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A scoping review of military and Veteran families within international suicidality and suicide prevention research

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A R T I C L E I N F O

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A B S T R A C T

The impacts of suicidality on families are well known, which is particularly relevant in at-risk populations, such as active duty military personnel and Veteran communities. This scoping review describes how military and Veteran families have been conceptualized within suicide prevention research. A systematic, multi-database search was conducted, and 4,835 studies were screened. All included studies underwent quality assessment. *Bibliographic, participant, methodological,* and *family-relevant* data was extracted and descriptively analyzed into *Factors, Actors,* and *Impacts*. In total, 51 studies (2007 – 2021) were included. Most studies focused on suicidality rather than suicide prevention. *Factor* studies described family constructs as a suicidality risk or protective *factor* for military personnel or Veterans. *Actor* studies described families' roles or responsibilities *to act* in relation to the suicidality of military personnel or Veterans. *Impacts* studies described the *impacts* of suicidality on military and Veteran family members. The search was limited to English language studies. There were few studies on suicide prevention interventions for or including military and Veteran family members. Family was typically considered peripheral to the military personnel or Veteran experiencing suicidality. However, there was also emerging evidence of suicidality and its consequences in military-connected family members.

1. Introduction

Suicidality involves thoughts (i.e., ideation), behaviours (e.g., attempts, self-harm/injury), and death by suicide (Thompson et al., 2019). Suicide prevention is a major public health goal in Canada and abroad, particularly among groups viewed as vulnerable to suicidality (Public Health Agency of Canada, 2016). From a public health perspective, suicide prevention can be understood across a temporal pathway from universal prevention, individual (crisis) intervention, and postvention (Public Health Agency of Canada, 2016). Each phase of this pathway reflects corresponding universal, selected, and/or indicated public health activities, such as education and training, lethal capability reduction, and grief services (Centre for Addiction and Mental Health, 2020; Zalsman et al., 2016). Broadly, *prevention* involves reducing risk and promoting mental wellbeing at a population level, *intervention* involves directly intervening to prevent suicide and reduce risk, often in times of crisis, with individuals, and *postvention* involves promoting healing after a suicide attempt or death and reducing risk among those closest to the person, including family members (Centre of Excellence on Post-Traumatic Stress Disorder (PTSD), 2021).

In looking to international literature, there is evidence that subgroups of past and present members of many military communities are potentially at-risk for suicidality, requiring particular attention in research, policy, and practice (Centre for Addiction and Mental Health, 2020; Department of Defense, 2017; Sareen et al., 2018). For example, in the United States and Canada, increased prevalence of suicidality has been documented in active duty military personnel and Veterans in comparison to the general population (Crane et al., 2015; Orvis, 2021; VanTil et al., 2017). To date, public health activities have primarily focused on active duty military personnel and Veterans (Lead author et al., 2023a, *in submission*). However, there is emerging recognition that military and Veteran families should also be involved along this pathway (Harrington-LaMorie et al., 2018; Johnson & Koocher, 2017; Peterson et al., 2022).

There have been multiple theories of suicide causation proposed since the late 19th century that consider linkages amongst wider family

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structures and suicide. Commonalties across these theories, particularly prevailing ones, promote an ecological-systems and biopsychosocial understanding. Several theories such as Durkheim (1951), Shulman (1978), Williams and Williams (1997), Joiner (2005), and Mann and colleagues (2005), and Heisel and Flett (2016) offer up a social or interpersonal explanation whereby life stressors such as loss (Heisel & Flett, 2016; Shulman, 1978), adverse childhood events (Mann et al., 2005), thwarted belongingness (Joiner, 2005), social environment factors (Williams and Williams, 1997), or poor social integration (Durkheim, 1951) contribute to suicidality, all of which indirectly implicate family functioning.

Aligned to these theories, a previous review pertaining to suicide and family suggests that strong interpersonal relationships, social supports, and positive family functioning may be protective (Sales et al., 2019). Indeed, in Canadian policy and public health frameworks, family members have been labelled as potential gatekeepers (Department of Defense, 2017; Public Health Agency of Canada, 2016). Although to date no systematic review has focused on suicidality in military and Veteran families, they may experience elevated exposure to suicide through their association with a military network and culture (Peterson et al., 2022). In addition, as per the previous authors, suicide often occurs within the place of residence, where family members often discover the deceased person. These direct and indirect exposures in turn may place them at greater risk for suicide (Harrington-LaMorie et al., 2018).

Improvement in suicide prevention service delivery for families is a desired outcome of the Canadian Armed Forces' and Veterans Affairs Canada's joint Suicide Prevention Strategy, which states that: "By recognizing where gaps may exist, we are committing to closing them, so our members and Veterans and their families are able to get the support they need" (Department of Defense, 2017, p. 9). However, without first understanding the existing literature, it is extremely challenging to provide and evaluate services and intervention options. As such, the aim of this scoping review was to understand how international research about military and Veteran families has been conceptualized in relation to suicidality and suicide prevention. The specific objectives were to:

(1) Identify and characterize the scope of international, peer-reviewed research literature that has included reference to military and Veteran families in relation to suicidality and suicide prevention,
(2) Conceptualize and describe the existing military and Veteran family research relevant to suicide and suicidality.

