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Development and Pilot Study of a Suicide Prevention Intervention Delivered by Peer Support Specialists

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Abstract

Suicide rates in the United States have been increasing in recent years, and the period after an inpatient psychiatric hospitalization is one of especially high risk for death by suicide. Peer support specialists may play an important role in addressing recommendations that suicide prevention activities focus on protective factors by improving hope and connectedness. The present study developed a peer specialist intervention (PREVAIL) to reduce suicide risk, incorporating components of motivational interviewing and psychotherapies targeting suicide risk into recovery-based peer support. A randomized controlled pilot study was conducted to assess the acceptability, feasibility, and fidelity of the intervention. A total of 70 adult psychiatric inpatients at high risk for suicide were enrolled into the study. Participants were randomized to usual care (n=36) or to the 12-week PREVAIL peer support intervention (n=34). Those in the PREVAIL arm completed an average of 6.1 (SD 5.0) peer sessions over the course of 12 weeks. Fidelity was rated for 20 peer support sessions, and 85% of the peer specialist sessions demonstrated adequate fidelity to administering a conversation tool regarding hope, belongingness, or safety, and 72.5% of general support skills (e.g., validation) were performed with adequate fidelity. Participants' qualitative responses (n=23) were highly positive regarding peer specialists' ability to relate, listen, and advise, and to provide support specifically during discussions about suicide. Findings demonstrate that a peer support specialist suicide prevention intervention is feasible and acceptable for patients at high risk for suicide.

Keywords

Suicide; suicidal ideation; peer group; inpatient psychiatry; aftercare

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Introduction

Suicide rates in the US have increased to their highest point in decades with 44,000 suicide deaths occurring in 2015 (Centers for Disease Control and Prevention (CDC), 2017). In 2012, the U.S. Surgeon General's National Strategy for Suicide Prevention proposed to "change the narrative" about suicide prevention to include a focus on improving hope and social connectedness (U.S. Department of Health and Human Services (HHS) Office of the Surgeon General and National Alliance for Suicide Prevention, 2012).

Hopelessness and poor social connectedness are well-established risk factors for suicide and are major components of the Interpersonal Theory of Suicide (Joiner et al., 2009; Van Orden et al., 2010). Studies representing various age groups and cultures have demonstrated an association between hopelessness and suicidal ideation and attempts (Britton et al., 2008; Chang, 2017; Klonsky, Kotov, Bakst, Rabinowitz, & Bromet, 2012; Rifai, George, Stack, Mann, & Reynolds, 1994). A meta-analysis of four studies of individuals at increased risk for suicide also found that high levels of hopelessness measured by the Beck Hopelessness Scale were associated with suicide death (Beck, Brown, Berchick, Stewart, & Steer, 1990; Beck, Steer, Kovacs, & Garrison, 1985; McMillan, Gilbody, Beresford, & Neilly, 2007). The association of poor social support with suicide risk, including suicide attempts and suicide death, has been demonstrated across cultures and among populations with various clinical characteristics (Compton, Thompson, & Kaslow, 2005; Kleiman & Liu, 2013; Kotler et al., 1993; Kotler, Iancu, Efroni, & Amir, 2001; Nimeus, TraskmanBendz, & Alsen, 1997; Poudel-Tandukar et al., 2011; Suominen, Isometsa, Ostamo, & Lonnqvist, 2004). A recent meta-analysis also demonstrated a significant association between the Interpersonal Theory of Suicide domain of thwarted belongingness (a form of impaired social support) and both suicidal ideation and prior suicide attempts (Chu et al., 2017). Despite the strong evidence that hopelessness and impaired social connectedness lead to suicide, there are few evidence-based approaches that explicitly address these risk factors in order to prevent suicide (Zalsman et al., 2016).

Peer support specialists – individuals who have a lived experience of mental health challenges and are trained and employed to provide support to others – have the potential to improve hope and connectedness among individuals at risk for suicide (Davidson, Chinman, Sells, & Rowe, 2006). Peer support specialists (also referred to as peer specialists) may improve hope by serving as role models for recovery and by facilitating a process by which individuals identify and utilize resources for recovery in their own lives. Peer specialists may improve connectedness by providing emotional support, decreasing loneliness and stigma, and facilitating improved relationships with others. Several prior studies have reported that peer support improves hope (Cook, Copeland, et al., 2012; Cook, Steigman, et al., 2012; van Gestel-Timmermans, Brouwers, van Assen, & van Nieuwenhuizen, 2012) and connectedness (Chen, Tseng, Chou, & Wang, 2000; Forchuk, Martin, Chan, & Jensen, 2005; Kelly et al., 1993; Preyde & Ardal, 2003), although other studies have found limited or no effects, particularly regarding connectedness (Heller, Thompson, Trueba, Hogg, & Vlachosweber, 1991; Rivera, Sullivan, & Valenti, 2007; Robinson-Whelen, Hughes, Taylor, Hall, & Rehm, 2007; van Gestel-Timmermans et al., 2012). Current evidence regarding peer specialists' ability to improve key risk factors for suicide is limited, however, because

previously reported peer specialist interventions have not had suicide prevention as their primary focus.

