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Suicide and Life-Threatening BEHAVIOR

ORIGINAL ARTICLE

Perspectives of suicide loss survivors: Qualitative analysis of data from a psychological autopsy study of U.S. Army soldiers

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Abstract

Introduction: Suicide loss survivors can provide information not otherwise available about the circumstances preceding a suicide. In this study, we analyzed interview data from suicide loss survivors collected as part of a psychological autopsy study of U.S. Army soldiers.

Methods: Next-of-kin (NOK) ($n = 61$) and Army supervisors (SUP) ($n = 107$) of suicide decedents ($n = 135$) who had died in the last 2–3 months answered open-ended questions about suicide risk factors, ideas for improving suicide prevention, and the impact of the suicide. Responses were coded using conventional content analysis methods to identify common themes.

Results: Many NOK (30%) and SUP (50%) did not observe any signs of risk preceding the soldier's suicide. The most common idea regarding suicide prevention from SUP was that the suicide was inevitable, whereas NOK were more likely to emphasize the importance of increasing mental health treatment and reducing stigma. Both NOK and SUP reported negative effects of the suicide, but SUP reported some positive effects (e.g., increased unit connectedness).

Conclusions: Results underscore the challenges of using informants to identify soldiers at high risk of suicide, given many respondents did not observe any warning signs. Findings also highlight attitudinal barriers present in the military that, if targeted, may increase soldiers' help-seeking and willingness to disclose their risk.

KEYWORDS
military, qualitative methods, suicide

INTRODUCTION

Suicide is a leading cause of death in the United States, particularly among military servicemembers (Department of Defense, 2022). Unfortunately, an inevitable outcome of each suicide is that many people are left behind to cope with the loss (Cerel et al., 2019). These *suicide loss survivors* can include family members, friends, coworkers, and in the

military, unit members (Cerel et al., 2013; Ho et al., 2018). As the people closest to the suicide decedent, suicide loss survivors often have information about the moments leading up to suicide deaths that is not available elsewhere. For this reason, psychological autopsy studies, which review the psychological aspects of the suicide decedent's life and attempt to reconstruct the psychological state of the decedent shortly prior to and at the time of death, routinely interview suicide loss survivors. Most psychological autopsies have used a structured approach, guiding interviewees through diagnostic interviews (e.g., the Structured Clinical Interview for DSM Disorders [SCID]) or searching for information about hypothesized risk factors (e.g., stressful life events), typically using structured, checklist-style instruments (Conner et al., 2011). Although this approach makes it easier to compare results across studies, some commentators have argued that this structured, quantitative focus, often involving interviews with one informant, is limiting (Hjelmeland & Knizek, 2016). To address these limitations, researchers have encouraged the use of a multi-informant, qualitative approach, in which informants are not only asked structured interview questions about decedents' diagnoses or known risk factors, but are also asked to speak openly about their perspectives to more fully capture the story of why the suicide occurred (Hjelmeland et al., 2012).

Here we used open-ended qualitative interview data from the largest military-focused psychological autopsy conducted to date. This study was carried out as part of the Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS) (Ursano et al., 2014). We sought to better understand: The risk factors and perceived causes of the suicide, perspectives on suicide prevention efforts, and the impact of the suicide on others.

METHODS

Sample and procedures

Sample

We contacted family members of soldiers who had died by suicide within the past 2–3 months via the Army Casualty and Mortuary Affairs Operation Center to ask about their willingness to be contacted by a member of our research team to learn about the study. Of the 290 families contacted during this process, 101 next-of-kin (NOK) were identified and 99 were eligible ($n = 2$ were ineligible due to a language barrier or being deceased). Of eligible NOK ($n = 99$), most ($n = 61$; 61.6%) completed an interview, 13 (12.1%) refused to participate, and 25 (25.3%) could not be reached. Of the 61 NOK who completed an interview, most were soldiers' spouses ($n = 33$; 54.1%) or parents ($n = 25$; 41.0%), along with a few cases of another informant (e.g., sibling; $n = 3$; 4.9%).

We also contacted first line Army Supervisors (SUP) of the suicide decedents. Of the 213 supervisors identified by the Office of the Deputy Undersecretary of the Army, 59 were deemed ineligible due to indicating they did not know the decedent. Of the 154 eligible supervisors, 107 (69.5%) agreed to participate, 7 (4.5%) refused to participate, and 40 (26.0%) could not be reached.

Interview questions

Data were gathered using a psychological autopsy interview that included both structured and open-ended questions. This interview was created using a multistep measure development procedure that involved (a) a comprehensive literature reviews of prior autopsy studies; (b) a review of measures used in prior studies; (c) a review of recommendations regarding best practice procedures for autopsy studies (Conner et al., 2011, 2012); (d) an attempt to use construct assessments comparable to those used in other Army STARRS studies to facilitate comparison across study components; and (e) an attempt to ask parallel questions of NOK and supervisors to allow for comparisons across informants. The final interview included 25 sections assessing potential risk and protective factors for suicide using checklist-style instruments and structured interview questions. It also included a section with open-ended questions that were included to solicit informants' perspectives and opinions on the suicide and military suicide prevention efforts. These six open-ended questions were the focus of the current study:

Question 1 (Q1): In your opinion, what might have contributed to the soldier's death?

Q2: Looking back, was there anything that might remotely have suggested that the soldier was at risk?

Q3: In your opinion, what might have prevented the death?

Q4: Do you have any recommendations about how soldier suicides can be prevented in the future?

Q5: How has the suicide affected you and your family/unit?

Q6: Do you have any recommendations about how families and friends/units could be helped after a suicide?