2. Methods

This scoping review was conducted in accordance with the Joanna Briggs Institute guidelines to ensure methodologic rigour (Peters et al., 2021).

2.1. Search procedure

The search strategy was designed and conducted in consultation with two research librarians. We began by conducting a preliminary search of CINAHL, MEDLINE, Embase, Web of Sciences, PsycINFO, Sociological Abstracts, as well as PROSPERO, EPISTEMONIKOS, Campbell Collaboration, Joanna Briggs Institute Evidence Synthesis, and OpenGrey, to find guiding and/or recent systematic or scoping reviews for military and Veteran family suicidality research. At that time, there were no methodologically rigorous (e.g., systematic) reviews that focused on suicide and related behaviors among military or Veteran families.

Throughout the preliminary search, more search terms were gleaned, and, with further collaboration of the research librarians, we developed a search strategy around three key concepts: suicidality, military/Veteran, and family. According to the International Classification of Functioning (2010), family relationships involve creating and maintaining kinship relationships, where immediate family are individuals related by birth, marriage or other relationship. We defined military and Veteran Families as where at least one family member is a service member or Veteran. We intended to be as inclusive as possible regarding family structures, including single-parent families, military couples without children, dual-serving couples, families of LGBTQ2IA + couples, common law partners, divorced/separated families, and families that include extended family members, such as grandparents (Cramm et al., 2015; Gribble et al., 2018). The final search was conducted for each database (CINAHL, MEDLINE, PubMed, Embase, Web of Sciences, PsycINFO, and Sociological Abstracts) separately. No publication limits were set. The search represents all literature available to April 2021. Each search used slightly different terms according to the specific database and both American and Canadian/British spellings were included in the search (Table 1).

2.2. Selecting relevant studies

All 4,835 identified studies were inputted into Covidence Systematic Review Software (Veritas Health Innovation, 2020). Once duplicates were removed, each article was screened by at least two independent reviewers (R.R, L.S.R, H.C, D.D) for titles and abstracts against the exclusion criteria. Abstracts were excluded if they did not reference suicide/suicidality, the military/Veteran population, and family-related content (encompassing references to social support and interpersonal relationships). After this phase, each remaining full text article was assessed by at least two reviewers. Articles were included if they were peer-reviewed, published original research or systematic reviews, with full-text availability in English, had a focus on military/Veteran, suicidality, and contained findings regarding military or Veteran family members. Measurement and case studies were excluded. Decisions were also made to include studies of family-related sociodemographic risk or protective variables (e.g., number of dependents; marriage status) if this factor was analysed in the results. Any conflicts were discussed and resolved in a group setting with a third reviewer (lead authors D.D. and H.C.). The database search was combined with a hand search and consultation with three other academic experts in the area of military suicide. The results of this process can be found in Fig. 1. In total, 51 articles met the final inclusion criteria.

2.3. Quality assessment

Adhering to Joanna Briggs Institute (JBI) standards for systematic or scoping reviews, we undertook a quality assessment of included articles. Using an established process (George et al., 2014), all articles were reviewed (D.D. and K.G.) using JBI's critical appraisal tools specific to each study's design. Based on the checklist scores, studies were categorized as methodologically strong (<2 missing criteria), moderate (2–3 missing criteria) or weak (>3 missing criteria). Since each JBI checklist has a different number of items (ranging from 8 to 13) the scores were then adjusted out of 10 to allow for direct comparisons. Twenty-eight studies (55%) were categorized as strong, 16 as moderate (31%), and four as weak (8%). Three studies (6%) could not be assessed

Table 1
Number of returns (hits) for each database search.

Database	Hits
CINAHL	296
MEDLINE (Ovid)	876
PsycInfo (Ovid)	841
Embase (Ovid)	892
Sociological Abstracts (ProQuest)	979
Web of Science	594
PubMed	357
Total	4,835

Note. Original search was run on December 14, 2020 and updated on February 4, 2022.

