Interventions for People Who Have Attempted Suicide and Their Family Members

A Systematic Review
About This Report

Over the past two decades, the Department of Defense (DoD) has invested substantial resources into developing effective treatments for military-related psychological health conditions. Systematic reviews are a key component in the knowledge translation process and function to translate the available research into evidence-based health care guidelines that promote optimal clinical care. Although a few government agencies, including the Department of Veterans Affairs (VA) and the Agency for Healthcare Research and Quality (AHRQ), have established evidence synthesis centers, there is no similar center within DoD that exclusively focuses on psychological health issues. The Southern California Evidence-Based Practice Center, housed at the RAND Corporation, was awarded a three-year contract to synthesize research on psychological health interventions that are important to military populations. This systematic review and series of meta-analyses of key outcomes reviews the uptake, retention, and effectiveness of suicide aftercare intervention (i.e., interventions that occur after a suicide attempt), and whether intervention can reduce future attempts. The results of this review will be of interest to health policymakers and practitioners.

All authors have no conflicts of interest to declare.

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For more information on the RAND Forces and Resources Policy Center, see www.rand.org/nsrd/frp or contact the director (contact information is provided on the webpage).

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Summary

Suicide is recognized widely as a problem, with nearly 800,000 people worldwide completing suicide every year. A history of having attempted suicide is an important risk factor for suicide. Suicide aftercare interventions aim to reduce future suicidal behavior (i.e., suicide, attempt, or ideation) of people who have attempted suicide. Aftercare refers to interventions that aim to benefit people who have attempted suicide and interventions that address their family members. Interventions might intend to facilitate psychosocial adjustment, prevent and reduce suicidal behavior in the future, and promote psychological well-being.

The purpose of this systematic review and the meta-analyses of key outcomes was to synthesize the existing evidence on aftercare interventions, addressing the following key questions (KQs) and subquestions:

- **KQ1:** What is the effect of aftercare interventions on uptake, retention, effectiveness measures, and unintended consequences for individuals who have attempted suicide?
  - **KQ1a:** Do the effects vary by the intensity of the intervention?
  - **KQ1b:** Do the effects vary by the type of intervention?
  - **KQ1c:** Do the effects vary by intervention target?
  - **KQ1d:** Do the effects vary by population?
- **KQ2:** What is the effect of aftercare interventions on uptake, retention, effectiveness measures, and unintended consequences for the family members of people who have attempted suicide?
  - **KQ2a:** Do the effects vary by the intensity of the intervention?
  - **KQ2b:** Do the effects vary by the type of intervention?
  - **KQ2c:** Do the effects vary by intervention target?
  - **KQ2d:** Do the effects vary by population?

Methods

We searched research databases (e.g., PubMed, PsycINFO, CINAHL, Web of Science) and trial registries (e.g., ClinicalTrials.gov, the World Health Organization’s International Clinical Trials Registry Program) and screened bibliographies of existing systematic reviews and included studies.

We included studies that evaluated the effects of an aftercare intervention on individuals with a history of having attempted suicide or those individuals' family members (broadly defined as family members, caregivers, or friends). Eligible studies included clinical trials (randomized controlled trials [RCTs] or nonrandomized trials) and evaluations of large-scale interventions, such as screening or monitoring programs, that reported on a concurrent or historic comparator.
Two reviewers screened publications for inclusion, abstracted study-level information, and assessed the risk of bias of included studies. The primary outcome of the review was repeated suicide attempts. Critical appraisal focused on selection bias, performance bias, detection bias, attrition bias, and study-specific sources. The quality of the body of evidence (QoE) for the effect estimate of each outcome was evaluated using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach.

**Results**

In total, 73 studies met inclusion criteria, including 52 RCTs. Risk of bias was acceptable with most issues due to selection bias and confounding.

Interventions showed a statistically significant reduction in further suicide attempts for intervention participants (relative risk [RR] 0.78; confidence interval [CI] 0.67, 0.91; 33 studies; moderate QoE). There was evidence of publication bias, but the effect remained significant after taking publication bias into account. In addition, interventions reported an effect on suicide deaths (RR 0.71; CI 0.50, 0.99; 16 studies; low QoE). Interventions also reduced depression (SMD –0.32; CI –0.57, –0.06; 17 studies; low QoE) and hopelessness (SMD –0.42; CI –0.78, –0.05; 10 studies; low QoE). Uptake of interventions varied widely by intervention. Similarly, the treatment retention of participants varied considerably. Only three studies reported on unintended consequences; these were adverse events of medications.

Regarding KQ1a, we found no indication that the intensity of the intervention is systematically associated with the treatment success. Although we found 21 studies comparing two interventions directly, we were unable to determine which intervention types systematically produce better outcomes for patients (KQ1b). We could not explore the effects of the intervention target (e.g., on those participants who attempted suicide versus on family members or both) because of the paucity of studies addressing family members of people who attempted suicide (KQ1c). Populations in the studies that we included were varied, but we found only two studies reporting on military samples, which hindered analyses to identify population-specific effects (KQ1d).

We were unable to meaningfully address the effects of interventions on family members (KQ2) because these were very rarely included in existing research studies. Studies did not evaluate interventions that incorporated family members, and studies rarely reported on the effects of the suicide aftercare interventions on family members.

**Conclusions**

Across studies, we found that suicide aftercare can reduce the risk of further suicide attempt, but we found no evidence that the type of intervention or intensity of it affected outcomes. Research is needed to explore which interventions will produce the greatest clinical
improvements and reduction in future suicide attempts and to identify effective interventions for service members and for family members of people who have attempted suicide.
Suicide is widely recognized as a problem across the world and in the United States (Stone et al., 2017). In 2016, nearly 800,000 people worldwide completed suicide, and the age-adjusted global rate of suicide was 10.5 per 100,000 people (World Health Organization, 2021a). In the United States, where the 2016 annual age-adjusted suicide rate was 13.42 per 100,000 individuals (American Foundation for Suicide Prevention, undated), nearly 45,000 people died by suicide in 2016. Suicide rates increased in nearly every state between 1999 and 2016, and the magnitude of increase was greater than 30 percent in half of the states (Centers for Disease Control and Prevention [CDC], 2018). A history of having attempted suicide is the single greatest risk factor for suicide (World Health Organization, 2021b). It is estimated that of the 255 million adults over the age of 18 in the United States in 2019, 45,865 died by suicide (CDC, 2021) and 1.4 million attempted suicide (American Foundation for Suicide Prevention, undated; CDC, 2021). A systematic review of 90 studies found that after nine years, 7 percent of those with a prior episode of self-harm had died by suicide (Owens, Horrocks, and House, 2002).

Suicide is also recognized as a problem in U.S. military service member and veteran populations (Ramchand et al., 2015). The suicide rate in the military approximately doubled between 2005 and 2009 (Pruitt et al., 2018). In 2016, across all military service branches, there were 21.1 completed suicides per 100,000 service members in the Active Component (Pruitt et al., 2018). Results of the 2021 Department of Defense (DoD) Suicide Event Report indicate that, in the active-duty military, suicide rates increased significantly since 2011 (Military Health Agency, undated). Suicide mortality rates in the active duty in calendar year 2019 were 25.9 completed suicides per 100,000 service members. Accordingly, DoD has invested considerable resources in research to enhance understanding of the causes of suicide and in the development of programs to prevent suicide among military service members.

DoD has recognized that, in addition to policies and programs to prevent suicide, an effective response to suicide includes the provision of efficacious aftercare to military service members who have attempted but not completed suicide and their family members (Assessment and Management of Risk for Suicide Working Group, 2013; DoD Instruction 6490.16, 2020). Such aftercare might include interventions that aim to benefit people who have attempted suicide and their family members by facilitating their psychosocial adjustment, preventing and reducing suicidal behavior in the future, and promoting their psychological well-being. Aftercare also could explicitly aim to benefit family members of people who have attempted suicide by supporting them in their support of the person who attempted suicide (e.g., social support groups or respite care for family members of people who have attempted suicide).

The provision of efficacious aftercare for people who have attempted suicide and their family members is impeded by critical gaps in the evidence base; there is little known about which types
of interventions are most beneficial to people who have attempted suicide and their family members. One review conducted in the mid-2000s suggested that psychotherapy for depression effectively reduces risk of subsequent suicide attempt(s) among people who have attempted suicide (Mann et al., 2005). However, many of the existing studies included in this review suffered from methodological limitations, such as small sample sizes or lack of randomization, thus impeding our understanding of the true efficacy of these interventions. In recent years, large-scale studies have been published (Pan et al., 2013), and studies using strong study designs, such as randomized controlled trials (RCTs), have become available (Milner et al., 2015). Existing reviews either did not report estimates of the effectiveness or comparative effectiveness of programs, or they were limited to specific types of interventions, such as brief contact interventions (Milner et al., 2015) or psychotherapy (Calati and Courtet, 2016). Moreover, evaluations of interventions for people who have attempted suicide are often excluded from general reviews of suicide prevention (Harrod et al., 2014). As noted previously, people with a history of having attempted suicide are a small, high-risk population, and a history of having attempted suicide is the single greatest risk factor for completed suicide. However, many reviews have included studies of self-harm (e.g., Hawton et al., 2016), which encompasses nonfatal intentional acts of self-injury regardless of suicidal intent (Hawton et al., 2016). To ensure that evaluations of aftercare are applicable to people with a history of having attempted suicide, it is critical to focus on people with a history of having attempted suicide. Furthermore, the efficacy of aftercare for the family members of people who have attempted suicide is a particularly understudied topic. This report will focus on interventions for people who have attempted suicide and their families, while postvention (i.e., interventions following the death from suicide; Ramchand et al., 2015) is outside the scope of the report.

To better understand treatment effects, a broad variety of outcomes must be studied, such as treatment uptake, treatment retention, health outcomes, and unintended consequences. Uptake can be measured as the proportion of participants who agreed to enroll in the intervention out of those who had the opportunity to enroll, the proportion of participants who completed the first session or other instance of the treatment out of those who agreed to enroll in treatment, or the proportion of participants in the intervention group who completed each of the intervention’s components. Treatment retention can be measured as the proportion of participants who completed the treatment or the average proportion of sessions completed. Health outcomes also provide data about the effectiveness of interventions, even those interventions that can be implemented without individuals actively enrolling in them. For example, outreach and the offer of support, such as the type that is provided in caring contact interventions, can reduce subsequent suicide attempt even in participant groups that do not explicitly seek treatment (Motto, 1976). A synthesis of the evidence also needs to consider potential adverse events or unintended consequences of interventions. For example, the use of antidepressants, such as selective serotonin reuptake inhibitors (SSRIs), has been linked to suicide attempts in previous systematic reviews of observational studies (Barbui, Esposito, and Cipriani, 2009) and RCTs.
(Fergusson et al., 2005). In one of these reviews, the nature of the association differed for adolescents and adults: SSRIs were found to increase the risk of suicide in adolescents and decrease the risk of suicide in adults (Barbui, Esposito, and Cipriani, 2009). These findings suggest that intervention effects can be complex and that unintended consequences are important to measure.

To fill these knowledge gaps, this systematic review is needed to synthesize the existing evidence using internationally recognized methods of grading the quality of the evidence. This systematic review and the associated meta-analyses fill this gap in the literature, yielding conclusions regarding the effectiveness of interventions for aftercare of individuals who attempt suicide as well as their family members.

The purpose of this systematic review and these meta-analyses is to synthesize the evidence on aftercare interventions for people who have attempted suicide and their family members. Specifically, the systematic review examines the uptake, treatment retention, and effectiveness of these interventions with respect to their effects on multiple indicators of suicidal behavior as well as on psychological health and psychosocial adjustment.

**Key Questions**

This research will address the following key questions (KQs) and subquestions:

- **KQ1: What is the effect of aftercare interventions on uptake, retention, effectiveness measures, and unintended consequences for people who have attempted suicide?**
  - KQ1a: Do the effects vary by the intensity of the intervention?
  - KQ1b: Do the effects vary by the type of intervention (e.g., psychotherapy, pharmacotherapy, caring contact interventions)?
  - KQ1c: Do the effects vary by intervention target (e.g., interventions that target both patients and family members versus interventions that target only patients?)
  - KQ1d: Do the effects vary by population (e.g., military versus civilian)?

- **KQ2: What is the effect of aftercare interventions on uptake, retention, effectiveness measures, and unintended consequences for the family members of people who have attempted suicide?**
  - KQ2a: Do the effects vary by the intensity of the intervention?
  - KQ2b: Do the effects vary by the type of intervention (e.g., psychotherapy, pharmacotherapy, social support groups)?
  - KQ2c: Do the effects vary by intervention target (e.g., interventions that target both patients and family members versus interventions that target only family members)?
  - KQ2d: Do the effects vary by population (e.g., military versus civilian)?
Chapter 2. Methods

The systematic review is registered in PROSPERO (2018 CRD42018116997), an international registry for systematic reviews, and followed a detailed protocol.

Sources

We searched the following research databases for individual studies: PubMed, PsycINFO, Cumulative Index to Nursing and Allied Health Literature (CINAHL), and the Web of Science. In addition, we searched the clinical trial registries ClinicalTrials.gov and the World Health Organization International Clinical Trials Registry Platform (ICTRP). We searched the Cochrane Database of Systematic Reviews (CDSR), PubMed, and PsycINFO for systematic reviews, and screened bibliographies of existing systematic reviews and included studies. We contacted topic experts to identify pertinent studies.

Search Strategy

The search strategy was developed by a librarian in the Southern California Evidence-Based Practice Center (EPC) and was informed by content experts and existing systematic reviews on similar topics (Mann et al., 2005; Zalsman et al., 2016). The search strategy, including the specific search terms and filters that we applied, is shown in Appendix A. This strategy used terms related to suicide attempt and aftercare, including but not limited to psychotherapy and pharmacotherapy. Searches did not use filters for participant groups (e.g., military personnel) and were not restricted by participant characteristics.

Eligibility Criteria

Study inclusion and exclusion criteria can be summarized in the PICOTSS framework (participants, interventions, comparators, outcomes, timing, settings, and study design) as follows:

- **Participants**: Studies of participants who have attempted but not completed suicide and/or their close family members, significant others, caregivers, or friends were eligible for inclusion. Suicide attempt was defined as “a self-inflicted, potentially injurious behavior with a nonfatal outcome for which there is evidence (either explicit or implicit) of intent to die” (Silverman et al., 2007). Studies in which the results of the proportion of participants who have attempted suicide could not be determined were excluded. That is, all participants (100 percent) in each study had to have a history of having attempted suicide or results had to be available for the subset of participants with a history of having
attempted suicide. Samples were not further restricted and included civilian and military samples.

- **Interventions**: Studies evaluating an aftercare intervention, including interventions that aimed to reduce suicidal behavior (suicide, attempt, or ideation) and/or increase psychosocial adjustment after attempted suicide (e.g., adaptation to life circumstances), and/or promote psychological well-being (e.g., mood), and/or support family members in their support of the person who has attempted suicide (e.g., social support groups for family members of people who have attempted suicide or respite care intervention) were eligible. Interventions were eligible regardless of their format and could include in-person, telehealth, or other approaches (e.g., follow-up letters). We excluded medical interventions that were designed to prevent death in someone who has attempted suicide, such as interventions to treat poisoning. We excluded interventions that were intended solely to enhance the well-being of the family members of people who have attempted suicide.

- **Comparators**: Studies that included placebo, treatment as usual or standard care as defined by the study, wait-list control, another active treatment, no treatment, or the status before the intervention implementation were included.

- **Outcomes**: Studies that report one or more of the following outcomes for people who have attempted suicide or their close family members were included: uptake, treatment retention, both, effectiveness and unintended consequences. Uptake outcomes may have included the proportion of participants agreeing to enroll who were approached originally or other indications of the uptake of the intervention or intervention components. Treatment retention outcomes may have included the proportion of participants who completed the treatment out of those who enrolled and the average proportion of sessions completed. Effect outcomes included both effectiveness measures (suicide-related effects: suicide, attempt, ideation, self-harm; other effects: depressive symptoms, psychological distress, anxiety, health-related quality of life, psychosocial adjustment or functioning) and unintended consequences (e.g., adverse events associated with the intervention).

- **Timing**: There were no restrictions related to publication year, the length of the intervention, or the length of the follow-up period.

- **Setting**: There were no restrictions related to settings, and settings may have included outpatient or inpatient care in national and international settings, including health care as well as settings outside health care.

- **Study design**: Eligible studies included parallel group, individual, or cluster RCTs and non-RCTs; and studies of large-scale interventions, such as screening or monitoring programs targeting at least 100 participants if the study reported on a concurrent or historic comparator (e.g., controlled and uncontrolled pre-post studies, cohort studies that compared two cohorts).

We retained relevant systematic reviews (e.g., reviews of suicide aftercare or those that were ambitious and may have looked at studies of interventions for people who attempted suicide, even if the review was focused on suicide prevention more broadly) for reference mining. We excluded research solely contained in abbreviated formats, such as letters and conference abstracts, and those that were not published in the English language.
Eligibility Screening

One reviewer screened all retrieved citations manually. In addition, we used a machine-learning algorithm to screen citations. All citations that were identified as potentially relevant were retrieved as full-text publications.

Full-text publications were evaluated independently by two reviewers to determine whether they met the detailed eligibility criteria. Disagreements about the inclusion or exclusion of a particular publication were resolved through discussion within our review team. Reasons for exclusion were recorded in a reference-management database.

Data Extraction

We created a data extraction form in online software that is designed for systematic reviews. The form included detailed instructions and decision rules for reviewers to maintain a standardized data-collection process. To ensure consistency of interpretation of all fields on the form, reviewers pilot-tested the form on a sample of studies. The form was then modified and tested again on a randomly selected sample of eligible studies. Data were abstracted by one reviewer and checked by a second experienced reviewer. Any discrepancies were resolved through discussion to ensure the validity of the data points. Information extracted from individual studies included the following:

- **Participants**:
  - People who have attempted suicide: gender, age, marital status, military population, comorbidities (e.g., psychiatric diagnoses, other conditions at study inception), history of having attempted suicide (number of past suicide attempts), eligibility criteria
  - Family members: relationship to person who attempted suicide, gender, age, eligibility criteria.

- **Interventions—category/type**:
  - Suicide-prevention training for health care professionals (e.g., gatekeeper training to recognize signs and/or treatment and referral options)
  - Suicide risk screening or assessment intervention (e.g., implemented in an organization to prevent suicide, formal screening)
  - Outreach (e.g., contacting patients who have attempted suicide or their family members)
  - Psychoeducation and case management for patients following attempted suicide or for their family members
  - Pharmacological treatment for patients following attempted suicide or for their family members (e.g., antidepressants, antipsychotics, lithium, ketamine)
  - Psychotherapy (e.g., cognitive behavioral therapy [CBT]) or psychological treatment for patients following attempted suicide or for their family members
- Combined medication and psychotherapy treatment for patients following attempted suicide or for their family members
- Complementary/integrative medicine for patients following attempted suicide or for their family members
- Social support group or peer support intervention for patients following attempted suicide or for their family members
- Respite care for family members of patients with attempted suicide
- Other (specify)

- Intervention description (content, format, provider/moderator, and expected/planned duration); target (person who attempted suicide, family member, or both)
- Intervention intensity: not intense intervention, (e.g., follow-up letter), neither intense or not intense, or moderate intensity (e.g., comprehensive program with multiple intervention components, different intervention angles or different intervention targets, such as patient and family/partner)
- Comparators: category/type (passive: treatment as usual, enhanced treatment as usual, placebo, waiting list; active: other type of intervention [see list of intervention types in prior list]) and description (content, format, provider/moderator, and expected/planned duration)
- Outcomes: Uptake outcomes (the proportion of participants who agreed to enroll in the intervention out of those who had the opportunity to enroll, the proportion of participants who completed the first session or other instance of the treatment out of those who agreed to enroll in treatment, the proportion of participants in the intervention group who completed each of the intervention’s components), treatment-retention outcomes (the proportion of participants who complete the treatment and the average proportion of sessions completed), and effectiveness outcomes and unintended consequences (suicide-related effects: suicide, attempt, ideation, or self-harm; other effects: depressive symptoms, psychological distress, anxiety, health-related quality of life, psychosocial adjustment or functioning) at the last follow-up assessment. Uptake and treatment retention outcomes can be measured for the target of the intervention, which could be a person who attempted suicide, their family member, or both. Effectiveness and unintended consequences can be measured for the patient, family member, or both, even if only one of them was the target of the intervention
- Setting: country, setting of care (inpatient, outpatient, remote)
- Study design: RCT versus non-RCT versus pre-post study with historic or concurrent comparator versus cohort study, unit of analysis (for RCTs, whether randomization occurred at the patient, provider, or site level), items relevant to risk of bias assessment.