We previously reported findings from this psychological autopsy study (Dempsey et al., 2019, 2021, 2023; Nock et al., 2017; Zuromski et al., 2019); however, no prior studies have reported on the open-ended interview data. This study was approved by the human subjects committees of Harvard University (Harvard University Area Institutional

Review Board Number F18173; Harvard Medical School Institutional Review Board Number M18189) and all other collaborating organizations.

Interviewer training

Informant interviews were conducted by professional lay interviewers from the Survey Research Center in the Institute for Social Research at the University of Michigan. Interviews were completed via telephone and subsequently transcribed for analysis. All interviewers completed a General Interviewer Training course and completed periodic refresher courses throughout data collection to prevent interviewer drift (Heeringa et al., 2013).

Qualitative data analysis

Codebook development

We used a content analysis approach to analyze interview data (Hsieh & Shannon, 2005). Two doctoral-level team members (KLZ and CRW) independently reviewed all 61 NOK and 107 SUP interviews to inductively derive prominent themes related to each of the six interview questions. The themes identified during this initial review were then organized into a draft codebook. Next, a team of two doctoral-level team members (KLZ and CRW) and four research assistants used the draft codebook to code batches of four to eight interviews at a time. After each rater independently coded their batch of interviews, the group came together to discuss codes and identify any gaps in the codebook. This iterative process allowed for the identification of new codes, generation of descriptions and examples of each code, removal of redundant or irrelevant codes, and refinement of the overall organization of the codebook. Overall, each team member coded between eight and 28 interviews total (including both NOK and SUP interviews) during the codebook development process. The codebook was finalized with 242 unique themes organized into four subsections corresponding to interview questions (risk factors [Q1-Q2], suicide prevention [Q3-Q4], suicide survivor impact [Q5], postvention recommendations [Q6]).

Next, a group of five research assistants reviewed the final codebook and coded several interviews for training. Specifically, a doctoral-level team member coded four training sets containing four–six interviews each. Then, each member of the coding team had to complete at least one training set and reach at least 80% agreement with the codes identified by the doctoral-level team member to calibrate to the codebook and establish coding reliability. If a team member did not reach this level of agreement, they completed an additional training set. Once all team members reached this threshold, they were eligible to begin coding.

Coding process

All 61 NOK and 107 SUP interviews were then independently coded by two team members who coded the presence/absence of themes in each interview. Discrepancies were resolved in weekly consensus coding meetings with the study team which included at least one doctoral-level team member. Themes were counted only once per interview question (i.e., if the respondent mentioned "depression" in their response multiple times, it was only counted one time).

The final coded versions of each interview were used to generate frequencies for each theme, which allowed us to identify common themes that emerged in responses to each question. During review of these results, the 242 granular themes included in the codebook were collapsed into broader categories for the sake of parsimony and ease of interpretation. This process resulted in a set of 87 themes that were used in analyses. These themes are described in Table S1.

RESULTS

Frequently coded themes for all questions can be found in Tables 1–3, and full results can be found in Tables S2–S4. Example quotes from NOK and SUP interviews demonstrating common themes are in Table S5. Throughout the results section, we also include exemplar interview responses that contain common themes and response patterns.

Suicide risk factors

In your opinion, what might have contributed to the soldier's death?

Both NOK and SUP report similar factors contributing to the soldier's suicide. The presence of romantic problems prior to the soldier's suicide was the most frequently coded theme for both NOK (34.4%) and SUP (43.0%). Other frequently occurring themes included loss or lack of family/social support (NOK: 19.7%, SUP: 28.0%), problems related to deployment/post-deployment (NOK: 21.3%), and other military related factors (NOK: 27.9%, SUP: 24.3%) (Table 1).

NOK and SUP responses to this question typically included multiple themes (on average, about three themes

TABLE 1 Most frequently coded risk factor themes.[a]

NOK ($n=61$)		SUP ($n=107$)	
% responses present	Theme	% responses present	Theme
In your opinion, what might have contributed to the soldier's death?			
34.4	Romantic problems	43.0	Romantic problems
27.9	Other military contributing factor	28.0	Loss or lack of family/social support
21.3	Problems related to deployment/post-deployment	24.3	Other military contributing factor
19.7	Loss or lack of family/social support	15.0	Alcohol or substance use problems
16.4	Stressful events/PTSD	13.1	Legal problems
16.4	Psychological factors	12.1	Financial problems
14.8	Distressing emotions/negative affect	10.3	Stressful events/PTSD
13.1	Alcohol or substance use problems		
11.5	Work load/work stress		
11.5	Legal problems		
11.5	Problems with or lack of treatment		
11.5	Depression		
Looking back, was there anything that might remotely have suggested that the soldier was at risk?			
29.5	No, nothing suggested soldier was at risk	49.5	No, nothing suggested soldier was at risk
18.0	Disclosure of suicidal thoughts or preparatory behavior	12.1	Romantic problems
18.0	Depression	11.2	Problems with or lack of treatment
14.8	Other mood/mental health factor		
13.1	Alcohol or substance use problems		
11.5	Problems with or lack of treatment		

Note: Themes are not mutually exclusive and thus percentages are not cumulative. Percentages reflect the number of responses containing mention of the given theme.

Abbreviations: NOK, next-of-kin; SUP, Army Supervisors.

[a]Given the large number of themes, only themes coded in at least 10% of responses are included in this table. Full results available in Table S2.

appeared in each response). As an example, the following quote describes deployment, mental health concerns, infidelity, divorce, and financial problems all as contributing factors for one soldier's suicide:

> NOK: "His most recent deployment [and] the medications he was taking due to anxiety and depression. The breakup of his marriage – he learned that his wife cheated on him during deployment. He wanted to have an intact family for his daughter and he realized that wasn't going to happen. [And the] financial situation – he and his wife were doing very well but the amount of money they were paying for attorneys for the divorce destroyed them financially."