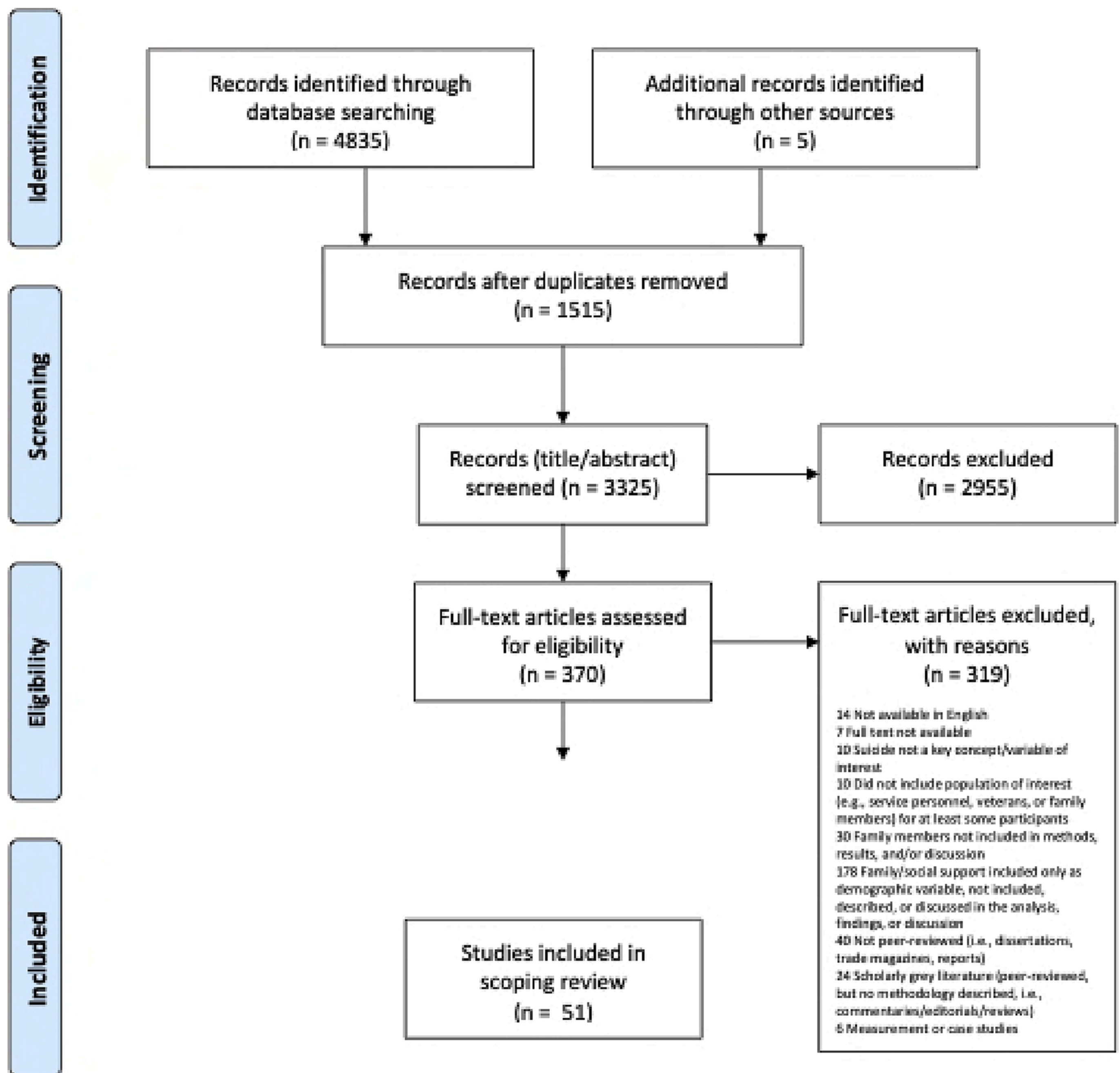

Fig. 1. Preferred Reporting Items for Systematic and Meta-Analyses (PRISMA) flow diagram.

as there was a lack of an appropriate JBI quality assessment form available. Due to the conceptional and emergent nature of this review, and as per recommendations (Tricco et al., 2016), we chose to retain all studies; however, in the resulting analysis we have indicated caution where the methodological rigour of the study was weak.

2.4. Data extraction

A summary database was created to guide data extraction by two reviewers per study to reduce the chance of errors and bias. Using a coding framework set up in MAXQDA software (VERBI, 2019), *bibliographic, participant, methodological,* and *family-relevant* data were extracted from each study.

2.5. Data analysis

Data analysis occurred through a systematic, iterative process of data extraction and analysis.

To meet objective one, descriptive summaries (e.g., frequency and distribution analysis) and proportional tables were used to describe and visualize the data using MAXQDA and Microsoft Excel. To meet objective two, we engaged in a deeper conceptual analysis of extracted data guided by qualitative methods. As per Peters and colleagues (2021), descriptive qualitative techniques, such as coding of data into conceptual categories, are a useful approach in some scoping reviews, when the purpose is to identify key characteristics related to a concept.

To this end, an iterative coding approach put forth by Wolfswinkel and colleagues (2013) for rigorously analyzing textual data was applied. Relevant quantitative and qualitative data was compared and

categorized to begin to identify how family was described, studied, and the types of outcomes that have been examined in relation to suicidality and suicide prevention. First, the family-related data of each study underwent line-by-line coding in MAXQDA to develop substantive categories (Strauss and Corbin, 1998). Coding involves segmenting data into meaningful chunks and describing them in a single word or short sequence of words. Second, links among these categories were identified and the patterns amongst them elaborated. Patterns were identified and refined as new data were added to the comparison (Charmaz, 2014). Through several iterative rounds of cross comparison, a determination of theoretical saturation was sufficiently reached across three major conceptual categories of *Factors, Actors, Impacts*. Theoretical saturation is the point in qualitative analysis where analyzing additional data no longer provides new knowledge about the concepts (categories) in question (Saunders et al., 2018).