Despite the lack of suicide-focused research, peer specialists work in a variety of clinical and community settings to provide services to individuals with mental illness, a population that is at increased risk for suicide (Ilgen et al., 2010; Salzer, Schwenk, & Brusilovskiy 2010). Many peer specialists also work with individuals at specifically high risk who have been discharged from a psychiatric hospital, who utilize peer-run residential alternatives to hospitalization, who access emergency rooms/crisis centers, or who are callers to peer-run warm-lines (less acute alternatives to crisis hotlines) (Dalgin, Maline, & Driscoll, 2011; Greenfield, Stoneking, Humphreys, Sundby, & Bond, 2008; Migdole et al., 2011; Shattell et al., 2014; Sledge et al., 2011). While reports on these programs often demonstrate favorable outcomes in terms of acceptability, potential cost-savings, or reductions in inpatient care, their effects on suicide-related outcomes have not been described.

We present here preliminary work conducted in preparation for a full-scale effectiveness trial to determine whether a peer specialist intervention focusing on individuals recently hospitalized for suicidal ideation or behaviors might reduce subsequent suicide attempts and suicidal ideation. We describe the development of the intervention, which is conceptually based on Joiner's Interpersonal Theory of Suicide, the intervention's core components, and the results of a pilot randomized controlled trial to demonstrate the feasibility and acceptability of the intervention. Findings are intended to help clinicians and researchers interested in developing and testing models of peer support to prevent suicide.

Methods

Intervention development and training

An expert panel process was used to develop the peer specialist suicide prevention intervention. The expert panel was comprised of suicide prevention researchers, peer support researchers, peer specialists, an expert in peer support training, the director of a peer support service and advocacy organization, and an inpatient psychiatrist. The panel was charged with developing an intervention to be delivered by state-certified peer support specialists with at least one year of work experience providing peer support and who had a lived experience of serious suicidal thoughts or behaviors. The additional training outline for these experienced peer specialists was to include interactions that would reduce risk for suicide by building on the peer specialists' prior general certification and recovery-based training. Based on the existing literature, the panel was also specifically asked to incorporate the goals of improving hopelessness and connectedness as key parts of the intervention.

A major topic addressed by the panel was the degree of structure for the intervention. The panel considered a series of scripted modules, worksheets, and "homework," typical of a manualized psychotherapy intervention. This highly structured approach was considered to run counter to peer specialists' prior training and to the authenticity of peer relationships necessary for developing connectedness and inspiring hope. However, a complete absence of structure, where each peer specialist determined the goals and content of discussion *de novo* with each participant, was judged as less likely to be effective in reducing suicide risk and

could make rigorous study (e.g., measuring fidelity) and future replication unworkable. The panel thus agreed upon a hybrid approach where the peer specialists would be trained to offer a series of “skills” or “tools” to address suicide risk via a focus on strategies to increase hope and connectedness, while the choice and timing of using these tools would be determined largely by the peer specialist to fit the needs and preferences of the person receiving support.

The result of the panel discussions was the outline of a 3-day intervention training program. From this outline, a detailed training program was developed by the study investigators, a post-doctoral fellow, and a peer consultant, with input on drafts from additional peer specialists. The training was organized into modules, each lasting approximately 1–2 hours. Modules contained a very brief didactic introduction, and then the majority of the time was spent in group discussion guided by a series of predetermined open-ended prompts. These discussions were facilitated by study investigators who were also mental health clinicians, though some discussions included a peer specialist as a co-facilitator. The goal was for the peers to share their own prior experiences with each topic and learn new perspectives or approaches from each other and from the study materials. Modules that included a skill component contained a video demonstration of the skill and/or a role-play exercise where each peer specialist would spend 10–15 minutes practicing the skill with another peer specialist, followed by additional group discussion. The specific content of the training is described below.

Intervention description

The major components of the PREVAIL (Peers for Valued Living) training and intervention are summarized in Table 1. The intervention sought to capitalize on common factors related to peer specialist work, including supportive listening and sharing of one’s own recovery story, but to tailor these activities to working with someone who is at high risk for suicide. As part of the training and ongoing supervision, the program peer specialists were instructed to consider certain “do’s and don’ts” when listening to someone talk about suicidal thoughts and behaviors, such as avoiding shaming individuals with statements such as “suicide is selfish” or “think about how your suicide would hurt your family.” Peer specialists were also coached in how to talk about their own experiences related to suicidal thoughts or actions with emphasis on the recovery-related aspects of their story. Peer specialists were expected to make some mention of their own experiences related to suicide in their initial meetings with the peer support recipient in order to clearly establish “peer-ness” on that dimension.

Several suicide prevention tools were adapted for use by peer specialists from existing suicide prevention interventions. For example, the peer specialists were trained to review and update suicide safety plans (originally created with a professional during the patient’s inpatient stay) and to develop “hope kits” or other physical reminders of hope, which were adapted from the concepts of Wellness Recovery Action Planning (WRAP) and a component of a cognitive behavioral therapy for suicide prevention (CBT-SP) developed by Stanley and Brown (Cook, Copeland, et al., 2012; Stanley et al., 2009). Informed by dialectical behavioral therapy (DBT), peer specialists were also trained to teach peer support recipients a mindfulness or relaxation technique that could be used as part of a safety plan during

periods of increased distress (Lynch, Trost, Salsman, & Linehan, 2007). Based on Feldman and Snyder's theory of hope, peers specialists were taught how to engage individuals at high risk for suicide in hopeful goal-setting (Feldman & Snyder, 2005). Tools focused on connectedness included semi-structured conversations regarding coping with grief or loss and strengthening one's social support network. These conversations consisted of open-ended questions exploring these issues and then eliciting the participant's ideas about ways to improve their level of support. We also developed a tool for helping participants to improve their communication skills so as to improve relationships and belongingness, drawing from concepts included in (DBT) and the business self-help book *Crucial Conversations* (Patterson, Grenny, McMillan, & Switzler, 2002). Finally, we introduced the peer specialists to the principles of motivational interviewing (MI) and a limited set of strategies (e.g., open-ended questions, reflections) to explore ambivalence and elicit change talk. We realized it would not be feasible to train peer specialists to become skilled practitioners in MI simultaneously with the other suicide prevention skills training. Thus our initial goal was to introduce basic skills and reinforce those over time during ongoing supervision. Each skill or lesson was taught via a brief didactic session, group discussion, and role play.