Similarly, this quote from a SUP describes romantic relationship problems, separation from child, discharge due to medical issues, and substance use concerns, and the synergy of these factors contributing to the soldier's suicide:

> SUP: "His relationship his wife. His relationship with his girlfriend. Strain of being away from his daughter. Medical separation. Stress of finding employment after medical separation. Alcohol. Prescription pain killers. And they all hit at one moment."

Looking back, was there anything that might remotely have suggested that the soldier was at risk?

The most common response to this question was that nothing suggested the soldier was at risk, which was reported by about 50% of SUP and 30% of NOK (Table 1). NOK also frequently described that soldiers' mental health problems

TABLE 2 Most frequently coded suicide prevention themes.[a]

NOK ($n=61$)		SUP ($n=107$)	
% responses present	**Theme**	**% responses present**	**Theme**
In your opinion, what might have prevented the death?			
29.5	Receiving treatment, or more/better treatment than soldier was getting	16.8	Nothing/inevitable
11.5	Reduce romantic problems	15.9	Soldier should have told someone about problems / accepted help
9.8	Better military support/attention to soldiers' problems	15.0	Receiving treatment, or more/better treatment than soldier was getting
8.2	NOK or SUP feels they should have helped soldier more	14.0	Don't know
8.2	Increased social support	13.1	Negative attribute about soldier contributed to suicide
8.2	Change military policies	10.3	Better military support/attention to soldiers' problems
8.2	Reduce stigma/career impact of treatment	8.4	Increase supervision/monitoring of at-risk soldiers
8.2	Better transitional care		
Do you have any recommendations about how soldier suicides can be prevented in the future?			
21.3	Reduce stigma/career impact of seeking treatment	25.2	Don't know
19.7	Better military support/attention to soldiers' problems	22.4	Better military support/attention to soldiers' problems
16.4	Receiving treatment, or more/better treatment than soldier was getting	14.0	More suicide prevention training
16.4	Better transitional care	14.0	Receiving treatment, or more/better treatment than soldier was getting
16.4	Don't know	13.1	Change military policies
8.2	Change military policies	11.2	Reduce stigma/career impact of treatment
8.2	Increase supervision/monitoring of at-risk soldiers	8.4	Other change needed in military culture/environment

Note: Themes are not mutually exclusive and thus percentages are not cumulative. Percentages reflect the number of responses containing mention of the given theme.

Abbreviations: NOK, next-of-kin; SUP, Army Supervisors.

[a]Given the large number of themes, only themes coded in at least 8% of responses are included in this table. Full results available in Table S3.

as risk factors, such as suicidal thoughts, depression, or alcohol/substance use suggested they were at risk for suicide:

> NOK: "He had all the classic symptoms: marital problems, career problems, the unknown of what was going to happen to him. He used drugs, alcohol, all of that. He wasn't happy in his life."

> NOK: "We just didn't know how bad [it had gotten]. We knew he had problems, we suggested he get help and thought he was getting it...[for] his depression, it was obvious he was depressed. He didn't sleep [and] he had horrible insomnia, he was up all night and dragged around during the day. He made a couple of unplanned visits home and we weren't sure how he got permission. We should've looked at all that and seen something. [It] turned out he had asked for emergency leave, which we didn't find out till after he was dead. I think he was coming home to convince his wife to come back to him."

TABLE 3 Most frequently coded suicide loss survivor impact and postvention themes.[a]

NOK ($n=61$)		SUP ($n=107$)	
% responses present	Theme	% responses present	Theme
How has this affected you and your family/unit?			
70.5	Grief/depression/negative affect	50.5	Grief/depression/negative affect
26.2	Negative impact on family dynamic	31.8	Positive effect on unit / increased connectedness
9.8	Sought treatment	22.4	Negative impact on unit
9.8	Nonspecific significant impact	17.8	Nonspecific significant impact
8.2	Betrayal/abandonment	15.0	No effect
8.2	Negative impact on child	14.0	Shock/disbelief
8.2	Loss of support/resources	9.3	Worse effect due to circumstances of death
Do you have any recommendations about how families/friends/units could be helped after a suicide?			
39.3	Family felt supported by military/military resources or military has helpful resources in place	38.3	Mental health treatment
19.7	Family felt unsupported by military/unit or military programs/officials need improvement	27.1	Unit felt supported by military resources/good resources already available
13.1	Mental health treatment	23.4	Chaplain/religious support
13.1	No recommendations	22.4	No recommendations
11.5	Other	21.5	Debriefing/communicating with unit about suicide
9.8	Receiving support from family/friends	10.3	Other
9.8	Family wishes more support had been provided by military before suicide	8.4	Give time off to unit
8.2	Provide help with paperwork/legal/financial issues		

Note: Themes are not mutually exclusive and thus percentages are not cumulative. Percentages reflect the number of responses containing mention of the given theme.

Abbreviations: NOK, next-of-kin; SUP, Army Supervisors.

[a]Given the large number of themes, only themes coded in at least 8% of responses are included in this table. Full results available in Table S4.

Prevention of soldier suicides

In your opinion, what might have prevented the death?

SUP most often described that the soldier's suicide could not have been prevented or was inevitable (16.8%; Table 2), whereas this theme was rarely coded among NOK (3.3%; Table S3). In addition, SUP commonly stated that the suicide could have been prevented if the soldier had told someone about their problems (15.9%), or that the presence of a negative attribute of the soldier contributed to their suicide (13.1%; e.g., soldier was impulsive):

> SUP: "It was probably inevitable. If he wouldn't have lied to his command and started on that downward spiral he wouldn't have killed himself. But someday he would have anyway. He was very impulsively self-destructive."