3. Results

Studies categorized as *Factors* included family as a risk or protective factor in suicidality research about active duty military personnel or Veterans. While family systems concepts were included, the family-relevant research findings were typically minimal and peripheral to the original study goals. Studies categorized as *Actors* included aspects of a family members' roles or responsibilities *to act* in relation to the suicidality of another. In these studies, family was often conceptualized as way to improve outcomes for the population of service personnel or Veterans. Studies categorized as *Impacts* researched the *impacts* of suicidality on and in military and Veteran family members. In these studies, family experiences and outcomes related to suicidality were central concepts of interest. Table 2 provides an overview of the characteristics of the included studies (e.g., in terms of population of interest, participants and sample size, research objectives/construct, methodology, and assessed study quality), as well as how each study was categorized (*Factors, Actors, Impacts*).

3.1. Scope and characteristics

Included studies were published from 2007 to 2020 with 55% of studies published since 2018. Four-fifths of the studies were published used datasets from the United States. Other represented countries included: Australia (6%), Croatia (6%), India (2%), Israel (2%), Taiwan (2%), and Korea (2%). Studies were published in 15 disciplinary areas demonstrating the cross-cutting nature of this topic. Nevertheless, just under half of the studies were published in the fields of psychiatry (21%), psychology (22%), or related fields such as mental illness (8%) or trauma (4%). Only two studies were published in the field of family studies/sciences. Half of the studies (53%) had a primary study population other than family members. The most frequent populations of study were Veterans (33%), followed by military-connected children and youth (ages 0 – 18; 22%), military personnel (16%), and spouses/partners (10%). More than three-quarters of the studies (78%) focused on suicidality rather than evaluating or describing suicide prevention approaches; Three studies focused on suicide prevention (6%), four studies described suicide intervention (8%), and one study focused on postvention (2%).

3.2. Factors

The first category of *Factors* encompassed studies that described family factors related to suicidality of serving personnel or Veterans. These 21 studies (41%) used cross sectional, case control, and qualitative designs to identity prevalence, associations, and correlations related to risks and protective factors for suicidality. Most studies explored associations amongst suicidality and relationship factors (e.g., between couples/spouses) such as (dis)stress (Whisman et al., 2020), negativity (Love et al., 2017), intimate partner/interpersonal violence (Brignone et al., 2018; Cerulli et al., 2014; Lane et al., 2020), and relationship satisfaction (Blais, 2020). Other studies explored protective associations with social support (Adams et al., 2021; Dorsey Holliman et al., 2018; Fox et al., 2021; Yoon et al., 2021). Two further *Factors* studies focused on suicide interventions. A weak methodological study used qualitative methods to investigate service personnel's perceptions of barriers to treatment (Adler et al., 2020), while another measured Veterans' experiences of disclosing of suicide attempts to family, as well as their perceptions of family reactions to these disclosures (Ammerman et al., 2020).

3.3. Actors

The second category of *Actor* encompassed studies that included or described families in an active role (e.g., as intervenors or gatekeepers) in suicide prevention activities for active duty military personnel or Veterans. These 10 studies (20%) included family members as participants, but the research objectives were typically focused on understanding or reducing suicidality in active duty military personnel or Veterans.

Of the eight qualitative studies in the overall dataset, five of them were categorized as *Actor* studies. Three focused on how family members have been or could be involved in suicide prevention or interventions. For example, one study provided insights from Veterans and family members about their desire to and the feasibility of including family in safety planning, a common suicide intervention technique (Debeer et al., 2019). Half of the *Actor* studies cited the need for further education and training of family members on suicide risks, prevention, and communication techniques (e.g., Albright et al., 2012; Debeer et al., 2019; May et al., 2019; Teo et al., 2020; Walters et al., 2012). Two qualitative *Actor* studies also explored the family's role in limiting access to firearms (Simonetti et al., 2020; Walters et al., 2012).

While most *Actor* studies focused on the role of a spouse or partner in relation to an active dutymilitary personnel or Veteran, two studies focused on parenting roles in relation to suicide prevention of military-connected children or adolescents (Gewirtz et al., 2016; Puskar et al., 2018). In the study by Puskar and colleagues (2018), a mobile phone application developed to promote resilience for military-connected youth was programmed to automatically send parents an alert if the youth used suicidal language, so that the parents could intervene. In one of the two randomized controlled trials included in this review, Gewirtz and colleagues (2016) evaluated whether a parenting program could mitigate risks of suicidality in military-connected parents, with the ultimate goal in also preventing offspring suicidality (i.e., due to family clustering).

3.4. Impacts

The final category of *Impacts* encompasses studies focused on the prevalence or rate of suicidality in military or Veteran family members, and/or the experiences, effects, and outcomes of suicidality or suicide prevention efforts for military or Veteran family members. In differentiation to the first two categories, the twenty *Impacts* studies (39%) centred on military or Veteran family members as the main population of interest.