During the course of the subsequent pilot study, initial review of session transcripts revealed generally low use and wide variability in the fidelity of Peer Specialists' use of the intervention tools. To increase the ease of administering these tools, each of eight tools (except for the communication skills tool, which was the least used tool and thus deprioritized) was reformulated into a one-page semi-structured conversation guide using a standardized format. Each conversation guide included the steps of Invite, Learn, Share, and Motivate (ILSM). Motivational interviewing principles served as a guiding framework (Miller & Rollnick, 2002). In the Invite step, peer specialists were asked to first get permission from the participant to have a conversation about a hope or belongingness-related topic through explicit invitation, such as "It sounds like you don't have a lot to look forward to. Some people find setting a goal helps. Would you want to talk more about that?" During the Learn step, the peer was asked to find out more about what the participant has already tried and what the participant thinks might be helpful or relevant to his or her situation. During the Share step, the peer specialist was asked to provide helpful suggestions based on his or her personal experience or knowledge. The Share step was intentionally placed after the Learn step to encourage peer specialists to not jump immediately to providing suggestions and solutions to a participant's problem. Finally, the Motivate step was intended for the peer specialist to engage the participant in "change talk," including how taking action might be helpful to them, how they might practically go about implementing changes, and whether they have made a commitment to change. Peer specialists were asked to engage in one of these types of conversations each session, though it could occur at any point in a session. Each session typically would also include more general peer support interactions (e.g., sharing experiences and supportive listening).

To detect and address acute suicide risk, peer specialists asked about suicidal thoughts or behaviors at each encounter. If suicidal ideation or behaviors were endorsed, the peer specialists would use a scripted risk assessment algorithm to gather additional information regarding whether ideation was active/passive, whether the person had a plan, and the

person's level of intent to act upon their thoughts. If the algorithm indicated high risk, the peer specialist would then immediately contact the mental health clinician on-call for the study to review the assessment with the patient still present, and it would be the clinician's responsibility to determine the necessary next steps to ensure safety. Participant responses indicating moderate risk per the algorithm (e.g., no intent to act on thoughts) were not required to be reviewed in real-time with the participant present. These responses were reviewed with the clinician before the end of the day to determine whether additional follow-up with the participant was indicated. The participant's usual care clinician was also notified by the study team in cases of moderate or high risk per the assessment algorithm. Peers were taught to employ this protocol during the initial intervention training, and the protocol was reviewed in subsequent supervision sessions as necessary. Using this protocol, we sought to preclude peer specialists from having to make clinical judgments regarding the management of acute suicide risk.

Participants

Participants (n=70) in the pilot randomized controlled trial were adult patients (age 18 or older) admitted to the inpatient psychiatry units of two Midwestern facilities. Inclusion criteria were medical record documentation of suicidal ideation or suicide attempt at admission and a Beck Scale for Suicidal Ideation score of 5 or more (Beck, Steer, & Ranieri, 1988). Exclusion criteria included a) determination by the inpatient psychiatry attending physician that the patient was not suitable for peer support due to cognitive impairment, unstable psychosis, or severe personality disorder, b) positive screen for cognitive impairment according to the mini-Cog (Borson, Scanlan, Brush, Vitaliano, & Dokmak, 2000), c) discharge plans to another inpatient or residential facility, d) living more than 50 miles from any study peer specialists, e) currently receiving electro-convulsive therapy, f) insufficient English language skills, g) already receiving peer support on a biweekly or greater basis, or h) no reliable access to a telephone. All activities involving human subjects were conducted in accordance with local institutional review board (IRB) approval and a study-specific data and safety monitoring board (DSMB).

A total of 435 patients were admitted with suicidal ideation or attempts to the two participating inpatient psychiatric units and were screened via chart review and consultation with the attending psychiatrist for potential eligibility. A total of 179 were ineligible with the most frequent reasons being unstable psychosis, cognitive disorder, or severe personality disorder as determined by the attending psychiatrist (n=89); distance (n=30); and prolonged hospitalization due to receipt of electroconvulsive therapy (n=30). Of the 256 patients who met initial eligibility criteria, 196 were approached for recruitment. Of these 196 patients, 80 (41%) refused participation and 46 were determined to be ineligible on further screening. The most common reasons for refusal were lack of time (N=22) and unwillingness (N=19).

Peer support interventionists

Four state-certified peer support specialists were hired and trained to deliver the PREVAIL peer support intervention for this pilot study. They were recruited through e-mail notifications delivered to all peers who had completed the state certification training and who resided in the region of the recruitment sites. Interested candidates were screened for at

least one year of work experience as a professional peer specialist and the ability to discuss a personal lived experience related to recovering from suicidal thoughts or a suicide attempt. All peers worked part-time for the study and were paid an hourly rate for completed sessions and attendance at study-related meetings, trainings, and activities.