Publications reporting on the same study population were consolidated into one study record so that individual studies entered the analyses only once.

Data Analysis

Data on people who have attempted suicide were analyzed separately from data on their family members, in part because they may use unique measures (i.e., Suicidal Attitudes Scale,
the Suicidal Caring Ability Scale, and the Family Adaptability and Cohesion Evaluation Scale) and because the treatment goals differed.

Study results for the outcomes of interest were converted to effect sizes comparing the effect in the intervention group with the effects in a (passive) control or (active) comparator group. Effects of the intervention were compared with a concurrent control group where available. We consistently used the longest follow-up period that was reported for each included study. We document the point estimate for standardized mean differences (SMD) for continuous outcomes and relative risks (RR) with 95 percent confidence intervals (CI) for categorical outcomes.

For suicide-related and effectiveness outcomes, when possible, we performed meta-analysis to pool results across included studies and created forest plots for these meta-analyses. We used the Hartung-Knapp-Sidik-Jonkman method for random effects meta-analysis to accommodate analyses with only a small number of studies (Hartung, 1999; Hartung and Knapp, 2001; IntHout, Ioannidis, and Borm, 2014; Sidik and Jonkman, 2006). Meta-analyses are weighted by standard error, thereby placing more weight on studies that provide effect sizes that are more likely to be better estimates of the true value. Meta-analyses are not baseline adjusted because analyses across studies should cancel out individual study imbalances. Heterogeneity was assessed with the $I^2$ statistic. We differentiated passive comparators (e.g., no treatment) and active comparators (e.g., an alternative treatment) and analyzed these separately.

We conducted subgroup analyses and meta-regressions to address the subquestions of this systematic review. We used head-to-head comparisons of interventions where available but also indirectly compared studies in meta-regressions across studies. Head-to-head trials are ideally suited to assess the comparative effectiveness and safety of two competing interventions. However, in the absence of direct comparisons, we conducted indirect comparisons across studies. In indirect analyses, a study-level variable (e.g., study type) was added to the meta-analytic model (Hempel et al., 2013). The meta-analysis pooled across studies comparing the intervention effect relative to the control group for each study and assessed whether the presence or absence of the study-level variable affected the effect size of the study.

First, we assessed whether the effects varied by the intensity of the intervention, conducting meta-regressions to examine modification of the effects of interventions by their level of intensity (KQ1a, KQ2a).

Second, we assessed whether the effects vary by the type of intervention (KQ1b, KQ2b). Prior to conducting these analyses, we developed a broad framework of interventions that span the array of aftercare services provided to people who have attempted suicide and to their family members (see Table 3.1). We described results of comparisons of two active interventions where available (also see Table 3.3) and explored the effect of the intervention type in a meta-regression indirectly across studies.

Third, we explored differences that are associated with the target of the intervention, i.e., whether the intervention targets both people who have attempted suicide and their family members versus only people who have attempted suicide (KQ1c) or only their family members
We planned to compare interventions that targeted both people who have attempted suicide and their family members with those that target only people who have attempted suicide and those that target only family members. Fourth, we planned to examine variation of effects by the population studied to determine whether, for example, interventions have different effects in military and civilian populations (KQ1d, KQ2d).

We assessed publication bias across studies using the Begg (Begg and Mazumdar, 1994) and the Egger (Egger et al., 1997) test. Following any indication of publication bias, we applied the trim and fill method for an adjusted effect estimate as a sensitivity analysis (Duval and Tweedie, 2000). The adjusted effect estimates take hypothetical studies that are potentially missing from the analysis because of publication bias into account.

**Risk of Bias**

The two reviewers assessed the risk of bias of included studies using an adapted version of the Cochrane Risk of Bias tool (Higgins and Green, 2011) that accommodates a wide variety of study designs, including RCTs, nonrandomized trials, and studies that use historic and concurrent comparators. Specifically, the reviewers assessed risks of bias related to the following:

- **Selection bias and confounding**
  - *Selection bias* refers to systematic differences between baseline characteristics of the groups that are being compared. The risk is low in RCTs in which the trial investigator randomly assigns participants to the intervention and control group (assuming that the random sequence was correctly generated and allocation concealment was maintained). Most problematic are observational studies where participants self-select the intervention or exposure because the compared groups may differ in other characteristics even before the intervention is introduced. These characteristics or confounders are likely to influence any observed differences between the intervention and control group, but the direction of effect—for example, whether the intervention effect is likely to be inflated—is unclear.

- **Performance bias**
  - We evaluated whether the knowledge of the allocated intervention could have influenced the outcome. In a placebo trial, patients and their health care providers do not know whether they received the treatment or a placebo, and thus that knowledge cannot influence their behavior. Accordingly, the risk of performance bias is low. However, if people know that they are under observation, they may change their behavior (Hawthorne effect), in which case the risk of performance bias is high.
Detection bias
- We evaluated whether the outcome assessor or the method of outcome assessment could have been influenced by the participants and modified because of prior knowledge of the allocated intervention. In studies in which participants and/or outcome assessors were blind to the intervention allocation (placebo condition), detection bias will be determined to be low risk.

Attrition bias
- We evaluated incomplete outcome data and, in particular, imbalances in follow-up data and selective dropout that are likely to be associated with the intervention. *Attrition bias* is suspected when there are systematic differences between treatment groups (pre versus post, intervention versus control) in withdrawals from the study. Studies with no missing data and loss to follow up and studies reporting intention to treat data were considered to have low risk of bias.

Other sources of bias
- We captured any additional aspects that could potentially affect the validity of the reported results, such as industry funding in medication approaches.

For analytical purposes, we categorized each included study as having an overall low, moderate/unclear, or high risk of bias (good quality, fair, poor). The assessment was a qualitative judgment by an algorithm; the algorithm took into account the most important sources of bias for the study rather than scoring the number of points met mechanically. The rating was drafted by one literature reviewer and checked by a second experienced content expert.

Quality of Evidence
The quality of the body of evidence was assessed for the effect estimate of each outcome using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach (Guyatt et al., 2008; Puhan et al., 2014; Salanti et al., 2014). This approach entails assessing eight domains related to a body of evidence. Five criteria may downgrade the quality of evidence: study limitations, indirectness, inconsistency, imprecision, and publication bias. Three domains may upgrade the quality of evidence: large effect size, the dose-response relationship, and plausible residual confounding would suggest a spurious effect. Using these assessments, we rated the evidence statements as falling into one of four categories:

- **High** indicates that we are very confident that an effect estimate lies close to the true effect for a given outcome because the body of evidence has few or no deficiencies. Therefore, we believe that the findings are stable: i.e., further research is very unlikely to change our confidence in the effect estimate.
- **Moderate** indicates that we are moderately confident that an effect estimate lies close to the true effect for a given outcome because the body of evidence has some deficiencies.
Therefore, we believe that the findings are likely to be stable, but further research may change our confidence in the effect estimate and may even change the estimate itself.

- **Low** indicates that we have limited confidence that an effect estimate lies close to the true effect for a given outcome because the body of evidence has major or numerous (or both) deficiencies. Therefore, we believe that additional evidence is needed before concluding either that the findings are stable or that the effect estimate lies close to the true effect.

- **Very low** indicates that we have very little confidence that an effect estimate lies close to the true effect for a given outcome because the body of evidence has very major deficiencies. Therefore, the true effect is likely to be substantially different from the estimated effect and thus any estimate of effect is very uncertain.
Chapter 3. Results

This chapter describes the identified literature and is organized by key question. The evidence table in Appendix B provides the details of the included studies.

Literature Flow

Database searches of published literature, screening trial registries, and reference mining of included RCTs and reviews resulted in 7,163 citations. In total, 1,144 publications were selected for full-text dual review. Of these, 73 individual studies in 129 published papers met the inclusion criteria and are included in this review (Ahn et al., 2020; Alavi et al., 2012; Alavi et al., 2013; Allard, Marshall, and Plante, 1992; Andreasson et al., 2016; Andreoli et al., 2016; Assistance Publique–Hôpitaux de Paris, 2013; Bateman and Fonagy, 2009; Bateman et al., 2016; Battaglia et al., 1999; Bergmans and Links, 2009; Bertolote et al., 2010; Brent et al., 2009; Brown et al., 2005; Burnand et al., 2017; Cebria et al., 2013; Cebria et al., 2015; Chan et al., 2011; Chen et al., 2012; Chen et al., 2013; Davis et al., 2009; Donaldson, Spirito, and Esposito-Smythers, 2005; Ducasse et al., 2018; Duke University and National Institute of Mental Health, 2016; Emory University, 2021; Emory University and National Institute of Mental Health, 2021; Ettlinger, 1975; Exbrayat et al., 2017; Fernandez-Artamendi et al., 2019; Fleischmann, 2002; Fleischmann et al., 2008; Fossi Djembi et al., 2020; Furuno et al., 2018; Gabilondo et al., 2019; Ghahramanlou-Holloway et al., 2012; Ghahramanlou-Holloway, Cox, and Greene, 2012; Ghahramanlou-Holloway et al., 2018; Gruat et al., 2010; Gysin-Maillart et al., 2016; Gysin-Maillart et al., 2017; Hassanzadeh et al., 2010; Henry M. Jackson Foundation for the Advancement of Military Medicine, 2018; Henry M. Jackson Foundation for the Advancement of Military Medicine and National Alliance for Research on Schizophrenia and Depression, 2018; Henry M. Jackson Foundation for the Advancement of Military Medicine and Congressionally Directed Medical Research Programs, 2018; Hirayasu et al., 2009; Hvid et al., 2011; Hvid and Wang, 2009; ISRCTN Registry, 2016; ISRCTN, 2016; Ivanoff, 1985; Japan Foundation for Neuroscience Mental Health and National Center of Neurology Psychiatry Japan, 2013; Johnson et al., 2018; Karver et al., 2008; Kaslow et al., 2010; Kato et al., 2012; Kawanishi et al., 2014; Kim et al., 2018; Kim et al., 2020; Kocmur, Dernovšek, and Tavčar, 1998; LaCroix, Perera, et al., 2018; LaCroix, Colborn, et al., 2018; Lahoz, Hvid, and Wang, 2016; Lauterbach et al., 2008; Liberman and Eckman, 1981; Lin et al., 2020; Linehan et al., 2015; LoParo et al., 2018; Marasinghe et al., 2012; Matsubara et al., 2019; McCauley et al., 2018; Mental Health Services in the Capital Region Denmark, Lundbeck Foundation, and University of Copenhagen, 2015; Michel, Valach, and Gysin-Maillart, 2017; Mishara, Houle, and Lavoie, 2005; Möller, 1989; Möller, 1992; Montgomery et al., 1994; Montgomery and Montgomery, 1982a;
Montgomery and Montgomery, 1982b; Montgomery et al., 1979; Mouaffak et al., 2015; Mousavi et al., 2014; Naidoo, Gathiram, and Schlebusch, 2014; New York State Psychiatric Institute and National Institute of Mental Health, 2020; Neely et al., 2013; O’Connor et al., 2017; O’Connor et al., 2015; Oquendo et al., 2011; Oquendo et al., 2012; Park et al., 2018; Patsiokas and Clum, 1985; Reijas et al., 2013; Rigshospitalet and Ministry of Social Affairs of Denmark, 2009; Rombold et al., 2014; Rotheram-Borus et al., 2000; Rotheram-Borus et al., 1996; Salkovskis, Atha, and Storer, 1990; Shen-Ing and National Science Council, Taiwan, 2008; Spirito et al., 2002; Stanley et al., 2009; Stewart et al., 2009; Sturm et al., 2012; Sun et al., 2014; Taha et al., 2015; Tepper et al., 2005; Tiihonen et al., 2006; Toffol et al., 2015; University Hospital Lille, 2015; University Hospital Lille, Regional Agency of Santé Nord-Pas-de-Calais and Région Nord-Pas-de-Calais France, 2020; University Hospital Montpellier, 2016; University Hospital Schleswig-Holstein, German Federal Ministry of Education and Research, Sanofi, Technische Universität Dresden, University of Bonn, Charité University, and University of Erlangen-Nurnberg, 2007; University of Bern, 2016; University of Pennsylvania and National Institute of Mental Health, 2014; University of Washington, 2015; University of Washington and National Institute of Mental Health, 2012; University of Washington, Seattle Children’s Hospital, University of California Los Angeles, and National Institute of Mental Health, 2016; Vaiva et al., 2018; Vaiva et al., 2006; Van der Buskens and van der Graaf, 1998; van der Sande et al., 1997; Verkes et al., 1998; Vitiello et al., 2009; Wang et al., 2016; Wei et al., 2013; Welu, 1977; Welu and Picard, 1974; World Health Organization and Fundação de Amparo à Pesquisa do Estado de São Paulo, Medical Research Council, Mental Health Research Centre, and Estonian Health Research Fund, 2007; Xu et al., 2012; Yamada et al., 2012; Zhang et al., 2013).

The results of literature searches and inclusion screening decisions are documented in a literature flow diagram (see Figure 3.1).
Figure 3.1. Flow Diagram

Included Studies

The included studies are detailed in the evidence tables in Appendix B. The majority of studies \((n = 47)\) were published in the past decade. The earliest included study was published in 1975 (Ettlinger, 1975).

Design

The analytic dataset included 52 RCTs, 18 controlled studies, and three pre-post studies. All RCTs randomized individual participants. Study sizes ranged from nine participants in inpatient treatment (Ivanoff, 1985) to 1,867 in a large-scale intervention (Fleischmann et al., 2008).

Setting

Five studies involved interventions that were delivered in the emergency department at the time of the suicide attempt (Burnand et al., 2017; Fleischmann et al., 2008; Lahoz, Hvid, and
Wang, 2016; Mousavi et al., 2014; Rotheram-Borus et al., 2000). Seven studies reported on interventions that were delivered in an inpatient setting (Ghahramanlou-Holloway et al., 2018; Ivanoff, 1985; LaCroix, Colborn et al., 2018; Liberman and Eckman, 1981; O’Connor et al., 2017; O’Connor et al., 2015; van der Sande et al., 1997).

Twenty-two studies were deemed other; this category primarily included mixed modes of contact through case management (telephone and at-home visits) or through an intervention that was delivered in the emergency department and was followed by outpatient treatment. Nine of the studies evaluated an intervention that was delivered remotely by telephone, and 32 studies were delivered in outpatient care. Of those, 13 studies evaluated individual psychotherapy and nine studies evaluated pharmacotherapy; the remainder evaluated support groups; a buddy (peer) intervention; and any combination of support, psychotherapy, psychoeducation, medication, or behavioral therapy. We classified interventions as remote when all contact was by telephone or mail.

Participants

Sixty-seven studies addressed civilian individuals who attempted suicide. One study examined only U.S. service members (LaCroix, Colborn et al., 2018), and one study included U.S. service members and their adult beneficiaries (Ghahramanlou-Holloway et al., 2018). Participant ages ranged from adolescents (12–17) up to one study of participants aged 65 and older in China (Chan et al., 2011). Participants were largely female; in seven studies, male participants made up more than half of the study sample (Bateman et al., 2016; Battaglia et al., 1999; Ghahramanlou-Holloway et al., 2018; Kato et al., 2012; Kocmur, Dernovšek, and Tavčar, 1998; LaCroix, Colborn et al., 2018; O’Connor et al., 2015). Gender was not reported in eight studies.

Five studies included family members, each alongside a suicide attempter (Alavi et al., 2013; McCauley et al., 2018; Rotheram-Borus et al., 2000; Naidoo, Gathiram, and Schlebusch, 2014; Ahn et al., 2020). Three studies included mothers who had been present for an intervention delivered in the emergency room. One study (Alavi et al., 2013) included the option of family member participation in the first session of cognitive behavioral therapy, and in a study of dialectical behavioral therapy for adolescents, parents were seen individually in the first session and offered more family sessions (McCauley et al., 2018). In both those studies, parental outcomes were not assessed.

Two studies intervened directly with family members of suicide attempters and did not involve the person who attempted suicide in the evaluation (Mishara, Houle, and Lavoie, 2005; Sun et al., 2014).

Interventions

Table 3.1 provides an overview of the included interventions: psychotherapy; medication; outreach; psychoeducation and case management; and prevention, screening, or other
interventions. Twenty-three studies evaluated psychotherapy interventions, such as cognitive therapy, skills-based treatment, cognitive behavioral problem-solving, behavior therapy, and dialectical behavior therapy. Eleven studies evaluated the impact of medication following a suicide attempt. Twenty-three of the included studies involved some degree of psychoeducation and case management. Case management interventions were not well-specified. Studies reported the parameters of case management (some number of telephone or in-home visits over a specified period).

The one intervention categorized as prevention involved training family and friends of the individual who made a suicide attempt (Mishara, Houle, and Lavoie, 2005). Two studies categorized as screening relied on telephone follow-up at regular intervals to assess suicide risk, (Exbrayat et al., 2017; Mouaffak et al., 2015). One study evaluated a social support group (Bergmans and Links, 2009). The remaining studies, which were categorized as other, included a hiking intervention (Sturm et al., 2012) and an unspecified combination of therapeutic approaches (Allard, Marshall, and Plante, 1992).
### Table 3.1. Table of Included Interventions

<table>
<thead>
<tr>
<th>Intervention Category</th>
<th>Number of Studies</th>
<th>Specific Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychotherapy</td>
<td>23</td>
<td>• Abandonment psychotherapy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Acceptance and commitment therapy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Behavior therapy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Brief cognitive-based psychosocial intervention</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cognitive behavioral problem solving</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cognitive behavioral therapy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cognitive restructuring</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cognitive therapy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cognitive-Based Compassion Training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Crisis support and motivation for treatment compliance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Dialectical behavior therapy (DBT)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mentalization-based treatment that integrates cognitive, psychodynamic and relational components</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Skills-based treatment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Systematic desensitization for distress tolerance</td>
</tr>
<tr>
<td>Medication</td>
<td>11</td>
<td>• Fluoxetine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Flupenthixol</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Fluphenazine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Lithium</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mianserin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Paroxetine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Tandospirone</td>
</tr>
<tr>
<td>Outreach</td>
<td>8</td>
<td>• Telephone follow-up contact</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Brief contact, including crisis cards and phone calls</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Brief contact intervention</td>
</tr>
<tr>
<td>Psychoeducation and case management</td>
<td>23</td>
<td>• Attempted Suicide Short Intervention Program (ASSIP)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Nurse case management</td>
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<tr>
<td></td>
<td></td>
<td>• Suicide education intervention</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Grady Nia empowerment project</td>
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<tr>
<td></td>
<td></td>
<td>• Brief education intervention</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Assertive case management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Case management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Buddy intervention</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Compliance enhancement</td>
</tr>
<tr>
<td>Prevention, screening, or other</td>
<td>7</td>
<td>• Hiking</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Any unspecified combination of therapeutic support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Training for family and friends</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Telephone follow-up assessment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Social support group</td>
</tr>
</tbody>
</table>

In our rating of the intensity of interventions, psychotherapeutic interventions were rated as intense, case management and medication studies were rated as moderate, and postcards as outreach were considered not intense. Among the 52 RCTs, 18 evaluated an intense intervention, 32 studies evaluated moderate interventions, and two of the RCTs’ interventions were categorized as not intense (O’Connor et al., 2017; Vaiva et al., 2018).
Comparators

Almost half of the included studies \((n = 37)\) compared an active treatment intervention with treatment as usual or enhanced treatment as usual. Typically, it is the research assessments and interaction with researchers that prompts the addition of the term *enhanced* to usual care or treatment as usual. Eight studies had no control group (Andreasson et al., 2016; Battaglia et al., 1999; Bergmans and Links, 2009; Donaldson, Spirito, and Esposito-Smythers, 2005; Ducasse et al., 2018; Linehan et al., 2015; Mishara, Houle, and Lavoie, 2005; Vitiello et al., 2009). One study compared its intervention with a waitlist control (Alavi et al., 2013). Thirty of the 52 RCTs relied on a treatment-as-usual control group, and six of the RCTs compared two active treatments (Andreasson et al., 2016; Battaglia et al., 1999; Donaldson, Spirito, and Esposito-Smythers, 2005; Ducasse et al., 2018; Linehan et al., 2015; Sturm et al., 2012).