In contrast, NOK commonly reported that receiving treatment (29.5%), reductions in romantic problems (11.5%), or better military support/attention to soldiers' problems (9.8%) could have prevented the suicide:

> NOK: "I believe somebody could've recognized that he had a severe problem and intervened. He actually went to the doctor the day before he killed himself. They put him under supervision but he managed to get away and get out and kill himself, so they weren't

> supervising him. He had gone to the emergency room and they put him under supervision but within 6 hours he got out and killed himself. Maybe more training for the Army supervisors on how to recognize if there's a problem and what to do about it, how to recognize that someone [is at risk] and what they should do about."

NOK also described their own potential role in the suicide, with some responses describing that they should have helped the soldier more and better recognized warning signs (8.2%):

> NOK: "I think multiple things...he had missed two sessions with his counselor saying that work had priority. [Or] maybe if I had answered [the] phone [when he called]. And I don't think he would've done it if he hadn't been drinking what he was drinking, it was absinthe, known to have hallucinogenic properties, I think that was part of it. I believe if I listened more, I was working on that but that's the hard part, he knew that. I was working, taking care of five kids, and going to school, trying to adjust my hours to be more available to him. I know he wanted me to listen to him more, maybe that would've helped, not being in his head I don't know."

Do you have any recommendations about how soldier suicides can be prevented in the future?

The most common theme coded for NOK was that reducing the stigma or career impact of seeking treatment would be helpful for preventing soldier suicides (21.3%). SUP most frequently responded that they don't know what recommendations to make (25.2%) (Table 2). Both NOK and SUP suggested that better military support/attention to soldiers' problems (NOK: 19.7%, SUP: 22.4%) and ensuring at-risk soldiers receive treatment (NOK: 16.4%, SUP: 14.0%) would help prevent suicides. Two exemplar quotes highlighting these themes are:

> NOK: "Only that the people who work with the soldier on a day-to-day basis [should] watch for the signs. [And with] all of the stigma of depression – a soldier should be encouraged to seek treatment. Make sure that the doctors are qualified that treat our soldiers and monitor [soldiers] closely."

> SUP: "The biggest thing is the stigma about getting help. Promoting [mental health] services by chain-of-command and making the soldiers aware about what is available out there and also teaching soldiers it's healthy to get help. It's not a bad thing."

Impact of suicide on soldier's family and unit

How has the suicide affected you and your [family/unit]?

NOK and SUP reported similar effects of the suicide on their families and units (Table 3). Both reported grief, depression, or negative affect as the most prevalent result of the suicide (70.5% and 50.5%, respectively), and frequently described the negative impacts of the suicide on the family (e.g., loss of father/mother figure for child; stress of now being a single parent) or unit (e.g., low morale, difficulties with replacing/training new soldier):

> NOK: "Life is different, it's kinda incomplete without him. My husband and I are missing one of our sons, the family pictures are different now, all the plans are different. My baby's gone. No grandkids. He's gone. However, the love we have for him is as strong as the hurt we have. My other son lost a brother. It's just still fresh. You know life goes on, life continues, we deal with it every day, but it never goes away. I mean it eases with time, [but] it's never better [and] it's never gonna be the way it was."

In addition, SUP often described positive effects of the suicide on the unit alongside the negative effects, such as increased connectedness (31.8%), whereas few NOK responses described positive effects on the family:

> SUP: "It ripped a hole through my unit and it made me exceptionally cautious of the soldiers that I work with. I pay particular attention to really everybody to the point that it's ridiculous. As far as the soldiers, they came together and were a [much] stronger team since they lost that member and they are a lot more cautious with each other since then. It was a really painful time for my unit and me."

Do you have any recommendations about how families/friends/units could be helped after a suicide?

Both NOK and SUP recommended that suicide loss survivors seek out counseling or mental health treatment (NOK: 13.1%, SUP: 38.3%), and many SUP described that chaplain or religious support would be helpful (23.4%) (Table 3). Although this question asked for general recommendations on helping families and units after a suicide and did not specifically ask about whether the NOK and SUP felt supported themselves in the aftermath of the soldier's suicide, both NOK and SUP frequently mentioned that their families and units felt supported by existing military resources that were in place when the soldier died by suicide (NOK: 39.3%, SUP: 27.1%). However, a subgroup of NOK reported that their family did not feel supported by military resources or by the soldier's unit (19.7%). Examples of these themes are shown here:

> NOK: "I've gotten great assistance from the Army, family and friends, and the [soldier's] unit was great, they were there for me as soon as it happened. The military has checked in with me to see I have everything I need... everyone has been really helpful. I had a really good casualty affairs officer. Just make sure the casualty affairs officers are properly trained, they need more training than what they get. I had one friend who had a lot of trouble with her officer. They really only get trained for about two weeks. Maybe nothing can really prepare you for this but two weeks is not enough for these soldiers to take on a grieving family's everyday life, everything to get through the aftermath."

> SUP: "We got all the guys together afterward and gave them the numbers to call if they needed help and told them they could come see us, and nobody did, so I'm not sure if anyone got counseling. I think the Army has pretty good measures in place with the chaplains and making things open to mental health. Just making sure that everyone has the opportunity to seek help if they need it [and] make sure that you communicate to them that it's anonymous and available."

DISCUSSION

There were three key findings in the current study. First, although NOK and SUP reported a range of factors as contributing to the soldier's suicide, especially romantic problems, the most often endorsed response was that they did not observe any signs of risk *before* the soldier's death by suicide. Second, NOK and SUP responses differed when asked about how the suicide could have been prevented. For this question, the most common response from SUP was that the suicide was inevitable. However, NOK and SUP reported similar ideas about how *future* soldier suicides could be prevented, with the most commonly endorsed NOK response being stigma reduction. Third, both NOK and SUP reported mostly negative effects of the suicide on their families or unit and made similar suggestions for postvention support for suicide loss survivors. Each of these findings will be further elaborated upon in the sections below.