Procedures

Eligible participants who enrolled in the study were randomized to usual care or to the PREVAIL peer support intervention, which was provided in addition to usual care. Randomization was conducted at the time of enrollment using an online minimization tool that balanced groups on the basis of gender and suicide attempt history prior to admission. Participants assigned to PREVAIL chose the peer specialist he or she preferred based on short written autobiographical descriptions of the peer specialists available to take on new participants. The chosen peer specialist would then attempt to meet with the participant on the inpatient unit the following day to introduce him/herself and begin to establish rapport. The suicide safety protocols, which a research assistant previously described to the participant at enrollment, were also reviewed by the peer specialist at their first meeting. The peer specialist then continued to provide support after discharge over the following 12 weeks. The frequency of meetings was flexible and determined by mutual agreement of the peer specialist and participant, though they were encouraged to have up to twice weekly meetings for the first 2 weeks, then weekly meetings for the next 6 weeks, then biweekly meetings for the last 4 weeks, for a total of 12 meetings. This recommendation was made with the intention of providing more intensive support at the beginning of the intervention and immediately after hospital discharge and tapering the support as the study intervention neared completion. If participants requested increased support or peer specialists judged the participants to need additional support, the total number of meetings could increase up to a maximum total of 16 meetings over the 12 weeks. Duration of each meeting was also flexible, though generally expected to last at least 15 minutes and not to exceed 2 hours. The meeting location was flexible and could occur at a community location (e.g., library, coffee shop, or park), clinic, or the participant's home. Peer specialists and participants could also conduct sessions over the telephone and could communicate between sessions via text message or e-mail. Participants were instructed to not use text or e-mail in the case of a suicidal crisis, as the peers were not always monitoring their devices or e-mail accounts. In the case of a text or e-mail message indicating acute suicide risk, the peer would attempt to reach the participant by phone and contact the clinical supervisor for guidance. The degree of flexibility with meeting frequency and method was intended to foster peer relationships in contrast to the boundaries and limitations of traditional clinic-based mental health treatment.

Throughout the trial, the peer specialists met weekly with a study clinician (a psychiatrist or a psychologist) for group supervision. At the supervision meetings, each peer specialist provided a brief update on each participant he or she was supporting with the purpose of developing plans for future sessions (e.g., which ILSM conversation would be best) and addressing any challenging situations (e.g., participant not engaging). The meetings would also include refreshers on the study training materials and procedures, and review of audio-recordings chosen by the peer specialists or the clinical supervisor. Individual audio-recordings of sessions (approximately 1 per week) were also reviewed by the clinical

supervisor for fidelity, and any concerns specific to individual peer providers were handled in one-to-one discussions with subsequent monitoring.

Measures

The primary outcomes for this pilot study were measures of acceptability and feasibility of the intervention as assessed by the percentage of potentially eligible participants who agreed to participate in the trial, the percentage who completed a session with the peer specialist on the inpatient unit, the median number of peer sessions completed, and the percentage of participants who completed follow-up survey measures.

Fidelity of peer specialist delivery of each of the intervention's core components was assessed using a fidelity rating scale based on the Yale Adherence and Competence Scale (Carroll et al., 2000). This scale used 4-point individual item scales to rate the skill (1 representing "very poor" to 4 representing "skilled") and extensiveness (1 representing "not discussed" to 4 representing "a lot of discussion" [e.g., >15 minutes]) with which the peer specialists conducted ILSM conversations intended to improve hope and belongingness or address suicide safety. A rating of 3 or greater on both skill and extensiveness was considered adequate fidelity to the intervention. Fidelity to general communication and peer support skills (e.g., listening with validation, sharing, use motivational interviewing principles, avoidance of medical advice) were also rated on the 1 to 4 point "skill" scale with a score of 3 or greater indicating fidelity to the intervention. All sessions between peer specialists and participants were audio-recorded, and 20 sessions (5 randomly selected for each peer) were rated using the fidelity rating scale by research assistants who had achieved inter-rater agreement >80%.

Measures of suicide-related outcomes and potential intervention mediators were collected at baseline, 3 months (when the peer intervention ended for those assigned to that arm), and 6 months post-randomization. Suicide attempts were measured by an electronic self-report version of the Columbia Suicide Severity Rating Scale (CSSR-S) (Posner et al., 2011). Suicide attempts were categorized as any actual, aborted, or interrupted attempts based on participant responses to the three corresponding dichotomous items included in the CSSR-S. Baseline suicidal ideation and behaviors predicted future suicide attempt behavior in a study of over 35,000 administrations of an electronic version of the CSSR-S (Mundt et al., 2013). Suicidal ideation was measured by the Beck Scale for Suicidal Ideation, a 21-item measure (with 19 items scored for a range from 0 to 38) with strong internal consistency (Cronbach's alpha = .93) that has been previously associated with suicide deaths (Beck, Brown, Steer, Dahlsgaard, & Grisham, 1999; Beck et al., 1988). Hopelessness was assessed according to the Beck Hopelessness Scale, which consists of 20 dichotomous items and has also been shown to be predictive of suicide deaths (Beck et al., 1990; Beck & Steer, 1988). Hope was measured by Snyder's 12-item Hope Scale, of which 4 items are distractors and 8 items are scored for a total ranging between 8 and 64. The Hope Scale has good internal consistency (Cronbach's alphas between .74 and .84) and convergent validity and has been used in prior peer support intervention research (Cook, Copeland, et al., 2012; Snyder et al., 1991). Belongingness was measured by the NIH Adult Toolbox Social Relationship scales, which include separate scales for emotional support, instrumental support, friendship, loneliness,

and perceived rejection (Cyranowski et al., 2013). Raw scores on these scale were converted to t-scores such that T-score of 50 on the scale represents the mean in the general population with a standard deviation is 10 (Casaletto et al., 2015). These scales have Cronbach's alphas between 0.93 and 0.97 and have demonstrated convergent validity with other measures of social support (Cyranowski et al., 2013). Use of services (i.e., usual care received) was assessed by a self-report checklist that included inpatient, emergency room, intensive outpatient, outpatient, and community support/self-help services (Booth, Kirchner, Fortney, Ross, & Rost, 2000). Lifetime use of services was obtained at baseline, and use of services during the interval from the prior assessment was measured at 3 and 6 months. Any potential adverse events -- suicides, suicide attempts, or suicide-related acute services use -- that the study team learned about outside of the formal assessment periods (e.g., through participant contact or notification from participants' usual care providers) were also recorded and reported as appropriate to the IRB and DSMB. Determination of whether adverse events were related to study activities was based on examination of available medical records, the most recent study assessment completed, and the most recent interactions with the study team, including the peer specialist.