Outcomes

The majority of studies reported on suicide attempts, followed by studies reporting a depression measure. In most cases, studies reported the number of participants who had attempted suicide again during the study follow-up period. Study follow-up periods ranged from one month \((n = 3; \) O’Connor et al., 2015; Kato et al., 2012; Patsiokas and Clum, 1985) to five years (Cebria et al., 2015; Ettlinger, 1975; Kawanishi et al., 2014; Lahoz, Hvid, and Wang, 2016). Thirty-six studies reported on follow-up periods at least one year after the intervention.

In some cases, studies also reported on the number of suicide deaths. The most common measures used for mental health assessments are shown in Table 3.2.

<table>
<thead>
<tr>
<th>Measure Type</th>
<th>Measure Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>• Beck Depression Inventory (I and II)</td>
</tr>
<tr>
<td></td>
<td>• Carroll Rating Scale for Depression</td>
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<tr>
<td></td>
<td>• Center for Epidemiologic Studies—Depression Scale</td>
</tr>
<tr>
<td></td>
<td>• Hamilton Rating Scale of Depression—17-item (HAM-D17)</td>
</tr>
<tr>
<td></td>
<td>• Hamilton Depression Rating Scale—24-item (HAMD)</td>
</tr>
<tr>
<td></td>
<td>• Minnesota Multiphasic Personality Inventory Depression Scale</td>
</tr>
<tr>
<td></td>
<td>• Montgomery and Asberg Depression Rating Scale (MADRS)</td>
</tr>
<tr>
<td></td>
<td>• Zung Depression Scale</td>
</tr>
<tr>
<td>Hopelessness</td>
<td>• Beck Hopelessness Scale</td>
</tr>
<tr>
<td></td>
<td>• Hopelessness Scale for Children</td>
</tr>
<tr>
<td>Quality of Life</td>
<td>• World Health Organization Quality of Life Measure</td>
</tr>
<tr>
<td></td>
<td>• Satisfaction with Life Scale</td>
</tr>
</tbody>
</table>

Details about the included studies can be found in Table B.1 in Appendix B.

Risk of Bias Results

The risk of bias assessment across studies is shown in Figure 3.2.
Overall, 19 studies were judged to be poor quality, 20 studies were judged to be fair quality, and 47 percent of our included studies were judged to be good quality. Less than half of the studies were considered to have a low risk of detection bias, which is reflective of challenges of blinding participants and research staff to treatment conditions. Half of the studies were judged to be at a low risk of a selection bias. Fourteen studies were judged to be at high risk of selection bias, 13 had a high risk of performance bias, three studies had a high risk of detection bias, nine studies had a high risk of attrition bias, and ten studies had a high risk of other bias, typically due to using small sample sizes and insufficient statistical power.

**KQ1. What Is the Effect of Aftercare Interventions on Uptake, Retention, Effectiveness Measures, and Unintended Consequences for People Who Have Attempted Suicide?**

In this section, we present the outcomes of interest in order of importance. All main analyses compare the effects of the suicide aftercare intervention with a control group. Comparisons between two active interventions are reported in the sections KQ1a and KQ1b.

**Suicide Attempt**

Our primary outcome of suicide attempt was reported in the majority of studies, and we calculated the relative risk in the intervention compared with a control group. All studies comparing with a control group are shown in Figure 3.3.
Interventions showed a statistically significant reduction in suicide attempts (RR 0.78; CI 0.67, 0.91; 33 studies). Observed heterogeneity was negligible (I$^2$ 47 percent). We found some evidence of publication bias (Begg test $p = 0.02$, Egger $p = 0.06$). As a sensitivity analysis, we applied the trim-and-fill method for adjusted effect estimates that added four hypothetical studies and found the effect on suicide attempts remains significant (RR 0.82; CI 0.71, 0.95). In a further sensitivity analysis, we restricted to the 26 RCTs that reported on outcomes and found the effect to be robust (RR 0.67; CI 0.62, 0.94; 26 RCTs). An investigation of RCTs with good risk of bias summary ratings provides some context for how small these effects are at the study level. For instance, Kawanishi et al. (2014) randomized 914 participants and found no significant
difference in incidence of first recurrent suicide attempt between the assertive case management group and the enhanced usual care group. Vaiva et al. (2006) randomized 605 individuals to receive telephone outreach following a suicide attempt and found no differences in the number of subsequent suicide attempts between the outreach and usual care groups. In another study, Vaiva and colleagues (2018) randomized 1,040 patients to receive a brief contact intervention and found no significant differences between the active and control groups. A further study randomized 320 patients to an outreach intervention or usual care and found no statistically significant differences in subsequent suicide attempts between the two groups (Mouaffak et al., 2015).

Three studies could not be added because they reported suicide attempts as a continuous variable—such as the mean number of attempts—in the samples. The effect estimate across studies was not statistically significant (SMD 0.46; CI –0.03, 0.95; 3 studies). Chen (2013) measured the amount of time to subsequent suicide attempt and found no statistically significant differences between active and control groups following their crisis postcard intervention (hazard ratio 0.84 [CI 0.56, 1.29]) (Chen et al., 2013).

**Suicide Death**

Sixteen studies that included a control group reported on suicide death as a categorical outcome as shown in Figure 3.4.
Across studies, we found a significant reduction of the number of suicide deaths associated with the suicide aftercare intervention (RR 0.71; CI 0.50, 0.99; 16 studies). Heterogeneity was negligible (I² 17 percent), and we found no evidence of publication bias (Begg test \( p = 0.45 \), Egger test \( p = 0.09 \)). A sensitivity analysis restricting to only RCTs showed a similar effect estimate; however, the effect was no longer statistically significant (RR 0.65; CI 0.39, 1.10; 12 RCTs).

**Self-Harm**

Studies reporting on self-harm are shown in Figure 3.5.
For each individual study and across the studies, we found no effect on the risk of engaging in self-harm (RR 1.01; CI 0.62, 1.63; 3 studies). There were too few studies for further analyses.

**Suicidal Ideation**

Several studies reported on suicidal ideation. Figure 3.6 shows all studies reporting on a continuous outcome expressed as measure-independent standardized mean difference (SMD).
The pooled analysis indicated a reduction, but the effect was not statistically significant (SMD –0.61; CI –1.27, 0.66; 9 studies). The analysis detected heterogeneity ($I^2$ 78 percent). After removing an outlier (Alavi et al., 2013), the effect was statistically significant (SMD –0.42; CI –0.80, –0.04; 8 studies).

In addition, five studies reported on suicidal ideation as a categorical outcome, i.e., the number of participants who reported suicide ideation. Studies showed a reduction, but the effect was not statistically significant (RR 0.55; CI 0.23, 1.32; 5 studies).

**Depression**

Seventeen studies with a control group reported depression as a continuous outcome measure, as illustrated in Figure 3.7.
The pooled analysis across studies and outcomes indicated a statistically significant treatment effect of the interventions on measures of depression (SMD –0.32; CI –0.57, –0.06; 17 studies). The analysis detected some heterogeneity ($I^2$ 67 percent), but there was no evidence of publication bias (Begg test $p = 0.31$, Egger test $p = 0.07$). We conducted a sensitivity analysis to assess the impact of one outlier (Alavi et al., 2013). We found the effect remained statistically significant (SMD –0.25; CI –0.39, –0.10), i.e., was not driven primarily by the outlier. A sensitivity analysis restricting the analysis to the RCTs only resulted in the same point estimate, but the effect was no longer statistically significant (SMD –0.31; CI –0.63, 0.02; 14 RCTs).

**Hopelessness**

Ten studies included a control group and reported on hopelessness as an outcome, as shown
Across studies, we found a significant reduction in depression scores associated with the suicide aftercare intervention (SMD –0.42; CI –0.78, –0.05; 10 studies). We detected heterogeneity (I² 61 percent), but there was no evidence of publication bias (Begg test \( p = 0.11 \), Egger test \( p = 0.10 \)). The effect remained significant when we removed the outlier from this analysis (Alavi et al., 2013) and was not driven primarily by the individual study (SMD –0.27; CI –0.42, –0.13). However, a sensitivity analysis restricting the analysis to RCTs only showed that the effect was not statistically significant anymore, despite the similar point estimate (SMD –0.43; CI –0.86, 0.01; 9 RCTs).

**Quality of Life**

The two studies that included a control group and reported on quality of life as an outcome

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**Figure 3.8. Effect on Hopelessness**

[Sources of data used in the analysis](#)
(Möller, 1992; van der Sande et al., 1997) did not show a statistically significant effect (SMD –0.10; CI –0.92, 0.73; two RCTs).

Uptake

In total, 46 studies reported on at least one uptake outcome. The modal uptake variable was the number of people who accepted the intervention. Across studies, intervention uptake ranged from a low of 24 percent (Lauterbach et al., 2008) to a high of 100 percent (Ivanoff, 1985). Across all studies that reported intervention uptake, we found an overall uptake rate of 84 percent (59,549 participants out of a total of 71,087 accepted an intervention).

Reasons for the lack of uptake included, for example, refusals of the intervention or the fact that participants could not be reached. In one study (Lin et al., 2020), authors reported that of 72 participants assigned to the intervention group, 18 (25 percent) refused the intervention, 17 (24 percent) could not be reached; and 37 (51 percent) patients received at least one session of intervention; there was a mean of 5.92 therapy sessions, which included a mean of 2.11 face-to-face sessions and 3.81 telephone sessions.

Retention

Half of the included studies (n = 34) reported at least one retention outcome, typically in the form of counts of dropouts, the number of participants who completed the intervention, and the number of participants available at the final follow-up. Retention results ranged from a 34 percent completion rate (Stewart et al., 2009) in a study in which only 11 out of 32 patients completed manualized psychotherapy (problem-solving or CBT) to a 96 percent retention rate (Naidoo, Gathiram, and Schlebusch, 2014) in a study that reported on 344 participants with only 13 dropouts; the study relied on high-frequency contacts by either a researcher or an identified “buddy” in the buddy intervention (at weeks 1, 2, 4, 7, and 11, and months 4, 6, 12, and 18).

Unintended Consequences

Only three studies reported adverse events, and all were medication studies. Verkes et al. (1998) reported delayed orgasm (paroxetine 9, placebo 0; p = 0.003), diarrhea (paroxetine 10, placebo 1; p = 0.007), tremor (paroxetine 8, placebo 1; p = 0.03), and substantial ecchymoses (paroxetine 2, placebo 0). Kocmur, Demovšek, and Tavčar (1998) reported that adverse events were, on average, either absent or mild, and in a trial comparing lithium to valproate, Oquendo et al. (2011) reported pregnancy (n = 2), skin rash (n = 1), hand tremor (n = 1), and gunshot wound, not self-inflicted (n = 1). In most other research, suicide attempts may be considered an adverse event or an unintended consequence of the intervention. In this review of interventions to prevent suicide, suicide attempts are our primary outcome.
**KQ 1a. Do the Effects Vary by the Intensity of the Intervention?**

We assessed whether our primary outcome—suicide attempts—varied by the intensity of the intervention in an indirect comparison across studies by adding the variable to the meta-analysis model in a meta-regression. We found no indication of a systematic difference in treatment effects reported across studies based on the intensity of the intervention ($p = 0.72$); this indicated, for example, that more-intense interventions are likely to result in better treatment effects.

We identified two studies that compared two active treatments of different intensities. One RCT (Battaglia et al., 1999) compared low and ultra-low doses of fluphenazine and did not find a statistically significantly greater effect of the low dose over the ultra-low dose for self-harm behaviors. One study (Linehan et al., 2015) compared dialectical behavioral therapy with and without individual therapy sessions and did not find a significant difference in the effect on suicide outcomes (SMD 0.46; CI –0.03, 0.95; one study).

**KQ 1b. Do the Effects Vary by the Type of Intervention (e.g., Psychotherapy, Pharmacotherapy, Caring Contact Interventions)?**

We assessed whether reported effects varied by type of intervention in studies, both in direct and indirect comparisons.

**Direct Comparisons**

Twenty-one identified studies in total compared two active treatments, nine of which reported on suicide attempts. Table 3.3 provides an overview of the studies together with their effects on the primary outcome suicide attempts.
<table>
<thead>
<tr>
<th>Study and Design</th>
<th>Intervention</th>
<th>Comparator</th>
<th>Effect on Suicide Attempts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andreasson, 2016 RCT</td>
<td>Psychotherapy: Dialectical behavior therapy (DBT) • DBT was offered as a 16-week treatment course, which consisted of one individual session (one hour) and one group session (two hours) weekly, delivered by DBT therapists. • Target: Person who attempted suicide</td>
<td>Psychotherapy: Collaborative Assessment and Management of Suicidality (CAMS) • CAMS treatment is an overall process of clinical assessment, treatment planning, and management of outpatient suicidal risk. The duration of treatment could vary but lasted a maximum of 16 weeks. • Target: Person who attempted suicide</td>
<td>RR 2.15; CI 0.81, 5.68</td>
</tr>
<tr>
<td>Bateman, 2016 RCT</td>
<td>Psychotherapy: Mentalization-based treatment that integrated cognitive, psychodynamic, and relational components • Mentalization-based treatment (weekly combined individual and group psychotherapy provided by two different therapists for 18 months). • Target: Person who attempted suicide</td>
<td>Social support group • Weekly individual and group sessions of counseling provided by nonspecialist practitioners with appointments every three months for psychiatric review. • Target: Person who attempted suicide</td>
<td>RR 0.10; CI 0.01, 1.76</td>
</tr>
<tr>
<td>Battaglia, 1999 RCT</td>
<td>Medication: Fluphenazine • Once-monthly low dose (12.5mg) of intramuscular injections of fluphenazine decanoate for six months. • Target: Person who attempted suicide</td>
<td>Pharmacological treatment: Fluphenazine • Ultra-low dose (1.5mg) of intramuscular fluphenazine once monthly for six months. • Target: Person who attempted suicide</td>
<td>N/A</td>
</tr>
<tr>
<td>Chen, 2013 RCT</td>
<td>Psychoeducation • Received individualized crisis postcard after three months of case management. Crisis postcards included two components: individual coping strategies and resources. Case management included psychological support, proper coping strategies, follow-ups to increase adherence to the referrals provided for psychiatric treatment, and coordination of social resources and brief crisis intervention if needed. • Target: Person who attempted suicide</td>
<td>Other: • Case management services six times over three months (including psychological support, proper coping strategies, follow-ups to increase adherence to the referrals provided for psychiatric treatment, and coordination of social resources and brief crisis intervention if needed). • Target: Person who attempted suicide</td>
<td>N/A</td>
</tr>
<tr>
<td>Donaldson, 2005 RCT</td>
<td>Psychotherapy: Skills-Based Treatment • SBT taught effective problem-solving and cognitive and behavioral strategies for affect management (e.g., cognitive restructuring, relaxation). Each session included an assessment of suicidality, skill education, and skill practice. Active sessions were administered over three months, and maintenance sessions included three monthly sessions. • Target: Person who attempted suicide and their family member(s)</td>
<td>Social support group • This treatment was supportive in nature and focused the participant’s mood and behavior as well as factors that contribute to adolescent suicidal behavior. Sessions were unstructured and addressed reported symptoms and problems. • Target: Person who attempted suicide</td>
<td>N/A</td>
</tr>
<tr>
<td>Ducasse, 2017 RCT</td>
<td>Psychotherapy: Acceptance and Commitment Therapy • Seven weekly two-hour sessions of Acceptance and Commitment Therapy provided by two therapists. • Target: Person who attempted suicide</td>
<td>Standardized relaxation program, consisting of seven two-hour weekly sessions • A standardized relaxation program, consisting of seven two-hour weekly sessions. • Target: Person who attempted suicide</td>
<td>N/A</td>
</tr>
<tr>
<td>Study and Design</td>
<td>Intervention</td>
<td>Comparator</td>
<td>Effect on Suicide Attempts</td>
</tr>
<tr>
<td>------------------</td>
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</tbody>
</table>
| Fernandez-Artamendi, 2019 Controlled study | Psychoeducation  
- Passive information leaflet about the prevention of suicidal behavior and active case management, plus a psychoeducational program (ten weekly 60-minute group sessions of skills-based therapy)  
- Target: Person who attempted suicide | Case management  
- Active case management  
- Target: Person who attempted suicide | N/A |
| Ivanoff, 1984 RCT | Psychotherapy: Systematic desensitization for distress tolerance  
- One-hour individual session each day for seven consecutive days provided by trained therapists, focusing on increasing the patient’s ability to cope with situations that produce intolerable distress.  
- Target: Person who attempted suicide | Psychotherapy: Problem-solving therapy  
- One-hour individual session each day for seven consecutive days provided by trained therapists, focusing on increasing the patient’s interpersonal problem-solving skills.  
- Target: Person who attempted suicide | N/A |
| Johnson, 2018 RCT | Psychotherapy  
- Cognitively-Based Compassion Training (including six sessions of weekly meditation practice)  
- Target: Person who attempted suicide | Social support group  
- 90-minute unstructured support group sessions and do not include any elements of compassion meditation.  
- Target: Person who attempted suicide | N/A |
| Kato, 2012 Controlled study | Medication: Tandospirone combination therapy  
- Tandospirone (an anxiolytic) combined with antidepressants | Pharmacological treatment: Mirtazpine, setraline, and fluvoxamine  
- Monotherapy with an antidepressant (mirtazpine, setraline, or fluvoxamine)  
- Target: Person who attempted suicide | N/A |
| Liberman, 1981 RCT | Psychotherapy: Behavior therapy  
- Four hours of behavior therapy per day over eight days provided by a psychologist, including 17 hours of social skills training, ten hours of anxiety management training, and five hours of family negotiation and contingency contracting.  
- Target: Person who attempted suicide | Psychotherapy: Insight-oriented therapy  
- Insight-oriented psychotherapy was provided by experienced psychologists and consisted of 17 hours of psychodrama, ten hours of group therapy, and five hours of family therapy.  
- Target: Person who attempted suicide | RR 1; CI 0.07, 14.21 |
| Linehan, 2015 RCT | Psychotherapy  
- Standard DBT divided into the following four weekly components: individual therapy, group skills training, therapist consultation team, and as-needed between-session telephone coaching. Treatment lasts for a year.  
- Target: Person who attempted suicide | Psychotherapy  
- DBT skill training without individual therapy  
- Target: Person who attempted suicide | SMD 0.46; CI −0.03, 0.95 |
| LoParo, 2018 RCT | Psychotherapy: Cognitively-Based Compassion Training (CBCT)  
- Six weekly 90-minute CBCT group sessions that incorporate the standard meditative practices of developing focused/sustained attention and mindfulness as precursors to using meditative concentration for the compassionate analysis of oneself and others.  
- Target: Person who attempted suicide | Social support group  
- The six-week non-CBCT support group sessions were also 90 minutes in length. They were unstructured and did not include any elements of compassion-based meditation.  
- Target: Person who attempted suicide | N/A |
| McCauley, 2018 RCT | Psychotherapy: DBT  
- DBT consisting of weekly individual psychotherapy, multifamily group skills | Psychotherapy: Client-centered supportive therapy | RR 0.68; CI 0.22, 2.12 |
<table>
<thead>
<tr>
<th>Study and Design</th>
<th>Intervention</th>
<th>Comparator</th>
<th>Effect on Suicide Attempts</th>
</tr>
</thead>
</table>
| Moller, 1992 RCT | Psychotherapy: Crisis support and motivation for treatment compliance  
- Twelve sessions of ambulatory short-term psychotherapy over three months that was provided by the clinician who had already been in charge of the patient in the hospital, with additional motivational efforts to increase compliance.  
- Target: Person who attempted suicide | Psychotherapy: Non-specific, predominantly psychodynamic  
- Immediate crisis intervention (three sessions) and subsequent referral to special suicide-prevention services.  
- Target: Person who attempted suicide | RR 1.02; CI 0.45, 2.31 |
| Naidoo, 2014 RCT | Psychoeducation: Buddy intervention  
- One one-hour session of individual psychotherapy and information-sharing as close to the time of discharge as possible, aimed at education and increasing awareness of available resources; participants nominated “buddies” who were trained in three workshops, each lasting four hours, to provide basic counseling and facilitate specialized referral if required.  
- Target: Person who attempted suicide | Counseling with psychotherapy and information-sharing  
- Participants in the control group were followed up to assess their personal well-being, further suicidal attempts, and need for medical or specialist assistance. This included counseling similar to that conducted in the experimental arm.  
- Target: Person who attempted suicide | N/A |
| Oquendo, 2011 RCT | Medication: Lithium  
- Lithium plus adjunctive medications for depression and/or psychosis  
- Target: Person who attempted suicide | Pharmacological treatment: Valproate  
- Valproate plus adjunctive medications for depression and/or psychosis  
- Target: Person who attempted suicide | RR 0.78; CI 0.29, 2.08 |
| Patsiokas, 1985 RCT | Psychotherapy: Cognitive restructuring  
- Ten one-hour sessions conducted over three weeks to identify cognitions, distortions, and related strategies.  
- Target: Person who attempted suicide | Psychotherapy: Problem-solving therapy  
- Ten sessions of problem-solving psychotherapy.  
- Target: Person who attempted suicide | N/A |
| Stewart, 2009 RCT | Psychotherapy: CBT  
- Seven weekly one-hour sessions of CBT, administered by the researcher.  
- Target: Person who attempted suicide | Problem-solving therapy  
- Four weekly one-hour sessions of problem-solving therapy, administered by the researcher; this provides participants with skills to find more positive solutions to stressors, feel less hopeless, and choose solutions other than suicide.  
- Target: Person who attempted suicide | RR 0.65; CI 0.02, 19.95 |
| Vitiello, 2009 Controlled study | Psychotherapy: CBT  
- Six months of up to 22 sessions of manualized CBT with a focus on suicide prevention, including both individual and parent-youth sessions, and antidepressant pharmacotherapy.  
- Target: Person who attempted suicide and their family member(s) | Pharmacological treatment: Antidepressant  
- Antidepressant pharmacotherapy, monotherapy with SSRI, followed in case of nonresponse by a different SSRI, and alternate class as step three with the option of augmenting with lithium or other antidepressants.  
- Target: Person who attempted suicide | N/A |
| Wei, 2013 RCT | Psychotherapy: Cognitive therapy  
- Cognitive therapy (ten 45- to 60-minute individual therapy sessions provided by | Telephone support  
- Telephone intervention (12 weekly phone calls of 20–40 minutes provided | RR 0.98; CI 0.06, 15.33 |
Three studies compared two active medications, one of which has been described in section KQ1a. Another RCT (Oquendo et al., 2011) reported a significant effect of Lithium plus adjunctive medications for depression and/or psychosis when compared with Valproate plus adjunctive medications for depression and/or psychosis, but the study found no statistically significant difference between these interventions (RR 0.78; CI 0.29, 2.08).