Using prevalence data, most of these studies explored experiences with and impacts of suicidality or suicide deaths on military-connected children or adolescents (Boricevic Marsanic et al., 2014; Cederbaum et al., 2014; Clements-Nolle et al., 2020; Franić et al., 2012; Gilreath et al., 2016; Hisle-Gorman et al., 2019; Pressley et al., 2012; Reed et al., 2011; Schilling et al., 2014) or spouses/partners (Aronson et al., 2017; Klaric et al., 2012; Madhusudan et al., 2008; Manguno-Mire et al., 2007; Ohye et al., 2020). One of the most recent studies (Hisle-Gorman & Susi, 2021) looked at associations amongst the impact of parental illness/injury on suicidality of military-connected children.

Only two of the *Impacts* studies described an intervention – one for

Table 2
Summary of studies investigating suicidality and suicide prevention research that included reference to military and Veteran families. Study characteristics included bibliographic, participant, and methodological details, along with a conceptual categorization of family positioning within each study.

Author/Year	Suicide Concept	Population of Interest	Sample Size	Study Design	Quality Assessment	Conceptual Categorization
Adams et al., 2021 (USA)	Suicidality	Veterans	n = 1,730	Cross-sectional	Strong	*Factor*
Adler et al., 2020 (USA)	Suicidality	Military personnel	n = 12	Phenomenological	Weak	*Factor*
Ammerman et al., 2020 (USA)	Suicide Intervention	Veterans	n = 37	Cross-sectional	Strong	*Factor*
Bell et al., 2018 (USA)	Suicidality	Veterans	n = 114	Cross-sectional	Moderate	*Factor*
Blain et al., 2020 (USA)	Suicidality	Veterans	n = 107	Pre-post study	Strong	*Factor*
Blais, 2020 (USA)	Suicidality	Military/Veterans	n = 818	Cross-sectional	Strong	*Factor*
Brignone et al., 2018 (USA)	Suicidality	Veterans	n = 8,427	Cross-sectional	Moderate	*Factor*
Cerulli et al., 2014 (USA)	Suicidality	Veterans	n = 296	Cross-sectional	Moderate	*Factor*
Dorsey Holliman et al., 2018 (USA)	Suicidality	Veterans	n = 16	Phenomenological	Strong	*Factor*
Fox et al., 2021 (USA)	Suicidality	Military personnel	n = 167	Cross-sectional	Strong	*Factor*
Gradus et al., 2015 (USA)	Suicidality	Veterans	n = 1,046	Cross-sectional	Moderate	*Factor*
Gutierrez et al., 2013 (USA)	Suicidality	Veterans	n = 19	Qualitative descriptive	Strong	*Factor*
Khalifian et al., 2020 (USA)	Suicidality	Veterans	n = 138 Couples (Veterans and their partners)	Cross-sectional	Strong	*Factor*
Ku et al., 2009 (Taiwan)	Suicidality	Veterans	n = 19	Phenomenological	Moderate	*Factor*
Lane et al., 2020 (USA)	Death by suicide	Military/Veterans	n = 6,255; Veteran (n = 1,674)	Cross-sectional	Moderate	*Factor*
Langhinrichsen-Rohling et al., 2011 (USA)	Suicidality	Military personnel	n = 52,780	Cross-sectional	Moderate	*Factor*
Love et al., 2017 (USA)	Suicidality	Military personnel	n = 322	Cross-sectional	Moderate	*Factor*
Martin et al., 2013 (USA)	Death by Suicide	Military personnel	n = 100	Retrospective cross-sectional	Weak	*Factor*
Weisenhorn et al., 2017 (USA)	Suicidality	Veterans	n = 234	Cross-sectional	Strong	*Factor*
Whisman et al., 2020 (USA)	Suicidality	Military personnel	n = 8,669	Cross-sectional	Strong	*Factor*
Yoon et al., 2021 (Korea)	Suicidality	Military personnel	n = 6,377	Cross-sectional	Strong	*Factor*
Albright et al., 2012 (USA)	Suicide prevention	Family members (undifferentiated)	Experimental (n = 50); Control (n = 44)	Randomized control trial	Moderate	*Actor*
DeBeer et al., 2019 (USA)	Suicide intervention	Veterans	Veterans (n = 29); Significant others (n = 4)	Qualitative case design	Strong	*Actor*
Gewirtz et al., 2016 (USA)	Suicidality	Multiple family members	Military families with at least one child (n = 336); Mothers (n = 314); Fathers (n = 294)	Randomized control trial	Moderate	*Actor*
May et al., 2019 (USA)	Suicidality	Military personnel	n = 86; Couples (n = 43)	Cross-sectional	Moderate	*Actor*
Puskar et al., 2018 (USA)	Suicide prevention	Children/Adolescents	n = 31	Phenomenological	Moderate	*Actor*
Simonetti et al., 2020 (USA)	Suicide Intervention	Veterans	n = 17	Phenomenological	Strong	*Actor*
Teo et al., 2020 (USA)	Suicidality	Veterans	n = 30	Phenomenological	Moderate	*Actor*
Walters et al., 2012 (USA)	Suicide intervention	Veterans	n = 60; Family members (n = 12); Veterans (n = 24); mental health clinicians (n = 11); Veteran service organization members (n = 8); Facility leaders (n = 5)	Phenomenological	Strong	*Actor*
Wilks et al., 2020 (USA)	Suicidality	Veterans	n = 276; Veterans (n = 138); Significant others (n = 138)	Cross-sectional	Strong	*Actor*
Zerach et al., 2019 (Israel)	Suicidality	Couples	n = 233; Ex-Prisoner of War Couples (n = 142); Veteran Couples (n = 91)	Case-control study	Strong	*Actor*
Franić et al., 2012 (Croatia)	Suicidality	Children/Adolescents	n = 695, military-connected subset (n = 401)	Cross-sectional	Moderate	*Impacts*