Risk factors for soldier suicides

The first key finding concerns two questions NOK and SUP were asked about the soldier's suicide: one focused on contributing factors (Q1) and the other on warning signs (Q2). The distinction between these questions may seem subtle: one question asks, given that we know a suicide occurred, what might have contributed to it (Q1), whereas the other asks informants to think about whether they observed any signs of risk *before* the suicide (Q2). Responses to these two questions differed considerably.

For the first question, when asked about what they think might have contributed to the soldier's suicide, NOK and SUP most frequently reported romantic problems (e.g., divorce, break-ups, infidelity, or relationship conflict), with a third of NOK and nearly half of SUP reporting this factor. This finding aligns with prior work showing that interpersonal and romantic problems are often present in the days and weeks leading up to a suicide attempt or death (Bagge et al., 2013; Berman, 2018). In fact, among active duty servicemembers who died by suicide in 2021, relationship problems in the months leading up to the suicide were known in nearly half of all cases (Department of Defense, 2022).

Although NOK and SUP described that romantic problems and many other risk factors likely contributed to the soldier's suicide, they did not necessarily view these as signs of risk *leading up to* the soldier's death. In fact, half of SUP and about 30% of NOK reported that they did not observe *any* indications of risk leading up to the suicide. There are several possibilities to consider for this finding. First, this may reflect a knowledge deficit; perhaps NOK and SUP did not have sufficient training on how to identify warning signs prior to the suicide death. As an actionable goal for the Department of Defense (DoD), it is critical that NOK, SUP, and others close to soldiers are equipped with the knowledge of how to identify warning signs. SUP receive regular training on these topics already,

so this information may be more novel and relevant for NOK. However, we echo the recommendation made in a recent independent review of DoD suicide prevention programs that it is critical for regular program evaluation to occur to ensure SUP are receiving effective, up-to-date, and accurate information to help their soldiers (Suicide Prevention and Response Independent Review Committee [SPRIRC], 2023). Second, another point to consider is that even if NOK and SUP are well-equipped with information and resources, suicide often seems to happen without warning. Many suicide decedents deny suicidal ideation in the days or weeks leading up to their death (Obegi, 2021) and, in general, many suicidal individuals never share their suicidal thoughts or plans with family or friends (Hom, Stanley, Podlogar, & Joiner, 2017). Indeed, in the current study, only 18% of NOK and 8% of SUP reported that the soldier disclosed suicidal thoughts or that they had observed preparatory behavior (e.g., soldier giving away belongings) leading up to the suicide. Thus, even if NOK and SUP have adequate training, many at-risk individuals do not communicate about their suicidal thoughts or outwardly display warning signs, making it very challenging to identify those who need help. Lastly, this finding highlights the general challenges of accurately identifying individuals at imminent suicide risk. Even if NOK and SUP were observing warning signs, the proportion of individuals likely to transition from thinking about suicide to suicidal action is low, and observable warning signs (e.g., mood changes, hopelessness, anxiety) are not particularly helpful for differentiating who is at highest risk. Suicide is a complex, multidetermined behavior that is difficult to predict, especially with the partial information—and potential lack of training—that NOK and SUP had leading up to the event.

Fortunately, many promising avenues for improving risk detection have emerged in recent years, including using more advanced machine learning methods that can combine data on many variables (e.g., from electronic health records) (Kessler et al., 2019; Kirtley et al., 2022), including those that would not necessarily be perceived as risk factors by observers. Ideally, incorporation of these types of risk detection models into the healthcare system—while taking efforts to ensure NOK, SUP, and other gatekeepers have received adequate education on recognizing risk—will improve our ability to identify at-risk individuals and connect them with the resources they need.

Prevention of soldier suicides

The second key finding is that, when asked about how the suicide could have been prevented, the most common SUP response was that the suicide was not preventable. It is perhaps not surprising that SUP frequently perceived the suicide to be inevitable, given many of them did not observe any warning signs that indicated the soldier was at risk. Notably; however, many NOK also did not observe warning signs, but NOK responses rarely mentioned the inevitability of the suicide. Given SUP and Army leadership play a key role in military suicide prevention efforts (e.g., as gatekeepers) (Department of Defense, 2015), and that the DoD has adopted a "zero suicide" aspirational goal, the prevalence of this response among SUP is concerning. Further, other common themes reported by SUP seemed to place some blame on the soldier who died by suicide. For example, several SUP stated that the suicide could have been prevented if the soldier told someone about their problems or that some negative attribute of the soldier contributed to the death (e.g., soldier was impulsive or not "spiritually strong"). Both these themes seem to suggest the presence of stigmatizing beliefs around suicide and/or mental health, or at the very least, a lack of knowledge on suicide risk and prevention.

Unfortunately, mental health stigma is a major reason why suicidal servicemembers do not feel comfortable seeking treatment and do not disclose that they are struggling, which was observed in this study with the high number of NOK and SUP who were unaware of soldiers' suicide risk (Acosta et al., 2014; Hom, Stanley, Schneider, & Joiner, 2017; Zinzow et al., 2013). Thus, targeting this stigma that is prevalent in military culture could increase dialogue between soldiers and their loved ones about mental health and treatment-seeking, and hopefully, increase soldiers' use of mental health treatment. The DoD has invested significantly in suicide prevention in the last decade, including a component on de-stigmatizing mental illness and increasing psychoeducation on suicide risk (Department of Defense, 2022, Department of Defense, 2015). Recent findings suggest that these efforts to decrease stigma and increase willingness to seek treatment have helped, particularly among the younger cohort of servicemembers (Suicide Prevention and Response Independent Review Committee, 2023). However, stigmatized beliefs about mental health remain prevalent among more senior personnel, who are often in leadership roles (Suicide Prevention and Response Independent Review Committee, 2023). Our results underscore the importance of continuing to reduce stigma and make efforts to decrease misconceptions about suicide (e.g., that suicide is not preventable). One ongoing DoD effort that may help address these issues is improving implementation of the *Leaders Suicide Prevention Safe Messaging Guide* (available on dspo.mil), which addresses common misconceptions about suicide and encourages leaders

to use non-stigmatizing language when talking about suicide (Suicide Prevention and Response Independent Review Committee, 2023). In addition, to target stigma from all angles, NOK may benefit from receiving a similar training so that they are better prepared to support their family members.