Participant experiences and feedback were obtained via a series of semi-structured interview questions that were asked at the 3-month assessment for those assigned to the PREVAIL arm. Our primary questions of interest were: 1) "How well did you relate to your peer?", 2) "How did the conversations you had with your peer regarding suicide go? Did you feel your peer was supportive?", 3) "Would you have preferred that the peer specialist had given you more specific suggestions or advice?", and 4) "Would you have preferred that the peer specialist listened more and tried to understand you without trying to provide advice or suggest what you should do?"

Although there were theoretical concerns that the peer specialists themselves could experience worsening (or improved) mental health through their involvement in the study, we did not assess them as research participants in order to treat them equitably with the providers of other psychiatric or psychotherapeutic interventions. Research studies involving mental health clinicians do not typically assess the mental health outcomes of those clinicians, although their performance and fidelity are often assessed. As a matter of feasibility, no peer specialists reported undue stress related to the work of the study and there were no interruptions in any of the peer's employment due to fidelity or performance issues.

Analyses

Means and frequencies were used to describe participation rates in the study procedures and peer support intervention. Means and frequencies for each of the suicide-related outcomes, potential mediators, and secondary outcomes were also calculated at each assessment point. Comparisons were not formally tested between the study arms or between time points because the study was not adequately powered to detect intervention efficacy (Lancaster, Dodd, & Williamson, 2004). Responses to the semi-structured interview questions were organized into similar themes by three of the authors using a cutting and sorting method in which each response was placed on a single strip of paper and then sorted into piles representing similar responses (Ryan & Bernard, 2003).

Results

Study participation

Eighty-eight percent (30 of 34 participants) in the peer support arm completed an initial meeting with the peer specialist prior to hospital discharge. The mean number of peer sessions completed over 3 months was 6.1 (SD 5.0) and the median number was 4. The average duration for a peer encounter was 54 minutes (SD 25.1). After the initial meeting on the inpatient unit, 31% of peer specialist sessions were by telephone, 47% were at a community location, 4% were at a clinic setting, and 18% were at the participant's home. Among all participants, 79% (55 of 70) completed the 3-month assessments and 76% (53 of 70) completed the 6-month study assessments. Patient demographic characteristics and inpatient mental health diagnoses are shown in Table 2.

Fidelity

Among 20 sessions rated using the study fidelity rating scale, 85% demonstrated adequate fidelity (score of 3 out of 4 on both skill and extensiveness) to administering a conversation tool regarding hope, belongingness, or safety. Across all general communication and peer support skills, 72.5% were performed with adequate fidelity.

Suicide-related outcomes and potential intervention mediators

Table 3 includes the baseline, 3-month, and 6-month results for each of the measured outcomes. Among all participants, 77% had made a lifetime suicide attempt at the time of study enrollment, whereas 15% made a subsequent suicide attempt during the first 3 months of the trial and 18% made a suicide attempt during the full 6 months of the trial observation period. Due to limited power, we did not formally test for differences across time or between groups.

Service use outcomes

As depicted in Table 4, participants had high levels of prior lifetime use of acute and outpatient psychiatric care, with 44–53% of all participants having previously been hospitalized or seen in an emergency department (ED) setting, and over 75% having used outpatient therapy or taken psychotropic medications. Usual care received by both study arms in the 3 and 6 months following enrollment consisted of high rates of outpatient therapy (75%–82%) and psychiatric medication use (79%–95%). Inpatient and ED use appeared to decrease over time (33% utilization for each in the first 3 months vs. 13–17% utilization between 3 and 6 months), though this remains speculative given the power limitations. Less than 20% of participants used mental health and substance use support groups during the study period.

Adverse events

One participant in the usual care arm died by suicide shortly after his discharge from the initial psychiatric hospitalization, and one participant in the PREVAIL arm died from a suspected suicide approximately 6 weeks after the 3-month peer intervention component had ended. Two participants in the PREVAIL arm were hospitalized in the first 3 months after

study staff contacted Emergency Medical Services due to acute suicide risk, and in one of these cases the participant had already overdosed on medication prior to her meeting with the peer specialist. The study team was not directly involved in any hospitalizations for participants in the usual care arm, as there was little contact with these participants outside of the 3 and 6 month assessments. No adverse events were determined to be due to study participation.