(*continued on next page*)

Table 2 (*continued*)

Author/Year	Suicide Concept	Population of Interest	Sample Size	Study Design	Quality Assessment	Conceptual Categorization
Gilreath et al., 2016 (USA)	Suicidality	Children/Adolescents	n = 390,028, military-connected subset (n = 27,547	Cross-sectional	Strong	*Impacts*
Hisle-Gorman & Susi (2021) (USA)	Suicidality	Children/Adolescents	n = 485,002 children of 272,211 parents	Self-controlled case series	N/A	*Impacts*
Hisle-Gorman et al., 2019 (USA)	Suicidality	Children/Adolescents	n = 1,798,530	Repeat cross-sectional	N/A	*Impacts*
Klaric et al., 2012 (Bosnia and Herzegovina)	Suicidality	Spouses/Partners	Experimental (n = 154); Control (n = 77)	Cross-sectional	Strong	*Impacts*
LaCroix et al., 2018 (USA)	Suicidality	Military personnel/ Adult dependents)	n = 190; Military personnel (n = 171); Adult Dependents (n = 19)	Cross-sectional	Strong	*Impacts*
Madhusudan et al., 2008 (India)	Suicidality	Spouses/Partners	n = 222	Cross-sectional	Weak	*Impacts*
Manguno-Mire et al., 2007 (USA)	Suicidality	Spouses/Partners	n = 89	Cross-sectional	Moderate	*Impacts*
Boricevic Marsanic et al., 2014 (Croatia)	Suicidality	Children/Adolescents	n = 231	Cross-sectional	Strong	*Impacts*
O'Toole et al., 2015 (Australia)	Suicidality	Couples	Veterans (n = 448); Spouses or Partners (n = 237)	Cross-sectional	Strong	*Impacts*
O'Toole et al., 2018 (Australia)	Suicidality	Adult children	n = 315 of 179 Veteran families	Cross-sectional cohort	Moderate	*Impacts*
Ohye et al., 2020 (USA)	Postvention	Spouses/Partners	n = 24	Pre-post quasi-experimental	Strong	*Impacts*
Pressley et al., 2012 (USA)	Suicidality	Children/Adolescents	n = 742,375; military-connected subset (n = 12,310)	Cross-sectional	Strong	*Impacts*
Reed et al., 2011 (USA)	Suicidality	Children/Adolescents	n = 10,606; *military-connected subset size not reported	Cross-sectional cohort study	Strong	*Impacts*
Schilling et al., 2014 (USA)	Suicide prevention	Children/Adolescents	n = 386; Experimental (n = 299); Control (n = 87) *military-connected subset described, but sample size not reported.	Randomized control trial	Weak	*Impacts*

prevention (Schilling et al., 2014) and one for postvention (Ohye et al., 2020). In a study appraised to be methodologically weaker, Schilling and colleagues (2014) implemented a suicide prevention program at schools with high numbers of military-connected youth. The goal of this randomized controlled trial was to decrease self-reported suicidality and increase suicide knowledge and attitudes in students. In regard to postvention, Ohye and colleagues (2020) reported on the treatment effects (complicated grief, depression, PTSD, satisfaction) of a two-week intensive outpatient treatment program for military spouses who had lost their partner to suicide.

4. Discussion

Given the prioritization of suicide prevention for many militaries internationally, along with the emphasis of social and interpersonal linkages to suicide theory, we sought to scope out the literature relating military and Veteran families and suicidality and suicide prevention.

4.1. Scope and characteristics

As per our first objective, we identified and characterized the scope of international, peer-reviewed research literature. We found literature predominantly arose from the United States, and was heavily focused on suicidality rather than suicide prevention. The increased military operations in the Middle East post-911 have been associated with increased rates of suicide in Veterans in countries, such as the United States (Hoffmire et al., 2019; Maguen et al., 2022; Suitt, 2021; United States Department of Veterans Affairs Office of Mental Health and Suicide Prevention, 2018). It is perhaps unsurprising then, that all included studies were published after the year 2001. In response to these rising suicidality rates, several militaries, including Canada (Department of Defense, 2017), the United States (Department of Defense, 2012; Defense Suicide Prevention Program, 2017) and, most recently, Australia (Australian Government, 2021) have undertaken the development of military- and/or Veteran-specific suicide prevention strategies or commissions. These strategies have typically focused on data collection and surveillance, improving suicide awareness and communication practices, and offering a range of suicide prevention and intervention programs (Lead author et al., 2023b, *in submission*). The increased publications, particularly in the United States, may be subsequent to these strategic directions as research funds may have become available for the study of factors associated with suicidality and, to a lesser extent, the effectiveness of new and existing suicide prevention and intervention programs and practices.