NOK and SUP had similar suggestions for how to prevent future soldier suicides, many of which align with ongoing DoD suicide prevention initiatives (see (Department of Defense, 2021, Appendix H) for a list of ongoing programs). Many emphasized improving mental health treatment utilization, increasing military support and attention to soldiers' problems, and, as described in the prior paragraph, reducing stigma and the career impact of seeking treatment.

Impact of suicide on soldier's family and unit

Third and finally, both NOK and SUP reported similar negative effects of the suicide on their families or unit and made similar suggestions for helping survivors of suicide loss. The most frequently coded impact theme for both NOK and SUP was grief, depression, or negative affect, which was present in about 70% of NOK responses and 50% of SUP. Clearly, soldiers' suicides had a major negative impact on their families and units, but not all individuals were as strongly affected. Prior work suggests that effects of a suicide vary depending on one's attachment and perceived closeness to the suicide decedent and thus, not all individuals exposed to a suicide will be affected (i.e., experience psychological distress from the suicide) (Cerel et al., 2013, 2014; Pak et al., 2019). In addition, SUP were more likely than NOK to report concurrent positive effects on their units; many noted that the unit became closer after the suicide and that the event changed the unit's approach to handling suicide risk moving forward.

In terms of how to help families and units following a soldier suicide, NOK and SUP suggested using mental health treatment or religious support. Many NOK and SUP stated that they felt supported by the military resources that were in place when they experienced their soldier's suicide (e.g., for NOK, casualty assistance officers) and suggested other families and units utilize those existing resources. However, some NOK notably felt unsupported by existing resources and made statements about the need to ensure adequate training for DoD personnel in postvention and improve military programs that are in place for suicide loss survivors. Available postvention resources have grown significantly in recent years (e.g., development of the Postvention Toolkit for a Military Suicide Loss; available on dspo.mil). In addition, the DoD has undertaken their own research and sought external evaluation of postvention resources to determine suicide loss survivors' satisfaction with postvention resources to improve the resources offered to families and units (Ho et al., 2018; Ramchand et al., 2015). Thus, ideally some of the concerns brought up by NOK are already being addressed, but regular evaluation and improvement of postvention resources is recommended to help ensure that both NOK and SUP suicide loss survivors feel supported by the DoD.

Limitations

Our results should be interpreted in the context of several limitations. First, as is the case with any psychological autopsy study, the data in this study were collected via third-party informants' retrospective reports, and not directly from the suicide decedents themselves. Because these informant data were collected following a suicide, it is possible that hindsight bias may have influenced informants' perspectives. That is, it is possible that, in the aftermath of the suicide, NOK and SUP were searching for meaning—a common concern in psychological autopsy studies (Conner et al., 2011)—or that they could have learned more about what was going on in the soldier's life from other people. This hindsight bias could have influenced their responses, particularly to the contributing factors question about why the suicide occurred. Second, only a third of all suicides that occurred in the Army during our study period were included in this study, and our sample was relatively small, though larger than prior psychological autopsy studies (Brent et al., 1993; Farberow et al., 1990). Thus, it is possible that our results are not fully representative of Army soldiers. Third, we identified suicide decedents' supervisors through the Office of the Deputy Undersecretary of the Army, which may not have had the most up-to-date supervisor information. Identifying supervisors through another means, such as accessing soldiers' performance reports, may have allowed us to identify more supervisors, given about 25% of supervisors we approached reported that they did not know the decedent. Unfortunately, we did not have access to these other information sources in the current study. Fourth and finally, these data were collected about 10 years ago and thus, some of these findings may not reflect current beliefs or practices of the DoD or Army.

CONCLUSIONS

Our findings provide rich, qualitative information on the perspectives of suicide loss survivors in the aftermath of a

soldier suicide. We found that NOK and SUP perspectives often overlapped. Many NOK and SUP reported that they did not observe any warning signs leading up to the suicide, highlighting the challenges of identifying suicide risk using only informant observation. However, we also identified some notable differences in perspective related to how (or if) the soldier suicide could have been prevented. Overall, our findings demonstrate the utility of harnessing open-ended questions in psychological autopsy studies and suggest several targets for DoD suicide prevention efforts, including continued emphasis on improving methods to identify at-risk soldiers, reducing stigma around help-seeking and mental health, and improving postvention resources (e.g., more training in postvention for DoD personnel, ensuring availability of mental health or religious counseling) provided to soldiers' families and units.

