet effect” to be true, which may influence them to be agreeable to signing emotional support animal letters or encouraging their client to obtain a pet for companionship. It has already been argued that clinicians need to exhibit care and consideration is when deciding to encourage a client to obtain a pet for their mental health (Younggren et al., 2020), and our results suggest that the broad encouragement of clients to obtain pets may be too soon. These preliminary results also suggest that if a clinician is hoping to reduce a client’s TB or PB via owning a pet, it may be best to seek other interventions (Joiner et al., 2009).

Electronic Supplementary Material

The electronic supplementary material is available with the online version of the article at <https://doi.org/10.1027/0227-5910/a000822>

ESM 1. Means and *t* tests for subsamples

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ORCID

Valerie J. Douglas

 <https://orcid.org/0000-0003-0414-5373>

Valerie J. Douglas

San Diego State University Research Foundation

6363 Alvarado Court, Suite 101

San Diego, CA 92120

USA

douglasvalj@gmail.com


Valerie J. Douglas, PhD, is a postdoctoral research fellow at San Diego State University. Their primary research and clinical interests include the roles of weight stigma and emotion dysregulation on disordered eating, suicide prevention, and the prevention and treatment of eating disorders.

Mun Yee Kwan, PhD, is an assistant professor of psychology at West Texas A&M University. Her research interests include eating disorders and suicidal behaviors. She examines the role of interpersonal, sociocultural, and emotional processes in these clinical phenomena.

Kathryn Gordon, PhD, is a former associate professor at North Dakota State University and a current psychologist in Fargo, North Dakota. She has published more than 80 papers on mental health-related research, including suicidal behavior and disordered eating.



Prevalence of and Risk Factors for Suicide Attempts Among Patients With Severe Psychiatric Disorders in Eastern Morocco

Mohammed Barrimi¹, Khalid Serraj², Ismail Rammouz³, Rachid Alouane⁴, Najoua Messaoudi¹, and Mohammed Bellaoui⁵

¹Department of Psychiatry, Mohammed VI University Hospital, Faculty of Medicine and Pharmacy, University Mohammed Premier, Oujda, Morocco

²Department of Internal Medicine, Mohammed VI University Hospital, Faculty of Medicine and Pharmacy, University Mohammed Premier, Oujda, Morocco

³Department of Psychiatry, Faculty of Medicine and Pharmacy, Ibn Zohr University, Agadir, Morocco

⁴Department of Psychiatry, Faculty of Medicine and Pharmacy, Sidi Mohamed Ben Abdellah University, Fez, Morocco

⁵Genetics Unit, Medical Sciences Research Laboratory, Faculty of Medicine and Pharmacy, University Mohammed Premier, Oujda, Morocco

Abstract. *Background:* Suicide attempts are common in patients with severe psychiatric disorders; however, they are rarely studied in this population. *Aims:* To investigate the prevalence and risk factors associated with suicide attempts among patients with severe psychiatric disorders. *Method:* This is a cross-sectional study of patients admitted to the Mohammed VI University Hospital of Psychiatry in Oujda, Morocco. *Results:* A total of 250 patients with a psychiatric disorder were recruited in this study. Among these, 78 cases (31.2%) had a personal history of suicide attempts. A personal history of suicide attempt was significantly higher among women compared to men (45.5% vs. 27.2%, $p = .0099$). The most common method of suicide attempts was jumping from heights (31%). Patients with a personal history of suicide attempts had a significantly higher prevalence of alcohol consumption ($p = .0063$), family history of psychiatric disorders ($p = .002$), family history of suicide attempt ($p = .00004$), and family history of suicide ($p = .018$) compared to those who had never made suicide attempts. *Limitations:* As suicidal behavior is highly stigmatized in Morocco, the number of patients who have made a suicide attempt may be underestimated. *Conclusion:* Our findings justify the need to provide specialized support to psychiatric patients with risk factors for suicide attempts.

Keywords: suicide attempt, severe psychiatric disorder, prevalence, risk factors, Morocco

Suicide is a worrying public health problem. It is the third leading cause of death in industrialized countries among persons aged 15–44 years. The prevalence of suicide attempts has been estimated to be 10–20 times higher than the number of suicide deaths (De Leo & Evans, 2004). Epidemiological studies indicate that between 3% and 5% of the general population have tried to take their own life and between 10% and 18% have expressed suicidal ideation during their lifetime (Kessler et al., 1999).

Psychiatric disorders have been identified as a major causative factor in suicidal behavior, and their management may play an important role in reducing the recurrence of suicide attempts and preventing suicide (American Psychiatric Association, 2003).

A number of clinical studies on suicide attempts have been conducted in medical or emergency facilities. However, the number of investigations with patients who made a suicide attempt and been admitted to psychiatric hospitals remains insufficient. It is worth noting that these two populations of patients are quite different and may need different medical treatments (Hayashi et al., 2010).

The identification of psychiatric disorders and risk factors for suicidal behavior is essential to plan appropriate psychiatric and social care. However, only a small number of patients who have made a suicide attempt and been admitted to medical or emergency facilities are referred for psychiatric hospitalization. Indeed, it has been reported that among patients presenting to the emergency

department of a general hospital following a suicide attempt, 15% would be treated on an outpatient basis by general practitioners at the emergency department and 45.5% would be hospitalized for an average length of stay of 1.8 days, while 9.7% of patients would be referred to a psychiatric hospital (Sinclair et al., 2006).

Because personal history of psychiatric hospitalization is considered to be a strong predictor of suicide, there is considerable interest in studying factors that increase the risk for suicide attempts among patients with mental illness and for whom psychiatric hospitalization is required (Qin & Nordentoft, 2005). Compared to many countries, relatively little is known about the prevalence of suicidal behaviors and patients who made a suicide attempt in Morocco (Agoub et al., 2006; Barrimi et al., 2020; Zarrouq et al., 2014). Moreover, there are no specialized health care centers dedicated to the treatment and prevention of suicidal behavior. In addition, management of psychiatric patients who have a history of suicide attempts is poorly organized and lacks an agreed strategy.

The main objectives of our work were to investigate the prevalence and risk factors associated with suicide attempts among patients with severe psychiatric disorders in Eastern Morocco.

Method

Design of the Study and Data Collection

This is a cross-sectional study carried out at the Psychiatric Hospital of Oujda, which is affiliated with the Mohammed VI University Hospital of Oujda, Morocco. The Psychiatric Hospital of Oujda was launched in June 2013, it includes several units, and it is the only hospital specialized in the management of patients with psychiatric disorders in Eastern Morocco.

Patients with a psychiatric disorder consecutively admitted to the Psychiatric Hospital of Oujda between January and July 2016 were included in this study. We excluded patients with agitation and those who refused to participate in the study. A suicide attempt was defined as an act in which a person tries to take own life but survives. It is often referred to as a nonfatal suicide attempt. The assessment of suicide attempts was conducted by psychiatrists during interviews with patients and their families. The interviews aimed to clarify the following:

- Whether there was a personal history of suicide attempt.
- If the patient had made at least one previous suicide attempt, the following elements were determined: (1) the number of suicide attempts, (2) the means used to

carry out the suicide attempts (hanging, self-cutting/stabbing, jumping from heights, self-poisoning, etc.), and (3) the psychopathological context of the suicide attempts (depression, delusion, hallucination, mental automatism, and anxiety).

- Whether there was a family history of suicide attempt.
- In the case of a history of suicide attempt in the family, the following elements were determined: (1) the relationship of the person(s) who made a suicide attempt with the patient, (2) the number of suicide attempts in the family, (3) the means used to carry out the suicide attempts, and (4) the psychopathological context of the suicide attempts.
- Whether there was a family history of suicide.
- In the case of a history of suicide in the family, the following elements were determined: (1) the relationship of the person(s) who died by suicide with the patient, (2) the number of previous suicide cases in the family, and (3) the means used to carry out the suicide.

The data were collected by the psychiatrist responsible for the study at the time of the initial clinical assessments and during follow-up inpatient consultations. These data were collected during interviews with the patients in the presence of a close member of their family (spouse, father, mother, brothers or sisters, etc.). A form was used to collect the data, which included the patient's socio-demographic characteristics (gender, age, place of residence, family status, level of education, occupation, etc.), the patient's clinical characteristics (psychiatric history, medication, alcohol use, substances use, and suicide attempt details), family history of psychiatric disorders, personal and family history of suicide attempts, family history of suicide as well as the quality of treatment adherence, and family support. Data were also obtained from the patient's medical file, especially those regarding the treatments received by the patient in previous consultations and hospitalizations.

Therapeutic adherence was assessed subjectively. We defined poor therapeutic adherence as a cessation of treatment of more than one month with multiple relapses and/or readmissions during the last year. Psychiatric diagnosis was based on the criteria of DSM-5. The quality of therapeutic adherence as well as family support was assessed by a psychiatrist based on the opinions of the patient's family, the patient's medical records, and reports from psychiatric nurses.

The patients were informed about the objectives of the study. We only recruited patients who were willing to participate in the study and gave their informed consent. They were informed that participation in the study was voluntary and that all data would be anonymous and confidential.

Statistical Analysis

The statistical analysis was performed using Epi Info version 3.5.1. We started by describing our sample according to the different characteristics, and then, we analyzed the risk factors for suicide attempts. The percentages were compared by using the χ^2 test or Fisher's exact test. Student's *t*-test was used to compare the means. To identify risk factors for suicide attempts, we performed a univariate analysis followed by a multivariate analysis. We chose the logistic regression model step-by-step descending method. In all statistical tests, the significance level was set to 0.05.

Results

Sociodemographic Characteristics of the Patients

During the study period, a total of 250 patients with a psychiatric disorder and admitted to the Psychiatric Hospital of Oujda were recruited. Table 1 describes the sociodemographic characteristics of these patients. The mean age was 34 years ranging from 15 to 68 years: 62.2% of patients were aged 21–40 years, 28.5% aged 41–68 years, and 9.2% aged 15–20 years. Seventy-eight percent of the patients were male with a male-to-female ratio of 3.54. The majority of patients (81%) were from urban areas. Sixty-eight percent of the patients were single, 22% were married, 8.8% were divorced, and 1.2% were widowed. Fourteen percent had never attended school, 28% had a primary academic level, 33% had a secondary level, and 14% had a university level. Among patients recruited in this study, 76.4% were unemployed.

Clinical Characteristics of the Patients

The clinical characteristics of the patients are shown in Table 1. 81.5% of patients had a personal history of psychiatric hospitalization. For those patients, the average number of psychiatric hospitalizations was 3, with a minimum of one and a maximum of 29 hospitalizations. Our study found that 67% of patients had a history of psychoactive drugs use. Of these, 64% used tobacco, 50% used cannabis, and 36% used alcohol. The average age of onset of tobacco use was 17.5 years, cannabis 18 years, and alcohol 18.3 years (Table 2). The average duration of tobacco use was 14.5 years, cannabis 10.5 years, and alcohol 10 years (Table 2). Thirty-eight percent of patients had a family history of psychiatric disorders, 9.2%

had a family history of suicide attempt, and 6.4% had a family history of suicide (Table 1). The most common psychiatric disorder was schizophrenia (62%), followed by depression (13.6%), acute psychotic episode (10%), bipolar disorder (3.2%), paranoia (2.4%), and others (8%; Table 1). Therapeutic adherence and family support were of poor quality in 50% and 34% of patients, respectively. 31.2% of patients had a personal history of suicide attempts, of whom 39.5% had a single suicide attempt and 60.5% had repeated suicide attempts (Table 1). For those with a history of suicide attempts, the number of suicide attempts varied between 1 and 20 (average number of 2.47). The psychopathological context of the suicide attempts was depression (45%), hallucination (18.3%), impulsivity (16.9%), delirium (14.1%), and others (5.7%; Table 3). Jumping from heights was the most common method of suicide attempt, accounting for 31% of cases, followed by hanging in 18.3% of cases (Table 3).

Factors Associated With Suicide Attempts

With regard to sociodemographic and clinical characteristics, some differences were observed between patients with a personal history of suicide attempts and those who had never made suicide attempts (Table 1). A personal history of suicide attempt was significantly higher among women compared to men (45.5% vs. 27.2%), and this difference was statistically significant ($p = .0099$). Similarly, alcohol consumption differed significantly between patients with or without a personal history of suicide attempts, and this difference was statistically significant ($p = .0063$). Our analysis also revealed that patients with a personal history of suicide attempts had a significantly higher prevalence of family history of psychiatric disorders ($p = .002$), family history of suicide attempt ($p = .00004$), and family history of suicide ($p = .018$) compared to those who had never made suicide attempts. Likewise, the distribution of diagnosed psychiatric disorders differed significantly between patients with or without a personal history of suicide attempts, and this difference was statistically significant ($p = .02$). However, there were no statistically significant differences in use of tobacco ($p = .4844$) or cannabis ($p = .2991$) between patients with or without a personal history of suicide attempts. There were also no statistically significant differences between the two groups regarding personal history of psychiatric hospitalization ($p = .1173$), therapeutic adherence ($p = .3771$), and family support ($p = .4554$).

The multivariate analysis confirmed the association between gender ($p = .0012$), alcohol use ($p = .0033$), and family history of suicide attempts ($p = .0008$; Table 4).

Table 1. Univariate analysis of sociodemographic and clinical characteristics in the study population

	Total % (n)	Personal history of suicide attempt		OR [95% CI]	p
		Yes % (n)	No % (n)		
Subjects	100 (250)	31.2 (78)	68.8 (172)		
Gender					
Male	78 (195)	27.2 (53)	72.8 (142)	0.44 [0.24-0.83]	.0099
Female	22 (55)	45.5 (25)	54.5 (30)		
Age group (years)					
15–20	9.2 (23)	43 (10)	56.5 (13)		.0919
21–40	62.2 (155)	26.5 (41)	73.5 (114)		
41–68	28.5 (72)	38 (27)	62 (45)		
Residence					
Urban	81 (202)	30 (60)	70 (142)	0.68 [0.35–1.32]	.1348
Rural	19 (48)	37.5 (18)	62.5 (30)		
Civil status					
Widow(er)	1.2 (3)	66.7 (2)	33.3 (1)		.1133
Divorced	8.8 (22)	50 (11)	50 (11)		
Single	68 (170)	29 (50)	71 (120)		
Married	22 (55)	27.3 (15)	72.7 (40)		
Professional activity					
Employed	23.6 (59)	25.4 (15)	74.6 (44)	0.69 [0.35–1.33]	.1392
Unemployed	76.4 (191)	33 (63)	67 (128)		
Personal history of psychiatric hospitalization					
Yes	81.5 (203)	33 (67)	67 (136)	1.56 [0.74–3.27]	.1173
No	18.5 (47)	23.9 (11)	76.1 (36)		
Tobacco use					
Yes	64.3 (160)	31.3 (50)	68.7 (110)	0.9 [0.5–1.7]	.4844
No	35.7 (90)	31.5 (28)	68.5 (62)		
Cannabis					
Yes	49.2 (123)	33.1 (40)	66.9 (83)	1.15 [0.67–1.9]	.2991
No	50.8 (127)	29.9 (38)	70.1 (89)		
Alcohol					
Yes	36 (90)	41.6 (37)	58.4 (53)	2.03 [1.16-3.5]	.0063
No	64 (160)	25.9 (41)	74.1 (119)		
Family history of					
Psychiatric disorders					
Yes	38 (95)	42.1 (40)	57.9 (55)	2.23 [1.3-3.8]	.0020
No	62 (155)	24.5 (38)	75.5 (117)		
Suicide attempts					
Yes	9.2 (23)	69.6 (16)	30.4 (7)	6 [2.3-15.5]	.00004
No	90.8 (227)	27.3 (62)	72.2 (165)		
Suicide					
Yes	6.4 (16)	56.3 (9)	43.8 (7)	3 [1.1-8.5]	.0181
No	93.6 (234)	29.5 (69)	70.5 (165)		

(Continued on next page)

Table 1. (Continued)

	Total % (n)	Personal history of suicide attempt		OR [95% CI]	p
		Yes % (n)	N % (n)		
Diagnosed psychiatric disorder					
Schizophrenic disorder	62.8 (157)	26.75 (42)	73.25 (115)		.0200
Depression	13.6 (34)	55.88 (19)	44.12 (15)		
Acute psychotic episode	10 (25)	24 (6)	76 (19)		
Bipolar disorder	3.2 (8)	50 (4)	50 (4)		
Paranoia	2.4 (6)	33.33 (2)	66.67 (4)		
Others	8 (20)	25 (5)	75 (15)		
Therapeutic adherence					
Good	50 (125)	32.3 (40)	67.7 (85)	1.09 [0.6–1.8]	.3771
Poor	50 (125)	30.4 (38)	69.6 (87)		
Family support					
Good	66 (165)	31.1 (51)	68.9 (114)	0.96 [0.5–1.7]	.4554
Poor	34 (85)	31.8 (27)	68.2 (58)		

Note. Bolded values indicate statistically significant results.

Discussion

Suicide is a worrying public health problem and is among the leading causes of death worldwide (De Leo & Evans, 2004). Therefore, the main objectives of our work were to investigate the prevalence of and risk factors associated with suicide attempts among patients with severe psychiatric disorders in Eastern Morocco.

Our study has revealed a high prevalence (31.2%) of suicide attempts among psychiatric patients. This prevalence of suicide attempts is much higher compared to what has been reported in the general Moroccan population where it was estimated at 2.1% (Agoub et al., 2006). This result is in agreement with other studies which have shown that the risk of suicide increases by 30 in the presence of a mood disorder and by 20 in the case of schizophrenia compared to the general population (Baldessarini & Tondo, 2020; Barrimi et al., 2014). This finding is also in line with several other studies that reported a high rate of suicide attempts among patients with depression (Röcker & Bachmann, 2015; Shibre et al., 2014), schizophrenia (Niehaus et al., 2004; Shibre et al., 2014), and mood disorders (Beautrais et al., 1996; Isometsä, 2014). However, the prevalence of suicide attempts in patients with mood disorders varied considerably between studies; it was found to be from 30% to 40% in patients with major depressive disorders and around 50% in patients with bipolar disorder (Isometsä, 2014).

Our study showed that jumping from heights was the most common methods of suicide attempts (31%), followed by hanging (18%), self-poisoning (drug, caustic, and rodenticide), and injury (self-cutting and self-stabbing).

Therefore, our patients had commonly used violent suicidal means. This result is probably due to the fact that our patients are recruited at the level of a psychiatric hospital and have severe psychiatric illnesses, such as psychotic disorders (schizophrenia, delusional disorder, etc.) or mood disorders (depressive disorders, bipolar disorders, etc.). Our result is in agreement with previous studies which showed that, psychiatric patients, regardless of disorder, died by suicide by jumping from heights more often than by hanging (Park et al., 2013). Furthermore, other studies showed that psychotic disorders were associated with jumping from heights, while substance-related disorders were associated with self-poisoning (Huisman et al., 2010; Persett et al., 2018). Similarly, self-poisoning was the most often used method for suicide attempts in many countries (Filippatos & Karasi, 2017; Lee et al., 2012; Muheim et al., 2013). Therefore, the methods of suicide attempts may vary among countries and depend

Table 2. Prevalence and characteristics of psychoactive drugs use in the study population

	Psychoactive drugs		
	Tobacco	Cannabis	Alcohol
Prevalence (%)	64	50	34
Age of onset			
Average (years)	17.5	18	18.3
Range (years)	8–55	8–46	10–38
Average duration of use			
Average (years)	14.5	10.5	10
Range (years)	1–41	0.33–38	0.2–33

Table 3. Psychopathological context and methods of suicide attempts among patients with a history of suicide attempts

Context	%	Method	%
Depression	45	Jumping from heights	31
Hallucination	18.3	Hanging	18.3
Impulsivity	16.9	Drug self-poisoning	11.3
Delirium	14.1	Caustic ingestion	7
Others	5.7	Rodenticide ingestion	4.2
		Self-cutting	8.5
		Self-stabbing	8.5
		Other	11.2

on many factors such as gender, psychiatric disorder, availability of suicide methods, and regulations like gun control and drug prescribing practices.

With regard to risk factors for suicide attempts, our multivariate analysis revealed significant association of female gender, alcohol use, and family history of suicide attempts with suicide attempts among psychiatric patients. Indeed, our study showed that a personal history of suicide attempt was significantly higher among women compared to men, and this difference was statistically significant. This result confirmed previous findings that suicide attempt rates were higher among women than men in many countries (Filippatos & Karasi, 2017; Lee et al., 2012; Muheim et al., 2013; Narishige et al., 2014; Zhao et al., 2015). In line with these findings, a study has explained the gender difference in suicidal behavior by the fact that women survive suicide attempts more often than men because they use less lethal means (Freeman et al., 2017).

In our study, we found that alcohol and cannabis use were higher in patients with a personal history of suicide attempts compared to those who had never made suicide attempts. Moreover, the association between alcohol use and suicide attempts among psychiatric patients was significant on the multivariate analysis. This finding is in agreement with previous studies which indicate that alcohol use disorder is a potent risk factor for suicidal behavior (Conner & Bagge, 2019). The association between substance abuse and suicidal behavior is widely established, and the prevalence of substance use among suicidal patients varies between 10% and 73% (Cho, 2020; Hesse et al., 2020; Liu et al., 2018). Similarly, substance use

disorders have been shown to be strongly associated with the risk of suicide attempts in people with severe psychiatric disorders (Østergaard et al., 2017).

In our study, we also found that patients with a personal history of suicide attempts had a significantly higher prevalence of family history of suicide attempts and family history of suicide compared to those who had never made suicide attempts. Several authors have reported that the occurrence of a suicide attempts or suicide in the family constitutes a risk factor for suicide attempts (Subramanian et al., 2020). Suicide rates in this population would be 18 times higher than the general population (De Leo & Evans, 2004).

Limitations

Our study has several limitations. First, the study was carried out at a single hospital and during a short period of time. Second, because only hospitalized patients were enrolled in the study, a selection bias may influence the outcome of the analysis. Third, because suicidal behavior is highly stigmatized in Morocco, the number of patients who have made a suicide attempt may be underestimated. Fourth, we were unable to determine whether some of the risk factors we identified were present prior to the suicide attempts made by patients or whether they occurred after them.

Conclusion

Despite the aforementioned limitations, this study provides for the first indication of the prevalence of and risk factors for suicide attempts among patients with severe psychiatric disorders in Eastern Morocco. In our study, three potential risk factors were identified: female gender, alcohol use, and family history of suicide attempts. Our findings justify the need to provide specialized support to patients with psychiatric disorders because many of them have a history of suicide attempts, especially when they have one or more of the three risk factors mentioned above.

Table 4. Multivariate analysis of variables associated with suicide attempts in the study population

	OR	95% CI	z	p
Alcohol (yes/no)	2.5940	[1.3737, 4.8983]	2.9389	.0033
Family history of suicide attempts (yes/no)	5.2329	[1.9844, 13.7991]	3.3452	.0008
Gender (m/f)	0.3120	[0.1539, 0.6326]	−3.2297	.0012

Note. OR = odds ratio.

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Conflict of Interest

The authors declare that there is no conflict of interests regarding the publication of this paper.

ORCID

Mohammed Barrimi

 <https://orcid.org/0000-0002-0697-0628>

Mohammed Barrimi

Department of Psychiatry
Mohammed VI University Hospital
Faculty of Medicine and Pharmacy
University Mohammed Premier
Oujda 60050, Morocco
berrimimohamed@gmail.com

Mohammed Barrimi, MD, is a psychiatrist and associate professor of psychiatry at the Faculty of Medicine and Pharmacy, University Mohammed Premier, Oujda, Morocco. Barrimi's research interests include suicide, self-harm, and related mental health issues.

Serraj Khalid, MD, is an internist. He is the dean of the Faculty of Medicine and Pharmacy, Mohammed First University, Oujda, Morocco.

Rammouz Ismail, MD, is a psychiatrist and associate professor of psychiatry at the Faculty of Medicine and Pharmacy, Ibn Zohr University, Agadir, Morocco.


Aalouane Rachid, MD, is a psychiatrist and associate professor of psychiatry at the Faculty of Medicine and Pharmacy, Sidi Mohamed Ben Abdellah University, Fez, Morocco.

Najoua Messaoudi is a medical student at the Faculty of Medicine and Pharmacy, University Mohammed Premier, Oujda, Morocco. She has interests in psychiatry. This work formed the research component of her degree.

Mohammed Bellaoui, PhD, is a professor of genetics and molecular biology at the Faculty of Medicine and Pharmacy, University Mohammed Premier, Oujda, Morocco. He is the Director of the Genetics Unit, Faculty of Medicine and Pharmacy, University Mohammed Premier, Oujda, Morocco. He has been involved in a wide range of research studies for more than 26 years and leads a multidisciplinary research team.