Participant experience and feedback

Twenty-three PREVAIL participants provided responses to the semi-structured interview questions. Regarding how well participants related to the peer, nine answered using a superlative such as “very well” or “really good,” and one respondent elaborated “it was like talking to a friend instead of a counselor;” 11 described relating to the peer as “good” including one participant who reported that “it took a few appointments to find a common ground, but eventually worked out and related well to one another;” 1 participant reported a poor relationship because “they didn’t have too much in common;” 1 participant reported a poor relationship because the peer was “very spiritual and more evangelical” than expected; and finally, 1 response did not address the question. With regard to any discussions about suicide, 19 participants found those discussions supportive; 10 of these responses used a superlative such as “very supportive” and 3 reported a similar theme that the peer “has been in my situation, so it was really easy to relate.” One participant who only met with the peer once stated they did not discuss suicide, and 3 participants’ responses to suicide discussions were unclear as to whether or not they felt the peer was supportive. Only 3 participants expressed a preference for the peer specialist to have given them more specific suggestions or advice, 1 was ambivalent or unclear about their preference, and 19 indicated satisfaction with the amount of advice they were given. One participant’s response was “…everything the peer suggested and talked about was spot on. It helped me out a lot.” Three participants preferred the peer to listen and understand them more rather than share or give advice, whereas 19 indicated the peer specialist offered the appropriate amount of advice and listening. Of those 19 responses, 5 specifically stated the peer was a “good listener” and another 5 stated that “there was a balance of sharing and listening.” One participant did not address the question; however, their response indicated that hearing about the peer specialist’s difficulties made theparticipant feel worse because the peer specialist was worse off than the participant.

Discussion

Peer specialists are currently integrated into many community mental health centers and large health systems (e.g., Veterans Health Administration) where they provide support to individuals at high risk for suicide. Yet evidence for safe and effective models for providing peer support to reduce the risk of suicide is lacking. To begin to address this gap, we developed an intervention to be delivered by peer specialists over 12 weeks to patients who had been psychiatrically hospitalized and who were at high risk for suicide. We then tested the acceptability and feasibility of the intervention in a pilot randomized controlled trial involving 70 participants and found the intervention to be feasible and acceptable.

Feasibility and acceptability were demonstrated by the ability to recruit and enroll a high percentage of eligible patients into the study, the ability to complete at least one peer session during the inpatient stay for the vast majority of participants, the average number and duration of peer sessions completed by participants, the adequate rates of retention and follow-up assessment completion, and generally favorable participant feedback regarding the peer intervention. The fact that the median completion of 4 sessions was lower than the mean of 6.1 reflects a non-normal distribution of participation with about half of patients having little or low-level engagement with the peer and the other half often having robust engagement with 10 to 14 sessions completed. Reasons for variable engagement need to be further studied and could reflect some participants' satisfaction with few or infrequent meetings, dissatisfaction with the support received, or practical barriers to meeting more frequently. We attempted to address logistical barriers by maximizing flexibility for meeting times and locations, and by enabling Peers to provide support via phone calls, text messaging, or e-mail (note: text message and e-mail communications were not tracked or counted as sessions). When queried by research staff, participants often reported lacking time to spend with the peer specialist in the context of feeling overwhelmed with other appointments and responsibilities after leaving the hospital, though we could not rule out that the participant could have made time if the initial encounter with the peer had been more engaging or rewarding. Prior studies have suggested that even low-intensity expressions of support, such as the Motto study, in which caring letters were sent to previously hospitalized patients 8 times in the first year, may have anti-suicide effects (Motto & Bostrom, 2001). Thus it is possible those who had limited engagement with the peer may have benefited, or that more sustained contacts over time are necessary. Additional study is needed in order to make any conclusions about the relationship between the length and intensity of peer support and suicide-related outcomes.

Fidelity to the intervention was good, with peer specialists demonstrating in a large majority of rated sessions at least adequate ability to use supportive techniques and conduct specific semi-structured conversations to address suicide risk. The development of the standardized ILSM conversation guides occurred after the initial 3-day training in order to better standardize delivery of the specific suicide prevention content, and we suspect fidelity could be improved further if this content were included in the initial intensive training with video examples and role-playing.

Considering the tension between providing participants with structured, standardized suicide prevention content and allowing the peers to be authentic in forming a supportive and hopeful peer relationship, we took a "middle ground" approach. Participants who completed the 3-month interviews were mostly satisfied with this approach, with the vast majority indicating that the amount of specific advice and the amount of listening and support were well balanced. Whether this is the most effective approach for reducing suicide is unknown, and it is possible alternative approaches would have been preferred by those who did not engage or complete the follow-up interviews.

We suspect the lack of prior rigorous research involving peer specialists in suicide prevention roles may relate to beliefs that a) peer specialists lack the skills or training to have discussions regarding suicide risk, and poorly conducted discussions could

inadvertently harm patients; b) peer specialists may themselves be harmed by the stress of working with suicidal patients; and/or c) having peer specialists discuss suicide with patients creates medical-legal liabilities, for example, if an adverse event occurred subsequent to a suicide-related discussion with a peer. This study addresses these concerns by a) providing peer specialists with intensive suicide prevention training and ongoing supervision; b) weekly group supervision, which also provides peer specialists with their own peer support and creates the relationships and opportunities necessary to identify potential negative impact on the peer specialists; and c) a risk management protocol where peer specialists ask about suicidal ideation at every visit and follow a standardized, scripted algorithm to determine when to seek clinical consultation from an available mental health clinician. With these safeguards in place, we did not experience any lack of cooperation or concerns regarding study procedures from the IRB, hospital administration, or clinical providers at either study site. We found peer specialists were able to provide support to high-risk patients, including some with recurrent attempts and hospitalizations, without any large appreciable increased risk of harm to either patients or peer specialists. Given the preliminary nature of this work, no conclusions can be made about risks, and efforts to employ peer specialists in specific suicide prevention roles should consider these safeguards, monitor for adverse effects, and report pertinent findings.