Three studies compared psychoeducation with active case management: Two studies reported no significant differences in the number of suicide reattempts (Fernandez-Artamendi et al., 2019) or the time to suicide re-attempt (Chen et al., 2013), and the third study found a significant treatment effect of a buddy training intervention on subsequent suicide attempts (Naidoo, Gathiram, and Schlebusch, 2014).

One study (Andreason et al., 2016) compared dialectical behavioral therapy with a treatment protocol that focused on clinical assessment, treatment planning, and management of outpatient suicidal risk; the authors reported a significant reduction of suicide attempts favoring DBT (RR 2.15; CI 0.81; 5.68). Another study (Linehan et al., 2015) comparing dialectical behavioral therapy with and without individual therapy sessions did not find a significant difference as described in KQ1. One study (McCauley et al., 2018) reported that DBT was significantly more effective than client-centered individual and group supportive therapy (RR 0.68; CI 0.22, 2.12; 1 study) even though the latter involved family members in the supportive therapy.

Because the effect of an intervention depends also on what it is compared with, additional meta-analysis of this set of studies was not possible because studies could not be meaningfully combined.

Indirect Comparisons

We found no systematic difference in treatment effects reported in studies that evaluated medication (p = 0.84), outreach (p = 0.37), psychoeducation (p = 0.70), psychotherapy (p = 0.60), screening (p = 0.68), or other (p = 0.99). None of the intervention subgroups reported systematically higher or lower effects than other interventions. However, the analysis uses an indirect comparison across studies rather than head-to-head comparisons of interventions within studies and, accordingly, it must be interpreted with caution.
KQ 1c. Do the Effects Vary by Intervention Target (e.g., Interventions That Target Both Patients and Family Members Versus Interventions That Target Only Patients?)

We identified three studies that included family members in the intervention (Alavi et al., 2013; McCauley et al., 2018; Rotheram-Borus et al., 2000) that targeted the adolescent who had attempted suicide. Rotheram-Borus et al. (2000) reported improvements in maternal distress and family adaptability. McCauley et al. (2018) conducted an RCT with 173 adolescent participants, each of whom had a parent, to compare DBT with individual and group supportive therapy; they reported significant treatment effects relevant to subsequent suicide attempts (there were no subsequent suicide attempts for 90 percent of those receiving DBT versus 79 percent receiving supportive therapy; odds ratio [OR] 0.30; CI 0.10, 0.91). A further study by Alavi et al. (2013) included family skills training with CBT compared with a waitlist for the treatment of depressed adolescents ages 12 to 18; they found significant reductions on measures of depression, hopelessness, and suicidal ideation associated with the intervention.

Two studies provided suicide-related education to friends and family members of those who had attempted suicide and assessed outcomes in these individuals, such as caregiver stress and depression (Sun et al., 2014; Mishara, Houle, and Lavoie, 2005); each reported some benefit to the friend or family member; however, we were unable to analyze these studies together because of the differences in reported outcomes.

KQ 1d. Do the Effects Vary by Population (e.g., Military Versus Civilian)?

We could not explore fully the effects of the population characteristics because of a lack of identified variety in included studies. We identified just two studies in military personnel (Ghahramanlou-Holloway et al., 2018; LaCroix, Colborn et al., 2018). Both evaluated Post-Admission Cognitive Therapy (PACT), an intervention of six 60- to 90-minute CBT sessions provided over three days in an inpatient setting. The studies enrolled a total of 60 participants, who were mostly male service members, and compared PACT with enhanced usual care. Neither study found a significant treatment effect on subsequent suicide attempts, although sample sizes were small; both studies reported clinically significant improvements in depression, hopelessness, and posttraumatic stress disorder symptoms (Ghahramanlou-Holloway et al., 2018; LaCroix, Colborn et al., 2018).

KQ2. What Is the Effect of Aftercare Interventions on Uptake, Retention, Effectiveness Measures, and Unintended Consequences for the Family Members of People Who Have Attempted Suicide?

We identified only two suicide aftercare studies (Sun et al., 2014; Mishara, Houle, and Lavoie, 2005) that reported solely on family member outcomes. None of the identified studies
evaluated an intervention that addressed both the person who had attempted suicide and their family members and reported data for both groups.

We were unable to pool results across studies because neither study reported on the same outcome. Mishara, Houle, and Lavoie (2005) offered four different support options to family and friends of men who had attempted suicide and found the acceptance rate (i.e., uptake) was between 32 and 52 percent. The authors reported that participants experienced reduced distress and improved their communication and coping skills following the supportive and educational intervention. One RCT (Sun et al., 2014) with 74 caregivers of people who attempted suicide found that a two-hour educational intervention led to improvements on the Suicidal Caring Ability Scale and the Suicide Attitudes Scale but no statistically significant differences on the Caring Stress Scale.

Given the small number of identified studies, we were unable to address whether the effects vary by the intensity of the intervention (KQ2a), by the type of intervention (KQ2b), by intervention target (KQ2c), or by population (KQ2d).
In this chapter, we summarize the findings of this systematic review, evaluate the quality of evidence, place the findings in the context of existing research, and acknowledge limitations. We found 73 studies that evaluated suicide aftercare interventions, and across studies, we identified significant effects of these interventions on key outcomes, such as subsequent repeated suicide attempts, suicide deaths, and depression. The effects that we found are small, but it is difficult to detect effects for rare events.

Table 4.1 provides an overview of the findings across studies. The table lists the key question, the intervention and comparators evaluated, and the results of the assessed outcomes. For each outcome, the table shows the number of studies and study designs that contribute to the result, reasons for downgrading the quality of evidence (where applicable), the direction and magnitude of the effect, and our confidence in the estimate expressed as a GRADE category.
Table 4.1. Summary of Findings and Quality of Evidence Table

<table>
<thead>
<tr>
<th>KQ Comparison and Outcome</th>
<th>Number of Studies and Participants</th>
<th>Reasons for Downgrading Quality</th>
<th>Findings: Direction/Magnitude of Effect</th>
<th>GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>KQ 1. What are the effects of aftercare interventions on people who attempted suicide?</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td><strong>Comparison</strong>—Suicide aftercare versus control group <strong>Outcome</strong>—Suicide attempts</td>
<td>35 studies, N = 11,163</td>
<td>Publication bias, but result is still significant</td>
<td>RR 0.78; CI 0.67, 0.91, indicating a reduction compared with control groups</td>
<td>Moderate</td>
</tr>
<tr>
<td><strong>Comparison</strong>—Suicide aftercare versus control group <strong>Outcome</strong>—Suicide completion (death)</td>
<td>16 studies, N = 9,379</td>
<td>Study limitation (often not reported, but data should be available and effect no longer significant when restricted to RCTs)</td>
<td>RR 0.71; CI 0.50, 0.99, indicating a reduction compared with control groups</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Comparison</strong>—Suicide aftercare versus control group <strong>Outcome</strong>—Suicidal ideation</td>
<td>5 studies, N = 768</td>
<td>Imprecision</td>
<td>RR 0.51; CI 0.22, 1.15; SMD –0.61; CI –1.27, 0.06, both not indicating a systematic effect</td>
<td>Moderate</td>
</tr>
<tr>
<td><strong>Comparison</strong>—Suicide aftercare versus control group <strong>Outcome</strong>—Self harm</td>
<td>3 studies, N = 1,557</td>
<td>Imprecision</td>
<td>RR 1.01; CI 0.62, 1.63, indicating no effect</td>
<td>Moderate</td>
</tr>
<tr>
<td><strong>Comparison</strong>—Suicide aftercare versus control group <strong>Outcome</strong>—Depression</td>
<td>17 studies, N = 1,624</td>
<td>Study limitation (no longer significant when restricted to RCTs)</td>
<td>SMD −0.32; CI −0.57, −0.06 indicating a reduction compared with control groups</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Comparison</strong>—Suicide aftercare versus control group <strong>Outcome</strong>—Hopelessness</td>
<td>10 studies, N = 798</td>
<td>Study limitation (no longer significant when restricted to RCTs)</td>
<td>SMD −0.42; CI −0.78, −0.05 indicating a reduction compared with control groups</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Comparison</strong>—Suicide aftercare versus control group <strong>Outcome</strong>—Quality of life</td>
<td>2 studies, N = 401</td>
<td>Inconsistency (only one study finds an effect), imprecision</td>
<td>SMD −0.10; CI −0.92, 0.72, not indicating a systematic effect</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Outcome</strong>—Suicide aftercare Uptake</td>
<td>46 studies (no comparator)</td>
<td>Study limitation (no comparative data), imprecision</td>
<td>24–100 percent</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Outcome</strong>—Suicide aftercare Retention</td>
<td>34 studies (no comparator)</td>
<td>Study limitation (no comparative data), imprecision</td>
<td>34–96 percent</td>
<td>Low</td>
</tr>
<tr>
<td>KQ 1a. Do the effects vary by intervention intensity?</td>
<td></td>
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</tr>
<tr>
<td><strong>Outcome</strong>—Suicide attempts</td>
<td>53 studies</td>
<td>Indirect comparison</td>
<td>No evidence that the results differ systematically by intensity</td>
<td>Very low</td>
</tr>
<tr>
<td>KQ 1b. Do the effects vary by type of intervention?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KQ Comparison and Outcome</td>
<td>Number of Studies and Participants</td>
<td>Reasons for Downgrading Quality</td>
<td>Findings: Direction/Magnitude of Effect</td>
<td>GRADE</td>
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</tr>
<tr>
<td>Outcome — Suicide attempts</td>
<td>53 studies</td>
<td>Indirect comparison</td>
<td>No evidence that the results differ systematically by intervention type</td>
<td>Very low</td>
</tr>
</tbody>
</table>

KQ 1c. Do the effects vary by target of intervention?

| Outcome — Suicide attempts | 53 studies | Indirect comparison | No evidence that the results differ systematically by intervention type | Very low |

KQ 1d. Do the effects vary by population?

| Outcome — Suicide attempts | 53 studies | Indirect comparison | No evidence that the results differ systematically by intervention type | Very low |

KQ 2. What are the effects of aftercare interventions on family members of people who attempted suicide?

| Outcome — Suicide attempts | 53 studies | Indirect comparison | No evidence that the results differ systematically by intervention type | Very low |

KQ 2a. Do the effects vary by intervention intensity?

| Outcome — Suicide attempts | 53 studies | Indirect comparison | No evidence that the results differ systematically by intervention type | Very low |

In the identified body of evidence, most studies compared an active intervention with a passive control group that typically received treatment as usual. Treatment as usual may be no intervention at all, or it may be referral for services and minimal case management. Although we did not observe an effect of intervention intensity, it is more difficult to find an effect with control groups that provide some form of treatment-as-usual care (as opposed to a waitlist control group).

We were not able to explore differential effects for populations. In particular, the paucity of research on military populations came as a surprise to us. Only two studies included service members, and both of these studies evaluated an inpatient intervention following a suicide attempt (Ghahramanlou-Holloway et al., 2018; LaCroix, Colborn et al., 2018). We had included KQ1d and KQ2d specifically because we expected the intense focus on suicide prevention in DoD and the Department of Veterans Affairs to provide a sizable body of literature to conduct a pooled analysis.
Furthermore, despite an exhaustive search for relevant interventions, we identified only a very small number of studies reporting on family members of people who had attempted suicide (KQ2). Of note, studies addressing family members exclusively—for example, to evaluate bereavement support interventions—were outside the scope of the review. Studies had to address a person who had attempted suicide and their family member(s) to be eligible. And of those studies, only two reported data on family members. Consequently, the key questions addressing the effects of an individual’s suicide attempt on family members remain largely unanswered.

Results in the Context of Other Reviews

Our findings are similar to the 2020 systematic review and meta-analysis of 14 studies (which included 4,280 patients) by Doupnik and colleagues, which revealed that brief suicide prevention interventions (i.e., brief contact interventions, care coordination, safety planning interventions, and other brief therapies) were associated with small reductions in suicide attempts (pooled odds ratio of 0.69 (CI 0.53, 0.89) and with linkage to follow-up care (pooled odds ratio, 3.04; CI, 1.79, 5.17) but not associated with decreases in depression symptoms (Doupnik et al., 2020). When we restrict our analysis to the 52 RCTs in our literature, the treatment effects on suicide death, depression, and hopelessness are no longer significant. We therefore downgraded the quality of evidence to “low” for these outcomes. That is also consistent with prior systematic reviews of suicide aftercare strategies, which did not find treatment effects on depression (Doupnik et al., 2020).

One review synthesized evidence from only studies that reported significant treatment effects on suicide death, suicide attempts, and suicidal ideation to describe effective approaches (Brown and Green, 2014). That effort was intended to describe characteristics of effective interventions, but the authors highlighted the dearth of RCTs that reported on suicide death as an outcome, stating that only two studies (Motto and Bostrom, 2001; Fleischmann et al., 2008) demonstrated efficacy for preventing suicide (Brown and Green, 2014). They underscored the fact that suicidal ideation and suicide attempts are only proxies for death and that interventions that reduce ideation and attempts might not actually prevent suicide.

A large systematic review of interventions for people with self-injurious thoughts and behaviors, which includes people who self-harm without suicidal intent, concluded that there was a significant yet small treatment effect (Fox et al., 2020). The authors did not find that treatment significantly reduced the occurrence of suicide attempts (RR 0.98; CI 0.87, 1.11]. That meta-analysis of 591 published articles conducted in 1,125 unique RCTs over the past five decades reported—with surprise—that the efficacy of interventions for these individuals has not improved with time given the increasing amount of research on this topic. The authors call for research on the causes of suicidality and for substantial changes to interventions to facilitate progress (Fox et al., 2020).
Limitations

Our systematic review had several limitations that are worth noting for the analyses of suicide aftercare interventions. First, we have defined suicide attempt as an act in which there is evidence, implicit or explicit, of intent to die, and we considered studies eligible for inclusion if participants had a history of having attempted suicide according to this definition. However, it is possible that some of our included studies had participants who engaged in suicidal behavior without clear suicidal intent with the aim of communicating distress rather than ending their lives. That is, although suicide attempts are conceptually different from nonfatal acts in which a person engaged to cause harm to themselves but not to end their life, it might be nearly impossible to distinguish between these behaviors in clinical practice and research. Furthermore, we explicitly restricted the review to studies in participants who have attempted suicide, and we did not include mixed samples, such as suicide attempts, suicidal ideation, or self-harm.

The measurement of intervention type is complicated by the multi-component nature of many suicide aftercare interventions. For example, case management and psychoeducation are common components of psychotherapy and follow-up care, making it difficult to isolate the effects of intervention components and compare interventions. To further characterize the interventions, we rated the intensity of the intervention, regardless of the diverse content and components employed in the identified studies. Nonetheless, it should be noted that intervention intensity ratings are difficult to standardize. Furthermore, throughout the report, all included studies were eligible for every meta-analysis, and different studies contributed to different analyses. However, where studies did not report on the outcome of interest or provided insufficient detail on the intervention and control group to calculate effect sizes, studies could not contribute.

Furthermore, suicide is (fortunately) a rare event, a fact that has implications for the analyses. Rare events limit individual studies and often have insufficient statistical power, and although meta-analysis is a data aggregation method, rare events are difficult to analyze (Hempel et al., 2015; Gidengil et al., 2021). We also note that a large proportion of included studies reported only on a short follow-up period, a period that was potentially too short to meaningfully assess the effects of suicide aftercare interventions.

Implications for Practice and Research

We found that intervention type and intervention intensity were not associated with any systematic differences in suicide attempts. It is possible that having objective measures of intervention intensity (for instance, total minutes in contact with a provider, number of sessions, medication dosage) would reveal a relationship between intervention intensity and outcomes. Most of the literature did not specify the amount of intervention contact that patients had with providers. Whether a low level of intervention (e.g., minimal case management) could be
sufficient for reducing the likelihood of a future suicide attempt in people who have already attempted suicide is a hypothesis that warrants further study.

Sixty-six percent of the studies were ineligible (602 out of 918) because the research participants in those studies did not meet our inclusion criteria. Studies that included participants with suicidal ideation and no history of having attempted suicide and that did not report outcomes separately for participants who had attempted suicide were excluded. It was for this reason that we were unable to report on KQs 1a–d. It is important for researchers to report outcomes separately for samples that include both people with suicidal ideation and those who attempted suicide.

We therefore recommend two directions for research. One direction should investigate case-management strategies and the effectiveness of various case-management characteristics (e.g., the clinician, the setting, the length of time, frequency of contacts, content of each contact). Case-management literature is wide-ranging (Lukersmith, Millington, and Salvador-Carulla, 2016) because of the many populations that are studied; for instance, people with severe mental illness (Tsai et al., 2021; Dieterich et al., 2017) or with substance abuse (Vanderplasschen et al., 2007). Published descriptions of case-management practices are highly variable, and there are multiple components and variations of case-management practices that depend on the context and the client population. The review of case-management literature by Lukersmith, Millington, and Salvador-Carulla (2016) found that in the 79 papers that met their inclusion criteria, there were 22 definitions, five models, and 69 activities or tasks of case managers mapped to 17 key components (interventions). To understand the effective ingredients—if any—of case management for suicide prevention, researchers will need to systematically report case-management characteristics for analysis.

Our review suggests a second research direction might be needed: one that is perhaps more creative than suicide prevention interventions have been as of this writing. The interventions that have been evaluated in this review are only minimally effective. New strategies need to be developed and evaluated to identify interventions that have larger individual and public health impacts.