The steady increase in studies that include family members parallels an increasing recognition in military and Veteran suicide prevention policy that family members: (1) are impacted by increased rates of suicidality in military cultures; (2) are at potentially increased risk of suicide as members of military or Veteran families; and (3) should be consulted and included in suicide prevention and surveillance activities (Lead author et al., 2023, *in submission*). This finding was also substantiated by the trend in more recently published articles found within this review to consider and evaluate suicide prevention activities, rather than only focusing on family associations to suicidality and suicide (e.g., Ohye et al., 2020, Debeer et al., 2019).

4.2. Conceptualization of family

As per our second objective, we conceptualized and described the existing military and Veteran family research relevant to suicide and suicidality. We found that studies fell within the three categories: F*actors, Actors, Impacts*. In *Factors* studies, family was conceptualized as a risk or protective factor. In *actor* studies, family were conceptualized in active roles. In *Impacts* studies, families were conceptualized as being impacted by suicidality or suicide prevention efforts.

Most studies did not include family members as a primary population group of focus. Rather, the major data collection approach was gathering the data and the perspectives of service personnel and Veterans

about their family structures and history. Less than half of the research designs included at least one family member, and even fewer research objectives were specific to the suicide-related understanding, needs, and/or outcomes of family members.

There may be multiple reasons for this peripheral positioning of family in this research base. For example, in quantitative research, mapping the moderating effects of multiple family members on (each other's) outcomes is far more complex than approaching the same research question for one individual or population. Further, grants and funding structures often flow from military institutions, who, from rationales of operational effectiveness and workplace health and safety, may sponsor research that aligns to the most pressing issues from their perspective and/or respond to available funding calls (i.e., corresponding to national strategic directions).

A large proportion of the studies were categorized as *Factor* or *Actor* studies. The *Factors* conceptualization suggests that attention to family in the context of military and Veteran suicide has been largely restricted to its role as a risk or protective factor in military and Veteran suicidality. While such studies are integral in deepening understanding of suicide causes and enablers, this positioning of military and Veteran families within the body of literature has kept family at the periphery. In addition, although family is a complex and broad construction, the majority of studies, particularly in this category, has typically focused only on quantifiable/binary relationship structures most often in relation to a partner or spouse such as marriage or intimate partner violence.

The *Factors* studies were the most likely to adopt Joiner's (2005) theory to study causal associations amongst suicidality and relationships. The interpersonal nature of this theory naturally implicates family structures and functioning. Within the included studies, the Interpersonal Theory of Suicide (IPTS) was applied exclusively to relationships between spouses and partners. Family belonging or relationship quality amongst parents and children were not explored. These may be areas for future research, as in Canada more children than spouses make up military family members (Manser, 2020) and it is estimated that there are more than two million military-connected children worldwide (Frain and Frain, 2020). Furthermore, the intergenerational impacts of suicide are well known, with evidence suggesting that higher rates of adverse childhood events predict future suicidality (Clements-Nolle et al., 2020; Mann et al., 2005). Another helpful avenue of research about suicidality may be to explore in more depth the different, and potentially conflicting, forms of belonging experienced by service personnel (e.g., belonging to military community versus family belonging). Such research avenues may clarify and provide specific strategies to address the ethical or moral conflicts that may be experienced by service personnel. The *Taxonomy for Understanding Factors Leading to Suicide in the Military* alludes to this potential tension (Bartone, 2013), although it was not addressed in any of the studies included here.

A smaller subset of articles focused on the roles and responsibilities of families in relation to suicide prevention (*Actor*). Families can play an important role in helping to prevent suicide (Edwards et al., 2021). Yet, some of the studies pointed to the exclusion of families from traditional approaches to suicide intervention, despite a stated desire to be included. For example, Blain et al. (2020) confirmed that feelings of burdensomeness (i.e., to family) was a key area for suicide intervention. However, the intervention did not describe any form of family involvement. Engaging and educating family members in suicide prevention processes was an approach recommended in multiple studies. This call has been heard in policy arenas as well, with military and Veteran family stakeholders asking for suicide prevention strategies and programs that include and/or are co-designed with families (National Mental Health Commission, 2017; Zaheer et al., 2017; McCreary, 2019; Jones et al., 2020; Department of Defense, 2020; Department of the Army, 2015).