Real-Time Mental Health Crisis Response in the United States to COVID-19

Insights From a National Text-Based Platform

Jennifer D. Runkle¹ , Margaret M. Sugg², Shrikanth Yadav¹, Stella Harden², Jaclyn Weiser³, and Kurt Michael⁴

¹North Carolina Institute for Climate Studies, North Carolina State University, Asheville, NC, USA

²Department of Geography and Planning, Appalachian State University, Boone, NC, USA

³Crisis Text Line, New York, NY, USA

⁴Department of Psychology, Appalachian State University, Boone, NC, USA

Abstract. *Background:* Data are scarce on assessing the impact of the COVID-19 pandemic on young people. *Aim:* To examine changes in crisis text patterns in the United States during the pandemic compared to the prepandemic period. *Method:* Nonintrusive data from a national digital crisis texting platform were analyzed using an interrupted time series design. Poisson regression with repeated-measures examined help-seeking patterns for stress, anxiety, depression, suicidal thoughts, and other mental health concerns in the pandemic (March 13 to July 20, 2020) compared to the prepandemic period (March 13 to July 20, 2019). *Results:* An abrupt increase in national crisis response texts occurred during the pandemic for stress and anxiety, substance abuse, bereavement, isolation, and abuse compared to the prepandemic period. Similar trends of excess texts for isolation and abuse were reported among children (relative risk [RR]_{abuse}: 1.16, CI: 1.03, 1.31; RR_{isolation}: 1.15, CI: 1.09, 1.21) and adolescents (RR_{abuse}: 1.17, CI: 1.11, 1.24; RR_{isolation}: 1.08, CI: 1.05, 1.11), bereavement among Black (RR: 1.31, CI: 1.12, 1.54) and Hispanic (RR: 1.28, CI: 1.10, 1.49) texters, and isolation and bereavement in female (RR_{isolation}: 1.09, CI: 1.06, 1.11; RR_{bereavement}: 1.21, CI: 1.13, 1.28) or nonconforming youth (RR_{isolation}: 1.19, CI: 1.08, 1.32; RR_{bereavement}: 1.50, CI: 1.08, 2.09) texters. Conversely, the risks of reporting bullying, depression, relationship issues, and suicidal thoughts as reasons for texting were significantly lower during COVID-19. *Limitations:* Results may underestimate crisis support-seeking in some groups because demographic data were not captured on all texters. *Conclusion:* Findings illuminated the real-time crisis response of young people across the United States and can inform more responsive interventions to alleviate the mental health consequences brought on by the COVID-19 pandemic.

Keywords: COVID-19, crisis help-seeking, youth, digital intervention, quasi-experimental, mental health

The World Health Organization has expressed concern over the significant and largely underaddressed psychosocial consequences of the pandemic, as self-isolation and quarantine may increase loneliness, depression, insomnia, harmful alcohol and drug use, self-harm, and suicidal behavior (WHO, 2020a, 2020b). In a survey by the Center for Disease Control and Prevention (CDC) of US adults in June 2020, young adults, minorities, essential workers, and unpaid adult caregivers reported disproportionately worse mental health outcomes, increased substance use, and elevated suicidal ideation (Czeisler et al., 2020). Research from the Kaiser Family Foundation revealed that 45% of adults reported their mental health being negatively impacted by stress in response to the pandemic. Findings from the CDC reported similar levels of distress in two out of five Americans (Czeisler et al., 2020). To complicate matters, the COVID-19

pandemic is occurring against the backdrop of rising suicide rates in the United States (Hedegaard et al., 2020).

The *Lancet* recently published an urgent “call to action” for research monitoring and reporting on the pandemic’s wide-ranging mental and emotional consequences (Holmes et al., 2020). Gaps in the current evidence base include longitudinal assessment of changes in population-level reports of anxiety, depression, self-harm, suicidal thoughts, and other mental health issues and the identification of supportive and preventive interventions. The objective of this novel study was to examine changes in crisis text volume during the pandemic compared to the prepandemic period. We obtained nonintrusive data on text conversations collected from a confidential and nationally available digital texting platform, Crisis Text Line (CTL), to answer the following research questions: (1) How do crisis text

patterns in the United States change during the pandemic compared to the prepandemic period? (2) How does crisis support-seeking change among vulnerable subgroups of texters during the pandemic compared to the prepandemic period? Findings from this study will illuminate the real-time digital crisis response of American children, adolescents, and young adults across the United States to increased social isolation and dramatic changes to “normal” daily routines, triggered during the pandemic.

Methods

Study Design

An interrupted time series design was employed to examine changes in national trends in daily help-seeking for mental health support and was compared for the prepandemic period (March 13 to July 20, 2019) and the pandemic period (March 13 to July 20, 2020; 130 days). On March 13, a national emergency was declared in the United States. The White House instituted national recommendations calling for 15 days to Slow the Spread, which was later extended to 30 days (Moreland et al., 2020). These measures were soon followed by a flurry of state-level “stay-at-home” orders to mitigate the impacts of COVID-19 in the United States. Therefore, we defined the “stay-at-home” period to include March 13 to May 13, 2020, to account for national and state-level orders. The “re-opening” phase encompassed May 14 to July 20, 2020 (Whitehouse, 2020; Kates et al., 2020). For this analysis, we defined the pandemic period as starting on March 13, 2020 (i.e., the conceptualized start date of the pandemic) and hypothesized that crisis response volume in young people would be significantly higher in the pandemic compared to the prepandemic period. We then conducted a sensitivity analysis to examine change in crisis response volume for two periods: (1) the “stay-at-home” period and (2) the reopening phase (see Table E3 in Electronic Supplementary Material 1 [ESM 1]).

CTL Data

CTL, a not-for-profit tech-enabled organization that offers free 24/7 text-based service for people in crisis, provided crisis text data for mental health support seeking. CTL is primarily used by young people and provides an anonymous text-based platform for crisis conversations in this age group. Since CTL’s creation in August 2013, nearly 145 million messages have been exchanged between persons

in crisis and trained crisis counselors. Crisis tags are assigned to each texting conversation by the responding crisis counselor and address a wide range of issues, including suicidal thoughts, self-harm, relationship, substance abuse, anxiety/stress, bullying, depression, gender/sexual identity, grief, and isolation/loneliness. More than one tag could be assigned to a crisis conversation, and co-occurrence among tags is shown in Table E2 in ESM 1.

Research to date has demonstrated that the pandemic is associated with a wide range of mental health responses in young people, including anxiety, depression, isolation, bereavement, self-harm, abuse, and substance abuse (Brown et al., 2020; Campbell 2020; Czeisler 2020; Leske et al., 2021; Luchetti et al., 2020). Primary variables of interest were daily crisis texts related to the following issues coded as binary variables (yes/no): stress and anxiety, depression, bereavement, self-harm (e.g., cutting, harming, and burning behavior), abuse, substance abuse, relationship issues, isolation, suicidal thoughts, and bullying (see Figure E1 in ESM 1). For the abuse tag, four tags were combined and included emotional, physical, sexual, and general unspecified abuse. We opted to characterize abuse this way because this was the noisiest issue tag and due to the subjective nature of tagging for this concern, abuse has been consistently labeled incorrectly. CTL assigned each texter an unique actor ID that was used to monitor changes in issue tags over time.

Potential Covariates

Age, gender identity, sexual orientation, social isolation, and race/ethnicity have been identified as important risk factors for mental health concerns in young people and were adjusted for in the analysis as potential confounders (Broman, 2012; Leigh-Hunt et al., 2017; Miranda-Mendizabal et al., 2019; Moore, 2018; Valentine & Shipherd, 2018). Prior evidence has linked infectious disease outbreaks to adverse mental health and social stress outcomes (e.g., Kamara et al., 2017; Lu et al., 2009). We included an independent variable that captured texts mentioning COVID-19 and whether a text conversation resulted in an active rescue. All crisis tags were conceptualized as normal risk with the exception of self-harm and suicidal thoughts, which were conceptualized as medium risks by the CTL service. If a CTL supervisor was unable to de-escalate and help a texter in crisis to disconnect from the means of harm and work toward a safety plan, an active rescue was initiated, which involved contact to emergency services. However, less than 1% of crisis conversations resulted in an active rescue.

The research was reviewed and approved by the university institutional review board (protocol number: 17763).

Statistical Analysis

Descriptive statistics were calculated for all demographic and mental health and well-being variables in the pre-pandemic and pandemic periods.

We applied Poisson regression with repeated-measures and constructed separate generalized estimating equation (GEE) models to examine changes in individual crisis concerns before and since the pandemic (i.e., intervention term: 1 = *pandemic period*, 0 = *prepandemic period*). Each model included a robust sandwich estimator term using a repeated-measures statement to adjust for clustering of individual texters who repeatedly engaged with the service and to account for within-subject comparison of the change in crisis text behavior over time (Liang and Zeger, 1986; Zou, 2004). An autoregressive working correlation structure was selected to account for time dependency for correlated text conversations for individual users. GEE was advantageous because it can handle missing data, was appropriate for repeated-measures multivariate analysis of variables at different time points, and accounted for intrasubject correlation of outcomes when variation in health outcomes over time was expected (Zou, 2004). Furthermore, because we were analyzing general trends in crisis-text help-seeking, the marginal mean model provided a population-averaged interpretation of how mean crisis response in the population changed over time in relation to important covariates (Fitzmaurice et al., 2008). The link function was used to generate relative risks (RRs) and associated 95% CIs.

Bivariate analysis was used to examine differences in crisis concerns and associated texter characteristics at each time point under study. Covariates with $p < .05$ were kept in the final model to improve model fit. The fitted Poisson regression models were extended to examine interactions between exposure to the COVID-19 pandemic and age, gender identity, sexual identity, or race/ethnicity. We next examined whether and how texter demographics differed over time with respect to exposure to the pandemic (reference category = prepandemic period) by adding an “interaction term” between each covariate of interest (i.e., age, race/ethnicity, and gender identity). A separate model was performed for each interaction term. Finally, a sensitivity analysis comparing text volume before the pandemic with the “stay-at-home” phase and “reopening” phase was also performed. All analyses were carried out in SAS software version 9.4 (SAS Institute, Inc, Cary, NC).

Results

General Trends

Table 1 provides descriptive statistics on texter demographics and crisis response conversations for the pre-pandemic and COVID-19 pandemic periods. In general, only about two out of 10 users provided demographic characteristics. For texters who responded to the survey but who were missing responses to individual demographic characteristics, we included a “no response” or “preferred not to respond” option. A notable increase in crisis conversations was observed across racial/ethnic (e.g., Asian, Hispanic/Latinx, Black, and White texters) and gender (e.g., females) groups. For example, conversations among Hispanic/Latinx and White texters, as well as among female texters, were higher in the pandemic compared to the pre-COVID period. Results showed that text volume related to the following issue tags: Abuse, bereavement, isolation, stress and anxiety, and substance abuse increased during the pandemic period compared to the prepandemic period (Table 1, Figure 1). We also observed a parallel increase in new users engaging with the service during the pandemic period for those same mental health concerns, as well as self-harm. In particular, more Asian, Hispanic/Latinx, Black, and White texters started connecting with the service during the pandemic. One notable decline in texts for the concerns bullying, suicidal ideation, depression, relationship issues, and active rescues was observed during the early part of the 2020 COVID-19 outbreak.

Results on changes in crisis text volume before and since the COVID-19 outbreak from multivariable GEE models are presented in Table 2.

Changes in Crisis Concerns for the Pandemic Period Compared to Prepandemic Period

After adjusting for demographic factors in the model, we observed a significant increase in stress and anxiety-related texts in the COVID-19 pandemic period compared to prepandemic period.

Relative to the prepandemic period, the risk of a texter reporting depression declined during the pandemic (RR: 0.89, CI: 0.88, 0.90).

As a whole, crisis conversations for suicidal thoughts were significantly lower in the early part of the pandemic period (March to July) than in the prepandemic period (RR: 0.78, CI: 0.77, 0.80). However, an elevated risk of reporting suicidal thoughts (RR: 1.06, CI: 1.03, 1.09) was observed among texters during the 2020 stay-at-home orders compared to the reopening phase (Table S3).

Table 1. Descriptive characteristics of Crisis Text Line conversations and users before and after the COVID-19 pandemic

	Conversations ^a <i>n</i> (%)	Pre-COVID (March 13–July 20, 2019) <i>n</i> (%)	COVID-19 (March 13–July 20, 2020) <i>n</i> (%)	Users ^b <i>n</i> (%)	Pre-COVID (March 13–July 20, 2019) <i>n</i> (%)	COVID-19 (March 13–July 20, 2020) <i>n</i> (%)
Totals	186,278	91,983	94,295	92,051	51,371	49,837
Age, years						
≤13	23,039 (7.12)	11,553 (12.56)	11,486 (12.18)	10,365 (3.2)	5,799 (11.29)	5,711 (11.46)
14–24	107,294 (33.15)	53,867 (58.56)	53,427 (56.66)	54,008 (16.69)	30,639 (59.64)	29,045 (58.28)
25–44	36,859 (11.39)	17,749 (19.3)	19,110 (20.27)	18,798 (5.81)	10,306 (20.06)	10,062 (20.19)
45–64	9,329 (2.88)	4,220 (4.59)	5,109 (5.42)	4,691 (1.45)	2,358 (4.59)	2,681 (5.38)
65+	672 (0.21)	245 (0.27)	427 (0.45)	379 (0.12)	133 (0.26)	256 (0.51)
Not available	9,085 (2.81)	4,349 (4.73)	4,736 (5.02)	3,810 (1.18)	2,136 (4.16)	2082 (4.18)
Race/ethnicity						
American Indian/ Alaskan Native	5,291 (1.63)	2,726 (2.96)	2,565 (2.72)	2,744 (0.85)	1,555 (3.03)	1,454 (2.92)
Asian	8,641 (2.67)	3,914 (4.26)	4,727 (5.01)	4,240 (1.31)	2,133 (4.15)	2,533 (5.08)
Hispanic/Latinx	20,321 (6.28)	9,073 (9.86)	11,248 (11.93)	11,349 (3.51)	5,567 (10.84)	6,638 (13.32)
Black	15,910 (4.92)	7,672 (8.34)	8,238 (8.74)	8,303 (2.57)	4,389 (8.54)	4,639 (9.31)
White	80,909 (25)	38,990 (42.39)	41,919 (44.46)	39,384 (12.17)	21,537 (41.92)	22,096 (44.34)
Other	4,938 (1.53)	2,267 (2.46)	2,671 (2.83)	2,423 (0.75)	1,242 (2.42)	1,416 (2.84)
No response	39,452 (12.19)	22,462 (24.42)	16,990 (18.02)	18,974 (5.86)	12,551 (24.43)	8,299 (16.65)
Prefer not to say	10,816 (3.34)	4,879 (5.3)	5,937 (6.3)	4,634 (1.43)	2,397 (4.67)	2,762 (5.54)
Gender identity						
Female	113,143 (34.96)	53,347 (58)	59,796 (63.41)	57,642 (17.81)	30,339 (59.06)	33,028 (66.27)
Male	19,306 (5.97)	9,210 (10.01)	10,096 (10.71)	9,240 (2.86)	4,996 (9.73)	4,940 (9.91)
Nonbinary/trans	6,404 (1.98)	3,060 (3.33)	3,344 (3.55)	2,896 (0.89)	1,571 (3.06)	1,684 (3.38)
No response	36,177 (11.18)	21,057 (22.89)	15,120 (16.03)	17,435 (5.39)	11,804 (22.98)	7,369 (14.79)
Other	11,248 (3.48)	5,309 (5.77)	5,939 (6.3)	4,838 (1.49)	2,661 (5.18)	2,816 (5.65)
Sexual identity						
LGBTQ	4,056 (2.18)	2,109 (2.29)	1947 (2.06)	3,096 (1.66)	1,630 (3.17)	1,560 (3.13)
Mental health concerns						
Abuse	12,541 (6.73)	5,918 (6.43)	6,623 (7.02)	9,671 (5.19)	4,786 (9.32)	5,197 (10.43)
Active rescue	1,362 (0.73)	833 (0.91)	529 (0.56)	1,045 (0.56)	683 (1.33)	398 (0.8)
Bereavement	7,839 (4.21)	3,599 (3.91)	4,240 (4.5)	6,435 (3.45)	3,036 (5.91)	3,530 (7.08)
Bully	4,543 (2.44)	2,719 (2.96)	1824 (1.93)	3,833 (2.06)	2,294 (4.47)	1,592 (3.19)
Depressed	71,465 (38.36)	37,196 (40.44)	34,269 (36.34)	46,825 (25.14)	26,184 (50.97)	23,624 (47.4)
Isolated	42,119 (22.61)	19,475 (21.17)	22,644 (24.01)	30,554 (16.4)	15,283 (29.75)	16,772 (33.65)
Relationship	66,305 (35.59)	34,053 (37.02)	32,252 (34.2)	44,308 (23.79)	24,492 (47.68)	22,416 (44.98)
Self-harm	26,438 (14.19)	13,325 (14.49)	13,113 (13.91)	17,056 (9.16)	9,048 (17.61)	8,990 (18.04)
Stress and anxiety	69,877 (37.51)	32,059 (34.85)	37,818 (40.11)	44,786 (24.04)	22,925 (44.63)	24,836 (49.83)
Substance	3,672 (1.97)	1736 (1.89)	1936 (2.05)	3,046 (1.64)	1,503 (2.93)	1,608 (3.23)
Suicidal thoughts	50,208 (26.95)	28,113 (30.56)	22,095 (23.43)	30,068 (16.14)	17,930 (34.9)	14,145 (28.38)

Note. LGBTQ = lesbian, gay, bisexual, transgender, and queer; *n* = sample size; % = proportion. ^aConversation total is defined by the total number of crisis text conversations recorded for the sample periods. ^bUser is defined as the number of individual users who engaged with the service throughout the sample periods.

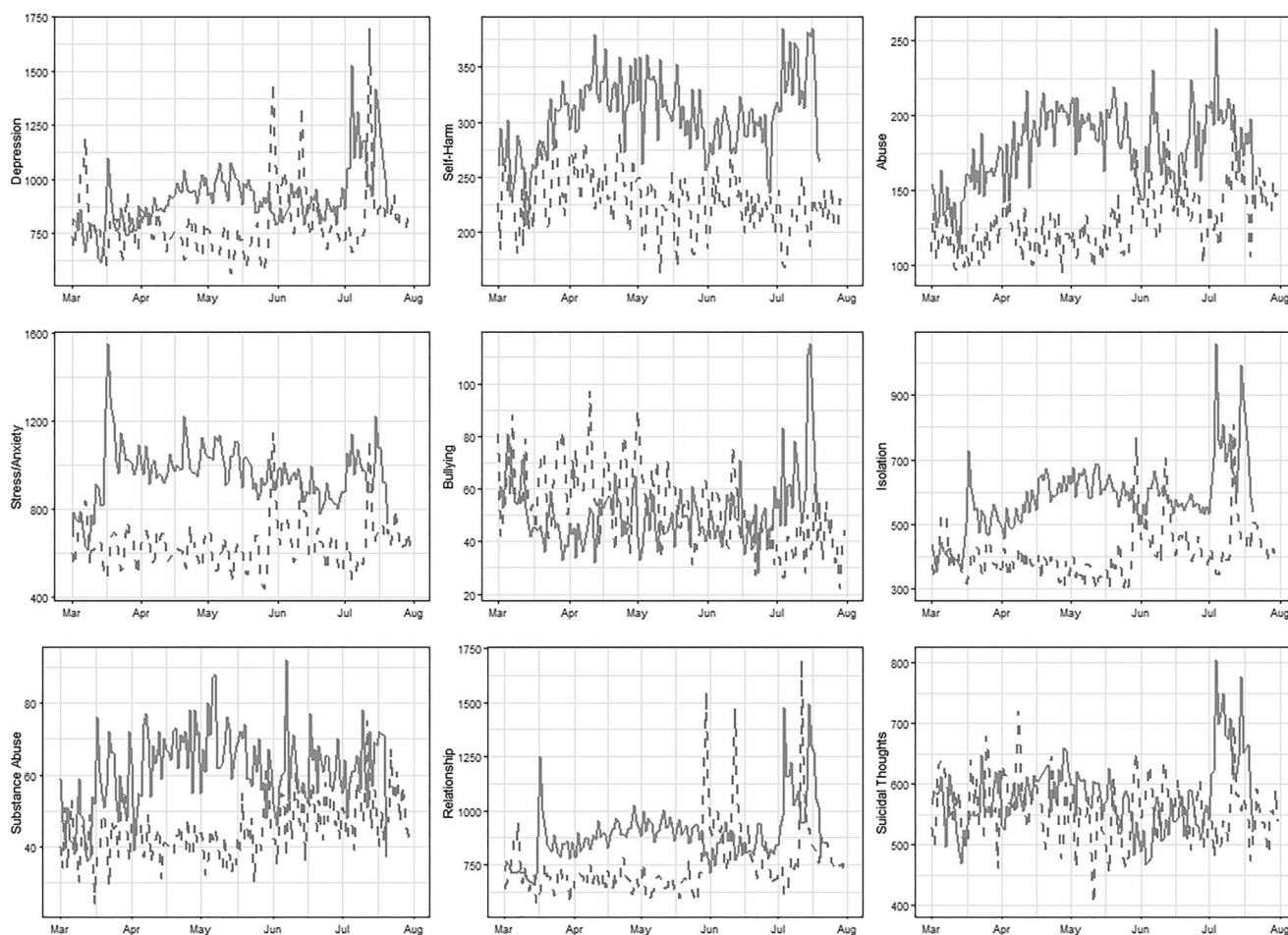


Figure 1. Time series of March 13 to July 20 for 2019 (dotted line) and 2020 (light gray) for crisis conversations relating to depression, stress/anxiety, substance abuse, self-harm, bullying, relationship, abuse, substance abuse, isolation, and suicidal thoughts.

Compared to the prepandemic time, the risk of reporting self-harm was not significantly different from the pandemic period.

In general, the risk of reporting bullying declined during the pandemic era across the United States compared to the prepandemic period (RR: 0.68, CI: 0.63, 0.72). This decline is largely because reports of bullying were much lower during the COVID-19 pandemic among children (13 years and younger), who were not in school at the time. The risk of reporting bullying among child texters was much higher in the prepandemic period.

The risk of engaging with CTL crisis services for abuse was significantly higher during the pandemic relative to the nonpandemic period (RR: 1.12, CI: 1.08, 1.17). When compared to the prepandemic period, the risk of substance abuse was higher in the pandemic period, particularly during the stay-at-home phase (RR: 1.17, CI: 1.05, 1.30; Table S3).

While texts for relationship issue were not higher in the COVID-19 pandemic period compared to prepandemic

period, results revealed that the pandemic was associated with a significant increase in reported feelings of isolation (RR: 1.07, CI: 1.05, 1.09). The risk of reporting bereavement was higher among texters during the COVID-19 pandemic compared to the year before the pandemic (RR: 1.07, CI: 1.05, 1.09).