Although the study was not adequately powered to compare differences between treatment arms (including participation in study assessments) or changes over time, what outcome data do show is the ability to reliably obtain measures of suicidal ideation, suicide attempts, hope, belongingness, and services use from this high-risk population as part of a controlled trial. A fully powered trial remains necessary and indicated to determine whether the intervention has the intended effect of reducing suicidal ideation and attempts, and whether this effect is mediated through the hypothesized mechanisms of improved hope and connectedness.

In addition to the study being limited by the small sample size, we also note the large number of patients who were ineligible to participate. Many of these were due to judgments by attending psychiatrists regarding who was appropriate for the intervention. It is possible some of these psychiatrists were overly conservative in their views of who is appropriate for peer support, and the study team did not independently verify appropriateness for exclusion or systematically collect diagnostic or other information on these non-consented individuals. Requiring more explicit justification for exclusion may have resulted in greater inclusiveness, though our approach may better represent clinical practice on inpatient units. The study sample might not be representative of other populations due to recruitment occurring predominantly at one academic medical center. The intervention also assumes participants have completed a safety plan prior to discharge which could limit adoption of the intervention to facilities that do not use or wish to adopt safety plans. This requirement is to ensure participants have basic safety precautions in place from the moment of discharge, and so that safety planning does not become the primary responsibility of the peer specialist. We chose to have peer specialists focus on improving hope and connectedness, but peer specialists may be effective at preventing suicide through other means such as safety planning, treatment engagement, or linkage to other supports.

If further research establishes effectiveness, it will be important to consider how to integrate peer support services for suicide prevention with existing approaches, such as DBT, CBT-SP, or collaborative assessment and management of suicide (CAMS) (Jobes, 2012; Lynch et al., 2007; Stanley et al., 2009). Several of the elements of PREVAIL, such as reviewing safety plans or developing physical reminders of hope, overlap with existing psychotherapeutic approaches – though similar elements are also present in established peer-delivered programs such as Wellness Recovery and Action Planning (Cook, Copeland, et al., 2012). Where there is overlap, the peer specialist and other members of the treatment and support team should work together to provide a consistent message. However, much of the hypothesized mechanisms by which peer support improves hope and connectedness is due to the nature of the peer relationship where the peer and patient share lived experiences and model hope by their recovery and connection. This particular recovery pathway may not overlap with existing evidence-based suicide prevention approaches and could be additive.

Conclusion

It is feasible and acceptable for peer support specialists to engage patients at high risk for suicide in a supportive peer relationship that includes semi-structured conversations addressing key suicide risk factors – hopelessness and connectedness -- and suicide safety. The PREVAIL intervention pilot tested in this study incorporates validated theories regarding suicide risk and evidence-based approaches to behavior change. Future studies are needed to determine if this approach is effective at reducing the risk of suicidal behaviors.

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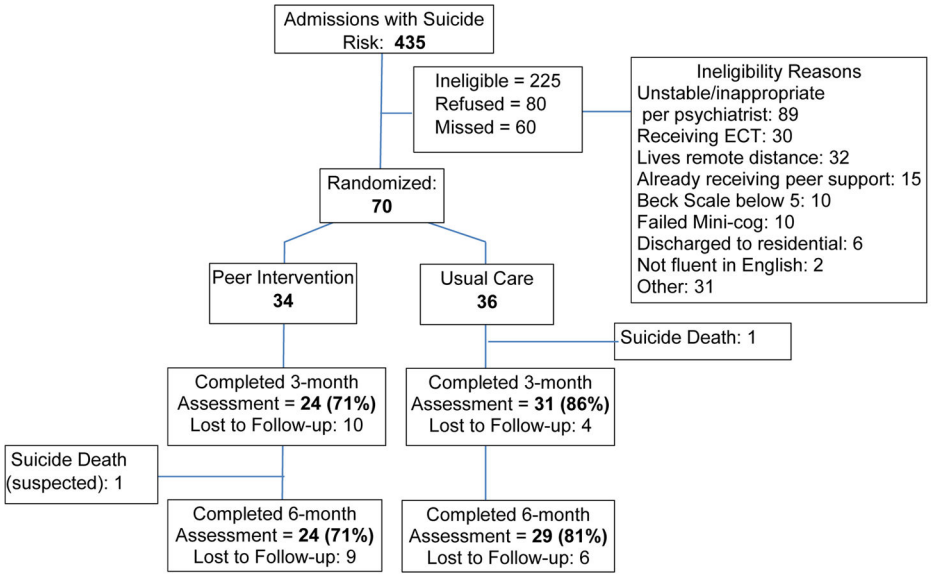

Figure 1.
Consort Diagram for PREVAIL Pilot

Table 1

Major Components of the PREVAIL Peer Support Intervention for Suicide Prevention

Fundamentals of peer support in the context of suicide
Supportive listening, validation, and empathy when the topic is suicide
Sharing one's recovery story when it relates to suicide
Improving hope
Physical reminders of hope, e.g., hope kits
Setting hopeful goals
Improving belongingness
Addressing grief and loss
Strengthening one's social support network
Managing acute suicide risk
Asking about suicide, suicide risk assessment algorithm, and obtaining clinical supervision
Reviewing and revising suicide safety plans
Relaxation and mindfulness techniques to manage distress
Maintaining participant and provider wellness
Risk and prevention of vicarious trauma and burnout in peer providers, postvention
Sustaining the process of recovery for participants who report doing well
Principles of motivational interviewing

Table 2

Participant Demographic Characteristics (N=70)