The studies included in this review differ from one another in important ways, and each type of intervention requires different resources and personnel and has different dissemination/implementation considerations. Future research must consider the feasibility of implementing aftercare interventions with fidelity.
Appendix A. Search Strategy

This appendix shows the search strategies used for all databases in June 2020.

**PubMed**

**Inception–present Limits:** English language; Clinical Trial, Clinical Trial, Phase I, Clinical Trial, Phase II, Clinical Trial, Phase III, Clinical Trial, Phase IV, Comparative Study, Controlled Clinical Trial, Evaluation Studies, Multicenter Study, Pragmatic Clinical Trial, Randomized Controlled Trial, Systematic Reviews


AND


OR


AND


AND


**PsycInfo**

**Inception–present; Academic Journals**
Limits: English language
TI (((Suicid* AND (attempt* OR non-fatal OR unsuccessful OR fail*)) OR “suicidal patient”)) OR AB (((Suicid* AND (attempt* OR non-fatal OR unsuccessful OR fail*)) OR “suicidal patient”)) OR DE “Attempted Suicide”
AND
TI ( (aftercare OR “after care” OR “post discharge” OR “follow up” OR treatment OR therapy OR intervention OR intervene OR initiative OR “organizational policy” OR psychotherapy OR pharma*) ) OR AB ( (aftercare OR “after care” OR “post discharge” OR “follow up” OR treatment OR therapy OR intervention OR intervene OR initiative OR “organizational policy” OR psychotherapy OR pharma*) )
AND
MR (clinical trial) OR MR (treatment outcome) OR MR (Non-clinical Case Study) OR MR (Longitudinal Study) OR MR (Prospective Study) OR TI (“cohort study” OR “cohort comparison” OR pre/post OR pre-post OR (pre AND post) OR before/after OR before-after OR “case series” OR “clinical trial” OR “clinical trials” OR “evaluation study” OR “evaluation studies” OR “comparative study” OR “comparative studies” OR “multi center study” OR “multicenter study” OR “multicenter studies” OR “Randomized controlled trial” OR “randomized controlled trials” OR RCT OR “Systematic review”) OR AB (“cohort study” OR “cohort comparison” OR pre/post OR pre-post OR (pre AND post) OR before/after OR before-after OR “case series” OR “clinical trial” OR “clinical trials” OR “evaluation study” OR “evaluation studies” OR “comparative study” OR “comparative studies” OR “multi center study” OR “multicenter study” OR “multicenter studies” OR “Randomized controlled trial” OR “randomized controlled trials” OR RCT OR “Systematic review”)

CINAHL
Inception–present; Academic Journals
Limits: English language
TI (((Suicid* AND (attempt* OR non-fatal OR unsuccessful OR fail*)) OR “suicidal patient”)) OR AB (((Suicid* AND (attempt* OR non-fatal OR unsuccessful OR fail*)) OR “suicidal patient”)) OR (MH “Suicide, Attempted”)
AND
TI ( (aftercare OR “after care” OR “post discharge” OR “follow up” OR treatment OR therapy OR intervention OR intervene OR initiative OR “organizational policy” OR psychotherapy OR pharma*) ) OR AB ( (aftercare OR “after care” OR “post discharge” OR “follow up” OR treatment OR therapy OR intervention OR intervene OR initiative OR “organizational policy” OR psychotherapy OR pharma*) )
AND
TI ("longitudinal study" OR "longitudinal studies" OR “prospective study” OR “prospective studies” OR “cohort study” OR “cohort comparison” OR pre/post OR pre-post OR (pre AND post) OR before/after OR before-after OR “case series” OR “clinical trial” OR “clinical trials” OR “evaluation study” OR “evaluation studies” OR “comparative study” OR “comparative studies” OR “multi center study” OR “multicenter study” OR “multi center studies” OR “multicenter studies” OR “Randomized controlled trial” OR “randomized controlled trials” OR RCT)) OR AB (“longitudinal study” OR “longitudinal studies” OR “prospective study” OR “prospective studies” OR “cohort study” OR “cohort comparison” OR pre/post OR pre-post OR (pre AND post) OR before/after OR before-after OR “case series” OR “clinical trial” OR “clinical trials” OR “evaluation study” OR “evaluation studies” OR “comparative study” OR “comparative studies” OR “multi center study” OR “multicenter study” OR “multi center studies” OR “multicenter studies” OR “Randomized controlled trial” OR “randomized controlled trials” OR RCT)

Web of Science

**Inception–present**

**Limits:** English language

TS=((Suicid* AND (attempt* OR non-fatal OR unsuccessful OR fail*)) OR “suicidal patient”) AND

TS=(aftercare OR “after care” OR “post discharge” OR “follow up” OR treatment OR therapy OR intervention OR intervene OR initiative OR “organizational policy” OR psychotherapy OR pharma*) AND

TS=(“cohort study” OR “cohort comparison” OR pre/post OR pre-post OR (pre AND post) OR before/after OR before-after OR “case series” OR “clinical trial” OR “clinical trials” OR “evaluation study” OR “evaluation studies” OR “comparative study” OR “comparative studies” OR “multi center study” OR “multicenter study” OR “multi center studies” OR “multicenter studies” OR “Randomized controlled trial” OR “randomized controlled trials” OR RCT OR “Longitudinal study” OR “prospective study” OR “longitudinal studies” OR “prospective studies”)

CDSR

**Inception–present**

(“suicidal patient” OR (Suicid* AND (attempt* OR non-fatal OR unsuccessful OR fail*)):ti,ab,kw AND

(aftercare OR “after care” OR “post discharge” OR “follow up” OR treatment OR therapy OR...)
intervention OR intervene OR initiative OR “organizational policy” OR psychotherapy OR pharma*:ti,ab,kw”

OR
MeSH descriptor: [Suicide, Attempted] explode all trees
AND
(aftercare OR “after care” OR “post discharge” OR “follow up” OR treatment OR therapy OR intervention OR intervene OR initiative OR “organizational policy” OR psychotherapy OR pharma*:ti,ab,kw”

ClinicalTrials.gov

Inception–present; ClinicalTrials.gov
searching in “other field”—all phases
(((Suicid* AND (attempt* OR non-fatal OR unsuccessful OR fail*)) OR “suicidal patient”))
AND (aftercare OR “after care” OR “post discharge” OR “follow up” OR treatment OR therapy
OR intervention OR intervene OR initiative OR “organizational policy”)
OR
(((Suicid* AND (attempt* OR non-fatal OR unsuccessful OR fail*)) OR “suicidal patient”))
AND (psychotherapy OR pharma*)

World Health Organization International Clinical Trials Registry Platform

WHO ICTRP
searching in “title”
Status: All
(suicid* AND (attempt* OR non-fatal OR fail*))
AND
(aftercare OR “after care” OR “post discharge” OR “follow up” OR treatment OR therapy
OR intervention OR intervene OR initiative OR “organizational policy”)
OR
“suicidal patient” AND (aftercare OR “after care” OR “post discharge” OR “follow up” OR
treatment OR therapy OR intervention OR intervene OR initiative OR “organizational policy”)

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Appendix B. Evidence Table

This appendix details each of the included studies in Table B.1 and the associated level of bias for each study in Table B.2. Because the other outcomes are reported in meta-analyses within the body of the report, the only outcomes that we report here are for intervention uptake and participant retention.
## Table B.1. Evidence Table

<table>
<thead>
<tr>
<th>Study Details</th>
<th>Participants</th>
<th>Intervention and Comparator</th>
<th>Uptake and Retention</th>
</tr>
</thead>
</table>
| **Type of participants:** Both people who have attempted suicide and family members  
**Female:** 90 percent  
**Age:** 16.1 (1.6) intervention, 16 (1.2) control  
**Marital status:** NR  
**Military population?** Civilian  
**Comorbidities:** Major depressive disorder: 100 percent  
**History of suicide attempts:** NR  
**Eligibility criteria:** 12–18-year-old adolescents having attempted suicide in the past 90 days with mild to moderate major depressive disorder; patients with bipolar mood, psychotic, pervasive developmental, severe depressive disorder (that needed prompt hospitalization) or substance use disorders, or patients who received electroconvulsive therapy were excluded.  
**Unit of randomization:** Patient  
**Number of participants:** 30 | **Intervention**  
**Category/type:** Psychotherapy: CBT  
**Description:** The intervention group received a package of 12 weekly sessions of CBT, which included psycho-educational interventions and individual and family skills training modules over three months.  
**Target:** Person who attempted suicide  
**Comparator**  
**Wait list**  
Received routine psychiatric interventions  
**Follow-up time:** Three months | **Uptake**  
NR  
**Retention**  
NR |
| **Type of participants:** People who have attempted suicide  
**Female:** 57 percent intervention, 54 percent control  
**Age:** 46 percent of those receiving intervention and 51 percent of those receiving control over 30 years old  
**Marital status:** 30 percent in the intervention, 20 percent in the control group  
**Military population?** Civilian  
**Comorbidities**  
Depression: 89 percent intervention, 84 percent control | **Intervention**  
**Category/type:** Other intervention: Any combination of support, psychotherapy, psychoeducation, medication, or behavioral therapy  
**Description:** The intensive intervention consisted of an explicit treatment plan, a schedule of visits (weekly in the first month, biweekly in the next three months, and then monthly for eight months), a home visit by the social worker, written or telephone reminders, and referrals to the usual psychiatric resources. | **Uptake**  
Number of participants who agreed to enroll: 150/194 participants who met inclusion criteria agreed to enroll  
**Retention**  
NR |
**Study Details**

| Substance abuse disorder: 47 percent intervention, 54 percent control  |
| Personality disorder: 47 percent intervention, 43 percent control  |
| History of suicide attempts: 51 percent of those receiving intervention and 49 of those in control group had previously attempted suicide  |

**Eligibility criteria:** People seen in the emergency department after a suicide attempt, residing within the catchment area of the hospital, and who spoke French or English; people not having a fixed address or expecting to move away soon, already under the care that ensures follow-up, having a physical handicap that prevents attendance, incapable of giving informed consent, being sociopathic, or having an attempt dated back more than a week prior were excluded.

**Unit of randomization:** Patient

**Number of participants:** 150

| Andreasson et al., 2016  |
| Mental Health Services  |
| Denmark  |
| Outpatient RCT  |

**Type of participants:** People who had attempted suicide

| Female: 74 percent  |
| Age: 31.69 (12.7)  |
| Marital status: NR  |
| Military population? Civilian  |

**Comorbidities:** Major depressive disorder: 74.1 percent; generalized anxiety disorder: 45.2 percent; panic disorder: 12 percent

**History of suicide attempts:** 67.6 percent had recurrent suicide attempt

**Eligibility criteria:** Participants had to be 18–65 years old, have two or more criteria from the borderline personality disorder diagnosis, and have had a recent suicide attempt; the exclusion criteria were severe depression (i.e., more than 23 points on HAM-D17), bipolar disorder, psychosis in the schizophrenia spectrum, anorexia

**Intervention**

| Category/type: Psychotherapy: DBT  |
| Description: DBT was offered as a 16-week treatment course, which consisted of one individual session (one hour) and one group session (two hours) weekly delivered by DBT therapists.  |

**Target:** Person who attempted suicide

**Comparator**

| Usual care  |
| NR  |

**Follow-up time:** 24 months

**Uptake and Retention**

| Number of participants who agreed to enroll: 108/110 of the eligible participants agreed to enroll  |
| Number of participants who dropped out: 34  |

<p>| Number of participants who agreed to enroll: 108/110 of the eligible participants agreed to enroll  |
| Number of participants who dropped out: 34  |</p>
<table>
<thead>
<tr>
<th>Study Details</th>
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</tr>
</thead>
</table>
| Ahn et al., 2020 South Korea | **Type of participants:** People who have attempted suicide  
**Female:** 56 percent  
**Age:** Median (range): 42 (32–52) intervention, 42 (32–52) active comparator, 43 (32–51) control  
**Marital status:** NR  
**Military population:** Civilian  
**Comorbidities:** psychiatric history pre-intervention: 41.1 percent; psychiatric history post-intervention: 43.6 percent  
**History of suicide attempts:** 228 (42.1 percent) patients with prior suicide attempt  
**Eligibility criteria:** Participants visited Korea University Medical Center Anasan hospital for attempted suicide; excluded legal minors under the age of 19, and patients with foreign nationality  
**Unit of randomization:** N/A  
**Number of participants:** 542 | **Intervention**  
**Category/type:** Psychoeducation  
**Description:** Case management provided by social worker beginning in the ED and up to 4 weeks after discharge to assure linkage of patients to proper administration of mental health counseling  
**Target:** Person who attempted suicide  
**Comparator**  
No intervention (no wait list)  
The control group (pre-intervention group) received a referral to community counseling while in the emergency department following a suicide attempt  
**Follow-up time:** Two months | **Uptake**  
Number of participants whose case information transferred to community programs: 63  
**Retention**  
Number of participants contacted at eight-week followup: 56 |
| Bateman, 2016  
Bateman, 2009; ISRCTN27660668, 2016 UK Outpatient RCT | **Type of participants:** People who have attempted suicide  
**Female:** 30 percent  
**Age:** 31.50 (8.20) intervention, 30.00 (7.10) control  
**Marital status:** 0 percent  
**Military population:** Civilian  
**Comorbidities:** NR  
**History of suicide attempts:** NR  
**Eligibility criteria:** Diagnosis of antisocial personality disorder and comorbid borderline personality disorder; suicide attempt or episode of life-threatening self-harm within the past six months; and age 18–65. Patients | **Intervention**  
**Category/type:** Psychotherapy: Mentalization-based treatment integrating cognitive, psychodynamic and relational components  
**Description:** Mentalization-based treatment (weekly combined individual and group psychotherapy provided by two different therapists for 18 months)  
**Target:** Person who attempted suicide  
**Comparator**  
Enhanced usual care  
Weekly individual and group sessions of counseling provided by non-specialist | **Uptake**  
Number of participants who agreed to enroll: 40/52 of the eligible participants agreed to enroll  
**Retention**  
Number of participants who dropped out: 13 |
<table>
<thead>
<tr>
<th>Study Details</th>
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<tbody>
<tr>
<td>were excluded if they currently were in long-term psychotherapeutic treatment; met DSM-IV criteria for psychotic disorder or bipolar I disorder; had opiate dependence requiring specialist treatment; or had mental impairment or evidence of organic brain disorder. Current psychiatric inpatient treatment, temporary residence, drug/alcohol misuse and comorbid personality disorder were not exclusion criteria</td>
<td>practitioners with appointments every three months for psychiatric review</td>
<td>Follow-up time: 18 months</td>
<td></td>
</tr>
<tr>
<td>Battaglia et al., 1999 USA</td>
<td>Type of participants: People who have attempted suicide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female: 43 percent low dose, 44 percent ultra-low dose</td>
<td></td>
<td></td>
<td>Uptake</td>
</tr>
<tr>
<td>Age: 29.7 (5.9) low dose, 31.2 (8.2) ultra-low dose</td>
<td></td>
<td>Number of participants who agreed to enroll: 58/119 of the eligible participants agreed to enroll</td>
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<tr>
<td>Marital status: 10 percent low dose, 11 percent ultra-low dose</td>
<td></td>
<td>Retention</td>
<td></td>
</tr>
<tr>
<td>Military population: Civilian</td>
<td>Comparator No control group</td>
<td>Number of participants who dropped out: 18</td>
<td></td>
</tr>
<tr>
<td>Comorbidities: Substance abuse disorder: 79 percent; mood disorder: 35 percent; anxiety disorder: 29 percent; organic disorder: 16 percent; adjustment disorder: 8 percent; eating disorder: 3 percent; psychotic disorder: 2 percent</td>
<td>Pharmacological treatment: Fluphenazine Ultra low dose (1.5mg) of intramuscular fluphenazine once monthly for six months</td>
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</tr>
<tr>
<td>History of suicide attempts: NR</td>
<td>Target: Person who attempted suicide</td>
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<tr>
<td>Eligibility criteria: Participants between the ages of 18 and 65 who received treatment for a suicide attempt that had occurred within 30 days of study entry and who had at least two prior suicide attempts. Participants who did not speak English, had allergy to fluphenazine, tardive dyskinesia, neuroleptic malignant syndrome, narrow angle glaucoma, schizophrenia, terminal illnesses, pregnancy (no contraceptive use), or use of</td>
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<tr>
<td></td>
<td>Fluphenazine</td>
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<tr>
<td></td>
<td>Description: Once monthly low dose (12.5mg) of intramuscular injections of fluphenazine decanoate for six months</td>
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<td></td>
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<tr>
<td></td>
<td>Target: Person who attempted suicide</td>
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<tr>
<td></td>
<td>Comparator No control group</td>
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</tr>
<tr>
<td></td>
<td>Pharmacological treatment: Fluphenazine Ultra low dose (1.5mg) of intramuscular fluphenazine once monthly for six months</td>
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<tr>
<td></td>
<td>Target: Person who attempted suicide</td>
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<tr>
<td></td>
<td>Comparator No control group</td>
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<tr>
<td>Study Details</td>
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<td>Uptake and Retention</td>
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<tr>
<td>Bergmans and Links, 2009 Canada Outpatient Pre-post</td>
<td>Type of participants: People who have attempted suicide Female: 73 percent Age: 36.2 (10.83) Marital status: 16 percent Military population: Civilian Comorbidities: Depression: 66.5 percent; borderline personality disorder: 50.6 percent; bipolar disorder: 29.3 percent; anxiety/panic: 25.9 percent; posttraumatic stress disorder: 19.6 percent; eating disorder: 13.8 percent; obsessive compulsive disorder: 7.5 percent; alcohol and/or drug dependence and/or abuse: 5.8 percent; schizophrenia: 5.4 percent; antisocial personality disorder: 1.6 percent; personality disorder not otherwise specified: 10.1 percent; other: 38.4 percent History of suicide attempts: NR Eligibility criteria: Patients with a lifetime history of two or more suicide attempts and are self-referred or referred after a suicide crisis from a variety of in-hospital or community resources; patients with active psychotic disorders or a recent history of interpersonal violence were excluded. Unit of randomization: NA Number of participants: 57</td>
<td>Intervention Category/type: Social support group Description: Psychosocial/psychoeducational intervention (small group program guided by multidisciplinary facilitators from social work, nursing, psychology, and psychiatry) 1.5 hrs/week for 20 weeks) Target: Person who attempted suicide Comparator No control group Pre-intervention Follow-up time: Five months</td>
<td>Uptake NR Retention Number of participants who completed the intervention: 163/239 (68.2 percent) of the participants completed the intervention</td>
</tr>
<tr>
<td>Brown et al., 2005; Tepper et al., 2005; Ghahramanlou-Holloway, 2012; University of Pennsylvania and</td>
<td>Type of participants: People who have attempted suicide Female: 61 percent Age: 35.1 (10.1) intervention, 34.9 (10.5) control Marital status: 11 percent Military population: Civilian</td>
<td>Intervention Category/type: Psychotherapy: Cognitive therapy Description: Ten outpatient cognitive therapy sessions provided weekly or biweekly to learn cognitive and behavioral strategies to help identify</td>
<td>Uptake Number of participants who agreed to enroll: 120/186 of the eligible participants agreed to enroll Retention</td>
</tr>
<tr>
<td>Study Details</td>
<td>Participants</td>
<td>Intervention and Comparator</td>
<td>Uptake and Retention</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| National Institute of Mental Health, 2014 USA Outpatient RCT                | **Comorbidities**: Major depressive disorder: 77 percent; substance abuse disorder: 68 percent  
**History of suicide attempts**: 73 percent had multiple suicide attempts  
**Eligibility criteria**: Individuals who had a suicide attempt within 48 hours prior to being evaluated at the emergency department; age of 16 years or older; ability to speak English, complete a baseline assessment, provide at least 2 verifiable contacts to improve tracking for subsequent assessments, understand and provide informed consent; individuals were excluded if they had a medical disorder that would prevent participation.  
**Unit of randomization**: Patient  
**Number of participants**: 120                                                                                       | and address thoughts and beliefs and to help cope with stressors.  
**Target**: Person who attempted suicide  
**Comparator**: Enhanced usual care  
Received usual care from clinicians and case management  
**Follow-up time**: 18 months                                                                                           | **Number of participants who dropped out**: 15                                                                                                                                                                       |
| Burmand, 2017 Duke University and National Institute of Mental Health, 2016; Andreoli et al., 2016 Switzerland Emergency department RCT | **Type of participants**: People who have attempted suicide  
**Female**: NR  
**Age**: NR  
**Marital status**: NR  
**Military population**: Civilian  
**Comorbidities**: NR  
**History of suicide attempts**: NR  
**Eligibility criteria**: Participants who were admitted to short term psychiatric care with borderline personality disorder (BPD) and major depressive episode (MDE) after being referred to the emergency room for a suicide attempt  
**Unit of randomization**: Patient  
**Number of participants**: 170                                                                                       | **Intervention**  
**Category/type**: Psychotherapy: Abandonment psychotherapy  
**Description**: Three-month, twice-a-week, manualized cognitive-psychoanalytic intervention that specifically targets the abandonment experiences and fears that are considered the cardinal feature of borderline personality disorder.  
**Target**: Person who attempted suicide  
**Comparator**: Usual care  
NR  
**Follow-up time**: 36 months                                                                                           | **Uptake**: NR  
**Retention**: NR                                                                                                                                                                                                 |
| Cebria et al., 2015 Cebria et al., 2013 Spain Outpatient Controlled study | **Type of participants**: People who have attempted suicide  
**Female**: 64 percent Parc Taulí Sabadell Hospital Universitari (PTHUS), 71 percent Con-sorci Sanitari de Terrassa (CST)                                                                 | **Intervention**  
**Category/type**: Psychoeducation: nurse case management  
**Description**: A nurse specializing in mental health who had received comprehensive training in managing                                                                 | **Uptake**: NR  
**Retention**: NR                                                                                                                                                                                                 |
<table>
<thead>
<tr>
<th>Study Details</th>
<th>Participants</th>
<th>Intervention and Comparator</th>
<th>Uptake and Retention</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age:</strong> 41.92 (14.7) intervention 40.73 (15.1) control</td>
<td><strong>Participants</strong></td>
<td><strong>Intervention</strong> Category/type: Psychoeducation</td>
<td><strong>Uptake and Retention</strong></td>
</tr>
<tr>
<td><strong>Marital status:</strong> 46 percent intervention, 23 percent control</td>
<td><strong>Description:</strong> A care manager offers frequent phone contacts, regular home visits (usually biweekly or triweekly), and ad hoc home visits (in response to crisis) to monitor the client’s mental and social situations, promote compliance with treatment, and provide psychoeducation in the first six months. Aftercare component by psychogeriatrician is continued as clinically indicated.</td>
<td><strong>Comparator</strong> Historical cohort</td>
<td></td>
</tr>
<tr>
<td><strong>Military population:</strong> Civilian</td>
<td><strong>Target:</strong> Person who attempted suicide</td>
<td><strong>Standard psychogeriatric care</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Comorbidities:</strong> NR</td>
<td><strong>Follow-up time:</strong> Six months</td>
<td><strong>Retention</strong></td>
<td></td>
</tr>
<tr>
<td><strong>History of suicide attempts:</strong> NR</td>
<td><strong>Duration of psychogeriatric service contact (months):</strong> 18.67</td>
<td><strong>Number of participants who accepted case management:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Eligibility criteria:</strong> Patients discharged from an emergency department after a suicide attempt</td>
<td><strong>Comparator</strong> Usual care</td>
<td><strong>Number of participants:</strong> 514</td>
<td></td>
</tr>
<tr>
<td><strong>Unit of randomization:</strong> NA</td>
<td>All patients admitted for suicide attempt received treatment as usual (TAU) including medical care, suicide risk assessment, and the formulation of a treatment plan by a psychiatrist</td>
<td><strong>Follow-up time:</strong> 60 months</td>
<td></td>
</tr>
<tr>
<td><strong>Number of participants:</strong> 514</td>
<td></td>
<td><strong>Uptake</strong> NR</td>
<td></td>
</tr>
</tbody>
</table>