Pandemic-Related Changes in Crisis Concerns for Vulnerable Subgroups

Table 3 shows how the risk of reporting selected mental health concerns changed in the pandemic compared to the prepandemic period for vulnerable age, race/ethnicity, or gender identity groups. The risk of reporting isolation and abuse was significantly higher following the pandemic for children (age 13 years or younger) and adolescents/young adults (age 14–24 years) in comparison to prepandemic reporting. Relative to the prepandemic period, the risk of reporting bereavement was 31% higher in Black (RR: 1.31,

Table 2. Results of the GEE analyses of the covariate-adjusted association between reported mental health concerns and the COVID-19 pandemic compared to the prepandemic period

	Stress and anxiety		Self-harm		Depressed		Abuse		Bullying	
	RR	95% CI	RR	95% CI	RR	95% CI	RR	95% CI	RR	95% CI
14–24 years of age	1.29	[1.25, 1.32]	0.77	[0.74, 0.80]	1.06	[1.04, 1.08]	1.10	1.02, 1.17	0.33	[0.31, 0.36]
25–44 years of age	1.45	[1.41, 1.50]	0.48	[0.45, 0.51]	1.06	[1.04, 1.09]	1.26	1.17, 1.37	0.15	[0.13, 0.17]
45–64 years of age	1.28	[1.22, 1.33]	0.26	[0.23, 0.30]	1.03	[1.00, 1.07]	1.34	1.20, 1.50	0.16	[0.12, 0.20]
65+ years of age	0.98	[0.84, 1.15]	0.07	[0.03, 0.14]	0.93	[0.81, 1.07]	0.74	0.49, 1.11	0.17	[0.08, 0.39]
No answer	1.21	[1.16, 1.27]	0.62	[0.57, 0.68]	0.99	[0.95, 1.03]	1.04	0.91, 1.18	0.58	[0.50, 0.67]
≤13 years of age	1	(ref)	1	(ref)	1	(ref)	1	(ref)	1	(ref)
American Indian/Alaskan Native	0.96	[0.92, 1.00]	0.99	[0.92, 1.07]	1.03	[0.99, 1.07]	1.24	1.12, 1.38	1.24	[1.03, 1.49]
Asian	1.06	[1.03, 1.10]	0.67	[0.61, 0.72]	0.94	[0.91, 0.97]	1.06	0.96, 1.17	1.08	[0.92, 1.27]
Hispanic/Latinx	1.01	[0.98, 1.03]	0.81	[0.77, 0.85]	1.02	[1.00, 1.04]	0.97	0.91, 1.04	1.16	[1.05, 1.29]
Black	0.91	[0.89, 0.94]	0.70	[0.66, 0.75]	1.07	[1.05, 1.10]	0.96	0.89, 1.04	1.19	[1.05, 1.34]
Other	0.96	[0.91, 1.00]	0.78	[0.71, 0.85]	1.02	[0.98, 1.06]	1.21	1.06, 1.38	1.37	[1.15, 1.63]
No response	0.98	[0.93, 1.03]	0.89	[0.80, 1.00]	0.97	[0.92, 1.02]	1.04	0.88, 1.23	1.36	[1.10, 1.68]
Prefer not	0.98	[0.95, 1.02]	0.80	[0.74, 0.86]	0.98	[0.95, 1.01]	0.96	0.86, 1.07	1.04	[0.89, 1.22]
White	1	(ref)	1	(ref)	1	(ref)	1	(ref)	1	(ref)
Female	1.08	[1.06, 1.11]	1.74	[1.62, 1.86]	0.99	[0.97, 1.02]	1.99	1.80, 2.19	0.89	[0.79, 1.00]
Nonbinary/trans	1.00	[0.96, 1.05]	2.12	[1.94, 2.33]	0.98	[0.94, 1.02]	1.96	1.69, 2.27	0.73	[0.60, 0.89]
No response	1.04	[0.98, 1.11]	1.64	[1.44, 1.87]	1.01	[0.96, 1.07]	1.78	1.48, 2.15	0.73	[0.57, 0.93]
Other	1.04	[1.00, 1.08]	1.94	[1.78, 2.11]	0.94	[0.91, 0.98]	2.08	1.82, 2.38	0.73	[0.61, 0.88]
Male	1	(ref)	1	(ref)	1	(ref)	1	(ref)	1	(ref)
LGBTQ	0.91	[0.86, 0.95]	1.06	[0.98, 1.14]	0.88	[0.84, 0.91]	1.18	1.06, 1.32	2.11	[1.85, 2.41]
Active rescue	1	(ref)	1.00	[1.00, 1.00]	1.00	[1.00, 1.00]	1.00	1.00, 1.00	1.00	[1.00, 1.00]
	0.39	[0.35, 0.45]	0.95	[0.81, 1.10]	0.75	[0.69, 0.82]	0.91	0.74, 1.12	0.91	[0.64, 1.29]
COVID-19	1	(ref)	1	(ref)	1	(ref)	1	(ref)	1	(ref)
	1.51	[1.48, 1.54]	0.81	[0.76, 0.85]	0.96	[0.94, 0.99]	0.67	0.62, 0.74	0.69	[0.58, 0.82]
Isolated	1	(ref)	1	(ref)	1	(ref)	1	(ref)	1	(ref)
	0.97	[0.96, 0.98]	1.04	[1.01, 1.07]	1.60	[1.58, 1.62]	1.17	1.13, 1.22	1.62	[1.52, 1.73]
Pandemic	1	(ref)	1	(ref)	1	(ref)	1	(ref)	1	(ref)
	1.08	[1.06, 1.09]	1.02	[0.99, 1.05]	0.89	[0.88, 0.90]	1.12	1.08, 1.17	0.68	[0.63, 0.72]
Prepandemic	1	(ref)	1	(ref)	1	(ref)	1	(ref)	1	(ref)
	Relationships		Substance abuse		Bereavement		Isolation		Suicidal thoughts	
	RR	95% CI	RR	95% CI	RR	95% CI	RR	95% CI	RR	95% CI
14–24 years of age	1.03	[1.00, 1.05]	1.76	[1.51, 2.05]	1.03	[0.94, 1.12]	1.05	[1.01, 1.08]	0.85	[0.82, 0.87]
25–44 years of age	1.00	[0.97, 1.02]	3.16	[2.69, 3.72]	1.44	[1.31, 1.58]	0.99	[0.95, 1.03]	0.76	[0.73, 0.79]
45–64 years of age	0.88	[0.84, 0.93]	3.39	[2.76, 4.16]	2.12	[1.88, 2.40]	1.02	[0.97, 1.08]	0.66	[0.61, 0.71]
65+ years of age	0.71	[0.60, 0.83]	1.81	[0.95, 3.43]	1.67	[1.17, 2.39]	1.01	[0.86, 1.18]	0.39	[0.28, 0.55]
No answer	1.01	[0.97, 1.06]	1.42	[1.09, 1.85]	1.14	[0.97, 1.33]	1.04	[0.98, 1.10]	0.77	[0.72, 0.82]
≤13 years of age	1	(ref)	1	(ref)	1	(ref)	1	(ref)	1	(ref)
American Indian/Alaskan Native	1.06	[1.02, 1.11]	1.10	[0.89, 1.36]	1.39	[1.21, 1.59]	1.01	[0.95, 1.06]	0.99	[0.94, 1.05]
Asian	1.14	[1.10, 1.18]	0.70	[0.56, 0.87]	0.77	[0.66, 0.89]	1.00	[0.96, 1.06]	0.86	[0.82, 0.91]
Hispanic/Latinx	1.09	[1.06, 1.11]	0.91	[0.80, 1.04]	0.95	[0.87, 1.03]	1.05	[1.02, 1.08]	0.91	[0.88, 0.94]
Black	1.03	[1.00, 1.06]	0.73	[0.62, 0.86]	1.05	[0.96, 1.15]	1.10	[1.06, 1.14]	0.97	[0.94, 1.01]
Other	1.10	[1.05, 1.15]	0.95	[0.74, 1.24]	1.07	[0.91, 1.25]	1.08	[1.02, 1.15]	0.97	[0.91, 1.03]

(Continued on next page)

Table 2. (Continued)

	Stress and anxiety		Self-harm		Depressed		Abuse		Bullying	
	RR	95% CI	RR	95% CI	RR	95% CI	RR	95% CI	RR	95% CI
No response	1.04	[0.98, 1.10]	0.69	[0.52, 0.92]	0.87	[0.72, 1.07]	1.01	[0.94, 1.08]	0.90	[0.83, 0.98]
Prefer not	1.00	[0.96, 1.04]	0.64	[0.53, 0.78]	0.95	[0.84, 1.07]	1.04	[1.00, 1.10]	0.93	[0.89, 0.99]
White	1	(ref)	1	(ref)	1	(ref)	1	(ref)	1	(ref)
Female	1.02	[0.99, 1.05]	0.56	[0.50, 0.62]	1.25	[1.13, 1.37]	0.94	[0.91, 0.97]	0.92	[0.88, 0.95]
Nonbinary/trans	0.87	[0.83, 0.91]	0.61	[0.45, 0.83]	0.84	[0.70, 1.02]	0.84	[0.79, 0.89]	1.23	[1.16, 1.30]
No response	1.01	[0.94, 1.07]	0.88	[0.65, 1.20]	1.32	[1.06, 1.65]	0.94	[0.87, 1.02]	1.00	[0.92, 1.10]
Other	0.88	[0.85, 0.92]	0.72	[0.60, 0.87]	0.96	[0.82, 1.12]	0.86	[0.82, 0.91]	1.14	[1.08, 1.20]
Male	1	(ref)	1	(ref)	1	(ref)	1	(ref)	1	(ref)
LGBTQ	1.30	[1.25, 1.34]	1.05	[0.81, 1.37]	0.77	[0.64, 0.92]	1.13	[1.07, 1.19]	1.02	[0.97, 1.07]
	1.00	[1.00, 1.00]	1.00	[1.00, 1.00]	1.00	[1.00, 1.00]	1.00	[1.00, 1.00]	1.00	[1.00, 1.00]
Active rescue	0.62	[0.56, 0.68]	3.16	[2.51, 3.97]	0.91	[0.70, 1.19]	0.72	[0.64, 0.82]	2.79	[2.70, 2.89]
	1	(ref)	1	(ref)	1	(ref)	1	(ref)	1	(ref)
COVID-19	0.91	[0.88, 0.93]	0.87	[0.76, 1.00]	0.93	[0.85, 1.02]	1.53	[1.49, 1.58]	0.88	[0.85, 0.92]
	1	(ref)	1	(ref)	1	(ref)	1	(ref)	1	(ref)
Isolated	1.47	[1.45, 1.48]	1.27	[1.18, 1.36]	1.57	[1.50, 1.65]	1.00		1.28	[1.25, 1.30]
	1	(ref)	1	(ref)	1	(ref)	1	(ref)	1	(ref)
Pandemic	0.92	[0.91, 0.94]	1.10	[1.02, 1.18]	1.13	[1.07, 1.19]	1.07	[1.05, 1.09]	0.78	[0.77, 0.80]
Prepandemic	1	(ref)	1	(ref)	1	(ref)	1	(ref)	1	(ref)

Note. GEE = generalized estimating equation; LGBTQ = lesbian, gay, bisexual, transgender, and queer; RR = relative risk; pandemic = study period (March 13, to May 13, 2020), prepandemic = study period (January 1, 2019).

CI: 1.12, 1.54), 28% higher among Hispanic (RR: 1.28, CI: 1.10, 1.49), and 13% higher for White (RR: 1.13, CI: 1.05, 1.22) texters. Female texters were 1.21 times more likely to text for bereavement and 1.09 times more likely to report feelings of isolation during COVID compared to the previous year. Similarly, nonconfirming young people were 50% more likely to report bereavement and 19% more likely to text for isolation during the pandemic when compared to the prepandemic period. These findings contrast with a lower risk of reporting depression across age, racial/ethnic, and gender identity groups and a lower risk of reporting bullying and suicidal thoughts for both age groups (i.e., children and adolescents/young adults) and across gender identity groups in response to COVID compared to the prepandemic period.

Discussion

Our novel quasi-experimental study is the first to leverage national help-seeking data from a digital texting platform to examine American youths' near real-time response to the unfolding COVID-19 pandemic. Results revealed that the risk of reporting stress and anxiety, substance abuse, bereavement, loneliness, and abuse was higher in the early

part of the pandemic period compared to the prepandemic period (March to July 2020). The issuance of stay-at-home orders, in particular, was associated with significantly higher reports of abuse, substance abuse, feelings of isolation, stress/anxiety, and depression compared to the reopening phase. Findings also identified a significantly higher volume of texts reporting bereavement for Hispanic/Latinx, Black, female, and nonbinary/trans texters during COVID in relation to the prepandemic period. It is noteworthy that during the early part of the pandemic, the risk of reporting crisis concerns related to suicidal thoughts was significantly lower compared to the prepandemic period. Interestingly, the proportion of active rescues, an event in which local 911 and first responders are notified of a life-threatening crisis event, was much lower in the pandemic period. At first glance, although the findings regarding suicidal thoughts are surprising, it might suggest that additional factors are at play that delay, reduce, or even prevent the onset of these life-threatening suicidal crises or the need for active rescues via CTL. For example, the threat of death or illness due to COVID-19 might replace, albeit temporarily, a suicidal crisis. It might also be true that the threshold for instigating an active rescue has been raised due to the risks of being exposed to COVID-19. Whether we see an eventual uptick in suicidal crises and deaths related temporally or actually to COVID-19

Table 3. Results of how the RR and 95% CI for texts reporting each mental health concern in the pandemic compared to the prepandemic period for age, race/ethnicity, or gender identity groups

Demographics	COVID-19 Abuse +	COVID-19 Abuse –	Pre-COVID-19 Abuse +	Pre-COVID-19 Abuse –	Risk Ratio	95% CI
Age-related differences						
≤ 13 years	780	10,706	675	10,878	1.16	[1.03, 1.31]
14–24 years	3,775	49,652	3,314	50,553	1.17	[1.11, 1.24]
	Bully +	Bully –	Bully +	Bully –		
≤ 13 years	563	10,923	940	10,613	0.60	[0.54, 0.68]
14–24 years	905	52,522	1,372	52,495	0.68	[0.62, 0.75]
	Depressed +	Depressed –	Depressed +	Depressed –		
≤ 13 years	4,189	7,297	4,167	7,386	0.99	[0.95, 1.03]
14–24 years	20,013	33,414	21,801	32,066	0.91	[0.90, 0.93]
	Isolated +	Isolated –	Isolated +	Isolated –		
≤ 13 years	2,678	8,808	2,281	9,272	1.15	[1.09, 1.21]
14–24 years	13,051	40,376	11,539	42,328	1.08	[1.05, 1.11]
	Suicidal thought +	Suicidal thought –	Suicidal thought +	Suicidal thought –		
≤ 13 years	3,448	8,038	3,938	7,615	0.88	[0.84, 0.93]
14–24 years	12,822	40,605	16,514	37,353	0.80	[0.78, 0.82]
Racial/ethnic differences						
	Bereavement+	Bereavement –	Bereavement+	Bereavement –		
American Indian/Alaskan Native	1,100	1,626	143	2,583	1.11	[0.86, 1.43]
Asian	1,501	2,413	106	3,808	1.24	[0.92, 1.67]
Hispanic/Latinx	3,809	5,264	295	8,778	1.28	[1.10, 1.49]
Black	3,291	4,381	287	7,385	1.31	[1.12, 1.54]
Other	878	1,389	85	2,182	1.36	[1.02, 1.81]
White	15,697	23,293	1,559	37,431	1.13	[1.05, 1.22]
	Depressed +	Depressed –	Depressed +	Depressed –		
American Indian/Alaskan Native	972	1,593	1,100	1,626	0.93	[0.87, 1.00]
Asian	1,582	3,145	1,501	2,413	0.86	[0.81, 0.92]
Hispanic/Latinx	4,118	7,130	3,809	5,264	0.86	[0.83, 0.90]
Black	3,290	4,948	3,291	4,381	0.93	[0.89, 0.97]
Other	1,041	1,630	878	1,389	0.98	[0.92, 1.06]
White	15,225	26,694	15,697	23,293	0.89	[0.87, 0.91]
Sexual identity differences						
	Bereavement+	Bereavement –	Bereavement+	Bereavement –		
Female	2,924	56,872	2,123	51,224	1.21	[1.13, 1.28]
Nonbinary/trans	108	3,236	64	2,996	1.50	[1.08, 2.09]
Male	396	9,700	336	8,874	1.05	[0.89, 1.24]
	Depressed +	Depressed –	Depressed +	Depressed –		
Female	22,073	21,597	21,597	31,750	0.90	[0.89, 0.92]
Nonbinary/trans	1,221	1,133	1,133	1927	0.97	[0.90, 1.04]
Male	3,661	3,949	3,949	5,261	0.84	[0.81, 0.88]
	Isolated +	Isolated –	Isolated +	Isolated –		
Female	14,515	45,281	11,251	42,096	1.09	[1.06, 1.11]
Nonbinary/trans	755	2,589	552	2,508	1.19	[1.08, 1.32]
Male	2,545	7,551	2,142	7,068	1.01	[0.95, 1.08]
	Suicidal thought +	Suicidal thought –	Suicidal thought +	Suicidal thought –		
Female	13,510	46,286	15,726	37,621	0.78	[0.76, 0.80]
Nonbinary/trans	1,106	2,238	1,169	1891	0.87	[0.81, 0.94]
Male	2,327	7,769	3,005	6,205	0.73	[0.69, 0.78]

Note. RR = relative risk.

remains to be seen, especially since we are still amid the pandemic. Nonetheless, given the increases in suicide deaths after SARS-1 (Cheung et al., 2008) in Hong Kong, we should remain vigilant, especially since the scope of COVID-19 is exponentially worse.

Our results were corroborated by national studies in adults demonstrating higher rates of depression, anxiety, post-traumatic stress symptoms, loneliness, and isolation in response to the pandemic (Brooks et al., 2020; CDC, 2020), especially during the stay-at-home orders (Panchal et al., 2021; Tull et al., 2020). However, our findings revealed an increase in text volume for feelings of loneliness in contrast with a recent study showing a leveling off during the stay-at-home orders (Luchetti et al., 2020). We also observed an increased risk of reporting loneliness/isolation among child and adolescent/young adult texters, as well as among female texters and texters self-identifying as nonbinary/trans. Some research has shown that individuals from marginalized sexual orientation groups face difficulties with mental health and well-being and may be particularly vulnerable to increased isolation and, in more severe cases, a higher risk of exposure to abuse in the home during the pandemic (Herman & O'Neill, 2020; Kussin-Shoptaw et al., 2017; Nuttbrock et al., 2010; Peng et al., 2019; Wang et al., 2020).

Prior research has demonstrated a high preponderance of adverse psychological effects following infectious disease outbreaks. For example, higher rates of psychiatric and post-traumatic morbidity were detected following the SARS-CoV-1 outbreak of 2003 (Lu et al., 2009; Mak et al., 2009; Sim et al., 2010), the Ebola outbreak of 2015 (Betancourt et al., 2016; Cénat et al., 2020; Kamara et al., 2017), and the Zika outbreak (Tucci et al., 2017). There are a number of external stressors that likely negatively impacted young people's mental health during this difficult time. Stressors included school closings, economic uncertainty, racism and incited social unrest, grief associated with the loss of a loved one to the virus, caregiver stress, prolonged social or home confinement, and related abuse or other relational stressors in the home (Guessoum et al., 2020).

For children and adolescents in our sample, the impact of school closures and economic uncertainty combined with systemic racism and other structural factors may largely be driving disparities in mental health risk for these groups (Purtle, 2020). Historically marginalized groups, like African Americans, Hispanics, and Asians, have underutilized mental health services in part due to reinforced stigma among peer networks and largely due to racial segregation and associated decreased access to mental health resources in their communities (Choi et al., 2019).

Abuse in children (age 13 years and younger) and young people (age 14–24 years) was higher during the pandemic outbreak compared to the prepandemic period. A rise in

abusive behavior in the weeks after the initial outbreak began in the United States may have been brought on by financial insecurity, fear, unemployment, excessive alcohol use, parental burnout, or even feelings of isolation or loneliness (Brown et al., 2020; Campbell, 2020; Griffith, 2020; Usher et al., 2020).

Schools have long been recognized as a feasible, acceptable, and accessible context to address and effectively treat the diverse mental health needs among young people (Kirk et al., 2019). Indeed, findings from a recent national survey showed that a large proportion of adolescents receiving mental health services in a school setting were from low-income or racially and ethnically diverse households (Ali et al., 2019). Schools have also been at the forefront of mental health innovation during COVID-19, with increased capacity to serve youth remotely via telehealth (e.g., Holland et al., 2020), including those identified to be at increased risk for suicide (Jobes et al., 2019, 2020). At the same time, school closures and the transition to a virtual classroom during the pandemic likely resulted in disruptions to mental health services for this vulnerable group, especially for those with inadequate broadband or homes that lacked the necessary hardware, which may explain the elevated risk of some mental health outcomes during stay-at-home orders. Somewhat at odds with these data is the fact that crisis conversations related to bullying declined during the pandemic period. This might be attributable to fewer opportunities to be bullied by peers, at least while the schools were closed to many students. In addition, because we could not distinguish between in-person and cyber-bullying, the nature of this finding remains even less clear.

Strengths and Limitations

A significant advantage of this study is that our data captured the near real-time experience among young people to the pandemic without the traditional time lag incurred in the research process. The unobtrusive nature of these data paired with repeated-measures for text patterns is another important design feature, and as a result, findings were not negatively influenced by recall bias or research participation bias.

There is growing concern that the pandemic has complicated matters for young people with pre-existing mental health conditions. Based on the available data, we were unable to measure this phenomenon. Another limitation involved the anonymized nature of the data whereby only a small portion of texters provided sociodemographic details. However, we were still able to discern general national trends and acknowledged that results may be underestimating mental health concerns in some groups

because we were unable to capture important demographic data for all crisis text encounters. We also recognize that volunteer bias might even be at play. Participants in this study may not be fully representative of the general population, given their predisposition to seek mental health support during this stressful time. Finally, at the time of our analysis, we only had access to 2019/2020 CTL (March to July) data and were unable to include data on CTL users 3–5 years before the pandemic occurred.

Implications

There is a paucity of research on the mental health impacts of a global outbreak on young people. Data from this digital mental health texting platform can be harnessed to establish a large-scale longitudinal study of young people to measure changes in mental health risks before and throughout the many phases of the COVID-19 pandemic. The benefits of this may include low-cost data collection and passive surveillance, as well as the ability to assess causal inference and the effectiveness of these types of mental health support interventions. Further study is needed incorporating latent class analysis to derive profiles of risk and resilient mechanisms among texts representing various age, sex, and racial-ethnic groupings.

Given the variation in state-level timing of stay-at-home orders and reopening, a closer look at changes in mental health risks at the local or state level could be used to determine the precise impact of more localized community mitigation measures. Advanced geospatial analysis incorporating additional community-level factors not currently captured in the digital text-based platform would also contextualize the excess risks for many mental health outcomes we observed in this national ecologic analysis. For example, a geospatial analysis might incorporate available mental health resources and additional factors, including residential poverty, school closures, unemployment, racial and ethnic composition, and COVID-19 morbidity and mortality to better contextualize the data trends.

Conclusions

Our study is one of the first to monitor the short-term risk of mental health crisis response in children and young people in the United States throughout the early phases of the pandemic. Findings show that the pandemic was associated with increased reports (or complaints) of stress and anxiety, abuse, substance abuse, bereavement, and isolation among young people. Results can be used to inform more responsive psychological supportive

interventions to alleviate the mental health consequences in youth brought on by the COVID-19 pandemic.

Electronic Supplementary Material

The electronic supplementary material is available with the online version of the article at <https://doi.org/10.1027/0227-5910/a000826>

ESM 1. Tables showing difference in crisis conversations (Table E1), Jaccard similarity index (Table E2), and relative risk and 95% CI for mental health concerns (Table E3); figure showing time series of crisis tags (Figure E1)

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ORCID

Jennifer D. Runkle

 <https://orcid.org/0000-0003-4611-1745>

Jennifer D. Runkle

North Carolina Institute for Climate Studies
North Carolina State University
151 Patton Avenue
Asheville, NC 28801
USA
jrrunkle@ncsu.edu

Jennifer Runkle, PhD, MSPH, is a research scholar at the North Carolina Institute for Climate Studies at North Carolina State University, Asheville, NC, USA. Her research is focused on using causal science to rapidly understand how and where local interventions may best be leveraged to reduce health inequities in underserved populations. She is currently funded through the American Foundation of Suicide Prevention to advance mental health research on vulnerable adolescent populations.

Maggie Sugg, PhD, MA, is an assistant professor in geography and planning at Appalachian State University, Boone, NC, USA. Her research examines spatiotemporal patterns of disease. She is a receipt of the EPA STAR Fellowship, the NSF CAREER award, and is currently funded through the American Foundation of Suicide Prevention.

Shrikanth Yadav, MS, is a master student in industrial and systems engineering at North Carolina State University, Raleigh, NC, USA. He has served as a data analyst at Robert Bosch Centre for Cyber-Physical Systems, the Department of Mathematics at North Carolina State University, and the North Carolina Institute for Climate Studies. His publications include topics on parallel algorithms, neural networks, and mental health crises in the United States.

Stella Harden, MS, is a former master's student at Appalachian State University, Boone, NC, USA. Her publications include topics from bereavement among adolescents during the COVID-19 pandemic to predicting COVID-19 outbreaks in nursing homes and identify geospatial clusters of severe maternal morbidity. She is pursuing a PhD in geography at Simon Fraser University in Burnaby, British Columbia, Canada.

Jackie Weiser, MS, is the director of machine learning and research at Crisis Text Line. She holds an MSc in applied mathematics from Northwestern University and has 14 years of experience as a data scientist in consulting, cybersecurity, quantitative finance, and risk analytics.

Kurt D. Michael, PhD, MS, is the Stanley R. Aeschleman Distinguished Professor of Psychology at Appalachian State University, Boone, NC, USA. Dr. Michael's primary areas of research are rural school mental health and suicidology. He is principal investigator of interdisciplinary school mental health partnerships titled the assessment, support, and counseling (ASC) centers in rural western North Carolina.

Predictors of Caregiver Burden Among Carers of Suicide Attempt Survivors

Myfanwy Maple¹ , Sarah Wayland¹ , Rebecca L. Sanford² , and Navjot Bhullar³ 

¹School of Health, Faculty of Medicine and Health, University of New England, Armidale, NSW, Australia

²School of Social Work and Human Service, Thompson Rivers University, Kamloops, BC, Canada

³School of Psychology, Faculty of Medicine and Health, University of New England, NSW, Armidale, Australia

Abstract. *Background:* Family members often provide informal care following a suicide attempt. Carers may be vulnerable to caregiver burden. Yet, little is known about what contributes to this. *Aims:* To determine the predictors of caregiver burden in those carers who support people who have attempted suicide. *Method:* An online survey of 435 participants assessed exposure to suicide, caring behaviors, and psychological variables and caregiver burden. *Results:* A multivariate model explained 52% of variance in caregiver burden. Being female, closeness to the person, impact of suicide attempt, frequency of contact pre-attempt, and psychological distress were positively associated with caregiver burden. Confidence in supporting the person after suicide attempt, perceived adequacy of healthcare the person received and the support the carer received, and suicidal ideation of the carer were negatively associated with caregiver burden. Moderation analysis suggested that carers with high levels of distress reported negative association between suicidal ideation and caregiver burden. *Limitations:* The cross-sectional online survey design of self-identified carers is a limitation of the study. *Conclusion:* Carers are highly distressed, and if unsupported report increased suicide ideation. In their caring roles they may have contact with support services, thus attending to their needs may ameliorate caregiver burden and associated negative outcomes.