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CONFLICT OF INTEREST STATEMENT

In the past three years, Dr. Wilks has been a paid consultant for Mindstrong, Click Therapeutics, and Lyra Health. She is currently employed by ChatOwl, Inc. Mr. Hite has been a Congressional staff member where he worked on veteran and military healthcare policy. He has lobbied for health issues with veteran-related and medical-legal partnership organizations. In the past three years, Dr. Stein received consulting income from Actelion, Acadia Pharmaceuticals, Aptinyx, atai Life Sciences, Boehringer Ingelheim, Bionomics, BioXcel Therapeutics, Clexio, EmpowerPharm, Engrail Therapeutics, GW Pharmaceuticals, Janssen, Jazz Pharmaceuticals, and Roche/Genetech. He has stock options in Oxeia Pharmaceuticals and EpiVario. He is paid for his editorial work on Biological Psychiatry (Deputy Editor) and UpToDate (Co-Editor-in-Chief for Psychiatry). Dr. Benedek has received publication royalties from UpToDate. Dr. Nock receives publication royalties from Macmillan, Pearson, and UpToDate. He has been a paid consultant in the past three years for Apple, Microsoft, and COMPASS Pathways, and for legal cases regarding deaths by suicide. He has stock options in Cerebral Inc. He is an unpaid scientific advisor for Empatica, Koko, and TalkLife. The other authors declare that they have no conflicts of interest.

DATA AVAILABILITY STATEMENT

The datasets generated and/or analyzed during the current study are not publicly available, but limited public access to Army STARRS survey data can be requested through the Interuniversity Consortium for Political and Social Research (ICPSR) at the University of Michigan (https://www.icpsr.umich.edu/web/ICPSR/studies/35197).

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REFERENCES

Acosta, J. D., Becker, A., Cerully, J. L., Fisher, M. P., Martin, L. T., Vardavas, R., Slaughter, M. E., & Schell, T. L. (2014). *Mental health stigma in the military*. RAND Corporation.

Bagge, C. L., Glenn, C. R., & Lee, H. J. (2013). Quantifying the impact of recent negative life events on suicide attempts. *Journal of Abnormal Psychology*, *122*, 359–368. https://doi.org/10.1037/a0030371

Berman, A. L. (2018). Risk factors proximate to suicide and suicide risk assessment in the context of denied suicide ideation. *Suicide & Life-Threatening Behavior*, *48*, 340–352. https://doi.org/10.1111/sltb.12351

Brent, D. A., Perper, J. A., Moritz, G., Allman, C., Friend, A. M. Y., Roth, C., & Baugher, M. (1993). Psychiatric risk factors for adolescent suicide: A case-control study. *Journal of the American Academy of Child and Adolescent Psychiatry*, *32*, 521–529. https://doi.org/10.1097/00004583-199305000-00006

Cerel, J., Brown, M. M., Maple, M., Singleton, M., Venne, J., Moore, M., & Flaherty, C. (2019). How many people are exposed to suicide? Not six. *Suicide & Life-Threatening Behavior*, *49*, 529–534. https://doi.org/10.1111/sltb.12450

Cerel, J., Maple, M., Aldrich, R., & van de Venne, J. (2013). Exposure to suicide and identification as survivor. *Crisis*, *34*, 413–419. https://doi.org/10.1027/0227-5910/a000220

Cerel, J., McIntosh, J. L., Neimeyer, R. A., Maple, M., & Marshall, D. (2014). The continuum of "survivorship": Definitional issues in the aftermath of suicide. *Suicide & Life-Threatening Behavior*, *44*, 591–600. https://doi.org/10.1111/sltb.12093

Conner, K. R., Beautrais, A. L., Brent, D. A., Conwell, Y., Phillips, M. R., & Schneider, B. (2011). The next generation of psychological autopsy studies: Part I. Interview content. *Suicide and Life-threatening Behavior*, *41*, 594–613. https://doi.org/10.1111/j.1943-278X.2011.00057.x

Conner, K. R., Beautrais, A. L., Brent, D. A., Conwell, Y., Phillips, M. R., & Schneider, B. (2012). The next generation of psychological autopsy studies: Part 2. Interview procedures. *Suicide and Life-threatening Behavior*, *42*, 86–103. https://doi.org/10.1111/j.1943-278X.2011.00073.x

Dempsey, C. L., Benedek, D. M., Nock, M. K., Zuromski, K. L., Brent, D. A., Ao, J., Aliaga, P. A., Heeringa, S. G., Kessler, R. C., Stein, M. B., & Ursano, R. J. (2021). Social closeness and support are associated with lower risk of suicide among U.S. Army soldiers. *Suicide and Life-threatening Behavior*, *51*, 940–954. https://doi.org/10.1111/sltb.12778

Dempsey, C. L., Benedek, D. M., Zuromski, K. L., Nock, M. K., Brent, D. A., Ao, J., Georg, M. W., Haller, K., Aliaga, P. A., Heeringa, S. G., Kessler, R. C., Stein, M. B., & Ursano, R. J. (2023). Recent stressful experiences and suicide risk: Implications for suicide prevention and intervention in U.S. Army soldiers. *Psychiatric Research and Clinical Practice*, *5*, 24–36. https://doi.org/10.1176/appi.prcp.20220027

Dempsey, C. L., Benedek, D. M., Zuromski, K. L., Riggs-Donovan, C., Ng, T. H. H., Nock, M. K., Kessler, R. C., & Ursano, R. J. (2019). Association of firearm ownership, use, accessibility, and storage practices with suicide risk among US Army soldiers. *JAMA Network Open*, *2*, e195383. https://doi.org/10.1001/jamanetworkopen.2019.5383

Department of Defense. (2015). Department of Defense Strategy for suicide prevention.

Department of Defense. (2021). Annual Suicide Report Calendar Year 2020.

Department of Defense. (2022). Department of Defense Annual Report on Suicide in the Military Calendar Year 2021.

Department of Defense. (2023). Suicide Prevention and Response Independent Review Committee (SPRIRC) Releases Report. Preventing suicide in the U.S. military: Recommendations from the suicide prevention and response independent review committee.