Chan et al., 2011
China
Outpatient
Controlled study

<table>
<thead>
<tr>
<th>Type of participants: People who have attempted suicide</th>
<th>Intervention</th>
<th>Uptake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female: 58 percent</td>
<td>Category/type: Psychoeducation</td>
<td>NR</td>
</tr>
<tr>
<td>Age: 76.87 (8.039) intervention, 75.48 (6.907) control</td>
<td>Description: A care manager offers frequent phone contacts, regular home visits (usually biweekly or triweekly), and ad hoc home visits (in response to crisis) to monitor the client’s mental and social situations, promote compliance with treatment, and provide psychoeducation in the first six months. Aftercare component by psychogeriatrician is continued as clinically indicated.</td>
<td><strong>Retention</strong></td>
</tr>
<tr>
<td>Military status: 43 percent</td>
<td>Target: Person who attempted suicide</td>
<td><strong>Duration of psychogeriatric service contact (months):</strong> 18.67</td>
</tr>
<tr>
<td>Military population: Civilian</td>
<td>Comparator: Historical cohort</td>
<td><strong>Number of participants who accepted case management:</strong></td>
</tr>
<tr>
<td>Comorbidities: Depressive disorder: 48.4 percent intervention, 68.2 percent control</td>
<td>Standard psychogeriatric care</td>
<td><strong>Follow-up time:</strong> Six months</td>
</tr>
<tr>
<td>History of suicide attempts: 19.9 percent intervention and 36.4 percent control had an a history of having attempted suicide.</td>
<td><strong>Follow-up time:</strong> Six months</td>
<td><strong>Number of participants:</strong> 417</td>
</tr>
<tr>
<td>Eligibility criteria: Participants older than 65 with an index suicide attempt</td>
<td><strong>Comparator</strong> Usual care</td>
<td><strong>Retention</strong></td>
</tr>
<tr>
<td>Unit of randomization: NA</td>
<td>All patients admitted for suicide attempt received treatment as usual (TAU) including medical care, suicide risk assessment, and the formulation of a treatment plan by a psychiatrist</td>
<td><strong>Duration of psychogeriatric service contact (months):</strong> 18.67</td>
</tr>
<tr>
<td>Number of participants: 417</td>
<td></td>
<td><strong>Number of participants who accepted case management:</strong></td>
</tr>
</tbody>
</table>

Chen et al., 2012
Taiwan

<table>
<thead>
<tr>
<th>Type of participants: People who have attempted suicide</th>
<th>Intervention</th>
<th>Uptake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female: 70 percent</td>
<td>Category/type: Psychoeducation</td>
<td>NR</td>
</tr>
<tr>
<td>Age: 76.87 (8.039) intervention, 75.48 (6.907) control</td>
<td>Description: A care manager offers frequent phone contacts, regular home visits (usually biweekly or triweekly), and ad hoc home visits (in response to crisis) to monitor the client’s mental and social situations, promote compliance with treatment, and provide psychoeducation in the first six months. Aftercare component by psychogeriatrician is continued as clinically indicated.</td>
<td><strong>Retention</strong></td>
</tr>
<tr>
<td>Military status: 43 percent</td>
<td>Target: Person who attempted suicide</td>
<td><strong>Duration of psychogeriatric service contact (months):</strong> 18.67</td>
</tr>
<tr>
<td>Military population: Civilian</td>
<td>Comparator: Historical cohort</td>
<td><strong>Number of participants who accepted case management:</strong></td>
</tr>
<tr>
<td>Comorbidities:</td>
<td>Standard psychogeriatric care</td>
<td><strong>Follow-up time:</strong> Six months</td>
</tr>
<tr>
<td>Depression disorder: 48.4 percent intervention, 68.2 percent control</td>
<td></td>
<td><strong>Number of participants:</strong> 417</td>
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<td>Study Details</td>
<td>Participants</td>
<td>Intervention and Comparator</td>
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<tr>
<td>Case management phone or home visits Controlled study</td>
<td>Age: 54 percent ages 25–44 Marital status: NR Military population: Civilian Comorbidities: NR History of suicide attempts: 46.5 percent of participants attempted suicide by overdose Eligibility criteria: Participants who had attempted suicide within the last month and were referred to Kaohsiung Suicide Prevention Center (KSPC) from both medical and nonmedical organizations. Unit of randomization: NA Number of participants: 4,765</td>
<td>Description: Case management is principally accomplished through telephone conversations, with home visits as a secondary option for six months. Target: Person who attempted suicide Comparator No intervention (no wait list) The subjects who could not be contacted due to missing or incorrect contact information on the national suicide prevention reporting sheets were designated as the non-contact group. Follow-up time: Six months</td>
</tr>
<tr>
<td>Chen et al., 2013 Taiwan Case management and phone or home visits RCT</td>
<td>Type of participants: People who have attempted suicide Female: 67 percent Age: 39.8 (14.0) Marital status: NR Military population: Civilian Comorbidities: NR History of suicide attempts: 38.4 percent control, 34.9 percent intervention with history of previous suicide attempts Eligibility criteria: Individuals who had attempted suicide within the previous month Unit of randomization: Patient Number of participants: 761</td>
<td>Intervention Category/type: Psychoeducation Description: Received individualized crisis postcard after three months of case management. Crisis postcards included two components: individual coping strategies and resources. Case management included psychological support, proper coping strategies, follow-ups to increase adherence to the referrals provided for psychiatric treatment, and coordination of social resources and brief crisis intervention if needed. Target: Person who attempted suicide Comparator Case management services six times over three months (including psychological support, proper coping strategies, follow-ups to increase adherence to the referrals provided for psychiatric treatment, and coordination of social resources and brief crisis intervention if needed Suicide attempters</td>
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| **Fossi Djembi et al., 2020 University Hospital Lille et al., 2020** NCT03134885 France Remote Pre-post | **Type of participants:** People who have attempted suicide  
**Female:** NR  
**Age:** NR  
**Marital status:** NR  
**Military population:** Civilian  
**Comorbidities:** NR  
**History of suicide attempts:** NR  
**Eligibility criteria:** All patients who had a suicide attempt evaluated at any hospitals in the Nord-Pas-de-Calais region  
**Unit of randomization:** NA  
**Number of participants:** NR | **Intervention**  
**Category/type:** Outreach: Brief contact  
**Description:** Brief Contact Intervention (called VigilanS, involved routine care provided by the participating centers for a 6-month period, mainly telephone calls)  
**Target:** Person who attempted suicide | **Uptake**  
**Retention** |
| **Donaldson, Spirito, and Esposito-Smythers, 2005 Karver et al., 2008 USA Outpatient RCT** | **Type of participants:** People who have attempted suicide  
**Female:** 82 percent  
**Age:** 15 (1.7)  
**Marital status:** NR  
**Military population:** Civilian  
**Comorbidities:** Major depressive disorder: 27 percent skills-based, 31 percent supportive relationship; disruptive behavior disorder: 27 percent skills-based, 63 percent supportive relationship; alcohol use disorder: 13 percent skills-based, 25 percent supportive relationship; cannabis use disorder: 40 percent skills-based, 50 percent supportive relationship  
**History of suicide attempts:** 53 percent skills-based and 44 percent supportive relationship had more than one suicide attempt  
**Eligibility criteria:** 12–17-year-old adolescents who presented to a general pediatric emergency department or inpatient unit after a suicide attempt. Participants were eligible if their primary language was English, they did not | **Intervention**  
**Category/type:** Psychotherapy: skills-based treatment  
**Description:** Skills Based Treatment (SBT) taught effective problem solving and cognitive and behavioral strategies for affect management (e.g., cognitive restructuring, relaxation). Each session included an assessment of suicidality, skill education, and skill practice. Active sessions were administered over three months and maintenance sessions included three monthly sessions.  
**Target:** Person who attempted suicide and family member(s) | **Uptake**  
**Retention**  
**Number of participants who agreed to enroll:** 39/44 (89 percent) of the eligible participants agreed to enroll  
**Number of dropouts:** 6 |
### Study Details