Keywords: suicide, suicide attempt, carer, carer burden

Suicide remains a significant public health issue in Australia with over 3,300 people dying in 2019 (Australian Bureau of Statistics [ABS], 2020). The causes of suicide are multifactorial, and for every suicide death, it is estimated there are more than 20 attempts (World Health Organization, 2014). While individuals may require medical care following a suicide attempt, it is family members or close friends (hereafter “carers”) who often provide informal care and support following a suicide attempt (Hom et al., 2015; Van Orden et al., 2010). Carers provide an important protective factor in reducing the risk of further suicide attempts and help facilitate recovery (Pereira et al., 2018). However, in providing support to those who have attempted suicide (hereafter “supported person”), carers are vulnerable to adverse physical and psychological outcomes such as burnout, fatigue, trauma, and reduced health status, collectively described as “caregiver burden” (Buus et al., 2014). This vulnerability can also extend to suicide risk (Maple et al., 2019). Since the main emphasis of care tends to be on the suicidal person, carers may feel isolated as their concerns are largely hidden (McLaughlin et al., 2014). The factors known to ameliorate or exacerbate the demands on carers include their relationship, contact (Buus et al., 2014), and the

opportunity to develop a closer relationship with the supported person (Sarris et al., 2020). However, a close relationship between carer and supported person can increase pressure on carers to consistently monitor for suicide risk (Owens et al., 2011). These activities require carers to approach the role from multiple perspectives, which acknowledge the competing interests they must attend to (Wayland et al., 2020).

Receiving timely, adequate professional support can help reduce caregiver burden. However, carers may not feel comfortable or able to disclose suicidal behaviors of the supported person due to fear of stigma and shame (McLaughlin et al., 2016; Spillane, 2019). Carers have reported exposure to stigmatizing views from healthcare staff when seeking help, with some staff not taking their concerns seriously (Cerel et al., 2006) impeding carers’ ability to seek help (Castelli Dransart & Guerry, 2017). Further, healthcare staff may be mandated to protect client confidentiality preventing them from disclosing information about the person the carer is supporting, which can be unhelpful for carers left to provide support following discharge from clinical care (McLaughlin et al., 2014). These tensions can impede clear communication

between staff and carers, resulting in suboptimal care. This can be exacerbated where perceived failure to receive sufficient support from professionals exists (Wayland et al., 2020). Adding further complexity for carers are other commitments they are often balancing, including paid work and other family commitments, which can result in negative physical and mental health outcomes (Kenny et al., 2014) and caregiver burnout.

There are currently few evidence-based interventions to address and reduce caregiver burden (Perlick et al., 2016). Identifying those at risk of caregiver burnout or distress is required to provide a strong foundation upon which future supportive interventions can be developed. Thus, this study aimed to identify predictors of caregiver burden experienced as a result of caring. Given the literature indicating the complexity of providing care to someone after a suicide attempt, we hypothesized that carers would experience high caregiver burden if they also report closer relationship, more frequent contact, greater impact of the suicide, inadequate healthcare support for the supported person and support they received, increased psychological distress and suicidal thoughts. We further hypothesized that those who hold more stigmatizing views of suicide, who were less confident talking to the person and others about the attempt, and who supported the person after the attempt would experience high caregiver burden.

Method

Study Setting and Participants

Authors M.M. and S.W. conducted an online survey to investigate the needs of carers and their experiences of providing support, which was advertised through SANE Australia, a national mental health charity. The survey targeted Australian adults (18 years or older) who currently provide postsuicide-attempt care or who have done so in the past 10 years. The project received ethics approval via the University of New England Human Research Ethics Committee (HE17-210).

A total of 834 people responded to the online survey. Responses were excluded if the participant did not provide consent ($n = 5$), was under 18 years of age ($n = 14$), resided outside Australia ($n = 15$), or indicated that they did not know a person who had attempted suicide or did not respond to this question ($n = 42$). As the focus of this study was on those currently providing care, a further 92 were excluded where the person who attempted suicide had subsequently died. This resulted in a sample of 666 participants providing data on demographic variables. Participants' age

ranged from 19 to 101 years ($M = 46.84$, $SD = 12.93$, 87.4% women). See Table E1 in Electronic Supplementary Material 1 (ESM 1) for participant characteristics. We found further 35% missing data on key study variables that resulted in a final sample of 435. The average age of participants in the final sample was 47.91 years (age range = 19–85, $SD = 12.03$, 89.7% women, 8.7% men, 1.6% reported as other).

Measures

The following measures were used. Cronbach's α values obtained in the current study are presented in Table 1.

Suicide Exposure Variables

We adapted one-item impact and closeness scales related to suicide death exposure (Cerel et al., 2015). Both closeness with the supported person (1 = *not close* to 5 = *very close*) and impact of the suicide attempt on the carer (1 = *had little effect on me* to 5 = *had a significant/devastating effect on me*) were assessed.

Caring Behaviors

We assessed three types of caring behaviors:

1. Frequency of contact: Frequency of contact with the person 6 months prior to the attempt and frequency of contact with the person following the attempt (1 = *infrequently* to 6 = *daily*) using one item, respectively.
2. Confidence: Three items assessed confidence: discussing suicide attempt with the person, providing support to the person after suicide attempt, and talking to others after suicide attempt (1 = *not confident* to 5 = *very confident*).
3. Reported adequacy of healthcare and support received: Carers' perception of the adequacy of healthcare the supported person received (1 = *poor* to 5 = *excellent*). We also assessed the perceived adequacy of support received by the carer (1 = *not at all supported* to 5 = *very supported*).

Psychological Variables

Stigma of Suicide Scale

The 16-item Stigma of Suicide Scale (SOSS; Batterham et al., 2013) assesses stigmatizing attitudes of community members toward suicide. It comprises three subscales (Stigma: eight items; Isolation/Depression: four items; Glorification/Normalization: four items) assessed on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). Items are averaged, with higher scores indicating higher levels of stigma toward people who die by suicide.

Table 1. Pearson's *r*, *M*, *SD*, and Cronbach's α values of key study variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Closeness ^a	—	.51***	.51***	.37***	.02	-.07	-.20***	.01	-.18***	-.06	-.05	.07	-.02	.10*	.36***
2. Impact ^a		—	.40***	.33***	-.06	-.14**	-.24***	-.13*	-.31***	-.04	.05	.02	.08	.33***	.50***
3. Frequency of contact 6 months prior to attempt ^a			—	.48***	.02	-.12*	-.14*	-.03	-.18*	-.03	<.01	-.02	-.08	.06	.37***
4. Frequency of contact immediately following attempt ^a				—	.04	-.12*	-.01	-.01	-.09	-.02	.04	.01	-.03	.04	.29***
5. Confidence talking to the person about suicide attempt ^a					—	.53***	.34***	.11*	.21***	-.09	-.03	.09	-.07	-.14***	-.21***
6. Confidence supporting the person after suicide attempt ^a						—	.37***	.15**	.39***	-.03	-.06	.07	-.05	-.16**	-.36***
7. Confidence talking to others about the person's suicide attempt ^a							—	.08	.32***	<.01	-.10*	.06	-.08	-.16**	-.24***
8. Adequacy of healthcare the person received ^a								—	.34***	.06	-.02	-.06	-.15**	-.18***	-.26***
9. Adequacy of support carer received ^a									—	.01	-.04	-.01	-.11*	-.28***	-.48***
10. SOSS stigma ^b										—	-.08	-.15*	-.05	-.01	.04
11. SOSS isolation ^b											—	.07	.15***	.22***	.14**
12. SOSS glorification ^b												—	.08	.04	-.04
13. Suicidal ideation													—	.53***	.10*
14. Psychological distress														—	.44***
15. Caregiver burden															—
<i>M</i> (<i>SD</i>)	4.36 (1.04)	4.03 (1.04)	5.14 (1.27)	5.56 (.97)	3.69 (1.30)	3.57 (1.27)	3.06 (1.36)	2.85 (1.38)	2.34 (1.23)	1.30 (.59)	4.15 (.80)	2.62 (.95)	7.01 (10.42)	23.32 (9.23)	47.21 (17.32)
Cronbach's α	—	—	—	—	—	—	—	—	—	.93	.88	.88	.88	.94	.92

^aNote. 1-item measure, therefore no Cronbach's α was computed. ^bStigma of Suicide Scale (SOSS) = stigmatizing suicide attitudes related to stigma, isolation, and glorification, psychological distress, and caregiver burden – all measured on a 5-point Likert scale. Frequency of contact: 6 months prior to attempt and immediately following attempt, and reported adequacy of healthcare and support received measured on a 6-point Likert scale. Suicidal ideation measured on an 11-point Likert scale. * $p < .05$. ** $p < .01$. *** $p \leq .001$.

Suicidal Ideation Attributes Scale

The five-item Suicidal Ideation Attributes Scale (Van Spijker et al., 2014) measures severity of suicidal thoughts. Items assess specific attributes of suicidal thoughts (e.g., frequency, controllability, level of distress associated with the thoughts) on a 11-point Likert scale (0 = *never/not close at all/not at all* to 10 = *always/full control/made an attempt/extremely*). Items are summed, with higher scores indicating more severe suicidal thoughts.

Kessler-10

The Kessler-10 (K10; Kessler et al., 2002) assesses psychological distress by asking participants to identify how often they experienced the problem (i.e., tiredness, nervousness, and hopelessness) in the last 30 days. Items,

assessed on 5-point Likert scale (1 = *none of the time* to 5 = *all of the time*), are summed with higher scores indicating greater levels of distress. Scores on the K10 range from 10 to 50. The ABS (2012) categories provide a population level comparison group: 10–15 = *low levels of distress*; 16–21 = *moderate levels of distress*; 22–29 = *high levels of distress*; and 30–50 = *very high levels of distress*.

Caregiver Burden Scale

The 22-item Zarit Burden Interview (Zarit et al., 1980) assesses the experience of burden for those who are providing care to another. The first 21 items assess frequency on a 5-point Likert scale (0 = *never* to 4 = *nearly always*); whereas the final item assesses intensity on a 5-point Likert scale (0 = *not at all* to 4 = *extremely*). Items are

summed, with higher scores indicating more burden. Scores range from 0 to 88; however, one item (from the set of the first 21 items) was inadvertently left out in the current study resulting in the total 21 items, thus the summed scores in our study ranged from 0 to 84.

Data Analysis

Bivariate correlations (Pearson's r) were used to examine intercorrelations among key study variables. Hierarchical multiple regression analysis was conducted to investigate whether suicide exposure, caring behaviors, and psychological variables as a set of predictors (significant at bivariate level) would be significantly associated with caregiver burden. For supplementary analyses, we conducted: (a) moderation analysis using Hayes' PROCESS (v3.5; 2017) macro testing the moderated effect of psychological distress on the relationship between suicidal ideation and caregiver burden; and (b) independent-samples t tests to investigate differences between carers who reported to be "supported" versus "not well supported" on key psychological factors.

Results

Descriptive Statistics

Table 1 provides intercorrelations and descriptive statistics for the key study variables (see Table E2 in ESM 1 for interpretation of the sample mean scores).

As expected, participants reported high levels of relational closeness with the supported person, impact of the suicide attempt, frequency of contact, stigma related to isolation, suicidal ideation, and psychological distress were associated with high caregiver burden. Respondents who reported confidence discussing the suicide attempt, providing support, talking to others after suicide attempt, adequacy of healthcare the supported person received, and support they received experienced less caregiver burden.

We computed correlations of three characteristics (gender: male/female; location: metro/non-metro; and time since last attempt), two of which (gender and location) have been shown to be related with caregiver burden (Ehrlich et al., 2015). We found being female, $r(426) = .24$, $p < .001$ and time since last attempt, $r(433) = -.11$, $p = .026$, were significantly correlated with caregiver burden, and were used as covariates in the multivariate model. Geographic location was not significantly associated with caregiver burden, $r(433) = -.01$, $p = .892$.

Hierarchical Multiple Regression Analysis

All relevant test assumptions were checked. The results, summarized in Table 2, revealed that the overall model was significant, $F(14, 413) = 31.50$, $p < .001$, that is, as a set all predictors (including covariates) explained 52% of variance (R^2) in caregiver burden. Covariates – Step 1: $\Delta F(2, 425) = 16.42$, $p < .001$, $R = .27$, $\Delta R^2 = .07$; suicide exposure-related closeness and impact – Step 2: $\Delta F(2, 423) = 66.38$, $p < .001$, $R = .54$, $\Delta R^2 = .22$; caring behaviors (*frequency of contact*: 6 months prior to attempt and immediately following attempt; *confidence* in discussing suicide attempt with the person, confidence in providing support to that person, and talking to others about suicide attempt; and *reported adequacy of healthcare* the person received and *adequacy of support* the carer received) – Step 3: $\Delta F(7, 416) = 17.21$, $p < .001$, $R = .67$, $\Delta R^2 = .16$; and psychological variables (SOSS isolation, suicidal ideation, and psychological distress) – Step 4: $\Delta F(3, 413) = 18.29$, $p < .001$, $R = .72$, $\Delta R^2 = .06$ – explained significant amounts of variance in caregiver burden, respectively. Specifically, being female ($\beta = .11$, $p < .05$, $sr^2 = 1\%$), reported closeness with the supported person ($\beta = .11$, $p < .05$, $sr^2 = 1\%$), high impact of the suicide attempt ($\beta = .17$, $p < .001$, $sr^2 = 2\%$), high frequency of contact 6 months prior to attempt ($\beta = .12$, $p < .01$, 1%), and high psychological distress ($\beta = .32$, $p < .001$, $sr^2 = 5\%$) contributed significantly to high caregiver burden. On the other hand, carers who reported having confidence in supporting the person ($\beta = -.14$, $p < .01$, $sr^2 = 1\%$), adequate level of healthcare the person received ($\beta = -.09$, $p < .05$, $sr^2 = 1\%$), adequate support the carer received ($\beta = -.20$, $p < .001$, $sr^2 = 3\%$), and high suicidal ideation ($\beta = -.11$, $p < .05$, $sr^2 = 1\%$) experienced significantly less caregiver burden.

After controlling for other predictors in the model, time since last attempt, frequency of contact immediately following attempt, confidence talking to the person about their suicide attempt, confidence talking to others about the person's suicide attempt, and SOSS isolation did not explain significant unique variance in caregiver burden (all values $p > .05$).

Contrary to the finding of a significant positive bivariate correlation between suicidal ideation and caregiver burden, this relationship became negative in the multivariate model ($\beta = -.11$, $t = -2.60$, $SE = 0.07$, $p < .01$), after controlling for other predictors. To further understand this, we conducted a moderation analysis to examine whether psychological distress moderated the relationship between suicidal ideation and caregiver burden. Results, using 5,000 bootstrapped samples and estimates, suggested an overall significant model, $F(3, 431) = 42.08$, $p < .001$, $R = .48$, $R^2 = .23$. The main effect of suicidal ideation on caregiver burden was not significant, $\beta = .26$, $t = 1.02$, $SE = 0.26$,

Table 2. Summary of hierarchical multiple regression analysis: suicide exposure, caring behaviors, and psychological variables as predictors of caregiver burden in a sample of carers

Predictors	<i>R</i>	<i>Adj R</i> ²	<i>B</i>	95% CI for <i>B</i>		β	<i>sr</i> ²
				LL	UL		
Full model	.72***	.50					
Covariates ^a							
Gender			6.53	2.33	10.73	.11*	.01
Time since last attempt			−0.12	−.90	.65	−.01	<.01
Exposure to suicide							
Closeness			1.75	.30	3.20	.11*	.01
Impact			2.84	1.39	4.28	.17***	.02
Caring behaviors							
Frequency of contact (6 mo prior to attempt)			1.69	.52	2.86	.12**	.01
Frequency of contact (immediately following attempt)			1.16	−.26	2.59	.07	<.01
Confidence talking to the person about suicide attempt			−0.76	−1.87	.34	−.06	<.01
Confidence supporting the person after suicide attempt			−1.88	−3.00	−.64	−.14**	.01
Confidence talking to others about the person's suicide attempt			0.45	−.54	1.43	.04	<.01
Adequacy of healthcare the person received after attempt			−1.10	−2.01	−.20	−.09*	.01
Adequacy of support the carer received			−2.76	−3.90	−1.61	−.20***	.03
Psychological variables							
Attitudes towards suicide: Isolation			1.24	−.28	2.75	.06	<.01
Suicidal ideation			−0.18	−.32	−.04	−.11*	.01
Psychological distress			0.59	.42	.76	.32***	.05

Note. *R* = multiple correlation between the observed and predicted values of the DV, *Adj R*² = adjusted amount of variation in the outcome variable that is accounted for by the model, *B* = unstandardized beta coefficients, CI = confidence intervals, LL = lower limit, UL = upper limit, β = standardized beta coefficients, and *sr*² = squared semipartial correlation (amount of unique variance in the dependent variable explained by a predictor after controlling for the other predictors in the model). Results reported in the table correspond to Step 4 in the model. ^aPersonal characteristics: Gender: 1 = male; 2 = female; Time since last attempt: 1 = less than 1 month; 2 = 1–6 months; 3 = 7–12 months; 4 = 1–2 years; 5 = 3–5 years; 6 = 6–10 years. **p* < .05. ***p* < .01. ****p* < .001. *N* = 428 for this analysis (seven cases reporting their gender as “other” were excluded). Bold values indicate statistical significant effects.

p = .308, 95% CI [−.24_{LB}, .77_{UB}]. However, we found the main effect of psychological distress (β = 1.12, *t* = 10.47, *SE* = 0.11, *p* < .001, 95% CI [.91_{LB}, 1.33_{UB}]), and the interaction effect (suicidal ideation × distress: β = −.02, *t* = −2.28, *SE* = 0.01, *p* = .023; 95% CI [−.03_{LB}, −.002_{UB}]; see Figure 1) significant. Simple slope analyses showed that low levels of distress (1 *SD* below the mean; β = .02, *t* = .10, *SE* = 0.16, *p* = .923, 95% CI [−.30_{LB}, .33_{UB}]) and average (at the mean) levels of distress (β = −.15, *t* = −1.40, *SE* = 0.11, *p* = .162, 95% CI [−.35_{LB}, .06_{UB}]) did not significantly moderate the relationship between suicidal ideation and caregiver burden. However, high levels (1 *SD* above the mean) of distress showed a significant moderated effect (β = −.31, *t* = −3.72, *SE* = 0.08, *p* < .001, 95% CI [−.47_{LB}, −.15_{UB}]). That is, at high levels of distress, as suicidal ideation scores increased, participants reported less caregiver burden.

We speculated this reduction in caregiver burden among distressed carers with suicidal ideation may be a result of their contact with support services. That is, high distress with high suicidal ideation might prompt carers to seek

support for themselves having been involved in support for the person and thus more aware of support available to them, thus reducing perceptions of caregiver burden. To understand this, we examined participants' distress and suicidal ideation as a function of receiving adequate support as a carer. We categorized participants into two groups: (1) those who reported being “not well supported” (54.5%) based on their responses as 1 = *not at all adequately supported* or 2 = *supported a little* on a 1-item scale assessing feeling supported to care for the person; and (2) those who reported being “supported” (18.9%) based on their responses as 4 = *adequately supported* or 5 = *very adequately supported*. We did not include participants who responded 3 = *neutral* in this analysis. Note: the definition of “support” was open to participant interpretation. Independent-samples *t* test results showed that participants in the “not well supported” group reported higher scores on suicidal ideation, psychological distress, and caregiver burden compared to the participants in the “supported” group (see Table E3 in ESM 1). That is, carers reported significant reductions in psychological distress and suicidal ideation,

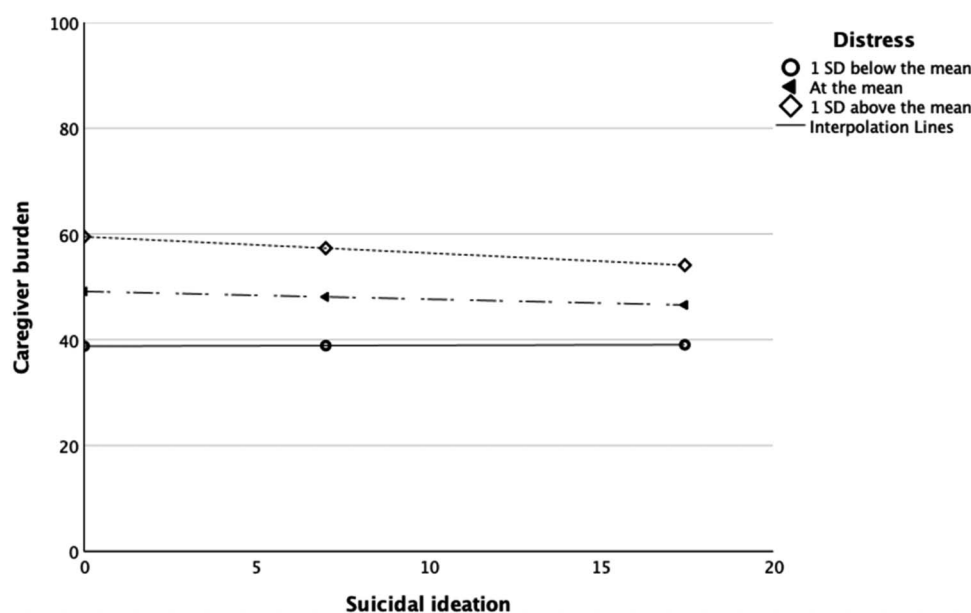


Figure 1. Psychological distress as a moderator of the relationship between suicidal ideation and caregiver burden.

in addition to caregiver burden, after having received adequate “support” compared with those who reported being not well supported.

Discussion

Carers of people who have made a suicide attempt are a highly distressed group and are at heightened risk of suicide themselves (O’Dwyer et al., 2013). However, little is known about the additive effects of suicide exposure, caring behaviors, and psychological variables on caregiver burden. Understanding the risk and protective factors would help inform strategies on how to best support carers of individuals who have attempted suicide in the development of future interventions and support services for carers.

This study identified that being female, feeling close to the supported person, high impact of suicide attempt, high frequency of contact pre-attempt, and high psychological distress were significant positive contributors to the caregiver burden. These findings are consistent with previous research on carers of people with mental illness (Hielscher et al., 2019) that the impact of caregiving, feeling close to the person, and a perceived inability to avert the attempt given a high frequency of contact with the person led to the experience of high caregiver burden. Combining findings with previous literature highlights that females are more likely to take on caring roles compared with males (Diminic et al., 2019), where a doubling or more of working hours impacts on the mental health of

female carers (Treichel et al., 2020). This may be in conjunction with less choice about the role, making the caregiver experience more impactful (O’Connor & Forgan, 2007). Specifically in relation to caring for a person after a suicide attempt, our findings indicated that a carer’s confidence in providing support, adequate healthcare the supported person received, and adequate support the carer received resulted in experiencing less caregiver burden. Contrary to our prediction, holding stigmatizing views of suicide and confidence talking to the person and others about the attempt were not significantly related to caregiver burden. This adds nuance to prior reports that carers may feel unable to disclose the suicide attempt due to fear of stigma and shame (McLaughlin et al., 2016; Spillane, 2019).

A counterintuitive finding related to those participants with heightened suicidal ideation who also reported less caregiver burden in the multivariate model. Moderation analysis found this negative relationship between suicidal ideation and caregiver burden was only evident for those carers who reported high psychological distress. We speculate that this may be a result of existing knowledge of, and access to, support services due to their caregiving role which, in turn, is associated with less caregiver burden. That is, high psychological distress prompts carers to seek their own support. Our post hoc analysis suggested that through receiving support, carers also reported significant reductions in suicidal ideation and psychological distress in addition to lower caregiver burden than that of those who reported feeling unsupported. Our findings therefore have implications for the development of specific – and adequate – supportive interventions for

carers with or without a bereavement response to reduce their suicide risk (Bhullar et al., 2021; Maple et al., 2017; Pitman et al., 2014). To our knowledge, this is the first study to examine the combined contributions of suicide exposure, caring behaviors, and psychological variables in caregiver burden. Further research is needed with more sensitive tools that can examine what functions of support adequacy, timeliness, and activities are important to meet the needs of the carers. Further research could also investigate the longitudinal trajectories of risk and protective factors implicated in caregiver burden.

Limitations

This study used a cross-sectional, online survey of self-identified carers and is not representative of the carer population. The data were collected at one point in time, thus limiting our ability to determine the longitudinal outcomes for carers as well as understanding of the differential effects of “seeking support” and “receiving adequate support” on distress and suicidal ideation. Future research could employ a longitudinal design to tease apart the temporality of how seeking support and receiving adequate support for people caring for those with complex challenges affects caregiver burden over time. Our sample is skewed, with by far the majority of our sample being female. However, a relatively large sample size enabled us to detect a large effect size for our main findings.

Conclusion

Those providing informal care to a person who has attempted suicide play an important role in suicide prevention. Yet, this activity can result in suicide risk and other adverse outcomes for the carer. Taking care of the carers most at risk of suicide and self-harm is a cost-effective and meaningful way to reduce distress in this highly distressed group. Providing targeted support to carers when they are already in contact with services, via their caregiving role, is a modifiable factor to enhance the psychological wellbeing of the carers of suicide attempt survivors.