Norms of family life can be reproduced in complex and subtle ways, in adding and re-inventing gendered activities and domestic responsibilities (Clarke & Hughes, 2010). In this review, these norms are represented in the way in which family members, particularly female spouses, have been placed in positions of responsibility for the suicide prevention and care of family members. More generally, they are also often expected to manage the mental emotional and social well-being of the family more broadly amidst increasingly stressful and demanding working experiences (Hughes, 2010). For example, as discussed by Debeer et al. (2019), from the perspective of healthcare and military institutions, families taking on an active role in suicide prevention and help-seeking have both economic and operational effectiveness benefits. However, such approaches provide little if any consideration of the effects of suicide or the potential ongoing needs of those who are caring for a suicidal family member.

Most of the *Impacts* studies focused on the prevalence of suicidality for particular sub-groups of military or Veteran family members, namely children and adolescents. While this literature base offers a peer or general population comparison, only one study (Clements-Nolle et al., 2020) captured any potential moderating factors (risk or protective) for suicidality risk for military or Veteran family members. Such information is necessary to better understand the characteristics of particular family sub-groups who may be at heightened risk of suicidality and thus require increased supports or services. There remains a lack of clarity regarding specific risk or protective factors for suicide associated with being a military or Veteran family member. While there is an emerging body of literature on the prevalence of suicidality of military-connected children and adolescents, far fewer studies have investigated suicidality of spouses and partners. This gap exists, despite the multiple *Actor* studies that place spouses/significant others in a role of intervention. Suicide contagion and clustering are well documented phenomena that impact those closest to the person who is suicidal or has died by suicide (Azrael & Miller, 2020; Fushimi, 2012; Tidemalm et al., 2011).

Furthermore, most *Impacts* studies focused on suicidality, rather than suicide prevention, intervention, or postvention. Only 20% of the studies focused on suicide prevention, intervention, or postvention, and only two of these studies (4%) were focused on intervening with military or Veteran family as the target population. The severe paucity of evaluative research on military and Veteran families in relation to the suicide prevention pathway suggests this area of research is underdeveloped. Yet, in a resource-scarce context, evidence of effective outcomes is often required to rollout new programs.

4.3. Implications

The nascency of this literature at present implicates both a thrust of research and a diversity of methodological approaches. Furthermore, the peripheral conceptualization of family, and the limited representations of family, point to future research that centres on lived experiences of family members themselves. We anticipated but did not find any data relating to the day-to-day experiences of a military or Veteran family member caring for a suicidal person, nor did we find any studies that evaluated manualized suicide prevention or gatekeeper training programs for military or Veteran spouses/partners. Furthermore, despite an increased understanding of prevalence of suicidality, there remains a lack of clarity regarding specific risk or protective factors for suicide associated with being a military or Veteran family member (Peterson et al., 2022). Yet, many studies conclude with the recommendation for more suicide prevention involving family members. Such incongruencies represent opportune areas of study.

Given the known phenomena of suicide clustering, as well as the prevention approach of placing family members in intervention roles, the potentially multidirectional impacts of suicide prevention efforts amongst military family members may be another research avenue.

More studies, particularly with an evaluative focus, regarding current interventions and emerging best practices would act to advance the field. For example, applied research methods that capture and collate implementation details and participant experiences of small-scale institutional efforts and interventions could serve to lessen barriers to

taking action (e.g. publicly-accessible implementation databases). And while we do not include grey literature within this scoping review, as we have simultaneously undertaken an extensive review of policy and grey literature (Lead author et al., 2023b, *in submission*), we point to futher policy analysis and policy syntheses as important touchpoints between research and action. Knowledge mobilization to all of these ends would offer stronger guidance for militaries and military family organizations regarding resources, programming, and standard practices.

Military and Veteran families, governmental ministries and departments, militaries, and military family organizations are all stakeholders in suicide prevention. Likewise, creating opportunities for knowledge exchange on the systems of policies and procedures concerning suicide that exist within their respective domains can serve to de-silo the issue and promote coordination and integration across prevention efforts.

4.4. Limitations and gaps

This is the first rigorously-conducted review to examine existing evidence of suicidality and suicide prevention in military and Veteran families. Like much research, this study was limited in scope. Decisions were made early on to only include studies of family-related socio-demographic risk or protective variables (e.g., dependents; marriage status) if they included an analysis of this factor in the findings, thereby potentially reducing the number of studies represented in this review. Additionally, the search was limited to English language, and there were four dated (1960s – early 1990s) studies that we were unable to locate.

Finally, while we operationalized an expansive definition of family, we recognize that much of the literature we captured features normative ideals of family relationships and structures, or "military dependents" (i.e., married couples and their children). As such, several family subgroups, such as parents, siblings, and same sex partners of service personnel or Veterans were noticeably absent.

5. Conclusion

This is the first rigorously-conducted review to examine existing evidence of suicidality and suicide prevention in military and Veteran family members. Given the demonstrated suicide risks to this population, more studies, particularly with an evaluative focus, regarding current interventions and emerging best practices would act to advance the field. It would also provide stronger guidance for militaries and military family organizations regarding feasible and useful resources, programming, and standard practices.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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