<p>| Ducasse et al., 2018 University Hospital Montpellier, 2016 NCT02936700 France Outpatient RCT |
|---|---|
| <strong>Type of participants:</strong> People who have attempted suicide | <strong>Intervention and Comparator</strong> |
| Female: 88 percent | <strong>Follow-up time:</strong> Six months |
| Age: 38.34 (12.73) intervention, 38.04 (11.08) active comparator | |
| Marital status: 43 percent | <strong>Intervention</strong> |
| Military population: Civilian | Category/type: Psychotherapy: Acceptance and commitment therapy |
| Comorbidities: Depressive disorder: 52.38 percent intervention, 47.37 percent active comparator; bipolar disorder: 42.86 percent intervention, 52.63 percent active comparator; anxiety disorder: 85.71 percent intervention, 63.16 percent active comparator; OCD: 9.52 percent intervention, 26.32 percent active comparator; PTSD: 9.52 percent intervention, 21.05 percent active comparator; current eating disorder: 23.81 percent intervention, 26.32 percent active comparator; borderline personality disorder: 61.90 percent intervention, 57.89 percent active comparator | |
| History of suicide attempts: 2.14 (1.46) intervention, 2.37 (2.22) active comparator | <strong>Comparator</strong> |
| Eligibility criteria: Aged between 18 and 65 years, suffering from a current suicidal behavior disorder according to DSM-5, and being able to speak, read, and understand French; patients with lifetime history of schizophrenia, a current alcohol/illicit drug use disorder, a current manic or hypomanic episode, a lifetime history of severe brain injury or neurologic disease, and pregnancy were excluded. | No control group |
| Unit of randomization: Patient | Standardized relaxation program, consisting of seven two-hour weekly sessions |
| Number of participants: 39 | A standardized relaxation program, consisting of seven two-hour weekly sessions |
| Uptake and Retention | Suicide attempters |
| <strong>Follow-up time:</strong> 5 months | <strong>Retention</strong> |
| Number of participants who agreed to enroll: 40/42 of the eligible participants agreed to enroll | Number of participants who completed the intervention: 21 |
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<td><strong>Ettlinger, 1975</strong>&lt;br&gt;Sweden&lt;br&gt;Acute treatment followed by outpatient and phone contacts&lt;br&gt;Controlled study</td>
<td>Type of participants: People who have attempted suicide&lt;br&gt;Female: 58 percent&lt;br&gt;Age: Men: 22.5 percent intervention, 22 percent control 41–50 years old; women: 22.1 percent intervention, 20.5 percent control 41–50 years old&lt;br&gt;Marital status: Men: 47 percent intervention, 36 percent control; women: 32 percent intervention, 45 percent control&lt;br&gt;Military population: Civilian&lt;br&gt;Comorbidities: Psychiatric disorder: men 31 percent intervention, 45 percent control; women 34 percent intervention, 42 percent control&lt;br&gt;History of suicide attempts: NR&lt;br&gt;Eligibility criteria: People who were admitted to the Intensive-care unit at Sodersjukhuset in the period March 1, 1964–December 31, 1966&lt;br&gt;Intervention Category/type: Outreach&lt;br&gt;Description: Providing aftercare in the form of contacts after suicide attempt, arranging continued care if required, and providing emergency contact with a physician or social worker&lt;br&gt;Target: Person who attempted suicide</td>
<td>Intervention&lt;br&gt;Category/type: Outreach&lt;br&gt;Description: Providing aftercare in the form of contacts after suicide attempt, arranging continued care if required, and providing emergency contact with a physician or social worker&lt;br&gt;Comparator&lt;br&gt;Historical controls&lt;br&gt;Follow-up time: 60 months&lt;br&gt;Number of participants who agreed to enroll: 670/688 of the participants who met inclusion criteria agreed to enroll in the intervention group</td>
<td>Uptake&lt;br&gt;Retention&lt;br&gt;NR</td>
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<tr>
<td><strong>Exbrayat et al., 2017</strong>&lt;br&gt;France&lt;br&gt;Remote&lt;br&gt;Controlled study</td>
<td>Type of participants: People who have attempted suicide&lt;br&gt;Female: 70 percent&lt;br&gt;Age: 40.2 (15.3) intervention, 39.7 (15.1) control&lt;br&gt;Marital status: NR&lt;br&gt;Military population: Civilian&lt;br&gt;Comorbidities: Major depressive disorder: 37.67 percent; bipolar disorder: 1.82 percent; psychotic disorder: 4.74 percent; personality disorder: 32.20 percent; anxiety disorder: 6.32 percent; eating disorder: 0.97 percent&lt;br&gt;History of suicide attempts: 50.06 percent with lifetime history of having attempted suicide&lt;br&gt;Eligibility criteria: Patients admitted to the Department of Emergency Psychiatry for suicide attempt between</td>
<td>Intervention&lt;br&gt;Category/type: Screening&lt;br&gt;Description: Telephone follow-ups provided by specially trained nurses at 8, 30, and 60 days after the suicide attempt, assessing suicide risk, emergency and degree of harmfulness and assessed medication compliance&lt;br&gt;Target: Person who attempted suicide&lt;br&gt;Comparator&lt;br&gt;Usual care&lt;br&gt;Follow-up time: 2 months&lt;br&gt;Number of participants who responded to at least one follow-up call: 88.3 percent of the participants in the intervention group responded to at least one follow-up call</td>
<td>Uptake&lt;br&gt;Retention&lt;br&gt;NR</td>
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| Fernandez-Artamendi et al., 2019  
Spain  
Case management  
Controlled study | Type of participants: People who have attempted suicide  
Female: 68 percent  
Age: 43.44 (11.34 intervention, 37.94 (12.05) active comparator, 42.53 (14.62) control  
Marital status: 36  
Military population: Civilian  
Comorbidities: NR  
History of suicide attempts: 1.68 (2.23) control previous attempts; 2.55 (3.08) active comparator previous suicide attempts, 2.22 (2.94) intervention previous suicide attempts  
Eligibility criteria: At least 18 years old; admission to ED after suicide attempt; willing to participate.  
Unit of randomization: NA  
Number of participants: 823 | Intervention  
Category/type: Psychoeducation  
Description: Passive information leaflet about the prevention of suicidal behavior, plus an active case management, plus a psychoeducational program (ten weekly 60-minute group sessions of skills-based therapy)  
Target: Person who attempted suicide  
Comparator  
Usual care  
Case management  
Information leaflet about the prevention of suicidal behavior  
active case management  
Suicide attempters  
Follow-up time: 30 months | Uptake  
NR  
Retention  
NR |
| Fleischmann et al., 2008  
Bertolote et al., 2010;  
Fleischmann, 2002  
Brazil, India, Sri Lanka, Islamic | Type of participants: People who have attempted suicide  
Female: 57 percent intervention, 60 percent control  
Age: 23 (median)  
Marital status: 46 percent intervention, 47 percent control | Intervention  
Category/type: Psychoeducation: Brief education intervention  
Description: One one-hour individual information session as close to the time of discharge as possible and, after discharge, nine follow-up contacts | Uptake  
Number of participants who agreed to enroll: 1,867/1,944 of the eligible participants agreed to enroll  
Retention |
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<tr>
<td>Republic of Iran, China Emergency department RCT</td>
<td>Military population: Civilian Comorbidities: NR History of suicide attempts: 22 percent intervention and 20 percent control had a history of previous suicide attempt. Eligibility criteria: Suicide attempters identified by medical staff in the emergency units Unit of randomization: Patient Number of participants: 1,867</td>
<td>(phone calls or visits, as appropriate) according to a specific timeline up to 18 months Target: Person who attempted suicide Comparator Usual care Treatment as usual; typically, the treatment provided in the participating sites would not cover routine or systematic psychiatric or psychological assessment or help besides the treatment of somatic symptoms Follow-up time: 18 months</td>
<td>Number of participants who dropped out: 50</td>
</tr>
<tr>
<td>Gabilondo et al., 2020 Spain Remote Controlled study</td>
<td>Type of participants: People who have attempted suicide Female: 59 percent Age: 41.2 (13.6) control, 45.2 (16) intervention Marital status: NR Military population: Civilian Comorbidities: NR History of suicide attempts: NR Eligibility criteria: Adult patients seen in the emergency departments for a suicide attempt and discharged after a psychiatric assessment. Unit of randomization: NA Number of participants: 586</td>
<td>Intervention Category/type: Outreach: A protocolized telephone follow-up Description: Protocolized telephone calls, add-on to any other medical or psychological follow-up the patient could do, including a total of five short telephone sessions (weeks one and two, and months one, three, and six after the attempt). Each session followed a predefined protocol and lasted around 10–15 min for six months carried out by general nurses. Target: Person who attempted suicide Comparator Usual care Any other medical or psychological follow-up the patient could do Follow-up time: 12 months</td>
<td>Uptake Number of participants who received complete protocolized telephone calls: 57.5 percent of patients were contacted in a minimum of three calls, and 25.2 percent received the five calls that make up the complete protocol. Retention NR</td>
</tr>
<tr>
<td>Ghahramanlou-Holloway, 2018 Henry M. Jackson Foundation for the Advancement of</td>
<td>Type of participants: People who have attempted suicide Female: 42 percent Age: 30.3 (11.4) Intervention, 27.8 (9.3) Control</td>
<td>Intervention Category/type: Psychotherapy: Post-admission cognitive therapy plus enhanced usual care</td>
<td>Uptake NR Retention NR</td>
</tr>
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<tr>
<td>Military Medicine, 2018 NCT01340859 USA Inpatient RCT</td>
<td>Marital status: 54 percent Military population: Mixed 92 percent military service members, 2 percent beneficiaries Comorbidities: 67 percent had a major depressive disorder History of suicide attempts: 63 percent of participants had multiple suicide attempts Eligibility criteria: Military service members and adult beneficiaries age 18 or older, psychiatrically hospitalized due to either a recent suicide attempt or suicide ideation with a history of a prior suicide attempt, excluding admission for self-inflicted harm without intent to die, active psychosis, medical incapacity to participate, or expected discharge from the inpatient unit within 72 hours of admission Unit of randomization: Patient Number of participants: 24</td>
<td>Description: Six 60- to 90-minute sessions (totaling 6 to 9 hours) of individual psychotherapy over the course of three days during the psychiatric hospitalization Target: Person who attempted suicide Comparator Enhanced usual care Usual care received by patients during hospitalization varied but could include individual- and group-based therapy, art therapy, recreation therapy, and medication management. Follow-up time: three months</td>
<td>Uptake NR Retention Number of participants who dropped out: 4</td>
</tr>
<tr>
<td>Gysin-Maillart et al., 2016 Gysin-Maillart et al., 2017; Park et al., 2018; University of Bern, 2016; Michel et al., 2017 NCT02505373S Switzerland Outpatient RCT</td>
<td>Type of participants: People who have attempted suicide Female: 55 percent Age: 37.8(14.4) Marital status: 28 percent Military population: Civilian Comorbidities: Substance abuse: 30 percent; affective disorder: 63 percent; neurotic and acute stress reaction: 44 percent; personality disorder: 17 percent History of suicide attempts: 50 percent had at least one suicide attempt Eligibility criteria: Participants had recently attempted suicide, resided inside the hospital catchment area, sufficient mastery of German, and had no habitual self-harm, serious cognitive impairment, or psychotic disorder Unit of randomization: Patient Number of participants: 120</td>
<td>Intervention Category/type: Psychoeducation: Attempted Suicide Short Intervention Program (ASSIP) Description: Three 60–90-minute sessions were administered by a trained therapist. These sessions included face-to-face therapy sessions, which were supplemented by personalized letters for 24 months. Target: Person who attempted suicide Comparator Usual care Underwent a single clinical interview, including a structured suicide risk assessment. Follow-up time: 24 months</td>
<td>Uptake NR Retention Number of participants who dropped out: 4</td>
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<td>Study Details</td>
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<td>Hassanzadeh et al., 2010 WHO et al., 2007 Iran Education plus telephone follow-up RCT</td>
<td>Type of participants: People who have attempted suicide Female: 62 percent Age: 24 (8.3) intervention, 25 (9.7) control Marital status: 44 percent Military population: Civilian Comorbidities: Chronic psychiatric illness: 55 percent History of suicide attempts: 28 percent had previous suicide attempts Eligibility criteria: Suicide attempters who were identified in the emergency departments by medical staff of Karaj between July 2002 and April 2003. Unit of randomization: Patient Number of participants: 629</td>
<td>Intervention Category/type: Psychoeducation: Brief Intervention and Contact Description: The Brief Intervention and Contact (BIC) group participated in a one-hour psychoeducational information session, which took place close to the time of discharge. The information session addressed: suicidal behavior as a sign of psychological/social distress, risk factors, basic epidemiology/repetition, alternatives to suicidal behavior, and contacts/referrals. The subjects were followed up by phone calls or visits. Target: Person who attempted suicide Comparator Usual care Treatment as usual in the emergency department Follow-up time: Six months</td>
<td>Uptake Number of participants who agreed to enroll: 632/945 (66.9 percent) of the participants who met inclusion criteria agreed to enroll Retention NR</td>
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<td>Hvid et al., 2011 Rigshospitalet and Ministry of Social Affairs of Denmark, 2009; Hvid and Wang, 2009; Lahoz, Hvid, and Wang, 2016 NCT00821756 Norway Outreach RCT</td>
<td>Type of participants: People who have attempted suicide Female: 71 percent Age: 37 Marital status: NR Military population: Civilian Comorbidities: NR History of suicide attempts: NR Eligibility criteria: All suicide attempted patients assessed at hospital’s emergency rooms and clinical departments in Amager except those with major psychiatric diagnoses (schizophrenia, bipolar disorder, severe/psychotic depression); age &gt; 12 and without language problems. Unit of randomization: Patient Number of participants: 133</td>
<td>Intervention Category/type: Psychoeducation Description: Active outreach with a primary contact while the patient was still in hospital and follow-up visits after hospital discharge by personal contact, telephone calls, letters, text messaging, and e-mails. Focus on problem solving, maintaining contact, and adherence to treatment. Target: Person who attempted suicide Comparator Usual care Treatment as usual. Recommendation at discharge to follow up with general practitioner Follow-up time: 12 months</td>
<td>Uptake Number of patients randomized to intervention who actually received intervention: 4 Retention Number unwilling to participate in 2004: 65</td>
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| Ivanoff, 1985 USA Inpatient RCT | **Type of participants:** People who have attempted suicide  
Female: 100 percent  
Age: 56 percent 27 years or younger; 44 percent 31 years or older  
Marital status: 22 percent  
Military population: Civilian  
Comorbidities: Major depressive disorder: 67 percent; anxiety disorder: 22 percent; cyclothymic: 11 percent; borderline personality disorder: 78 percent  
History of suicide attempts: 89 percent had one or more suicide attempt.  
Eligibility criteria: Participants had to be female, between the ages of 18 and 45, admitted for a suicide attempt within the past 48 hours, with informed consent, without organic brain syndrome, mental retardation or conditions that can make testing/treatment unreliable.  
Unit of randomization: Patient  
Number of participants: 9 | **Intervention**  
**Category/type:** Psychotherapy: Systematic desensitization for distress tolerance  
**Description:** One-hour individual session for seven consecutive days provided by trained therapists, focusing on increasing the patient’s ability to cope with situations that produce intolerable distress  
**Target:** Person who attempted suicide  
**Comparator**  
Psychotherapy: problem-solving therapy  
One-hour individual session for seven consecutive days provided by trained therapists, focusing on increasing the patient’s interpersonal problem-solving skills.  
Suicide attempters  
**Follow-up time:** 2 months | **Uptake**  
Number of participants who agreed to enroll: 9/9 of the participants who met inclusion criteria agreed to enroll  
**Retention**  
NR |
| Johnson et al., 2018 USA Outpatient RCT | **Type of participants:** People who have attempted suicide  
Female: 53 percent  
Age: 42.8 (9.02) intervention, 44.4 (10.1) control  
Marital status: NR  
Military population: Civilian  
Comorbidities: NR  
History of suicide attempts: NR  
Eligibility criteria: Low-income African American adults who had attempted suicide in the previous year excluding those who were actively psychotic or did not have adequate cognitive functioning for the interview.  
Unit of randomization: Patient  
Number of participants: 59 | **Intervention**  
**Category/type:** Cognitive-based compassion training (including six-session weekly meditation practice)  
**Description:** Cognitively-based compassion training (including six-session weekly meditation practice)  
**Target:** Person who attempted suicide  
**Comparator**  
Social support group  
90-minute support group sessions that were unstructured and did not include any elements of compassion meditation.  
Suicide attempters  
**Follow-up time:** 1.5 months | **Uptake**  
NR  
**Retention**  
NR |
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</table>
| Kaslow et al., 2010 | **Type of participants**: People who have attempted suicide  
**Female**: 100 percent  
**Age**: 34.7 (9.4)  
**Marital status**: 7 percent  
**Military population**: Civilian  
**Comorbidities**: NR  
**History of suicide attempts**: NR  
**Eligibility criteria**: African American women with both intimate partner violence (IPV) and a suicide attempt in the past year; patients with cognitive impairment, acute psychosis, or delirium were excluded.  
**Unit of randomization**: Patient  
**Number of participants**: 217 | **Intervention**  
**Category/type**: Psychoeducation: Grady Nia project  
**Description**: Ten 90-minute meetings with culturally informed, empowerment-focused psychoeducational group intervention. Meeting content is informed by the Theory of Triadic Influence (TTI) model, which attends to risk and protective factors in three domains: intrapersonal, social/situational, and environmental/contextual  
**Target**: Person who attempted suicide | **Uptake**  
**Number of participants who agreed to enroll**: 217/231 of the eligible participants agreed to enroll |
| Zhang et al., 2013; Davis et al., 2009; Taha et al., 2015 | **Unit of randomization**: Patient  
**Number of participants**: 217 | **Comparator**  
**Usual care**  
Women assigned to treatment as usual (TAU) were referred for standard psychiatric and medical care offered by the hospital, including free weekly suicide and IPV support groups.  
**Follow-up time**: 12 months | **Retention**  
**Number of participants who completed the intervention**: 86  
**Number of participants assessed at 12 months**: 28 |
| USA  
Outpatient  
RCT | | | |
| Kato et al., 2012 | **Type of participants**: People who have attempted suicide  
**Female**: 47 percent  
**Age**: 53.9 (19.5) intervention, 51.7 (14.8) control  
**Marital status**: NR  
**Military population**: Civilian  
**Comorbidities**: Major depressive disorder: 100 percent  
**History of suicide attempts**: NR  
**Eligibility criteria**: Patients in emergency department following a suicide attempt who are treated with antidepressants and/or Tandospirone (TDS) and no other psychotropic medications.  
**Unit of randomization**: NA  
**Number of participants**: 49 | **Intervention**  
**Category/type**: Medication: Tandospirone Combination Therapy  
**Description**: Tandospirone (an anxiolytic) combined with antidepressants  
**Target**: Person who attempted suicide | **Uptake**  
**NR** |
| Japan  
Outpatient  
Controlled study | | **Comparator**  
**Pharmacological treatment**: mirtazpine, sertraline, and fluvoxamine  
Monotherapy with an antidepressant (mirtazpine, setraline, or fluvoxamine)  
**Suicide attempters**  
**Follow-up time**: 1 month | **Retention**  
**NR** |
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<td><strong>Kawanishi et al., 2014</strong>&lt;br&gt;Japan Foundation for Neuroscience Mental Health and National Center of Neurology Psychiatry, Japan, 2013; Furuno et al., 2018; Hirayasu et al., 2009; Yamada et al., 2012&lt;br&gt;NCT00736918; UMIN-CTR C000000444 Japan&lt;br&gt;Case management RCT</td>
<td><strong>Type of participants:</strong> People who have attempted suicide&lt;br&gt;<strong>Female:</strong> 56 percent&lt;br&gt;<strong>Age:</strong> 42.9 (14.6) intervention, 41.7 (15.2) control&lt;br&gt;<strong>Marital status:</strong> 41 percent&lt;br&gt;<strong>Military population:</strong> Civilian&lt;br&gt;<strong>Comorbidities:</strong> Substance-related disorder: 4.92 percent; schizophrenia or other psychotic disorder: 19.85 percent; mood disorder: 46.61 percent; adjustment disorder: 20.90 percent; other: 7.99 percent&lt;br&gt;<strong>History of suicide attempts:</strong> 50 percent intervention and 48 percent control had at least one previous suicide attempt.&lt;br&gt;<strong>Eligibility criteria:</strong> Adults aged 20 years and older who had attempted suicide, were admitted to the emergency department, and had a primary diagnosis of an axis 1 psychiatric disorder.&lt;br&gt;<strong>Unit of randomization:</strong> Patient&lt;br&gt;<strong>Number of participants:</strong> 914</td>
<td><strong>Intervention</strong>&lt;br&gt;<strong>Category/type:</strong> Psychoeducation: Assertive case management&lt;br&gt;<strong>Description:</strong> Case management via scheduled in-person or phone-based interviews provided by social workers, clinical psychologists, nurses, or psychiatrists at one week and one, two, three, six, 12, and 18 months after randomization and then every six months until the end of the trial by dedicated case managers who were trained experts in mental health&lt;br&gt;<strong>Target:</strong> Person who attempted suicide</td>
<td><strong>Uptake</strong>&lt;br&gt;Number of participants who agreed to enroll: 914/1,267 of the eligible participants agreed to enroll&lt;br&gt;<strong>Retention</strong>&lt;br&gt;Number of participants contacted at least seven times by a case manager: 320/460 (70 percent) of intervention participants were contacted at least seven times by a case manager</td>
</tr>
<tr>
<td><strong>Kim et al., 2018</strong>&lt;br&gt;South Korea&lt;br&gt;Case management face-to-face or by phone&lt;br-Controlled study</td>
<td><strong>Type of participants:</strong> People who have attempted suicide&lt;br&gt;<strong>Female:</strong> 54 percent&lt;br&gt;<strong>Age:</strong> 38.5 percent control 20–39 years old, 44.5 percent intervention 40–59 years old&lt;br&gt;<strong>Marital status:</strong> 22 percent&lt;br&gt;<strong>Military population:</strong> Civilian&lt;br&gt;<strong>Comorbidities:</strong> Depressive disorder: 44.4 percent; adjustment disorder: 7.1 percent; bipolar disorder: 5.6 percent&lt;br&gt;<strong>History of suicide attempts:</strong> NR&lt;br&gt;<strong>Eligibility criteria:</strong> Individuals presenting to the emergency department of Ulsan University Hospital from August 28, 2013, to July 31, 2017, for a suicide attempt.&lt;br&gt;<strong>Unit of randomization:</strong> NA</td>
<td><strong>Intervention</strong>&lt;br&gt;<strong>Category/type:</strong> Psychoeducation: Case management&lt;br&gt;<strong>Description:</strong> Four weeks of case management with weekly face-to-face or telephone interviews provided by social workers consisting of detailed psychological assessment&lt;br&gt;<strong>Target:</strong> Person who attempted suicide&lt;br&gt;<strong>Comparator</strong>&lt;br&gt;No intervention or receiving fewer than 4 weeks of service&lt;br&gt;No case management&lt;br&gt;<strong>Follow-up time:</strong> 12 months</td>
<td><strong>Uptake</strong>&lt;br&gt;Number of participants who completed the 4-week case management service: 182/844 (21.6 percent) of the participants completed the 4-week case management service.&lt;br&gt;<strong>Retention</strong>&lt;br&gt;NR</td>
</tr>
<tr>
<td>Study Details</td>
<td>Participants</td>
<td>Intervention and Comparator</td>
<td>Uptake and Retention</td>
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<tr>
<td><strong>Kim et al., 2020</strong>&lt;br&gt;Korea&lt;br&gt;Flexible, continuous case management program&lt;br&gt;Controlled study</td>
<td><strong>Type of participants</strong>: People who have attempted suicide&lt;br&gt;<strong>Female</strong>: 61 percent&lt;br&gt;<strong>Age</strong>: Intervention group: 14.7 percent &gt; 24, 35 percent 25–44, 26.3 percent 45–50, 22.9 percent &gt; 60; Control group: 11.8 percent &gt; 24, 41.2 percent 25–44, 26.5 percent 45–59, 20.6 percent &gt; 60&lt;br&gt;<strong>Marital status</strong>: 55 percent&lt;br&gt;<strong>Military population</strong>: Civilian&lt;br&gt;<strong>Comorbidities</strong>: With somatic illness: 34.7 percent case management, 31.1 percent no-case management; Mood disorder: 49.5 percent case management, 38.3 percent no-case management; Psychotic disorder: 2.9 percent case management, 0.9 percent no-case management; Substance use disorder: 15.5 percent case management, 16.4 percent no-case management; Other psychiatric diagnosis: 28.9 percent case management, 30.2 percent no-case management; No axis I disorder: 6.7 percent case management, 13.8 percent no-case management&lt;br&gt;<strong>History of suicide attempts</strong>: 26.6 percent case management, 32.1 percent no-case management&lt;br&gt;<strong>Eligibility criteria</strong>: Patients from the emergency room of a teaching hospital in South Korea, who survived from suicide attempt&lt;br&gt;<strong>Unit of randomization</strong>: NA&lt;br&gt;<strong>Number of participants</strong>: 844</td>
<td><strong>Intervention</strong>&lt;br&gt;<strong>Category/type</strong>: Psychoeducation&lt;br&gt;<strong>Description</strong>: A flexible and continuous case management including three phases: (1) the crisis management conducted in weeks one, two, and four; (2) the intensive management conducted in weeks eight, 12, and 16; (3) the maintenance conducted continuously unless the patients refused. Every contact was conducted in person or via a telephone call.&lt;br&gt;<strong>Target</strong>: Person who attempted suicide</td>
<td><strong>Uptake</strong>&lt;br&gt;Number of suicide attempters who participated in the case management program: 72 percent of all suicide attempters participated in the case management program with their own consent.&lt;br&gt;<strong>Retention</strong>&lt;br&gt;NR</td>
</tr>
<tr>
<td><strong>Kocmur, Dernovšek, and Tavčar, 1998</strong>&lt;br&gt;Slovenia&lt;br&gt;Outpatient&lt;br&gt;Controlled study</td>
<td><strong>Type of participants</strong>: People who have attempted suicide&lt;br&gt;<strong>Female</strong>: 38 percent&lt;br&gt;<strong>Age</strong>: 32.1(9.7)&lt;br&gt;<strong>Marital status</strong>: 38 percent&lt;br&gt;<strong>Military population</strong>: Civilian</td>
<td><strong>Intervention</strong>&lt;br&gt;<strong>Category/type</strong>: Medication:&lt;br&gt;Paroxentine&lt;br&gt;<strong>Description</strong>: Paroxetine (20 or 40 mg daily)&lt;br&gt;<strong>Target</strong>: Person who attempted suicide</td>
<td><strong>Uptake</strong>&lt;br&gt;NR&lt;br&gt;<strong>Retention</strong>&lt;br&gt;Number of participants who completed the intervention: 2</td>
</tr>
<tr>
<td>Study Details</td>
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<td>Intervention and Comparator</td>
<td>Uptake and Retention</td>
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<tr>
<td><strong>Comorbidities:</strong> Personality disorder: 100 percent</td>
<td>Comparator</td>
<td>Placebo</td>
<td>NR</td>
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<tr>
<td><strong>History of suicide attempts:</strong> 75 percent had one to three, 25 percent had four or more previous suicide attempts.</td>
<td><strong>Follow-up time:</strong> 12 months</td>
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<tr>
<td><strong>Eligibility criteria:</strong> Patients aged 18–65 years, outpatients or inpatients with personality disorder, at least two episodes of suicidal behavior and able to provide informed consent</td>
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<tr>
<td><strong>Unit of randomization:</strong> NA</td>
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<tr>
<td><strong>Number of participants:</strong> 16</td>
<td></td>
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<tr>
<td><strong>Comparator</strong></td>
<td>Placebo</td>
<td>NR</td>
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<tr>
<td><strong>Enhanced usual care</strong></td>
<td>The enhanced usual care (EUC) condition consisted of the usual care that patients received while on the inpatient unit in addition to the assessment procedures provided as part of this study. Usual care varied depending on the individual but commonly included group psychotherapy, recreation therapy, art therapy, and medication management.</td>
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<tr>
<td><strong>Follow-up time:</strong> Three months</td>
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<thead>
<tr>
<th>LaCroix et al., 2018</th>
<th>Type of participants: People who have attempted suicide</th>
<th>Intervention</th>
<th>Uptake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Henry M. Jackson Foundation for the Advancement of Military Medicine and Congressionally Directed Medical Research Programs, 2018; Henry M. Jackson Foundation for the Advancement of Military Medicine and National Alliance for Research on Schizophrenia and Depression, 2018; Gahramanlou-Holloway, 2012; Neely, 2013; NCT01356186 USA</td>
<td>Female: 31 percent</td>
<td>Category/type: Psychotherapy: Cognitive therapy</td>
<td>Number of participants who agreed to enroll: 36/52 of the eligible participants agreed to enroll</td>
</tr>
<tr>
<td><strong>Age:</strong> 31(9.8)</td>
<td><strong>Description:</strong> Post-admission cognitive therapy (PACT) was six 60–90-minute cognitive behavioral therapy sessions provided over three days</td>
<td>Comparator</td>
<td>Retention</td>
</tr>
<tr>
<td><strong>Marital status:</strong> 39 percent</td>
<td><strong>Target:</strong> Person who attempted suicide</td>
<td>Enhanced usual care</td>
<td>NR</td>
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<tr>
<td><strong>Military population:</strong> Service member</td>
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<tr>
<td>Air Force, Army, Coast Guard, Marine Corps, Navy</td>
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<tr>
<td><strong>Comorbidities:</strong> Major depressive disorder: 86.1 percent</td>
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<tr>
<td><strong>History of suicide attempts:</strong> 85.7 percent having made multiple suicide attempts</td>
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<td><strong>Eligibility criteria:</strong> Military service members and adult beneficiaries over the age of 18, hospitalized due to a recent suicide attempt, with a documented inpatient admission record of diagnosed acute stress disorder or PTSD; individuals who were admitted for self-inflicted harm with no intent to die by suicide, who did not have the medical capacity to participate, or who were currently in an active state of psychosis were not eligible.</td>
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<tr>
<td><strong>Unit of randomization:</strong> Patient</td>
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<tr>
<td><strong>Number of participants:</strong> 36</td>
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<thead>
<tr>
<th>Lahoz, Hvid, and Wang, 2016</th>
<th>Type of participants: People who have attempted suicide</th>
<th>Intervention</th>
<th>Uptake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>Female: 71 percent</td>
<td>Category/type: Outreach</td>
<td></td>
</tr>
<tr>
<td>Study Details</td>
<td>Participants</td>
<td>Intervention and Comparator</td>
<td>Uptake and Retention</td>
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<tr>
<td>Emergency department RCT</td>
<td>Age: 33.5 (17.6) women, 46 (15.3) men</td>
<td>Description: A rapid and active outreach intervention provided by a team of one psychiatrist and two nurses offering immediate contact within days after a suicide attempt, while the patient was still in hospital and followed up after discharge, by personal contact, telephone calls, letters, text messaging, and email over six months.</td>
<td>Number of participants who agreed to enroll: 133/200 of the eligible participants agreed to enroll</td>
</tr>
<tr>
<td></td>
<td>Marital status: NR</td>
<td>Target: Person who attempted suicide</td>
<td>Retention Number of participants who dropped out: 4</td>
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<td></td>
<td>Military population: Civilian</td>
<td>Comparator</td>
<td>Placebo</td>
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<tr>
<td></td>
<td>Comorbidities: NR</td>
<td>Usual care</td>
<td>Administered by using a fixed schedule of dose augmentation (increase of 200 mg/week until a sufficient blood level was attained) for 12 months</td>
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<td></td>
<td>History of suicide attempts: 38 percent had a prior suicide attempt</td>
<td>Patients discharged after a suicide attempt and randomized to non-intervention (TAU) did not receive any service from the project. They were recommended to seek advice from their general practitioner who could, whenever deemed relevant, refer the patient to psychiatric or psychological treatment. They received one telephone call after half a year.</td>
<td>Number of participants who agreed to enroll: 167/709 of the eligible participants agreed to participate</td>
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<td>Eligibility criteria: Patients who were in the catchment area. Schizophrenia and psychotic states, bipolar affective disorder and severe and/or psychotic depression, mental retardation, and severe dementia were excluded. Other exclusion criteria were age less than 12 years and language problems.</td>
<td>Follow-up time: 60 months</td>
<td>Retention Number of participants who dropped out: 48</td>
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<tr>
<td></td>
<td>Unit of randomization: Patient</td>
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<tr>
<td></td>
<td>Number of participants: 133</td>
<td></td>
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<tr>
<td>Study Details</td>
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<td>Intervention and Comparator</td>
<td>Uptake and Retention</td>
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<td>Eligibility criteria: Patients with a suicide attempt within three months prior to the first drug administration; occurrence of suicide attempt within the context of a depressive spectrum disorder; minimum age of 18 years; ability to complete screening and baseline assessment; ability to provide written informed consent; individuals were excluded in case of diagnoses also associated with frequent suicidal behavior such as schizophrenia, borderline personality disorder with severe self-harm or substance-related disorders (current addiction).</td>
<td>Intervention Category/type: Psychotherapy: Behavior Therapy Description: Four hours of behavior therapy per day over eight days provided by a psychologist, including 17 hours of social skills training, ten hours of anxiety management training, and five hours of family negotiation and contingency contracting. Target: Person who attempted suicide Comparator Psychotherapy Insight-Oriented Therapy Insight-oriented psychotherapy was provided by experienced psychologists and consisted of 17 hours of psychodrama and 10 hours of group therapy and 5 hours of family therapy. Suicide attempters Follow-up time: 24 months</td>
<td>Uptake NR Retention NR</td>
<td></td>
</tr>
<tr>
<td>Study Details</td>
<td>Participants</td>
<td>Intervention and Comparator</td>
<td>Uptake and Retention</td>
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| Lin et al., 2020 Shen-Ing Liu and National Science Council, Taiwan, 2014 NCT00664872 Taiwan Remote RCT | **Type of participants:** People who have attempted suicide  
**Female:** 72 percent  
**Age:** 33  
**Marital status:** 42 percent, 29 percent  
**Military population:** Civilian  
**Comorbidities:** Lifetime psychiatric admission: 8.76 percent; Every previous psychiatric clinic visit: 59.2 percent; Mean PHQ-9 score (SD): 12.13 (6.31); Mean HAMD-24 score (SD): 20.9 (9.41); Mean BSSI score (SD): 16.54 (8.13); Median BHS score (IQR): 11 (8.15–12); Median PSIS score (IQR): 7 (4–11); Median SAD PERSONDS score (IQR): 4 (3–6); Bipolar and related disorders: 14 percent; Depressive disorders: 36.7 percent; Alcohol use disorder: 38.2 percent; Ever other substance use: 21.4 percent; Ever or now hypnotics use: 74.8 percent; Ever or current antidepressants use: 49.7 percent  
**History of suicide attempts:** 29 percent  
**Eligibility criteria:** Adult patients who had a suicide attempt, have current suicide ideation, are able to communicate and to be contacted by phone or mailing address; those medically or cognitively unable to communicate or participate in the study procedure or who are participating in other research or psychotherapy programs were excluded.  
**Unit of randomization:** Patient  
**Number of participants:** 147 | **Intervention**  
Category/type: Psychotherapy: Brief cognitive-based psychosocial intervention  
**Description:** At least six cognitive-based psychotherapy sessions in-person or through telephone in the four months following the suicide attempt in addition to routine care and standard case management.  
**Target:** Person who attempted suicide  
**Comparator**  
Routine care and routine case management  
Treatment as usual includes case management  
**Follow-up time:** 12 months | **Uptake**  
Number of patients who received at least one session of intervention: Of 72 subjects assigned to intervention group, 18 (25 percent) patients refused intervention; 17 (23.6 percent) could not be reached; 37 (51.4 percent) patients received at least one session of intervention, with a mean of 5.92 therapy sessions including a mean of 2.11 face-to-face sessions and 3.81 telephone sessions  
**Retention**  
Number of participants who completed six-month follow up: 49  
Number of participants who completed 12-month follow-up: 55 |
| Linehan et al., 2015 University of Washington and National Institute of Mental Health, 2012 NCT00183651 USA | **Type of participants:** People who have attempted suicide  
**Female:** 100 percent  
**Age:** 30.3 (8.9)  
**Marital status:** NR  
**Military population:** Civilian | **Intervention**  
Category/type: Psychotherapy  
**Description:** Standard DBT divided into the following four weekly components: individual therapy, group skills training, therapist consultation team, and as- | **Uptake**  
Number of participants who agreed to enroll: 99/118 of the eligible participants agreed to enroll  
**Retention**  
Number of dropouts: 8 |
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<tbody>
<tr>
<td>Outpatient RCT</td>
<td><strong>Comorbidities:</strong> Major depressive disorder: 98 percent; any anxiety disorder: 90 percent; substance use disorder: 71 percent; eating disorder: 39 percent. <strong>History of suicide attempts:</strong> NR. <strong>Eligibility criteria:</strong> Participants who meet the criteria for borderline personality disorder and had at least two suicide attempts and/or nonsuicidal self-injury (NSSI) episodes in the past five years, an NSSI act or suicide attempt in the eight weeks before screening, and a suicide attempt in the past year. <strong>Unit of randomization:</strong> Patient. <strong>Number of participants:</strong> 99.</td>
<td>Needed between-session telephone coaching. Treatment lasts for a year. <strong>Target:</strong> Person who attempted suicide. <strong>Comparator:</strong> No control group. Psychotherapy. DBT skill training without individual therapy. Suicide attempters.</td>
<td><strong>Follow-up time:</strong> 24 months</td>
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<td>LoParo et al., 2018 Emory University, 2021 NCT03463980 USA Outpatient RCT</td>
<td><strong>Type of participants:</strong> People who have attempted suicide. <strong>Female:</strong> 53 percent. <strong>Age:</strong> 42.4 (10.9) <strong>Marital status:</strong> NR. <strong>Military population:</strong> Civilian. <strong>Comorbidities:</strong> NR. <strong>History of suicide attempts:</strong> 4.8 (5.4) lifetime number of suicide attempts. <strong>Eligibility criteria:</strong> Those who self-identified as African American and who had attempted suicide within the previous year were invited to participate; individuals were excluded if they exhibited high levels of psychotic symptoms or low levels of cognitive functioning. <strong>Unit of randomization:</strong> Patient. <strong>Number of participants:</strong> 252.</td>
<td><strong>Intervention</strong>. <strong>Category/type:</strong> Psychotherapy: Cognitively based compassion training. <strong>Description:</strong> Six weekly 90-minute cognitively based compassion therapy group sessions that incorporated the standard meditative practices of developing focused/sustained attention and mindfulness as precursors to using meditative concentration for the compassionate analysis of oneself and others. <strong>Target:</strong> Person who attempted suicide. <strong>Comparator</strong>. Social support group. The six-week non-CBCT support group sessions were also 90 minutes in length. They were unstructured and did not include any elements of compassion-based meditation. Suicide attempters.</td>
<td><strong>Uptake</strong> NR. <strong>Retention</strong> Number of participants who completed the intervention: 52</td>
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<td>Uptake and Retention</td>
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| Marasinghe et al., 2012 Sri Lanka Remote RCT | **Type of participants:** People who have attempted suicide  
**Female:** 100 percent  
**Age:** 34 (17) intervention, 31 (16) control  
**Marital status:** 48 percent intervention, 52 percent control  
**Military population:** Civilian  
**Comorbidities:** NR  
**History of suicide attempts:** NR  
**Eligibility criteria:** Participants who were admitted to the hospital after self-harm, were aged 15–74, displayed significant suicidal intent, likely to be discharged within two days, and able to give informed consent; participants with ongoing psychiatric treatment, current or history of treated psychosis, diagnosis of dementia were excluded.  
**Unit of randomization:** Patient  
**Number of participants:** 34 | **Intervention**  
**Category/type:** Psychoeducation  
**Description:** The intervention included one-time training in problem-solving therapy, meditation, brief intervention to increase social support, advice on alcohol and other drugs, and mobile follow-ups.  
**Target:** Person who attempted suicide | **Uptake**  
NR  
**Retention**  
NR |
| Matsubara et al., 2019 Japan Remote Controlled study | **Type of participants:** People who have attempted suicide  
**Female:** NR  
**Age:** NR  
**Military status:** NR  
**Military population:** Civilian  
**Comorbidities:** NR  
**History of suicide attempts:** NR  
**Eligibility criteria:** Individuals who were over 20 years of age and who were admitted to emergency units following suicide attempts.  
**Unit of randomization:** NA  
**Number of participants:** 48 | **Intervention**  
**Category/type:** Outreach: Combining phone and postcard brief contact interventions  
**Description:** Combining phone and postcard brief contact: psychiatrist calls patients between the 10th and 21st day after discharge followed by a phone intervention; sending postcard at the 4th and 8th weeks.  
**Target:** Person who attempted suicide  
**Comparator**  
Usual care  
Delayed brief mobile treatment delivered six months post-hospitalization  
Suicide attempters  
**Follow-up time:** Six months | **Uptake**  
NR  
**Retention**  
NR |
| McCauley et al., 2018 Seattle Children’s Hospital, University of California Los Angeles | **Type of participants:** Both people who have attempted suicide and family members  
**Female:** 95 percent | **Intervention**  
**Category/type:** Psychotherapy: Dialectical Behavior Therapy | **Uptake**  
Number of participants who agreed to enroll: 173/195 of
<table>
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<th>Study Details</th>
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<th>Intervention and Comparator</th>
<th>Uptake and Retention</th>
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</thead>
</table>
| Angeles, and National Institute of Mental Health, 2016 USA Outpatient RCT | **Age**: 14.89 (1.47)  
**Marital status**: 55 percent (parents)  
**Military population**: Civilian  
**Comorbidities**: Depressive disorder: 83.81 percent; anxiety disorder: 54.10 percent; eating disorder: 0.68 percent; borderline personality disorder: 53.20 percent  
**History of suicide attempts**: NR  
**Eligibility criteria**: Participants had at least 1 lifetime suicide attempt, elevated past-month suicidal ideation (≥ 24 on the Suicidal Ideation Questionnaire Junior [SIQ-JR]), self-injury repetition (≥3 lifetime self-harm episodes, including 1 in the 12 weeks before screening), 3 or more borderline personality disorder criteria, and age of 12 to 18 years; participants with IQ less than 70 on the Kaufman Brief Intelligence Test; primary problem of psychosis, mania, anorexia, or life-threatening condition; without English fluency, and parent without English or Spanish fluency were excluded.  
**Unit of randomization**: Patient  
**Number of participants**: 173 | **Description**: Dialectical behavior therapy consisting of weekly individual psychotherapy, multifamily group skills training, youth and parent telephone coaching, and weekly therapist team consultation for six months. Parents were seen individually in session one and offered seven or more family sessions.  
**Target**: Person who attempted suicide and family member(s)  
**Comparator**  
Psychotherapy: client-centered supportive therapy  
Individual and group supportive therapy included individual sessions, adolescent supportive group therapy, as-needed parent sessions (≤ 7 sessions), and weekly therapist team consultation for six months  
Suicide attempters and family members | **Number of participants who completed the intervention**: 66 |
| Mishara, Houle, and Lavoie, 2005 Canada Psychoeducation for family and friends Pre-post | **Type of participants**: Family members  
**Female**: 82 percent  
**Age**: NR  
**Marital status**: NR  
**Military population**: Civilian  
**Comorbidities**: NR  
**History of suicide attempts**: NR  
**Eligibility criteria**: Family and friends who called Suicide Action Montreal concerning a suicidal man who was between 18 and 69, had already attempted suicide at least once, and could be diagnosed with depression, substance abuse or alcoholism.  
**Unit of randomization**: NA  
**Number of participants**: 131 | **Intervention**  
**Category/type**: Prevention: training for family and friends  
**Description**: One of four types of program were provided to the family and friends: information session, information session with follow-up, rapid referral, and telephone support  
**Target**: Person who attempted suicide and family member(s)  
**Comparator**  
Pre-intervention data  
Pre-intervention data | **Number of family and friends who accepted to participate in the program offered**: 131/355 (36.9 percent) accepted to participate in the program  
**Retention**  
NR |
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<tr>
<th>Study Details</th>
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<th>Intervention and Comparator</th>
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</thead>
</table>
| Möller, 1992  | Type of participants: People who have attempted suicide  
Female: NR  
Age: NR  
Marital status: NR  
Military population: Civilian  
Comorbidities: NR  
History of suicide attempts: NR  
Eligibility criteria: Participants had to have no current psychotherapy, strong command of the German language, and live in the Munich area; they were excluded if they had a diagnosis of psychosis or were admitted because of a drug overdose.  
Unit of randomization: Patient  
Number of participants: 226 | Intervention  
Category/type: Psychotherapy: crisis support and motivation for treatment compliance  
Description: Twelve sessions of ambulatory short-term psychotherapy over three months that was provided by the clinician who had already been in charge of the patient in the hospital with additional motivational efforts to increase compliance.  
Target: Person who attempted suicide  
Comparator  
Usual care  
Psychotherapy: non-specific, predominantly psychodynamic  
Standard care including crisis intervention during hospital stay and aftercare planning.  
Immediate crisis intervention (three sessions) and subsequent referral to special suicide prevention services.  
Suicide attempters  
Follow-up time: 12 months | Uptake  
Number of participants who accepted aftercare: 49  
Retention  
Number of participants who remained in therapy for more than 5 sessions: 26 |