Electronic Supplementary Material

The electronic supplementary material is available with the online version of the article at <https://doi.org/10.1027/0227-5910/a000836>

ESM 1. Details of participant characteristics and interpretation of sample mean scores on key variables

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ORCID

Myfanwy Maple

 <https://orcid.org/0000-0001-9398-4886>

Sarah Wayland

 <https://orcid.org/0000-0001-7040-6397>

Rebecca L. Sanford

 <https://orcid.org/0000-0002-5417-7966>

Navjot Bhullar

 <https://orcid.org/0000-0002-1616-6094>

Myfanwy Maple

School of Health

Faculty of Medicine and Health

University of New England

Armidale 2351 NSW

Australia

mmaple2@une.edu.au

Myfanwy Maple, BSW, PhD, is a professor of social work in the School of Health at the University of New England, NSW, Australia. Her research focuses on suicide exposure and bereavement, suicide attempt survivors and trauma using qualitative and mixed methods, and program evaluation.


Sarah Wayland, BSW, PhD, is a senior lecturer of social work in the School of Health at the University of New England, NSW, Australia. Her research focuses on missing persons, suicide attempt survivors and their carers, with a priority on better supporting the trauma workforce. She is skilled in qualitative research methods.

Rebecca L. Sanford, PhD, RCSW, is an associate teaching professor in the School of Social Work and Human Service at Thompson Rivers University in British Columbia, Canada. Her research focuses on suicide exposure and bereavement, disenfranchised grief and ambiguous loss, and program evaluation.

Navjot Bhullar, PhD, is an associate professor of psychology at the University of New England, NSW, Australia. Her research focuses on psychological and environmental influences on mental health and wellbeing, risk communication using quantitative research methods.

Family Treatments for Individuals at Risk for Suicide

A PRISMA Scoping Review

Sarah R. Sullivan^{1,2} , Angela Page Spears^{1,3}, Emily L. Mitchell¹, Samantha Walsh⁴, Chase Love¹, and Marianne Goodman^{1,2}

¹Mental Illness Research, Education and Clinical Center, James J. Peters Veterans Affairs Medical Center, Bronx, NY, USA

²Department of Psychiatry, Icahn School of Medicine at Mount Sinai, New York, NY, USA

³Department of Counseling and Clinical Psychology, Columbia University, New York, NY, USA

⁴Levy Library, Icahn School of Medicine at Mount Sinai, New York, NY, USA

Abstract. *Background:* This PRISMA scoping review explored worldwide research on family-based treatments for suicide prevention. Research on this topic highlights the importance of facilitating familial understanding of a suicidal individual. *Aim:* The review sought evidence of outcomes of trials in which both the patient and family member in the intervention arm attended the same sessions at which suicide was openly discussed. *Method:* To explore this topic, the authors searched for randomized and nonrandomized controlled trials using Medline (Ovid), PsycINFO (Ovid), Social Services Abstracts (EBSCO), and Web of Science on July 8, 2020. *Results:* Ten different studies were included that spanned five treatment modalities. Specifically, of the interventions in these 10 articles, 40% employed some sort of cognitive-behavioral therapy, 20% examined attachment-based family therapy, 20% used family-based crisis intervention, and the remaining 20% were distinct interventions from one another. Additionally, several of these articles demonstrated rigorous study methodology and many of the articles reported significant improvements in suicidal ideation or behaviors. *Conclusion:* Several important research gaps were identified. While this approach has been largely understudied, and to date has been primarily researched in adolescent populations, family interventions have great potential for treatment and prevention of suicidality.

Keywords: family treatment, family-based crisis intervention, suicide prevention

Despite the enrichment of suicide prevention services in the United States, suicide deaths continue to rise (Curtin & Heron, 2019). A large circle of family and friends are affected by each of these individual suicides. A recent study by Cerel et al. (2019) found that 135 people are exposed when one individual dies by suicide. While these statistics are tragic, they also suggest a large potential network of people to support their loved ones at risk for suicide.

Prominent theories of suicide, such as the interpersonal theory of suicide (Van Orden et al., 2010), highlight the role of social factors in suicidal thoughts and behaviors. Research suggests that an individual's suicide risk is inversely related to the number of family or friends that they have (Van Orden et al., 2010). While family and friends are often protective factors, individuals at risk for suicide may experience familial relationships as a significant stressor (e.g., interpersonal conflicts, childhood trauma, childhood abuse and neglect, relationship breakdown, bereavement, and domestic violence), suggesting they may not always be the most effective counterparts in treatment (Andriessen & Krysinaka, 2016).

The impact of family systems on the field of suicide prevention remains largely unstudied in the literature to date (Frey et al., 2016). Despite the lack of research in this area, a few articles have reported various links that signify an important relationship between suicide and the family. For instance, it has repeatedly been found that family conflict is strongly tied to suicidal risk in family members (Bastia & Kar, 2009; Brent et al., 1999; Duberstein et al., 2004; Hawton et al., 1996). One article by Brent et al. (1988) showed that family conflict often preceded fatal and nonfatal suicide attempts in their study.

Other aspects of the family environment can serve as risk factors for negative psychiatric treatment outcomes. For example, expressed emotion in terms of parental criticism and emotional over-involvement within the family have been linked to worsening psychiatric symptoms (Hooley, 2007; Hooley et al., 1986). Furthermore, King et al. (1997) examined optimal strategies for treating suicidal adolescents and found that parental psychiatric symptoms were associated with poor treatment adherence among suicidal adolescents. These results highlight the

need to also treat patients at risk for suicide within their family system.

Articles have also been published about families protecting against suicide through cohesion, connection, and positive emotional support (Chioqueta & Stiles, 2007; Wagner et al., 2003). By harnessing family members as protective factors, researchers have begun to evaluate these individual interventions and treatment modalities (e.g., behavioral therapies, attachment-based therapies, and more). In a review by Spirito (1997) of the different clinical interventions that integrate suicide prevention and family systems, the author concluded that the family is a promising target for intervention. In particular, since family is associated with the onset and recurrence of adolescent depression and suicide, engaging them could lead to more change in the suicidal individual. Another promising intervention presented in an article by Gokhshtein et al. (2005) suggests the efficacy of a supportive short-term family therapy. In this intervention the researchers propose that a supportive family environment can help an individual in crisis achieve therapeutic outcomes without extensive hospitalization. This family intervention improved the quality of interactions among family members and increased support within the family. Together with the previous research on suicide interventions involving family, this study highlights a need to explore family-based interventions for this population.

Despite the importance of family inclusion in suicide prevention (Van Orden et al., 2010), there is a paucity of research that incorporates family members in suicide-specific treatments. To address this need there has been a call for more family suicide projects that involve the family in both suicide prevention and intervention (Andriessen & Krynska, 2016). Additionally, the research suggests a range of ways in which family interventions can augment individual care. However, incorporating loved ones into suicide treatment is complex. First, there may be conflict between the suicidal individual and the family member during treatment (Rotheram-Borus et al., 1994). Also, family conflict may be related to suicide risk if these tensions influence the individuals' suicidal thoughts or behaviors (Hooley, 2007). Thus, this scoping review aims to address the gap in the literature and provide a summary of the existing family interventions, as well as the larger treatment modalities that they fall into, for those at risk for suicide. In doing so the authors aim to highlight next steps, and future directions, for the role of family interventions in suicide prevention.

Method

The methodology for this scoping review adheres to the Arksey and O'Malley's (2005) five-stage framework,

which provides a rigorous structure that enables researchers to replicate a given search strategy leading to valid results. The five stages of Arksey and O'Malley's framework entail: (1) identifying the initial research question/s; (2) identifying pertinent studies (e.g., by identifying articles); (3) study selection; (4) charting the data; and (5) systematizing, summarizing, and reporting the results.

Identifying the Initial Research Questions

The focus of our review was the exploration of using social support, specifically family, in the treatment of a suicidal individual. In order to ensure that a wide range of literature was captured relating to the topic of interest, the authors posed the following initial research questions to guide the search:

1. What exists regarding intervention research for family treatments for individuals at risk for suicide?
2. What is known regarding the outcomes of the previously implemented family interventions?

Identifying Relevant Studies

To ensure that all literature is identified, Arksey and O'Malley (2005) suggest casting a wide net using many definitions of keywords in the search. A university librarian, and subject specialist in the field of teaching and learning, was consulted (S.W.). The authors searched Medline (Ovid), PsycINFO (Ovid), Social Services Abstracts (EBSCO), and Web of Science on July 8, 2020. No date restrictions were used in the search. The full search query is available in Appendix A. Current knowledge of the field, along with preliminary searching, was used to develop relevant and comprehensive search terms for each database searched. No initial limits were placed on language or on country of origin.

Search results were uploaded to Covidence, which deduplicated the results and facilitated the screening process. A total of 2,263 individual articles were screened. The titles and abstracts of all results were independently screened by two reviewers (E.L.M. & C.L.) based on predetermined inclusion and exclusion criteria, followed by full-text review of the remaining articles by the same two reviewers to ensure these met all criteria. Conflicts were resolved by a third reviewer (S.R.S.).

Study Selection

For the initial screening of abstracts, the inclusion criteria were as follows: (1) articles are in English; (2) discussed an

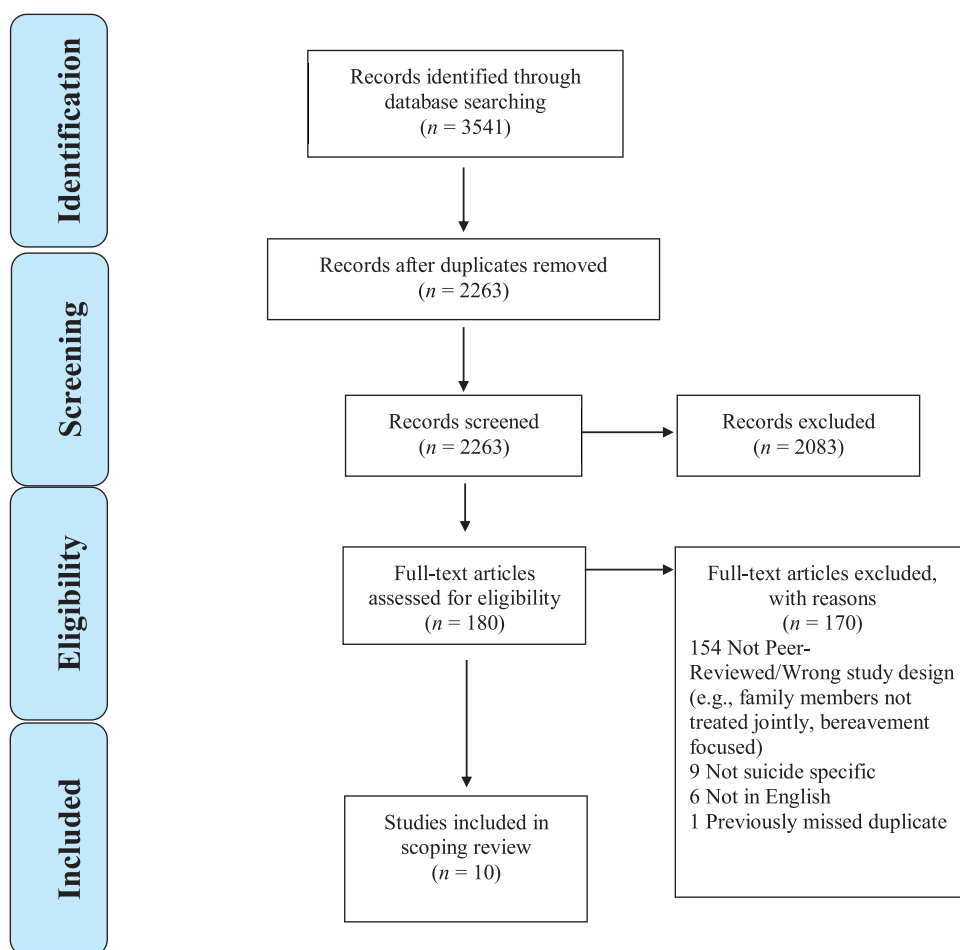


Figure 1. Articles included and excluded in the scoping review of family treatments for individuals at risk for suicide

intervention for those at risk for suicide; (3) involved family member in the treatment. During the full article screening, the independent reviewers ensured that studies met the following criteria: (1) both family member and suicidal individual attended the same sessions of the intervention (e.g., articles that presented interventions that treated both the family member and the individual at risk for suicide in separate contexts were excluded for the purpose of this review); (2) the treatment involved an open discussion of suicidality; (3) the study method was that of randomized and nonrandomized controlled trials; (4) the article reported a primary analysis (e.g., secondary analyses were excluded). See Figure 1 for a flowchart of study identification and reasons for exclusion.

Data Extraction

Prior to extraction, the study team held a consensus meeting in which there was an agreement reached regarding which variables were extracted. The data

extracted included sample descriptives, methodology, suicide-related assessments, and results. Next, two extractors reviewed all the articles and formed the tables (E.L.M., S.R.S.). An additional team member double-checked the extracted data and helped with the revisions of the tables (A.P.S.).

Results

Ten articles, published between 1998 and 2019, met the review inclusion criteria (Table 1); most were published after 2010 (90%). Each of these 10 articles described a distinct intervention study spanning one of five different treatment modalities. A description of the participants, methods, and main findings can be found in Table B1 in the Appendix. The 10 studies presented in these 10 articles included robust samples with an average sample size of 92.3 participants (range 24–147 participants). Across studies, the majority of participants identified as female

Table 1 Family-based studies for individuals at risk for suicide: sample details

Study	N	Participants			Family member type
		% Female	Age, M	Inclusion criteria	
Anastasia et al. (2015)	43	67.4	35.5	Suicidal patient candidates for hospitalization, ages 12–63	One or more family members or supportive others identified by patient
Asarnow et al. (2017)	42	88.1	14.62	Adolescents, ages 11–18	At least one parent
Diamond et al. (2010)	66	83	15	Adolescents, ages 12–17	At least one parent or guardian
Diamond et al. (2019)	129	81.9	18.87	Adolescents, ages 12–18	At least one primary caregiver
Esposito-Smythers et al. (2019)	147	76.2	14.91	Adolescents, ages 12–18	Parents or guardians
Harrington et al. (1998)	162	89.5	14.5	Youth and adolescents, ages 10–16	At least one parent or legal guardian
Spirito et al. (2015)	24	83.3	14.46	Adolescents, ages 11–17	One parent with current or past MDE
Weinstein et al. (2018)	71	41	9.17	Youth, ages 7–13	At least one parent
Wharff et al. (2019)	139	72	15.5	Adolescents, ages 13–18	At least one parent or legal guardian
Wharff et al. (2012)	100	76	15.6	Adolescents in an ER for suicidality, ages 13–18	At least one unspecified family member accompanying adolescent in ER

Note. ER = emergency room; MDE = major depressive episode.

and all consisted of child and adolescent samples except in the study reported by Anastasia et al. (2015). Ages in this study sample for the identified participant (e.g., not family member) ranged from 12 to 63 years old and about one quarter (23.26%) of those participants were 18 years of age or younger (Anastasia et al., 2015). Due to most of the interventions being identified across the 10 articles treating youth populations, the majority of studies included parents or legal guardians as the family members in treatment (90%).

Interventions

Of the 10 articles that met inclusion criteria, each implemented an intervention that spanned one of five different treatment modalities. These treatment modalities are discussed in the next section. While all of these interventions were suicide specific, and included a family member attending sessions with the patient, many of the interventions also aimed to improve parent–child relationships by increasing communication and support (Diamond et al., 2019; Esposito-Smythers et al., 2019; Spirito et al., 2015; Weinstein et al., 2018). See Table 1 for sample details, inclusion criteria, and family member type included in treatment.

The duration of these interventions also ranged widely from a single session to sessions that continued for over 1 year. Specifically, 20% of the included articles (Wharff et al., 2012; 2019) tested single-session interventions. Overall, 50% of the articles examined brief interventions, ranging from one to five sessions (Harrington et al., 1998), three interventions were 12 weeks (Diamond et al., 2010;

Spirito et al., 2015; Weinstein et al., 2018), and another intervention was 16 weeks (Diamond et al., 2019). A total of 12% of the included articles had a variable number of sessions in the interventions with one ranging from 3 to 15 sessions (Asarnow et al., 2017) and another meeting three times a week for a maximum of 15 weeks (Anastasia et al., 2015).

Family Treatment Modalities

The majority of articles (40%) examined a treatment modality guided by the principles of cognitive-behavioral therapy (CBT) that included families (Asarnow et al., 2017; Esposito-Smythers et al., 2019; Spirito et al., 2015; Weinstein et al., 2018). Two articles in this review studied interventions under the treatment modality of attachment-based family therapy (ABFT; 20%; Diamond et al., 2010, 2019) and two more (20%) examined interventions that are part of the family-based crisis intervention (FBCI) treatment modality (Wharff et al., 2012, 2019). Additionally, one of the articles studied an intervention that falls under the home-based family intervention treatment modality (Harrington et al., 1998). These four treatments (e.g., 90% of studies that met inclusion criteria) included parents or legal guardians as the family member involved in care. The last treatment modality identified in this review was family-centered brief intensive treatment (Anastasia et al., 2015), which included a family member or supportive other of the patient's choice. See Table B1 in the Appendix for a more detailed description of these interventions and their outcome details.

Control Conditions

Control Conditions With Family

The control conditions in five of the articles included at least some involvement of a family member (Asarnow et al., 2017; Diamond et al., 2019; Esposito-Smythers et al., 2019; Spirito et al., 2015; Weinstein et al., 2018). Diamond et al. (2019) used a family-enhanced nondirective supportive therapy in their control condition seeking to develop the adolescent-therapist relationship with five sessions. This included one parent-adolescent session for safety planning and four parent education sessions to control for parent involvement in the intervention (Diamond et al., 2019). Spirito et al. (2015) used adolescent-only CBT (AO-CBT) as a comparison condition to their parent-adolescent CBT. AO-CBT consisted of primarily individual adolescent sessions in which adolescents developed safety plans and were taught skills (e.g., problem-solving and mood regulation) to target suicidality. Parental involvement for this control condition only included check-ins to discuss adolescent progress (Spirito et al., 2015).

The definition of treatment as usual (TAU) varied between study protocols, but one included routine child- and family-based therapy enhanced by therapists receiving a 1-hour training on pediatric bipolar disorder prevalence, symptoms, course, and impairment (Weinstein et al., 2018). Two studies used an enhanced TAU (E-TAU). One study included parent psychoeducation, followed by phone calls to motivate follow-up treatment until youths had a regular treatment attendance (Asarnow et al., 2017). The other E-TAU included treatment referral enhanced by parent outreach services (Esposito-Smythers et al., 2019).

Control Conditions Without Family

One control condition explained the use of intensive outpatient therapy, a treatment that was administered in a similar fashion to the intervention condition in all aspects except without a family component (Anastasia et al., 2015). The remaining six articles used some sort of usual care as their control condition also without the family member involved (e.g., routine care, Harrington et al., 1998; TAU, Wharff et al., 2012, 2019; enhanced usual care – EUC, Diamond et al., 2010). Routine care involved individual sessions given at the hospital (Harrington et al., 1998). TAU in two studies was also defined as routine psychiatric evaluation and discharge recommendations and routine emergency room care (Wharff et al., 2012, 2019). The protocol that used EUC included referrals and continuous monitoring (Diamond et al., 2010).

Major Findings

Minimal research exists regarding intervention for family members of individuals who attempted suicide or who

experience chronic suicidal ideation. Additionally, there is a striking paucity of research for adult family suicide prevention interventions. Several of these studies demonstrated rigorous methodology, including the use of a robust control condition. Three articles included intensive therapy protocols and nine used some type of usual care. Most of the usual care conditions were also enhanced in some way to match the interventions and 50% of the control conditions included families.

While many of the intervention studies had mixed results, 20% of the articles reported statistically significant improvement in suicidal thoughts or behaviors favoring the intervention. For example, two articles found that the intervention led to a statistically significant improvement of suicidality after follow-up (suicidal ideation, Anastasia et al., 2015; suicide attempts, Asarnow et al., 2017). However, other articles had mixed results. Two studies (Wharff et al., 2012, 2019) found that while FBCI significantly reduced the hospitalization rate, adolescents in this treatment modality did not show significantly lower levels of suicidality after hospitalization compared to TAU. Nevertheless, Wharff et al. (2019) did find that FBCI increased ratings of family empowerment compared to TAU. Lastly, Harrington et al. (1998) only found a decrease in suicidal ideation in those without major depressive disorder, but not the entire sample, and Esposito-Smythers et al. (2019) found no statistically significant difference between family focused-CBT and E-TAU.

Some of the mixed outcomes from these articles between intervention and control groups may have been due to study design. Two articles (Diamond et al., 2019; Spirito et al., 2015) both found a reduction in symptoms in their intervention groups and the control groups. However, both of these articles presented study designs that included intensive therapies as their control conditions, which could explain the equally efficacious results. These results suggest that perhaps other articles included in this PRISMA review may have found significant differences between groups in part due to weaker control conditions. However, Weinstein et al. (2018) used TAU for their control to child and family-focused-CBT and also found there was a significant reduction in suicidal ideation within groups, but not between groups.

Discussion

This review aimed to identify existing family-based treatments for suicide and their treatment outcomes. A systematic scoping review of the literature has shown many of the identified family-based interventions treating suicide are brief and manualized (e.g., Esposito-Smythers

et al., 2019). These existing interventions for family treatment of individuals at risk for suicide fell into a few major treatment modalities, with 40% of the articles employing CBT principles, 20% of the articles examining ABFT, 20% of the articles using FBCI, and the remaining 20% of articles studying distinct interventions from one another. In terms of outcomes, the majority of these existing interventions did result in decreased suicidal thoughts or behaviors. Nevertheless, it is still difficult to make concrete conclusions about the outcomes of previously implemented family interventions for suicide because of the following limitations.

A major limitation of this review came in identifying existing family-based treatments for suicide. Readers should consider that many of the existing family-based treatments were not included in this review because the studies did not meet inclusion criteria. One reason was because these articles examined interventions that only met with the family member (Connell et al., 2019; Pineda & Dadds, 2013). Notably, even though these interventions typically included a family member who was receiving the treatment without the patient at risk for suicide, they still could be effective in decreasing suicidality. However, since those articles did not meet inclusion criteria for this review (e.g., individual at risk for suicide and family member were not treated in joint sessions) fewer intervention studies treating individuals at risk for suicide and their family were identified (Connell et al., 2019; Pineda & Dadds, 2013). For example, for the purpose of this review, articles that were researching interventions such as “Life Is Calling” were also excluded since there was no comparison group (retrospective or time matched, rather an open trial; Ólafsdóttir, 2019). Lastly, the authors found ongoing research that may highlight new family-based treatments for suicide and their efficacy. A select number of protocol-focused articles (without results) and conference abstracts have been published mentioning ongoing control trials for family-based suicide treatments (Spears et al., 2018; Sullivan et al., 2019). These were not included in this review because the complete study results were not yet published, and thus these publications did not meet inclusion criteria for this review. Lastly, one article introduced a protocol family treatment for self-harm, recruiting patients with nonsuicidal self-injury and suicidality but the results were not yet available (Wright-Hughes et al., 2015). Thus, there may be more family-based treatments available than those examined in this scoping review, which only focused on the family and patient being treated concurrently.

A major limitation of these included studies themselves was that the vast majority of existing family-based treatments only included children and adolescents as their treatment targets (e.g., Diamond et al., 2019; Wharff et al.,

2019). Thus, a major gap in literature involves treatment toward adult populations separated from the prototypical environment of a nuclear family. Only one article covered participants across the lifespan (Anastasia et al., 2015). Because more than 90% of the participants were adolescents, with the participating family members typically as parents or guardians, this is a limitation within this area of study. Conference abstracts that resulted from this original search also suggest ongoing studies of family-based suicide treatments among adult populations (Sullivan et al., 2019). In terms of the treatment settings, many of the articles that were reviewed included studies that took place in traditional hospital or community clinic settings with one taking place in the family’s home for convenience (Harrington et al., 1998). This may be problematic because not everyone has access to care in these settings. Lastly, all of the articles included had studies that were conducted in Western nations and in primarily urban areas with 90% of the studies in the United States and 90% in urban areas. In terms of rural regions, only one study was based in a small city within a rural area of the United States’ Mountain West region (Anastasia et al., 2015).

The final limitations of these studies that impacted our examination of treatment outcomes was that many of the identified articles only had a comparison condition of individual treatments and several of the articles presented different outcome measures (e.g., hospitalization, suicide attempts, suicidal ideation; detailed in Table B1 in the Appendix). Thus, positive outcomes, or outcomes showing an intervention was more effective than the control, could not always be directly compared with one another. Overall, despite the fact that this review suggests that family-based treatments result in decreased suicidal thoughts or behaviors, it is difficult to make concrete conclusions about the outcomes because each study used different outcome variables (e.g., suicidal ideation, suicide attempts, hospitalizations, depression). None of the studies utilized the PhenX Measures for Mental Health and Suicide Measures, which are detailed in the PhenX common data elements for suicide and would allow researchers and clinicians to make more nuanced comparisons across these treatment studies (Hamilton et al., 2011). Due to the limited number of articles included in this review, it was not feasible to make further exclusions on the basis of outcome assessments (e.g., examining interventions that sought to reduce hospitalizations and excluding those seeking to reduce suicidal ideation or suicide attempts).