Characteristic	n (%)
Gender	
Female	37 (53)
Male	29 (41)
Transgender or Non-binary	4 (6)
Race/Ethnicity	
White, not Hispanic	55 (79)
Black	9 (13)
Hispanic	4 (6)
Asian	1 (1)
Middle Eastern	1 (1)
Age, Mean (SD)	34 (14)
Education	
High school or less	24 (34)
Some college	30 (43)
College graduate	16 (23)
Marital Status	
Married/living with partner	18 (26)
Never married	45 (64)
Divorced/separated/widowed	7 (10)
Employment	
Working full- or part-time	22 (31)
Unemployed or disabled	24 (34)
Student	17 (24)
Homemaker/Caregiver	5 (7)
Retired	2 (3)
Inpatient Diagnosis (n = 69)	
Unipolar mood disorder	40 (58)
Bipolar mood disorder	8 (12)
Schizophrenia, other psychosis	3 (4)
Anxiety disorder	3 (4)
Substance use disorder	4 (6)
Personality disorder	7 (10)
Other	4 (6)

Table 3

Suicide-related outcomes and hypothesized mediators at baseline (BL), 3 months (3Mo), and 6 months (6Mo) post-randomization

Measure	All Participants (N=70)	Peer Intervention (N=34)	Usual care (N=36)
	n (%)	n (%)	n (%)
Lifetime Suicide Attempts BL	54 (77)	28 (82)	26 (72)
Suicide Attempts BL to 3Mo	8 (15)	3 (13)	5 (16)
Suicide Attempts BL to 6Mo	9 (18)	4 (17)	5 (18)
	M (SD)	M (SD)	M (SD)
Suicidal Ideation (Beck Scale) BL	23.3 (7.6)	22.6 (8.2)	23.8 (7.0)
Suicidal Ideation (Beck Scale) 3Mo	5.7 (7.1)	5.2 (7.5)	6.1 (6.9)
Suicidal Ideation (Beck Scale) 6Mo	3.6 (4.3)	4.4 (4.7)	3.0 (3.8)
Hopelessness BL	9.1 (5.7)	10.4 (5.6)	7.9 (5.6)
Hopelessness 3Mo	7.3 (5.5)	7.1 (5.8)	7.3 (5.3)
Hopelessness 6Mo	6.0 (4.8)	6.0 (5.2)	6.0 (4.5)
Hope BL	37.5 (11.4)	35.9 (10.9)	39.0 (11.8)
Hope 3Mo	41.2 (11.1)	41.3 (10.5)	41.1 (11.6)
Hope 6Mo	43.5 (11.3)	43.4 (9.3)	43.7 (12.9)
Emotional Support BL	39.3 (11.8)	38.0 (12.1)	40.6 (11.5)
Emotional Support 3Mo	39.9 (11.8)	39.1 (11.8)	40.6 (12.0)
Emotional Support 6Mo	41.4 (11.3)	40.1 (11.7)	42.5 (11.1)
Friendship BL	39.0 (11.5)	38.7 (10.4)	39.2 (12.6)
Friendship 3Mo	41.0 (12.8)	39.1 (13.2)	42.5 (12.4)
Friendship 6Mo	40.2 (10.9)	38.2 (9.5)	41.7 (11.8)
Loneliness BL	70.1 (9.1)	71.6 (9.3)	68.7 (8.7)
Loneliness 3Mo	66.0 (12.2)	65.7 (11.3)	66.3 (13.0)
Loneliness 6Mo	64.5 (9.7)	66.3 (7.8)	63.1 (11.0)
Perceived Rejection BL	63.7 (11.5)	64.8 (11.6)	62.6 (11.4)
Perceived Rejection 3Mo	60.1 (12.1)	61.1 (12.6)	59.3 (11.9)
Perceived Rejection 6Mo	58.6 (11.1)	62.0 (11.1)	55.8 (10.4)

Table 4

Service utilization at baseline (BL), 3 months (3Mo), and 6 months (6Mo) post-randomization

Measure	All Participants (N=70)	Peer Intervention (N=34)	Usual care (N=36)
	n (%)	n (%)	n (%)
Lifetime Prior Psych Hospitalization BL	31 (44)	16 (47)	15 (42)
Psych Hospitalization BL to 3Mo	18 (33)	7 (29)	11 (35)
Psych Hospitalization 3Mo to 6Mo	7 (13)	5 (21)	2 (7)
Lifetime Psych Emergency Room BL	37 (53)	20 (59)	17 (47)
Psych Emergency Room BL to 3Mo	18 (33)	9 (38)	9 (29)
Psych Emergency Room 3Mo to 6Mo	9 (17)	6 (25)	3 (10)
Lifetime Outpatient Therapy BL	55 (79)	26 (76)	29 (81)
Outpatient Therapy BL to 3Mo	45 (82)	20 (83)	25 (81)
Outpatient Therapy 3Mo to 6Mo	40 (75)	18 (75)	22 (76)
Lifetime Psychiatric Medication BL	58 (83)	30 (88)	28 (78)
Psychiatric Medication BL to 3Mo	52 (95)	22 (92)	30 (97)
Psychiatric Medication 3Mo to 6Mo	42 (79)	18 (75)	24 (83)
Lifetime Mental Health Support Grp BL	17 (24)	8 (24)	9 (25)
Mental Health Support Grp BL to 3Mo	8 (15)	4 (17)	4 (13)
Mental Health Support Grp 3Mo to 6Mo	8 (15)	5 (21)	3 (10)
Lifetime Substance Support Group BL	17 (24)	9 (26)	8 (22)
Substance Support Group BL to 3Mo	10 (18)	4 (17)	6 (19)
Substance Support Group 3Mo to 6Mo	9 (17)	2 (8)	7 (24)