Farberow, N. L., Kang, H. K., & Bullman, T. A. (1990). Combat experience and postservice psychosocial status as predictors of suicide in Vietnam veterans. *Journal of Nervous and Mental Disease*, *178*, 32–37. https://doi.org/10.1097/00005053-199001000-00006

Heeringa, S. G., Gebler, N., Colpe, L. J., Fullerton, C. S., Hwang, I., Kessler, R. C., Naifeh, J. A., Nock, M. K., Sampson, N. A., Schoenbaum, M., Zaslavsky, A. M., Stein, M. B., & Ursano, R. J. (2013). Field procedures in the Army study to assess risk and resilience in Servicemembers (Army STARRS). *International Journal of Methods in Psychiatric Research*, *22*, 276–287. https://doi.org/10.1002/mpr.1400

Hjelmeland, H., Dieserud, G., Dyregrov, K., Knizek, B. L., & Leenaars, A. A. (2012). Psychological autopsy studies as diagnostic tools: Are they methodologically flawed? *Death Studies*, *36*, 605–626. https://doi.org/10.1080/07481187.2011.584015

Hjelmeland, H., & Knizek, B. L. (2016). Qualitative evidence in suicide: Findings from qualitative psychological autopsy studies. In K. Olson, R. A. Young, & I. Z. Schultz (Eds.), *Handbook of Qualitative Health Research for Evidence-Based Practice* (pp. 355–371). Springer. https://doi.org/10.1007/978-1-4939-2920-7_21

Ho, T. E., Schneider, K. G., Wortman, J. A., Beneda, J. G., Osborn, M. M., Smischney, T. M., Schwerin, M. J., Smith, C. M., Carlisle, B. L., van Trieste, G. M., Caramagno, J. P., Shechter, O. G., & Daniel, S. M. (2018). Postvention in the U.S. military: Survey of survivors of suicide loss from 2010-2014. Defense Personnel and Security Research Center Seaside United States.

Hom, M. A., Stanley, I. H., Podlogar, M. C., & Joiner, T. E. (2017). "Are you having thoughts of suicide?" examining experiences with disclosing and denying suicidal ideation. *Journal of Clinical Psychology*, *73*, 1382–1392. https://doi.org/10.1002/jclp.22440

Hom, M. A., Stanley, I. H., Schneider, M., & Joiner, T. E. (2017). A systematic review of help-seeking and mental health service utilization among military service members. *Clinical Psychology Review*, *53*, 59–78. https://doi.org/10.1016/j.cpr.2017.01.008

Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, *15*, 1277–1288. https://doi.org/10.1177/1049732305276687

Kessler, R. C., Bernecker, S. L., Bossarte, R. M., Luedtke, A. R., McCarthy, J. F., Nock, M. K., Pigeon, W. R., Petukhova, M. V.,

Sadikova, E., VanderWeele, T. J., Zuromski, K. L., & Zaslavsky, A. M. (2019). The role of big data analytics in predicting suicide. In *Personalized Psychiatry* (pp. 77–98). Springer International Publishing. https://doi.org/10.1007/978-3-030-03553-2_5

Kirtley, O. J., van Mens, K., Hoogendoorn, M., Kapur, N., & de Beurs, D. (2022). Translating promise into practice: A review of machine learning in suicide research and prevention. *Lancet Psychiatry*, *9*, 243–252. https://doi.org/10.1016/S2215-0366(21)00254-6

Nock, M., Dempsey, C. L., Aliaga, P. A., Brent, D. A., Heeringa, S. G., Kessler, R. C., Stein, M. B., Ursano, R. J., & Benedek, D. (2017). Psychological autopsy study comparing suicide decedents, suicide ideators, and propensity score matched controls: Results from the study to assess risk and resilience in service members (Army STARRS). *Psychological Medicine*, *47*, 2663–2674. https://doi.org/10.1017/S0033291717001179

Obegi, J. H. (2021). How common is recent denial of suicidal ideation among ideators, attempters, and suicide decedents? A literature review. *General Hospital Psychiatry*, *72*, 92–95. https://doi.org/10.1016/j.genhosppsych.2021.07.009

Pak, K., Ferreira, K. E., & Ghahramanlou-Holloway, M. (2019). Suicide postvention for the United States military: Literature review, conceptual model, and recommendations. *Archives of Suicide Research*, *23*, 179–202. https://doi.org/10.1080/13811118.2018.1428704

Ramchand, R., Ayer, L., Fisher, G., Osilla, K. C., Barnes-Proby, D., & Wertheimer, S. (2015). Suicide postvention in the Department of Defense: Evidence, Policies and Procedures, and Perspectives of Loss Survivors. *Rand Health Quarterly*, *5*, 20. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5158300/

Ursano, R. J., Colpe, L. J., Heeringa, S. G., Kessler, R. C., Schoenbaum, M., & Stein, M. B. (2014). The Army study to assess risk and resilience in servicemembers (Army STARRS). *Psychiatry*, *77*, 107–119. https://doi.org/10.1521/psyc.2014.77.2.107

Zinzow, H. M., Britt, T. W., Pury, C. L., Raymond, M. A., McFadden, A. C., & Burnette, C. M. (2013). Barriers and facilitators of mental health treatment seeking among active-duty army personnel. *Military Psychology*, *25*, 514–535. https://doi.org/10.1037/mil0000015

Zuromski, K. L., Dempsey, C. L., Ng, T. H., Riggs-Donovan, C. A., Brent, D. A., Heeringa, S. G., Kessler, R. C., Stein, M. B., Ursano, R. J., Benedek, D., & Nock, M. K. (2019). Utilization of and barriers to treatment among suicide decedents: Results from the Army study to assess risk and resilience among servicemembers (Army STARRS). *Journal of Consulting and Clinical Psychology*, *87*, 671–683. https://doi.org/10.1037/ccp0000400

SUPPORTING INFORMATION

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