Despite these limitations, family-based treatments for suicide prevention have great potential to both increase understanding among family members, and increase efficacious treatment of patients’ suicidal thoughts and behaviors. To do so, future research should take steps to

address the aforementioned limitations, which would ultimately support more individuals at risk for suicide. First, research should examine more family-based treatments that are geared toward adults, not just children. Second, in the future stronger control conditions will help us to better understand the efficacy of current treatments. Similarly, using common data elements across studies will allow for easier comparisons across treatment trials. Third, increasing this research beyond Western nations, in primarily urban areas, will help increase the generalization of these treatment results. Since individuals in primarily urban areas have the most access to care (e.g., hospitals) it means that these treatments are not available to everyone. Thus, future directions to help combat this would be to develop a family-based treatment that takes place remotely or through mobile applications. The current COVID-19 pandemic has shown the efficacy of many telehealth options for suicide (McManama O'Brien et al., 2017) that can be utilized to reach populations unable to access hospitals easily (e.g., rural settings). Lastly, future allocation of resources for family-based treatment research by funding agencies may encourage innovative treatment approaches to assessment and intervention delivery.

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ORCID

Sarah R. Sullivan

 <https://orcid.org/0000-0003-4754-4972>

Sarah Sullivan

James J. Peters VA Medical Center
Mental Illness Research Education and
Clinical Center
130 West Kingsbridge Road
Bronx, NY 10468
USA
sarah.sullivan@va.gov

Sarah R. Sullivan, MS, is an incoming doctoral student in the health psychology and clinical science program at the CUNY Graduate Center. Additionally, she currently serves as a clinical research coordinator for Dr. Goodman's Suicide Prevention Research Team at the James J. Peters VAMC, NY, USA.

Angela Page Spears is a PhD student at Teachers College, Columbia University. Her research interest is suicide disclosure.

Emily Mitchell received a bachelor's degree in 2019 from Colgate University in Hamilton, NY, USA. Currently, Ms. Mitchell is a clinical research coordinator for Marianne Goodman, MD, on a study examining the efficacy of a suicide prevention intervention involving safety planning for veterans at high risk of suicide.

Samantha Walsh, MLS, MA, earned her master of library science degree from Queens College in 2015, and her MA in literature, language, and theory from Hunter College in 2019. She is a library liaison to the Graduate School of Biomedical Sciences, providing research instruction and assistance with library learning materials.

Chase Love, BA, is a PsyD student at the University of La Verne, CA, USA, and a research assistant on the Suicide Prevention Research Team at the James J. Peters Veterans Affairs Medical Center, NY, USA. His current research focuses on the relationship between marital functioning, depressed affect, and physical activity in middle-aged couples.

Emily Mitchell received a bachelor's degree in 2019 from Colgate University in Hamilton, NY, USA. Currently, Ms. Mitchell is a clinical research coordinator for Marianne Goodman, MD, on a study examining the efficacy of a suicide prevention intervention involving safety planning for veterans at high risk of suicide.

Marianne Goodman, MD, is a psychiatry professor at the Mount Sinai School of Medicine and a psychiatrist at the James J. Peters VAMC, NY, USA. She is associate director of the Mental Illness, Research, Education, Clinical Center. Her expertise is in the management of suicidal veterans and novel treatment development.

Appendix A

Key Search Terms

All databases were searched on the Ovid platform. The search strategies were finalized and run on August 7, 2020 and all results were exported to Covidence.

PubMed Search:

("self killing"[tiab] OR Suicid*[tiab] OR (attempted suicide)[tiab] OR "Suicide"[Mesh] OR "Suicidal Ideation"[Mesh] OR "Suicide, Attempted"[Mesh])

AND

(Family[Title] OR kin[Title] OR children[Title] OR spouse[Title] OR survivor[Title] OR relative[Title] OR dependent[Title] OR parent[Title] OR widow[Title] OR child[Title] OR sibling[Title] OR friend[Title])

AND

(Intervention[tiab] or therapy[tiab] or treatment[tiab] or training[tiab] or education[tiab] or skills[tiab])

Medline:

1. Suicide, Attempted/ or Suicide/

2. Suicidal Ideation/

3. Suicid*.tw,kf.

4. "self killing".tw,kf.

5. ((attempted or attempt or behavior*) adj2 suicid*).tw,kf.

6. 1 or 2 or 3 or 4 or 5

7. (Family or kin or children or spouse or survivor or relative or dependent or parent or widow or child or sibling or friend).ti.

8. (Intervention or therapy or surveillance or treatment or training or education or skills).tw,kf.

9. 6 and 7 and 8

Social Services Abstracts:

noft(suicide OR suicidal) AND ti(Family or kin or children or spouse or survivor or relative or dependent or parent or widow or child or sibling or friend) AND noft(Intervention or therapy or surveillance or treatment or training or education or skills)

Appendix B

Table B1. Family-based studies for individuals at risk for suicide: intervention and outcome details

Study	Method		Mean no. of sessions	Control condition	Primary outcome	Main findings
	Intervention title	Description				
Anastasia et al. (2015)	Family-centered brief intensive treatment (FCBIT)	FCBIT is an intensive outpatient treatment based on systemic family therapy. One joining session with the individual and family member/friend is followed by treatment sessions to assess suicidality, develop a safety plan, and connect to community resources, as well as build connectivity, communication, problem solving, and support.	Variable; 3–15 sessions per week until patients met discharge criteria	Intensive outpatient therapy (IOP) without family	Depression (Beck Depression Inventory II; BDI-II), anxiety (Beck Anxiety Inventory; BAI), hopelessness (Beck Hopelessness Scale; BHS), suicidality (Depression Hopelessness Suicide Screening Form; DHS), and functioning (Daily Living Activities Inventory-20; DLA-20)	Compared to IOP, FCBIT participants had earlier discharge from intensive care, better functioning, and greater reduction in depression, anxiety, suicidality, and hopelessness.
Asarnow et al. (2017)	Safe Alternatives for Teens and Youth (SAFETY)	SAFETY is informed by cognitive, and dialectical, behavioral therapy. It includes a two-therapist approach (one therapist focused on parent and one focus on child). Treatment begins with individualized sessions and moves to joint sessions to practice skills and address concerns.	9.90 sessions (<i>SD</i> = 2.95)	Enhanced treatment as usual (E-TAU)	Youth-reported incident suicide attempts (slight modification of Columbia-Suicide Severity Rating Scale; C-SSRS + the Suicide History Interview + youth self-report).	Compared to E-TAU, SAFETY lowered probability of suicide attempt and emergency room (ER) visit but this finding weakened over time.
Diamond et al. (2010)	Attachment-based family therapy (ABFT)	ABFT involves breaking barriers to adolescent–parental discussions of suicide, building relationships, and improving parenting skills and autonomous adolescent behavior. It starts with individual adolescent and parent sessions and concludes with combined sessions	9.71 sessions (<i>SD</i> = 5.26)	Enhanced usual care (EUC)	Suicidal ideation (Suicidal Ideation Questionnaire-Junior; SIQ-JR + Scale for Suicidal Ideation; SSI) and depressive symptoms (Beck Depression Inventory II; BDI-II).	ABFT reduced suicidal ideation and increased treatment retention in contrast to EUC.
Diamond et al. (2019)	Attachment-based family therapy (ABFT)	See description above.	14.34 sessions (<i>SD</i> = 7.58)	Family-enhanced non-directive supportive therapy (FE-NST)	Suicidal ideation (Suicidal Ideation Questionnaire-Junior; SIQ-JR), depressive symptoms (Beck Depression Inventory II; BDI-II), suicide severity (Columbia-Suicide Severity Rating Scale; C-SSRS), family conflict and cohesion (Self-Report of Family Functioning; SFFF), and psychiatric diagnoses (Diagnostic Interview Schedule for Children-IV; DISC-IV).	ABFT and FE-NST both showed significant decreases in suicidal ideation but this change was not significantly different between study arms.

(Continued on next page)

Table B1. (Continued)

Study	Method		Mean no. of sessions	Control condition	Primary outcome	Main findings
	Intervention title	Description				
Esposito-Smythers et al. (2019)	Family focused-cognitive behavioral therapy (F-CBT)	F-CBT is a manualized CBT approach that includes parent educational sessions to improve parent-child relationships and address children's suicidality, emotion regulation, health, trauma, and anxiety.	26.97 adolescent sessions ($SD = 14.86$) and 19.94 parent/family sessions ($SD = 11.57$)	Enhanced treatment as usual (E-TAU)	Suicide attempt (Columbia-Suicide Severity Rating Scale; C-SSRS)	There were no statistically significant differences between F-CBT and E-TAU.
Harrington et al. (1998)	Routine care + assessment and four home visits focused on family problem-solving	A brief, five-session, home-based family intervention consistent of assessment, program explanation, goal setting, discussion of the attempt, communication, problem-solving, and psychoeducation.	1 conjoint interview session + 4 home sessions	Routine care	Suicidal Ideation Questionnaire, the Hopelessness Scale, and the Family Assessment Device measuring family functioning	Intervention and control did not differ in terms of suicidal ideation, hopelessness, and family functioning at follow-ups. Intervention reduced suicidal ideation only for patients without major depression. Parents in the intervention group were also more satisfied with treatment.
Spirito et al. (2015)	Parent-adolescent CBT protocol (PA-CBT)	PA-CBT includes sessions with the parent and the adolescent individually, and combined family sessions. The combined adolescent and parent sessions focused on promoting positive communication.	11.38 sessions ($SD = 5.98$)	Adolescent-only CBT (AO-CBT) Note: adolescent sessions were the same as those in the treatment condition	Adolescent suicidality (Beck Suicide Scale; BSS + The Kiddie Schedule for Affective Disorders and Schizophrenia; K-SADS + The Structured Clinical Interview for DSM-IV Patient Version; SCID-I/P questions about suicide) and depression (Beck Depression Inventory II; BDI-II + Clinical Depression Severity Rating Scale; CDRS + K-SADS + SCID-I/P)	Adolescent suicidal ideation significantly decreased in both treatment arms. PA-CBT showed stronger improvements in parent and adolescent depressed mood, with the largest and fastest effect on parental mood. However, adolescents favored AO-CBT and parents attended more sessions of PA-CBT than adolescents. Differences between treatment arms were not sustained by 24-week follow-up.
Weinstein et al. (2018)	Child and family-focused cognitive behavioral therapy (CFF-CBT)	CFF-CBT alternates sessions between parent, child, and family covered by the acronym "RAINBOW": (R) Routine, (A) Affect regulation, (I) I can do it!, (N) No negative thoughts/live in the Now, (B) Be a good friend/ Balanced lifestyle, (O) Oh how do we solve this problem?, and (W) Ways to find support.	10.06 sessions ($SD = 4.01$)	Treatment as usual (TAU)	Suicide ideation (Columbia-Suicide Severity Rating Scale; C-SSRS)	Suicidal ideation significantly decreased within both treatment arms but this reduction did not significantly differ between the groups.

(Continued on next page)

Table B1. (Continued)

Study	Method		Mean no. of sessions	Control condition	Primary outcome	Main findings
	Intervention title	Description				
Wharff et al. (2019)	Family-based crisis intervention (FBCI)	FBCI is a single-session ER intervention including a routine psychiatric evaluation and a 60–90-min session. The family and the adolescent meet with the clinician separately and then all together to build a joint crisis narrative, skills, therapeutic readiness, psychoeducation, and safety planning.	1 session	Treatment as usual (TAU)	Presence and severity of adolescent suicidality (Reasons for Living Inventory for Adolescents; RFL-A), family empowerment (Family Empowerment Scale; FES), and post-ER treatment recommendation and disposition (self-report questions)	Compared to TAU, FBCI resulted in significant reductions in inpatient hospitalization rates. FBCI parents reported higher family empowerment and satisfaction throughout follow-ups. However, levels of adolescent suicidality did not significantly differ between arms at post-assessment.
Wharff et al. (2012)	Family-based crisis intervention (FBCI)	See description above.	1 session	Treatment as usual (TAU)	Inpatient psychiatric hospitalization (interview questions)	Compared to routine ER care, FBCI reduced the likelihood of suicidal patients being hospitalized after presenting to the ER. FBCI families mentioned improved communication and functioning at follow-ups.



Resilience to Self-Harm

A Scoping Review of Protective Factors That Aid in Recovery Among Marginalized Young People

Anam Khan¹ and Michael Ungar^{1,2}

¹School of Social Work, Faculty of Health, Dalhousie University, Halifax, NS, Canada

²Resilience Research Centre, Dalhousie University, Halifax, NS, Canada

Abstract. *Background:* Although a wide range of studies discuss prevalence and risk factors associated with self-harm, protective factors that are equally important are rarely explored. Moreover, much of our understanding of young individuals who engage in self-harm come from studies conducted in Western countries with very little emphasis on marginalized groups. *Aim:* This scoping review identifies research on resilience among marginalized youth and youth living in low- and middle-income countries (LMICs) who show evidence of self-harm. *Method:* A scoping review following Arksey and O'Malley's (2005) framework was conducted. This effort included drawing upon peer-reviewed research published between January 2000 and September 2020 to identify protective factors and coping strategies that are employed by individuals 10–29 years old with self-harming tendencies. *Results:* A total of 15 original papers met the inclusion criteria. The majority of the LMIC publications were from China. Social support, positive youth development, and religiosity were the most frequently reported protective factors. *Conclusion:* Despite widespread concern about self-harm, there are few peer-reviewed articles that look at resilience or recovery among youth in LMICs and among marginalized young people. In addition to various internal and external protective factors, this scoping review identifies gaps in our understanding of resilience to self-harm among youth belonging to these groups.

Keywords: resilience, self-harm, protective factors, indigenous youth, ethnic minorities, youth in low- and middle-income countries

Defined as any act that causes psychological or physical harm to the self, self-harm is a global health problem (Skegg, 2005) that seems to be rising, especially among youth. Despite being a major clinical problem, self-harm is often misunderstood. For example, the term is frequently used synonymously with suicide attempts (Shaw, 2002), which may not always be the young person's intention (Osuch et al., 1999). Moreover, different parts of the world use different terms to refer to self-harm such as “non-suicidal self-injury” (NSSI), “deliberate self-harm” (DSH), “self-mutilation,” “self-injury,” and “self-poisoning,” regardless of intent. Such ambiguities in conceptualization of the phenomenon lead to difficulty separating self-harm from culturally nuanced definitions of interrelated topics such as substance abuse, mental illness, and suicide. Nonetheless, harming oneself has been acknowledged as an important self-directed violent behavior with major mental and physical health implications.

Lack of Strength-Based Approaches

Studies have reported that sexual abuse and experiences of abandonment and neglect are significant risk factors for self-harm (Everett & Gallop, 2000). Other traumatic

events that may contribute to self-harm include interpersonal difficulties, parental separation, divorce or death, parental mental disorder, and family history of suicidal behavior (Hawton et al., 2012). Cases of self-harm have also been associated with mental illness such as post-traumatic stress disorder, dissociative identity disorder, mood disorders, adjustment disorder, psychosis, developmental disability, and alcohol or substance abuse and dependence (van der Kolk et al., 1991).

Although studies concerning the detrimental effects of harming oneself on health and well-being are important themes surrounding resilience and coping are seldom explored. Resilience is the ability to display competent behavior in the face of challenging circumstances. In the aftermath of trauma, resilience can result through varied protective factors and processes such as self-enhancement, coping styles, personality traits, and family cohesion (Bloom et al., 2010). Some of the known buffers to self-harm include culturally specific forms of family support (Jantzer et al., 2015), positive social environment, belonging to a social group (Klemmer et al., 2017), and religiosity (Aggarwal et al., 2017). Although scattered studies have explored resilience to self-harm, the relationship between the two may not be so straightforward, especially when cultural and contextual variations

between populations are included in predictive models. For instance, resilience has been shown to be sensitive to cultural and contextual variation, with Ungar and Theron (2019) suggesting that a multisystemic understanding of the concept is more useful when accounting for heterogeneity in coping patterns among populations under stress.

Culture as a Determinant

Culture affects the ways in which people perceive, experience, and respond to stress and might also have an impact on how thoughts and behaviors to harm oneself arise (Bhugra, 2013; Chu et al., 2010) and the protective factors associated with individual resilience. Indeed, in some contexts harming the self is not seen as pathological since behaviors such as body piercing, tattooing, elongation of the neck, and facial scarification are common among certain cultural groups (Clarke & Whittaker, 1998). Osuch et al. (1999) suggest that self-harm only be considered abnormal when it contravenes cultural and subcultural norms.

However, our understanding of self-harm in youth and the factors that play a protective role mostly come from research conducted in high-income countries (HICs) with relatively privileged culturally homogenous populations (Muehlenkamp et al., 2012). These studies hinder our understanding by assuming cultural homogeneity and overlooking unique characteristics of marginalized groups. Thus, the present scoping review is an attempt to identify the evidence surrounding resilience to self-harm among youth from low- and middle-income countries (LMICs), ethnic minorities, and Indigenous youth. Our present knowledge of the issue and deficiencies in the literature concerned with these groups are discussed in the following sections:

1. LMICs: The most comprehensive international survey on self-harm comes from the World Health Organization–World Mental Health (WMH) survey that has been conducted in several countries across the globe (Pirkis et al., 2020). Notably, China was the only LMIC from the Western Pacific Region represented in the WMH survey (Kessler & Ustun, 2008). Moreover, none of the LMICs had any registry for self-harm. One limitation of registration studies, as discussed by Pirkis et al. (2020), is that they only consider episodes of self-harm that result in presentation at a hospital, missing episodes in which people injure themselves but do not seek/receive care or do so at alternative healthcare settings. Considering that the database on incidence of self-injury within LMICs is incomplete, it can be inferred that the data on resilience and coping in this domain would be even more rare.
2. Indigenous youth: It is already known that suicide is a major health concern for adolescents, especially

Indigenous youth in countries like Australia, New Zealand (Australian Bureau of Statistics, 2012; Ministry of Health, 2011), and Canada. However, such knowledge is insufficient as self-injurious behaviors may or may not occur with the intent to die. In a systematic review of NSSI among Australian and New Zealand Indigenous populations, Black and Kisely (2017) were able to gather very limited data, especially for New Zealand. They noted that such paucity could make it difficult to identify any cultural variations in NSSI when compared to the general population. They also recognized that a lack of published literature available on NSSI for Indigenous people in Australia and New Zealand does not imply that NSSI is not occurring among these groups, only that it is not well documented. Similarly, despite being such a common phenomenon, there is a lack of evidence investigating DSH among Canadian Indigenous youth populations (Penner Hutton, 2011). Although DSH research has been conducted in several countries, Penner Hutton (2011) noted that there appears to be little effort in Canada to investigate high-risk youth, which includes a high number who identify as Indigenous. Therefore, less is known about resilience and recovery from self-harm among Indigenous youth.

3. Ethnic minorities: As previously discussed, how self-harm behaviors are viewed is largely influenced by culture. Although scarce, some published papers have discussed the protective role of social support in self-harm behaviors among racial and ethnic minority groups (Cheng et al., 2010; Wingate et al., 2005). Religious and spiritual beliefs are another commonly observed protective factor. One explanation for this is that self-harm is forbidden or taboo in most faith communities (Borrill et al., 2011). However, there are few articles that explore these factors among youth. Also, existing findings largely report mixed results when cultural differences are considered. For example, while certain studies of NSSI report no significant racial/ethnic differences (Brausch & Gutierrez, 2010; Serras et al., 2010), others report higher rates among Whites compared with racialized minorities (Chesin et al., 2013; Kuentzel et al., 2012). Such contradictory findings are a limitation of the existing literature, as culturally diverse and marginalized populations may present with high rates of self-harm due to stressors related to their minority status but not self-report these behaviors at the same rate as their White peers (Young et al., 2014).

Rationale

Although people's experiences of hardship based on their marginalized status and group affiliation can have poor

health consequences (LaFromboise et al., 2006), group affiliation can also provide stabilizing resources from which youth can craft a clear cultural identity, contributing to positive health outcomes (Wakefield & Hudley, 2007). Therefore, though self-harm is clearly prevalent among young people across cultures and countries (Thyssen & Van Camp, 2014), more information is required to understand the aspects of recovery especially among marginalized groups. The present paper reviews research on resilience to self-harm among youth in three marginalized population groups.

The Scoping Review

Scoping reviews represent an increasingly popular approach to reviewing health research evidence (Davis et al., 2009) and summarizing the breadth and depth of a field. A scoping review is generally preferred over a systematic review when the need is to address broader research questions, the literature has not been comprehensively reviewed, or when the topic is complex and heterogeneous in nature (Peters et al., 2015). Moreover, scoping reviews can include studies of diverse designs, irrespective of their quality, especially when there is limited evidence on a subject, as it allows for wider coverage of the topic (Arksey & O'Malley, 2005).

For these reasons, we conducted a scoping review to identify and document the extent and range of published literature on protective factors and coping strategies associated with resilience to self-harm among young people in LMICs, Indigenous youth, and ethnically diverse populations. The review was undertaken following Arksey and O'Malley's (2005) methodological framework which includes: identifying the research question; identifying relevant papers; reviewing selected literature; charting the data; and collating, summarizing, and reporting the results. We drew upon peer-reviewed papers to describe the nature of research surrounding self-harm and resilience with a focus on youth from marginalized populations. This age group was selected because adolescent and young adult populations show the highest rates of engagement in self-harm (Klonsky et al., 2014).

Method

Search Strategy and Data Extraction

Searches were conducted in various electronic databases: PsycArticles, PsycInfo, PubMed, CINAHL, EMBASE, and Google Scholar. A search through the reference lists of

selected papers was also made for additional resources. The screening of articles was carried out in two stages:

Stage 1: Database Search

Preliminary searches were conducted using keywords: self-harm, self-injury, DSH, NSSI, self-mutilation, self-injurious behaviours/behaviors, resilience, coping, protective factors, buffer, LMICs, Native, Indigenous peoples, Indigenous, and ethnic minorities. Searching was further refined using search equations listed in Table 1. The search parameters were limited to English-language publications in peer reviewed journals within a 21 year period (2000–2020). An initial search from the databases retrieved 182 papers that were selected by the first author after reading the abstracts and titles.

The inclusion criteria for selected papers were:

1. Includes research with a population of structurally marginalized youth ages 10–29 from one of three population clusters: youth in LMIC, Indigenous youth, and youth who are considered racial or ethnic minorities in their host country;
2. English-language source (or translated abstract);
3. Peer-reviewed journal articles presenting primary research;
4. Published from January 2000 to September 2020;
5. Focus on self-harm; and
6. Includes any article mentioning or describing details of a specific or collection of protective factors and/or coping strategies.

The exclusion criteria were:

1. Non-English-language source;
2. Papers published before 2000;
3. Studies that included individuals aged below 10 and over 29; and
4. Studies that prioritize themes surrounding suicide such as suicidal intent, attempts, and suicide prevention.

Table 1. Sample search equations and keywords used in databases

((("Self-Injurious Behavior"[Mesh]) AND ("Resilience, Psychological"[Mesh] OR "protective factors")) AND (((("Indigenous Peoples"[Mesh] OR "Alaska Natives"[Mesh]) OR "Minority Groups"[Mesh]) OR "Ethnic Groups"[Mesh]) OR "Developing Countries"[Mesh])

(self harm or self injury or deliberate self harm or self mutilation or self injurious behavior) AND (protective factors or resilience or promotive factors or buffer) AND (indigenous or native or aboriginal or indians or first nations)

(self harm or self injury or deliberate self harm or self mutilation or self injurious behavior) AND (protective factors or resilience or promotive factors or buffer) AND (developing countries or developing nations or third world or low income countries)

(self harm or self injury or deliberate self harm or self mutilation or self injurious behavior) AND (protective factors or resilience or promotive factors or buffer) AND (ethnic minorities or racial minorities or ethnic groups)

Stage 2: Eligibility Criteria Applied

During the second stage, inclusion criteria were applied to the articles that were initially retrieved ($n = 182$). Among these, 97 articles were rejected based on Criteria 5 and 6. The remaining 85 were critically reviewed in their entirety for mentions, descriptions, or evaluations of specific protective factors and/or coping strategies. Seventy of these were further excluded as they were not applicable to the review. The majority of excluded papers focused on suicide prevention or attempted suicide with little or no mention of self-harm. Studies in which the sample mainly consisted of an older adult population with a small proportion of adolescents or youth were also excluded from the search, leaving us with 15 relevant articles. The search summary is detailed in Figure 1.

Results

In total, 15 original papers met all selection criteria. Of these, nine were conducted in LMICs, three were studies of ethnic minorities, and three detailed research conducted with Indigenous young people across the globe. The retained articles were entered in a data charting form with key attributes such as location where the study was conducted, age and description of the sample, and protective factors that were measured or reported. Table 2 provides an overview of included papers.

General Characteristics of Included Papers

The characteristics of studies included in this scoping review are listed in Table 3. All included papers were published between January 2000 and September 2020, with 93.3% (14/15) published after 2010. Most of the papers (13/15) were quantitative in nature with two qualitative studies

included in the review. Two of the studies reviewed were thesis dissertations. Among LMICs, most of the included studies were conducted in China (6/9), two in Africa, and one with a mixed sample from various developing countries. Two out of three research papers on Indigenous youth were with a Canadian sample and the third with Pacific Islander youth in New Zealand. Lastly, among papers retrieved on ethnic minority populations, two were conducted in the United States and one in the United Kingdom.

Discussion

The review found a small body of literature concerning resilience to self-harm among marginalized groups. The 15 studies retained reported a diverse range of protective factors. Some of these were identified as external factors, while others were internal protective factors or buffers to self-harm. These two categories, internal dispositions and external resources, as depicted in Figure 2, are discussed in the following sections.

Internal Dispositions

Cognitive and Emotional Competencies

Different personal attributes were measured and reported as buffers against self-harm among marginalized youth. Interestingly, most of these reports were from research with Chinese participants. A study conducted with Chinese college students found that the self-injury group and the non-self-injury group differed significantly in terms of cognitive competencies such as problem-solving, rationalization, self-reproach, and help-seeking (Wu & Liu, 2019). Among these, problem-solving and rationalization were the most significant. Another study from China examined the relationship between Big Five personality traits and self-harm. The findings showed that extraversion and agreeableness may act as protective factors for engagement in NSSI (You et al., 2016). By way of contrast, one of the qualitative studies conducted with adolescents in

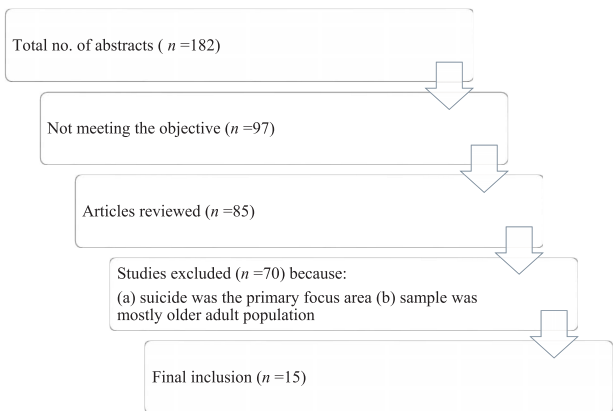


Figure 1. Database search summary.

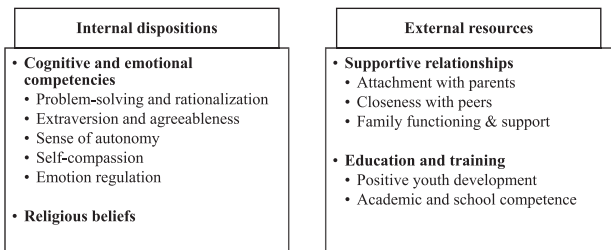


Figure 2. Summary of protective factors identified in reviewed studies.

Table 2. Summary of included papers

Author (year)	Location	Sample	Protective factors
LMICs			
Ghosh (2019)	USA	Participants ($N = 2,298$) from around the world in the age range 18–25, speaking either one of five languages: English, Russian, Spanish, Arabic, Chinese	Religion/religiosity
Law & Shek (2013)	Hong Kong	Grade 8 students ($N = 2,579$) from secondary schools	Perceived family functioning and PYD
You et al. (2016)	China	High-school students ($N = 2,874$) aged between 15 and 18 years	Extraversion and agreeableness
Shek & Yu (2012)	Hong Kong	Secondary school students ($N = 3,328$) in the age range 10–18	Family functioning, PYD, academic and school performance
Jiang et al. (2017)	China	Junior high-school students ($N = 658$) aged between 11 and 16 years	Attachment and self-compassion
Wu & Liu (2019)	China	Undergraduate college students ($N = 2,520$)	Problem-solving, rationalization
van der Wal & George (2018)	South Africa	Grade 10 learners aged between 14 and 18 years ($N = 962$)	Social support
Tian et al. (2019)	China	Left-behind children ($N = 2,898$) between 10 and 17 years of age	Family support, emotion regulation
Quarshie et al. (2020)	Ghana	Adolescents ($N = 36$) in the age range 13–20 with a history of self-harm	Adulthood, social support
Ethnic minorities			
Borrill et al. (2011)	UK	Socially and ethnically diverse university students ($N = 617$)	Religious beliefs, coping styles
Wilhelm et al. (2018)	USA	Somali youth ($N = 1,552$) consisting of eighth or ninth graders	Internal developmental assets, empowerment, and family connectedness, caring adults and after school activity
Polanco-Roman et al. (2014)	USA	Ethnically diverse college undergraduates ($N = 1,156$) in the age range 17–29	Friend support
Indigenous			
Hutton (2011)	Canada	Incarcerated Canadian Aboriginal youth ($N = 87$) in the age group 13–19 years	Social support, problem-solving
Kolar et al. (2012)	Canada	Street-involved youth ($N = 10$) between ages 19 and 26	Support system, gaining stable housing, help-seeking behavior
Teevale et al. (2016)	New Zealand	Pacific high school students ($N = 1,445$) aged 12–17 years	Family and school environment

Note. PYD = positive youth development.

Ghana found an overarching orientation for survival and sense of autonomy as key protective factors against self-harm (Quarshie et al., 2020).

Among emotional competencies, Jiang et al. (2017) measured the protective quality of self-compassion and found that adolescents with no NSSI experience reported greater self-compassion than those who engaged in NSSI. In an investigation with a Chinese student sample, Law and Shek (2013) identified self-efficacy, prosocial bonding, spirituality, recognition of positive behaviors, as well as social, moral, and emotional competencies as some of the second-order factors that can protect adolescents from performing self-destructive behaviors. Lastly, a study conducted on *left-behind* children (children whose parents

migrate for employment) found emotion regulation as a potential buffer against self-injurious behaviors (Tian et al., 2019).

Religious Beliefs

Religiosity was identified as a protective factor in three of the included papers. In their study, Ghosh (2019) reported that individuals in the Arabic-speaking group who identified with religion were 75% less likely to engage in self-harming behaviors without intent to die than all other-language-speaking groups such as Chinese, Spanish, and Russian, when compared with an English-speaking Western group. Another study conducted with an ethnically diverse population in the United Kingdom found that

Table 3. General characteristics of included studies (*N* = 15)

Characteristic	Number (<i>N</i> = 15)
Publication year	
2000–2010	1
2011–2019	13
2020–October 2020	1
Publication type	
Journal article	13
Thesis dissertation	2
Methodology	
Quantitative	13
Qualitative	2
Self-harm terminology	
Self-harm	10
Nonsuicidal self-injury (NSSI)	3
Self-injury	1
Deliberate self-harm (DSH)	1

participants who defined themselves as belonging to a religious group were less likely to report repeated self-harm incidents than participants who had no religious affiliation (Borrill et al., 2011). However, Teevale et al’s (2016) research reported contrasting findings, where having an affiliation to a religion or belonging to an organized religion was correlated with increased odds for suicidal behaviors and self-harm. They attributed these findings to the limitations inherent in cross-sectional data analysis, in which temporal order between variables cannot be defined.

External Resources

Supportive Relationships

The protective role of family support and related factors emerged as the most recurring factor in the review. A paper on Chinese young adolescents examined attachment as a buffer to NSSI and observed that attachment with parents characterized by more trust, communication, and closeness distinguished the NSSI group from the non-NSSI group (Jiang et al., 2017). Furthermore, Jiang et al. (2017) concluded that feelings of closeness with peers may be as important as the feelings of closeness with parents in promoting adolescent self-compassion and protecting against NSSI. Shek and Yu (2012) also found that higher levels of family functioning decreased the incidence of DSH and suicidal behavior among Chinese student participants. Similarly, van der Wal and George (2018) observed that adolescents from a South African population who self-reported with social support were at lower risk for self-harming behavior. Family support featured in the

narratives of the in-school adolescents, whereas support from friends featured prominently in the accounts of the street-connected adolescent participants who were part of a qualitative study of self-harm in Ghana (Quarshie et al., 2020). Another study on a Chinese community youth sample noted that children with less perceived family support had a higher incidence and more severe self-harm behaviors (Tian et al., 2019).

Among studies concerning Indigenous youth, the paper by Teevale et al. (2016) on Pacific Islander youth in New Zealand highlighted the protective effect of family involvement such as having a family member who is aware of their young person’s whereabouts and monitors their activities and social contacts. Contrary to popular findings, participants in a study (Penner Hutton, 2011) of Indigenous young offenders in Canada were very dissatisfied with their social support. In their case, perceived social support was not significantly related to DSH frequency, which the authors attributed to the inability of relatives and friends of the young offender to provide adequate or appropriate support based on their own life circumstances (Penner Hutton, 2011).

With regard to ethnically diverse populations, in a study by Polanco-Roman et al. (2014), family support was associated with lower risk for NSSI (vs. no history of NSSI) among White individuals. Meanwhile, friend support was associated with lower odds of NSSI among ethnic minorities. Other research identified family connectedness and other community-level support as important external factors that appear to protect Somali youth from self-injury, although the magnitude of protective effect of family support was reportedly smaller in comparison to non-Hispanic white students (Wilhelm et al., 2018).

Education and Training

Positive youth development (PYD) was explored as a protective factor in two of the included papers. These studies measured 15 PYD qualities including bonding, resilience, social competence, recognition of positive behavior, emotional competence, cognitive competence, behavioral competence, moral competence, self-determination, self-efficacy, clear and positive identity, beliefs in the future, prosocial involvement, prosocial norms, and spirituality. A study of Chinese participants by Law and Shek (2013) found general PYD qualities as the best buffer against self-harm. Another similar investigation involving Chinese adolescents found that, along with academic and school competence, overall PYD was negatively related to occurrences of self-harming behavior (Shek & Yu, 2012). Although the PYD qualities assessed are a mix of internal and external factors, these papers are mentioned here as they were studied in the context of training youth to promote resilience. Both studies noted that utilization of PYD programs could help design

interventions and support in preventing adolescent risk behaviors. The research by Wilhelm et al. (2018) on mental health of Somali youth also suggested that a PYD approach that focuses on strengthening internal developmental assets such as positive identity and social competence, through engagement and empowerment opportunities, may be an effective strategy to protect youth from self-harm. As discussed by Ungar (2013), the value of transformative youth-adult relationships is that they offer the most vulnerable youth a resource for well-being. Thus, while PYD factors might not be considered as protective, they indirectly contribute to a social ecological understanding of resilience. In this regard, strengths such as youth engagement can exert a differentially larger impact on the developmental outcomes of marginalized young people (Ungar, 2013).

Limitations and Future Directions

This paper provided a summary of different protective factors identified in the scoping review that help youth develop resilience to self-harming behaviors. Although the publications included were identified through a comprehensive search strategy that encompassed various electronic databases, it is possible that some relevant publications were not found. Furthermore, Aggarwal and Berk (2015) observed that in LMICs, self-harm is not a focus for researchers due to little awareness, stigma, or limitation of resources to treat and assess self-injurious behaviors in groups of lower socioeconomic status. Thus, it is imperative to obtain better self-harm data from marginalized groups to inform treatment and prevention strategies (Vijayakumar & Armstrong, 2019). Since the search solely included research published in peer-reviewed journals, reviews with a similar scope in the future could investigate other sources such as gray literature and government reports for more data on the subject.

Secondly, religion emerged as a strong buffer, especially among ethnic minority populations. As noted by Ghosh (2019), it is possible that factors associated with religion, country, and ethnicity may affect self-harming beliefs and behaviors. For instance, the lower incidence of self-harming behaviors among individuals in Middle Eastern countries is often attributed to guilt or shame around these types of behaviors due to religious values (Sawalha, 2012). Skegg (2005) also points out that cultural aspects of some societies may protect against self-harm and explain some of the international variation in the rates of these events. Further research is needed to explore such differences by studying cultural heterogeneity in patterns of self-harm.

Third, it was noted that qualitative studies were able to provide more detailed descriptions of the protective

factors found among marginalized populations. Therefore, when working with the three populations discussed here, or other marginalized groups, we would encourage researchers interested in self-harm to include more qualitative approaches and mixed method designs. Lastly, our initial searches identified several studies that focused on suicide prevention and suicidal attempts in youth but rarely with a special focus on self-harm. As stated by Hawton and Van Heeringen (2000), some researchers favor “attempted suicide” as an umbrella term that recognizes the high risk of suicide in people who self-harm, even though the label may not be very precise. Since self-harm research is greatly embedded within suicide-related literature, confining the search to self-harm itself may have limited findings from reviewed studies. Therefore, a better understanding of the functions served by self-harming behaviors might help move beyond the simple, although important, concept of suicidal thoughts progressing to an attempt and then to death by suicide (Skegg, 2005).

Conclusion

This scoping review was a unique attempt to synthesize the available literature on resilience to self-harm among marginalized groups. The search revealed cognitive and emotional competencies, religious beliefs, supportive relationships, and education and training as buffers to self-harm, among which family and peer support and religiosity were the most common. The results show that very little is known about positive adaptation following self-harm behaviors in LMICs or among ethnic minorities and Indigenous youth in HICs. Moreover, there are significant gaps in our knowledge of self-harm from a strength-based perspective as studies on prevalence and risk factors are far more common than studies of resilience.

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Anam Khan

Dalhousie University
6420 Coburg Rd.
Halifax, NS, B3H4R2
Canada
anam.khan@dal.ca

Anam Khan, MA, is a PhD student at the Faculty of Health, Dalhousie University, Halifax, Canada. Her work focuses on resilience to self-injurious behaviors across cultures.

Michael Ungar, PhD, is the founder and director of the Resilience Research Centre, Canada Research Chair in Child, Family and Community Resilience, and professor of social work at Dalhousie University, Halifax, Canada.

The Adaptation of a Measure of Confidence in Assessing, Formulating, and Managing Suicide Risk

David M. Sandford^{1,2} , Olivia J. Kirtley³, Richard Thwaites⁴, Dave Dagnan⁴, and Rory C. O'Connor²

¹School of Community Health and Midwifery, University of Central Lancashire, Preston, UK

²Suicidal Behaviour Research Laboratory, Institute of Health & Wellbeing, University of Glasgow, UK

³Center for Contextual Psychiatry, KU Leuven, Belgium

⁴First Step, Cumbria, Northumberland, Tyne and Wear NHS Foundation Trust, Penrith, UK

Abstract. *Background:* To date little has been done to evaluate the effectiveness of suicide risk formulation training. *Aims:* We aimed to investigate the psychometric properties of a new scale measuring clinicians' confidence in assessing, formulating, and managing suicide risk. *Method:* A total of 128 mental health practitioners from an UK National Health Service Trust completed the scale. Of them, 85 from an Improving Access to Psychological Therapies service did so before and after training in Risk Assessment, Formulation, and Management (RAFM); 28 practitioners from the Older Adults service also completed the measure. For test–retest analysis, a further 15 completed the scale again 1 week after baseline without attending any training. Of the training group, 52 (61%) completed the measure at the 6-month follow-up. *Results:* Analysis indicated a single-factor structure, good test–retest reliability, and statistically significant increases in confidence between pre- and post-training and between pretraining and 6 month follow-up. Cohen's effect size values suggest a moderate-to-large effect. *Limitations:* The relatively small sample sizes indicate that this study should be considered a preliminary investigation of a new measure, which warrants further replication. *Conclusion:* This measure could be useful in gauging practitioners' confidence in the RAFM approach and in evaluating and developing training.

Keywords: improving access to psychological therapies (IAPT), suicide, risk assessment, risk formulation

Every year, worldwide, approximately 800,000 people die by suicide (World Health Organization, 2019), with around 20 times this number making suicide attempts (World Health Organization, 2014). A broad range of suicide prevention strategies have been implemented, from the wider public health initiatives such as restricting access to means to the more focused efforts of risk assessment within higher-risk groups. The present study was conducted in the context of suicide prevention for people with common mental health problems within a primary care psychological therapy service.

A range of risk assessment tools are employed in mental health services; however, such tools are poor at predicting who will engage in self-harm or suicidal behavior (Quinlivan et al., 2017; Steeg et al., 2018). Indeed, best-practice guidance has, for over a decade, cautioned that decisions on risk management should not be based solely on the use of assessment tools but on the broader

application of structured clinical judgment and risk formulation (Department of Health, 2007). As a result, the emphasis has shifted from prediction to prevention, providing a narrative account of what is known about the individual to develop a safety plan that promotes positive risk management. With risk formulation the presence and relevance of risk factors (the predisposing factors) are considered alongside details of an individual's current situation (the perpetuating factors) and any potential imminent experiences (the precipitating factors) and these are balanced against known strengths and resources (the protective factors). This narrative approach is an effective way to communicate risk and it should result in the development of a proportionate and jointly prepared safety plan (Lewis & Doyle, 2009).

While best practice guidance on managing risk recommends training in, and application of, structured clinical judgment and risk formulation (Department of Health,

2007), little has been published on attempts to evaluate the impact of training on this approach (Doyle et al., 2003). One established method of evaluating risk training is to use the Risk Assessment and Management Self-Efficacy Scale (RAMSES) designed to assess practitioners' levels of perceived confidence in risk assessment and management. The RAMSES is a widely used scale and has been shown to have high internal consistency, Cronbach's $\alpha = .96$ ($n = 110$), and to display good construct validity (Delgadillo et al., 2014). Its psychometric properties have also been supported in further studies (Chongtham et al., 2015; Maina et al., 2019). However, this scale does not include questions specifically related to risk formulation. Therefore, in the current study, we report on the adaptation of this scale originally developed by Delgadillo et al. (2014) and on its expansion to incorporate questions specific to the risk formulation approach. Such a scale would aid in gauging the effectiveness of risk formulation training and potentially guide the design of future training by identifying areas requiring improvement or further emphasis.

In short, this study aimed to investigate the utility of this new measure by exploring the following questions:

1. What is the underlying factor structure of the measure?
2. What are the internal consistency and test-retest properties of the measure?
3. Is this measure sensitive to change in confidence following the delivery of training?

Method

Participants

In total, 128 practitioners from a UK National Health Service (NHS) Trust took part in this study. Recruitment took place between October 2014 and October 2016. Overall, 85 practitioners from the Improving Access to Psychological Therapies (IAPT) service within the Trust completed the measure before (pretraining) and after (posttraining) attending training on risk assessment, management, and formulation and in the use of the Galatean Risk and Safety Technology (GRiST; Vail et al., 2012) risk assessment tool. This risk assessment tool is recommended in best practice guidelines (Department of Health, 2007) and supports clinicians in gathering the necessary information to assess risk in six areas (suicide, self-harm, harm to others, self-neglect, risk to dependents, and vulnerability) and then supports the formulation and communication of any identified risk. The tool was designed through expert consensus (Buckingham et al., 2008; Vail et al., 2012), and refined through feedback

from use in practice (Zaher & Buckingham, 2017). The English IAPT (Clark, 2011) services are part of an initiative to increase access to mental health care.

For test-retest analysis, a further 15 IAPT practitioners completed the measure and then repeated it following a 1 week interval without undergoing any further training in the interim period. A convenience sample of a further 28 mental health practitioners from the Older Adults service also completed the measure to give a total of 128 completed measures for the factor analysis (see Table E1 in Electronic Supplementary Material 1 [ESM 1]). In addition, 52 of the IAPT training group (61%) completed the measure at the 6 month follow-up (follow-up group).

Measures

Demographics

All practitioners were asked to complete a demographics questionnaire recording gender, age, current role, years of experience in mental healthcare, and experience of working with people at risk of suicide.

Therapist Confidence in Suicide Risk Assessment Formulation and Management

The Confidence in Suicide Risk Assessment, Formulation, and Safety Planning scale was developed from an existing measure of practitioners' confidence in assessment and management of risk, the RAMSES (Delgadillo et al., 2014) with the authors' permission. The original scale has 18 items (rated 0–10) comprising three subscales of Assessment (six items), Case Management (six items), and Intervention (six items). The scale was revised to focus on suicide risk and to ensure that it captured all of the core elements of risk formulation and subsequent actions, including four items adapted from the RAMSES Assessment subscale and two items adapted from the Interventions scale. One item from the Case Management subscale was used with the original wording. The other six items on assessment and formulation were developed specifically for this scale based on the risk formulation approach (Lewis & Doyle, 2009). Selection of items and wording for new items were discussed and agreed by the first, third, and fourth authors over the course of two consensus meetings.

The new scale therefore comprised 13 items covering risk assessment, formulation, and safety planning (see Table 1). There was no intention to create subscales within this measure. It was intended to capture confidence in the overall skills required for the assessment, formulation, and management of the risk of suicide. It includes new questions on identifying predisposing, precipitating, perpetuating, and protective factors, in combining risk factors

Table 1. Scale factor loadings ($n = 128$)

Item		Item <i>M</i>	<i>SD</i>	Corrected item–total correlation	Factor loadings
How confident are you that you can ...					
1	Use Galatean Risk and Safety Technology to assess risk of suicide?	1.14	1.14	.48 ^a	n/a ^a
2	Use your clinical skills to gather suicide risk information from patients?	2.74	0.66	.72	.774
3	Identify a person who presents a risk of suicide?	2.66	0.70	.75	.804
4	Communicate a suicide risk management plan to appropriate colleagues and services?	2.39	0.87	.84	.903
5	Identify relevant historic predisposing factors?	2.45	0.77	.82	.887
6	Identify relevant precipitating (current and future) factors?	2.53	0.70	.83	.914
7	Identify relevant perpetuating factors?	2.38	0.73	.82	.896
8	Identify relevant protective factors?	2.72	0.65	.78	.837
9	Combine general and individual risk factors into a suicide risk formulation?	2.12	0.85	.81	.811
10	Use the information from your formulation to develop an individual risk management plan?	2.16	0.94	.84	.851
11	Identify an appropriate service to refer someone to on the basis of risk?	2.45	0.82	.74	.736
12	Develop rapport with people who present significant risk of suicide?	2.64	0.81	.69	.725
13	Help people to minimize the risk of suicide?	2.27	0.84	.77	.790

Note. ^aItem excluded from scale. Maximum likelihood extraction method was used in combination with an oblimin rotation for factor analysis.

into a suicide risk formulation and communicating a risk management plan. These were combined with the original questions on developing a risk management plan (“How confident are you that you can use the information from your formulation to develop an individual risk management plan?”), developing rapport and referring on to an appropriate service if level of risk indicates this. The measure asks people to rate their confidence on a 5-point Likert-type scale (reduced from the 10-point scale used on RAMSES for ease of use and evidence that scales beyond 6 points confer no psychometric advantage; Simms et al., 2019) anchored at *not confident*, *slightly confident*, *moderately confident*, *confident*, and *highly confident*.

Therapist General Confidence in Clinical Self-Efficacy

The General Clinical Efficacy Scale (GCES; Dagnan et al., 2015) is a measure of general clinical efficacy. The GCES was adapted (Dagnan et al., 2015) from the General Self-efficacy Scale (Schwarzer & Jerusalem, 1995) and comprises five questions on perceived efficacy such as, “I can always manage to solve difficult clinical problems if I try hard enough.” Items are rated on a 5-point Likert-type scale anchored at *strongly agree*, *agree*, *don’t know*, *disagree*, *strongly disagree*. The measure was reported to have a Cronbach’s α of .69 and an adjusted item-total correlation range of 0.31–0.51 (Dagnan et al., 2015). In this study the scale was used to provide a measure of general clinical efficacy against which to compare the new scale developed to specifically measure confidence in suicide risk assessment, formulation, and management (RAFM).

Data Analysis

The internal consistency of the new scale and of the GCES was examined using McDonald’s ω .

An exploratory factor analysis (EFA) was conducted on the new scale responses ($n = 128$). EFA was conducted using the Psych package (Revelle, 2018) in R (R: The R Project for Statistical Computing, 2019) with a maximum likelihood extraction method and oblimin rotation, to allow for correlation between factors. The sample size yielded a measure-to-item ratio of 9.8:1. As data are ordinal and not continuous, we used polychoric correlations instead of Pearson’s correlations to reduce the likelihood of overfitting (Holgado-Tello et al., 2010; Watkins, 2018). We first conducted parallel analysis (PA) in order to obtain a recommendation of the number of factors to retain. PA indicated that one factor should be retained and consequently we conducted an EFA specifying a single factor. Visual inspection of data using histograms of responses to individual items showed the data were relatively normally distributed, therefore the EFA was conducted upon the correlation matrix (Watkins, 2018). Items with loadings below .3 were suppressed (Costello & Osborne, 2005). Inspection of inter-item correlations demonstrated that Item 1 (“How confident are you that you can use GRiST to assess risk of suicide?”) did not correlate well with any of the other items in the scale, and therefore it was removed prior to factor analysis.

R markdown code is available on the Open Science Framework (OSF) project page for the study (<https://osf.io/9erbt/>). Sharing de-identified data is not possible due to

the nature of informed consent obtained in the original study: however, following Kirtley et al. (2020) and Quintana (2020) we have created a synthetic dataset using the *synthpop* package (Nowok et al., 2020) and made this available for the purposes of analytic reproducibility. Synthetic datasets mimic the original dataset distributions and covariance matrix. They can be used to verify that the code for the original analysis runs correctly and will produce similar (but not identical) results. The synthetic dataset was screened for *replicated uniques*, that is, values from the real dataset that were replicated in the synthetic dataset by chance and any such values were removed (Nowok et al., 2019). The questionnaire used in the study is also available on the OSF.

Differences between mean scores at baseline were examined either by independent-samples *t* test (gender) or by one-way analysis of variance (age, role, experience) with post hoc Bonferroni corrections applied.

Differences between mean scores before and after training and at 6 month follow-up were examined by repeated measures one-way analysis of variance. The data were normally distributed, as assessed by Normal Q-Q Plot. Mauchly's test of sphericity was employed, and the Greenhouse-Geisser correction was applied if the assumption of sphericity was violated. These analyses were conducted using Jamovi 1.6 (The Jamovi Project, 2020). The α value for all tests was .05.

Results

Factor Analysis

Initial calculations of correlations suggested the exclusion of Item 1 from the scale. The item-total correlation for Item 1 was .48 compared with a range of .69–.84 for the remaining 12 items. Inter-item correlations for Items 2–13 were all above .4 (range .44–.82); however, correlations between Item 1 and Items 2–13 were between .12 and .38. Item 1 was therefore excluded from the questionnaire and a factor analysis was performed on Items 2–13 ($n = 128$). Bartlett's test of sphericity ($\chi^2 = 1,174$, $df = 66$, $p < .001$) and the Kaiser-Meyer-Olkin measure of sampling adequacy (.92) for the measures ($n = 128$) both indicated that the data were suitable for factor analysis. The item questions, *M*, *SDs*, and the correlation for each item with the scale total for the scales completed by 128 practitioners are shown in Table 1. The breakdown of the 128 practitioners by occupational group with descriptives is provided for reference in Table E1 is ESM 1.

The PA indicated a one-factor structure. The single factor accounted for 59% of the variance in the measure and all unrotated factor loadings were greater than .6. Factor loadings for the scale are presented in Table 1. As

only one factor was extracted, no factor rotation could be performed.

Reliability

McDonald's ω for the 12-item scale was .95 indicating a high level of internal consistency for this scale. For the GCSE scale McDonald's ω was .90, again indicating high internal consistency.

Comparison between scores on the new scale and the General Clinical Self-Efficacy scale for 85 practitioners completed at pretraining indicated that the scores were positively correlated ($r = .40$, $p < .001$).

Test-Retest

Correlation between the test and retest total score was estimated using Pearson's correlation co-efficient, $r(13) = .95$, $p < .001$, which indicates good test-retest reliability.

Comparisons of Confidence Scores at Baseline (Pretraining)

At baseline for the training group (see Table E2 is ESM 1) there was no statistically significant difference in the mean confidence scores reported between females (28.70; *SD*: ± 7.73) and males (31.37; *SD*: ± 6.09), $t(83) = 1.386$, $p = .170$. Although visual inspection suggests that the mean confidence score increased with age, there were no statistically significant differences between the age ranges, $F(3) = 2.303$, $p = .083$. Analyses for years of experience working in mental health yielded a statistically significant difference, $F(3) = 12.901$, $p < .01$, between year ranges, although post hoc testing showed that the significant difference was between the group with most experience (>16 years) and each of the other groups, while all other comparisons were not significant. Similarly, analyses for experience of working with people at some risk of suicide suggested a statistically significant difference between groups, $F(3) = 10.15$, $p < .001$. However, post hoc Bonferroni tests showed that the significant differences were between the group with most exposure and the other three groups, while all other comparisons were not significant.

Change in Confidence Ratings Following Training

A total of 52 participants completed questionnaires at pretraining, posttraining, and at 6 month follow-up. The

mean confidence measure scores for these are shown in Table E3 in ESM 1.

A repeated measures analysis of variance determined that mean confidence scores differed statistically significantly across the three time points (pretraining, posttraining, 6 month follow-up), $F(1.763, 13.985) = 28.490$, $p < .001$. Post hoc Bonferroni analyses revealed a statistically significant increase in confidence between pre- and posttraining ($t = 7.12$, $p < .001$) and between pretraining and 6 month follow-up ($t = 5.73$, $p < .001$). Cohen's effect size values ($d = 0.718$, $d = 0.577$) suggested a moderate-to-high significance in both cases. No significant change was evident between posttraining and 6 month follow-up ($d = 0.168$, $t = 1.40$, $p = .359$).

Next, change over time in broader confidence levels as measured by the GCES was examined. A repeated measures analysis of variance determined that mean confidence scores did not differ statistically significantly between the three time points (pretraining, posttraining, 6 month follow-up), $F(1.273, 47.089) = 1.805$, $p = ns$.

Discussion

This article reports on the adaptation of an existing scale to develop a measure of practitioners' confidence in the assessment, formulation, and management of suicide risk. The main aims were to investigate the factor structure as well as the internal and test-retest consistency of the measure, and to determine whether it appeared sensitive to change following training. Factor analysis supports the one-factor structure of this new measure. In terms of psychometric properties, it displays good internal consistency and good test-retest reliability. The new measure appears sensitive to change in confidence following the delivery of training.

Currently around one third of people who die by suicide have been in contact with specialist mental health services in the year before their death, and two-thirds have seen their GP (Department of Health, 2017). The risk assessment tools used in these settings are poor at predicting self-harm or suicidal behavior and decisions on risk management should be based on structured clinical judgment and risk formulation. With this approach a narrative account of the relevance of risk factors to the individual is used to develop a safety plan. However, 10 years on from the publication of the best-practice guidance, a report into the assessment of clinical risk in mental health services found evidence of inconsistent use of risk assessment tools, of these tools still being used as checklists to predict future behavior and guide risk management, and of other problems such as lack of

training (National Confidential Inquiry into Suicide and Safety in Mental Health [NCISH], 2018). The report concluded with recommendations to improve risk assessment; these included ensuring staff were comfortable asking about suicidal ideation and that they received training in the assessment, formulation, and management of risk. To this end, an initiative within a northern English NHS Mental Health Trust involved the use of a train-the-trainer approach to support individual services to deliver training on RAFM. With risk formulation the presence and relevance of risk factors (the predisposing factors) are considered alongside details of the individual's current situation (the perpetuating factors) and any potential imminent experiences (the precipitating factors) and these are balanced against known strengths and resources (the protective factors). A narrative account of these factors effectively communicates risk and supports the development of a jointly agreed safety plan.

The new measure developed for this study was designed to monitor the training on the RAFM approach. It includes questions related to the assessment, formulation, and management of suicide risk, including specific items on risk formulation (Predisposing, Perpetuating, Precipitating, and Protective factors). Further questions assess confidence in establishing rapport and identifying appropriate services. Despite the breadth of questions, the measure appears to coalesce around a one-factor structure, representing the construct of confidence in applying the risk formulation approach.

The measure displayed some ability to discriminate between groups based on mental health experience and experience of working with people who were suicidal. This makes intuitive sense, as it might be expected that confidence would increase with experience. The new measure was able to detect increases in confidence following training and that this was maintained at 6 month follow-up. The GCES for the same time points did not indicate any significant changes and this may support the hypothesis that increase in confidence in RAFM was related to the training rather than a more global increase in clinical efficacy over time.

Conceptually it made sense to exclude Item 1 for two reasons. First, this item had been added to the questionnaire to specifically ask about confidence in using a particular risk assessment tool, namely, the GRiST (Vail et al., 2012). As this was the first time most people in the training group had been introduced to this tool it was likely that the impact of the training would be more pronounced as measured by Item 1 when compared with the remaining items. This may therefore have exaggerated the sensitivity of the questionnaire in measuring change in confidence in the more generic RAFM skills that it was being developed to assess. Second, the aim was

to develop a measure that could be used generally to track changes in confidence and not to be specific to one particular assessment tool.

It may be of interest to note that the highest-rated item at baseline was confidence in identifying protective factors, despite that fact that it is acknowledged that we know less about these than protective factors (Nock et al., 2013). It would be important to explore why this is the case. Could this be related to professional practice beliefs or attitudes of the practitioners? It may be reassuring and indeed desirable to be able to highlight protective factors, but could confidence in the ability to do so be misplaced?

Clinical Implications

To our knowledge, this is the first scale to specifically measure confidence in the RAFM approach and the only scale developed specifically to study the impact of training on using this approach. Clinicians have highlighted the need for, and importance of, training in risk formulation, and the benefit of improving staff confidence in the use of risk tools, recording of information, and managing identified risk (Graney et al., 2020). Improving practitioners' confidence in their ability to implement a risk formulation approach to suicide may help them to more effectively engage in suicide prevention. Ultimately, if training can improve practitioners' confidence in RAFM, this has the potential to improve their therapeutic effectiveness (Vail et al., 2012). This would help services meet one of the recommendations of the NCISH report, to ensure practitioners are comfortable in asking about suicidal ideation. Additionally, it is important to guard against the inconsistent use of risk assessment tools or their use as checklists aimed at predicting future behavior and guiding risk management. We feel that using this newly developed measure could contribute to these goals by focusing on the RAFM approach. Further, it may assist in the refinement and appraisal of training in order to best meet the identified problems with lack of training (Graney et al., 2020; NCISH, 2018).

Limitations

Although this study reports on the development of a measure of confidence, it should be noted that this does not measure knowledge, or quality, of RAFM. Ideally, a measure of these skills would also be utilized to get a more complete indication of performance in this important area of practice. Due to a methodological oversight, the demographic data were not collected for the mental health

practitioners from the Older Adult service whose responses were included in the factor analysis.

The sample size for the number of completed measures was relatively low, yielding a measure-to-item ratio of just 9.8:1, rising slightly to 10:1 following the omission of one item. Although there is no clear consensus on the acceptable ratio of participants to items for factor analysis, this could be considered to be the minimum requirement, with ratios of greater than 10:1 considered acceptable and greater than 30:1 as desirable (Yong & Pearce, 2013). The sample size for the impact of training analysis was also small, with a further reduction at follow-up. This low follow-up response rate (61%) may reflect the fact that follow-up contact was made by email rather than face to face, and also that some practitioners had since left the service. This study should therefore be considered a preliminary investigation of a new measure, which warrants further replication.

Conclusion

Analyses of this measure yielded a single-factor structure for this sample. The measure appears to have good psychometric properties, although this finding requires replication, and the scale appeared sensitive to change in confidence following the delivery of training. This measure could be clinically useful in evaluating and developing training focused on the currently recommended approach to the assessment, formulation, and management of suicide risk.

Electronic Supplementary Material

The electronic supplementary material is available with the online version of the article at <https://doi.org/10.1027/0227-5910/a000830>.

ESM 1. Tables with descriptives of practitioners by occupation, comparisons of confidence scores at pretraining, and change in scores after training are provided

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The authors have none to report.

Publication Ethics

Ethics approval for this human study was waived by the Research and Development Department, Cumbria Partnership NHS Foundation Trust. Adult participant consent was not required because this was a clinical audit of NHS staff and consent was implied by the completion of the measure.

Authorship

David Sandford: writing – first draft, investigation, data curation. Olivia Kirtley: software, writing – review and editing, supervision. Richard Thwaites: conceptualization, methodology, writing – review. Dave Dagnan: conceptualization, methodology, writing – review. Rory O'Connor: Writing – review and editing, supervision.

Open Data

R markdown code is available on the Open Science Framework (OSF) project page for the study at <https://osf.io/9erbt/> (Sandford et al., 2020).

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ORCID

David M. Sandford

 <https://orcid.org/0000-0003-2564-2643>

David M. Sandford

Suicidal Behaviour Research Lab
Mental Health & Wellbeing Academic Centre

Gartnavel Royal Hospital

1055 Great Western Road

Glasgow, G12 0XH

UK

d.sandford.1@research.gla.ac.uk

David Sandford is a PhD student at the Suicidal Behaviour Research Laboratory at Glasgow University and lecturer at the University of Central Lancashire, UK.

Richard Thwaites is clinical lead for First Step, an improving access to psychological therapies service in Cumbria, UK. He is editor-in-chief of *The Cognitive Behaviour Therapist*.

Olivia Kirtley, PhD, is a senior postdoctoral research fellow of the Research Foundation Flanders at the Center for Contextual Psychiatry at KU Leuven, Belgium. Dr. Kirtley's research uses experience sampling methods to investigate dynamic processes involved in suicidal ideation and behavior. She cochairs the IASP Early Career Group and is an editorial board member of *Crisis: The Journal of Crisis Intervention and Suicide Prevention*.

Dave Dagnan, PhD, is consultant clinical psychologist with Cumbria, Northumberland, Tyne and Wear NHS Foundation Trust in the UK. He is visiting professor at the University of Cumbria and Director of Research and Development at North Cumbria Integrated Care NHS Foundation Trust.

Rory O'Connor, PhD, leads the Suicidal Behaviour Research Laboratory at Glasgow University and is president of the International Association for Suicide Prevention (IASP). He is author of *When It is Darkest: Why People Die by Suicide and What We Can Do To Prevent It* as well as coeditor-in-chief of *Archives of Suicide Research* and associate editor of *Suicide and Life-Threatening Behavior*.

Context-Specific Interpersonal Problem-Solving and Suicidal Thoughts and Behaviors

Yeonsoo Park¹, Michael S. McCloskey², and Brooke A. Ammerman¹

¹Department of Psychology, University of Notre Dame, IN, USA

²Department of Psychology, Temple University, Philadelphia, PA, USA

Abstract. *Background:* Interpersonal problem-solving difficulties constitute a suicide risk factor that may be particularly relevant among college students. Most studies have examined general interpersonal problem-solving; however, context-specific abilities may have greater clinical implications. *Aim:* This study examined whether individuals with and without a history of suicidal thoughts and behaviors differed in context-specific interpersonal problem-solving. *Method:* Undergraduate students ($n = 112$) completed a brief interview and interpersonal problem-solving tasks with positive (e.g., initiating romantic relationship) and negative (i.e., physical revenge) resolutions. *Results:* Individuals with a history of suicide ideation generated more effective solutions and more alternatives in the negative-resolution scenario; no significant differences were identified for the positive-resolution scenarios. No group differences were found based on suicide attempt status. *Limitations:* Our results do not account for the mechanisms that influence problem-solving abilities in negative-resolution scenarios. *Conclusion:* Clinical efforts may benefit from targeting the translation of interpersonal problem-solving abilities to situations with positive resolutions.

Keywords: interpersonal problem-solving, suicide ideation, suicide attempt, cognitive risk factor of suicide

Theories highlight the importance of interpersonal factors in relation to suicidal thoughts and behaviors (STBs), arguing that STBs often occur within interpersonal contexts (Durkheim, 1897; Joiner, 2005; Van Orden et al., 2010). Indeed, interpersonal negative life events are identified as proximal risk factors of STBs (Bagge et al., 2014), and quality of interpersonal relationships, abuse history, and isolation are reported predictors of STBs (e.g., Franklin et al., 2017).

Interpersonal problem-solving, which itself is associated with STB risk (Gibbs et al., 2009; Speckens & Hawton, 2005), may impact the relationship between interpersonal factors and STBs. Given the importance of interpersonal relationship quality on psychological well-being during major environmental changes (Bowman, 2010), interpersonal problem-solving may be particularly relevant for college students (Hirsch et al., 2012). Thus, examining its association with STBs in this population may be informative in developing targeted prevention and intervention strategies.

Previous research has primarily examined interpersonal problem-solving as a general ability (e.g., Marx et al., 1992). While studies have examined positive and negative orientations of interpersonal problem-solving (e.g., Jeglic et al., 2005), interpersonal problem-solving in different contexts (i.e., situations leading to positive or negative resolutions) have yet to be examined. As interpersonal

problem-solving is dependent on the recall of specific memories (Pollock & Williams, 1998), individuals who endorse STBs may be more capable of generating solutions to interpersonal situations with negative resolutions, which may be more accessible due to a negative bias (Richard-Devantoy et al., 2015; Thompson & Ong, 2018).

Given the theoretical and clinical importance (e.g., Klonsky & May, 2014) of differentiating between distinct STBs – suicide ideation (SI) and suicide attempts (SAs) – this study examined whether individuals differed in interpersonal problem-solving in the context of interpersonal scenarios that lead to positive or negative resolutions based on SI and SA status.

Method

Participants and Procedures

Participants were 112 undergraduates from an urban university. Participants were, on average, 20.57 years old ($SD = 3.53$); 78.6% identified as female, 62.6% identified as white, and 90.7% identified as Non-Hispanic/Latinx. Participants completed a brief diagnostic interview and

interpersonal problem-solving tasks. Participants received course credit. Procedures were approved by the Institutional Review Board.

Measures

Suicidal Thoughts and Behaviors

The Lifetime Parasuicide Count (Comtois & Linehan, 1999), a semi-structured interview, was used to assess for lifetime presence of SI and SA. The interview assesses several characteristics (i.e., method, intent, etc.) of one's STB history. The psychometrics of the original interview are supported (Comtois & Linehan, 1999).

Interpersonal Problem-Solving

The Means-Ends Problem-Solving Task (MEPS; Platt et al., 1975) assessed interpersonal problem-solving ability. Participants are presented with hypothetical interpersonal problem scenarios and linked final resolutions. Participants describe how the scenario protagonist dealt with the problem leading to the outcome. They receive 60 s (each) to describe: (1) the most effective strategy to solve the problem (rated as 1 = *not at all effective*, 7 = *very effective*); (2) potential obstacles to their strategy; (3) alternative strategies for solving the problem. On the basis of MEPS administration procedures (Platt et al., 1975), participants were presented with three positive-resolution scenarios (e.g., romantic relationship initiation) and one negative-resolution scenario (i.e., physical revenge). Scenarios were randomly presented and protagonists were modified to match the participant's identified gender. The coding scheme of Pollock and Williams (2004) was adopted. All responses were coded by at least two independent raters (intraclass correlations = 0.82–0.94).

Data Analysis

Interpersonal problem-solving outcomes (i.e., effectiveness, obstacles, alternative strategies) were averaged

across the positive resolution scenarios. Results did not differ when examining each of the three positive-resolution scenarios independently versus as an aggregate. A series of ANOVAs and ANCOVAs were utilized to examine group difference. Given the strong association between SI and SA (Ribeiro et al., 2016), SI was included as a covariate in SA analyses. Results did not differ when SI was removed as a covariate from the model.

Results

Preliminary Analyses

Overall, 47.3% of the participants ($n = 53$) reported lifetime SI and 11.6% ($n = 13$) reported lifetime SA. There were no differences in age, $t(105) = -0.96$, $p = .34$, gender, $\chi^2(1) = 0.19$, $p = .66$, or race, $\chi^2(3) = 7.58$, $p = .11$, based on SI history. There were no differences in age, $t(105) = -1.48$, $p = .14$, gender, $\chi^2(1) = 0.06$, $p = .81$, or race, $\chi^2(3) = 8.49$, $p = .08$, based on SA history.

Group Comparisons

Individuals with (vs. without) SI generated more effective and more alternatives solutions in the negative resolution scenario; no other differences were identified. No differences were identified based on SA history status (see Table 1).

Discussion

Individuals with SI may not necessarily have interpersonal problem-solving deficits, but their implementation may be context dependent (i.e., negative-resolution scenarios). Speculation, fluency in negative-resolutions scenarios, and

Table 1. Group differences of interpersonal problem-solving abilities

		M (SD)		Partial η^2	M (SD)		Partial η^2
		With SI	Without SI		With SA	Without SA	
Negative	Effectiveness	4.99 (1.29)	4.28 (1.67)	0.053*	4.69 (1.22)	4.61 (1.59)	0.003
	Alternatives	3.33 (1.94)	2.50 (1.92)	0.045*	2.73 (1.75)	2.92 (2.00)	0.016
	Obstacles	15.02 (70.39)	4.56 (2.47)	0.012	4.85 (3.42)	10.09 (51.39)	0.007
Positive	Effectiveness	5.20 (0.92)	4.99 (0.89)	0.013	5.14 (0.95)	5.09 (0.91)	0.001
	Alternatives	3.01 (1.27)	2.87 (1.35)	0.003	2.87 (1.45)	2.94 (1.29)	0.002
	Obstacles	5.15 (1.72)	5.16 (2.24)	0.001	5.08 (1.85)	5.17 (2.03)	0.001

Note. SA = suicide attempt, SI = suicide ideation.

* $p < .05$.

the ability to generate several actions (e.g., forms of emotional and physical pain) that end in a negative resolution may be partially due to negative attentional biases among those with STBs (e.g., Thompson & Ong, 2018). The tendency to focus on negative information may provide individuals with more time to contemplate strategies for negative resolutions, enabling them to be more effective and capable of generating more alternatives. Conversely, it may be that effectiveness is limited to situations involving interpersonal violence, given the association between violence and STBs (e.g., Zimmerman & Posick, 2014); this will be an important area for future research.

While the lack of group differences based on SA history was unexpected, explanations may be found in theoretical models of suicide. Theories of suicide often directly link interpersonal difficulties with SI but not SA (e.g., Joiner, 2005). Moreover, the mechanisms of SA are conceptualized as behavioral; thus, interpersonal problem-solving, reflecting cognitive abilities, may not be directly related to SA. Empirical support is required for this postulation.

Limitations

The study limitations should be considered. The MEPS evaluates the end strategy, rather than the process, to generate solutions (D'Zurilla & Maydeu-Olivares, 1995), limiting our ability to interpret mechanisms of problem-solving. The MEPS also does not differentiate passive versus active problem-solving (Pollock & Williams, 1998). Because avoidant (passive) problem-solving is associated with STBs (Becker-Weidman et al., 2010), a more sophisticated measure may be informative. Finally, we examined only lifetime history of SI/SA among a relatively small sample size, influencing the generalizability of results.

Conclusion

The present study highlights the unique performance in negative interpersonal situations among those who endorse SI. The findings suggest that individuals with SI history do not lack interpersonal problem-solving abilities, but rather may need help applying their abilities across all interpersonal situations. Clinical efforts should focus on being more efficient with negative strategies as well as mitigating one's negative proneness, which may exacerbate interpersonal conflict and, ultimately, suicidality.

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Brooke A. Ammerman

Department of Psychology
University of Notre Dame
390 Corbett Family Hall
Notre Dame, IN 46556
USA
bammerm1@nd.edu

Yeonsoo Park earned his BA in psychology from New York University and his MA in clinical and counseling psychology from Sogang University. He is currently a doctoral student in the clinical psychology program at the University of Notre Dame, IN, USA. Mr. Park's main interests are the biopsychosocial risk factors of self-injurious thoughts and behaviors.

Michael McCloskey, PhD, is an associate professor in the clinical psychology program at Temple University, Philadelphia, PA, USA. His research examines the interplay of cognitive-affective, psychosocial, and biologic processes involved in the development and maintenance of affect dysregulation, with an emphasis on self- and other-directed aggression.

Brooke A. Ammerman, PhD, is an assistant professor in the clinical psychology program at the University of Notre Dame, IN, USA. Her research seeks to understand how various intra- and interpersonal factors interact to increase chronic or imminent risk of self-injurious thoughts and behaviors.

News, Announcements, and IASP

Announcements

AAS23: American Association of Suicidology Annual Conference is taking place April 19–22, 2023, in Portland, OR, USA. For more information go to <https://suicidology.org/aas23/>

The **National Suicide Prevention Conference held by Suicide Prevention Australia** is taking place May 1–4, 2023, in Canberra, Australia. For more information go to <https://www.suicidepreventionaust.org/our-events#national-conference>

The **32nd World Congress of the International Association for Suicide Prevention (IASP)** is taking place September 19–22, 2023, in Piran, Slovenia. For more information go to <https://www.iasp.info/piran2023/> Abstract submissions are now open: <https://www.iasp.info/piran2023/abstract-submission/>

The **20th European Symposium on Suicide and Suicidal Behaviour** will take place in Rome, Italy, August 27–30, 2024. Further information will be provided early 2023.



Partnerships for Life

Over 700,000 people lose their life to suicide every year. Reducing the global suicide mortality rate by one third by 2030 is both a target and indicator in the United Nations Sustainable Development Goals and in the World Health Organization's (WHO's) Mental Health Action Plan 2013–2030. The development of National Suicide Prevention Strategies has been identified as a proven systematic, evidence-based response to preventing suicide that combines both community-based approaches and government policy. To date, an estimated 40 countries are known to have developed a national suicide prevention strategy, and

in many other countries there are regional programs or less comprehensive suicide prevention projects and activities.

Partnerships for Life networks are active in each of the six WHO regions, identifying contacts in over 60% of countries, in the context of a global five-year program that takes into account the stage of suicide prevention strategy development in each country. The initiative is led by a steering group chaired by Prof. Stephen Platt.

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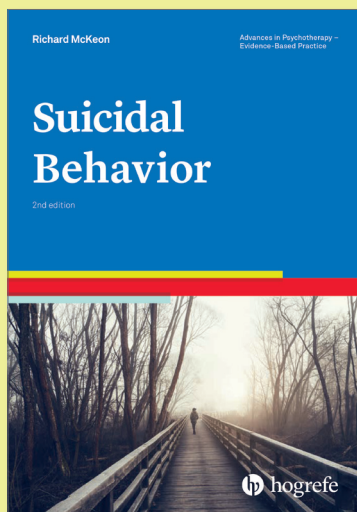
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Advances in Psychotherapy –
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With more than 800,000 deaths worldwide each year, suicide is one of the leading causes of death. The second edition of this volume incorporates the latest research, showing which empirically supported approaches to assessment, management, and treatment really help those at risk. Updates include comprehensively updated epidemiological data, the role opioid use problems, personality disorders, and trauma play in suicide, new models explaining the development of suicidal ideation, and the zero suicide model. This book aims to increase clinicians' access to empirically supported interventions

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The book is invaluable as a compact how-to reference for clinicians in their daily work and as an educational resource for students and for practice-oriented continuing education. Its reader-friendly structure makes liberal use of tables, boxed clinical examples, and clinical vignettes. The book, which also addresses common obstacles in treating individuals at risk for suicide, is an essential resource for anyone working with this high-risk population.

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