| Montgomery and Montgomery, 1982a  
Montgomery et al., 1979  
UK  
Outpatient RCT | Type of participants: People who have attempted suicide  
Female: 68 percent  
Age: 35.1(12.24) intervention, 36.2(13.38) control  
Marital status: NR  
Military population: Civilian  
Comorbidities: Personality disorders: 100 percent  
History of suicide attempts: 3.6  
Eligibility criteria: Patients with a history of two or more documented episodes of suicidal behavior; who were diagnosed with a personality disorder; and who were not suffering from schizophrenia, depression, or organic illnesses. | Intervention  
Category/type: Medication: oral antidepressant, Mianserin  
Description: Patients are given a low dose of an oral antidepressant, mianserin (30mg nightly), for six months  
Target: Person who attempted suicide  
Comparator  
Placebo  
Follow-up time: Six months | Uptake  
NR  
Retention  
NR |
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<tr>
<td>Montgomery, 1982b UK Outpatient RCT</td>
<td>Type of participants: People who have attempted suicide Female: 70 percent Age: 38.2(15.53) intervention, 31.9(11) control Marital status: NR Military population: Civilian Comorbidities: Personality disorders: 100 percent History of suicide attempts: 4.8 Eligibility criteria: Patients with a history of two or more documented episodes of suicidal behavior; who were diagnosed with a personality disorder; and who were not suffering from schizophrenia, depression, or organic illnesses. Unit of randomization: Patient Number of participants: 38</td>
<td>Intervention Category/type: Medication: Flupenthixol Description: A low dose of 20mg of a neuroleptic Flupenthixol every four weeks for six months Target: Person who attempted suicide Comparator Placebo NR</td>
<td>Uptake NR Retention NR</td>
</tr>
<tr>
<td>Montgomery et al., 1994 UK Outpatient RCT</td>
<td>Type of participants: People who have attempted suicide Female: NR Age: NR Marital status: NR Military population: Civilian Comorbidities: NR History of suicide attempts: NR Eligibility criteria: Patients attending a psychiatric clinic with a history of two or more suicide attempts but who were not suffering from major depression according to DSM-III-R. Unit of randomization: Patient Number of participants: 107</td>
<td>Intervention Category/type: Medication: Fluoxetine Description: Six-month treatment of 60 mg of fluoxetine twice weekly Target: Person who attempted suicide Comparator Placebo Given placebo twice weekly</td>
<td>Uptake NR Retention NR</td>
</tr>
<tr>
<td>Mouaffak et al., 2015 Assistance Publique, Hôpitaux de Paris, 2013 NCT01176929 France Outpatient</td>
<td>Type of participants: People who have attempted suicide Female: 74 percent Age: 39(13) intervention, 38.6(13.3) control Marital status: NR Military population: Civilian</td>
<td>Intervention Category/type: Screening Description: The telephone calls, given at two weeks post-discharge, as well as at months one and three, consisted of a brief psychological assessment as well as of the risk of suicide (item 10 of the</td>
<td>Uptake Number of patients in the intervention group who responded to telephone calls: 101</td>
</tr>
</tbody>
</table>
### Study Details

**RCT**

**Comorbidities:** Moderate to severe depressive disorders: 27.1 percent control, 30.3 percent intervention; trauma and stressor related disorders: 29.6 percent control, 27.8 percent intervention; personality disorders: 15.9 percent control, 17.1 percent intervention

**History of suicide attempts:** 51.9 percent of the intervention group reported at least one suicide attempt and 47.9 percent of the control group reported at least one suicide attempt.

**Eligibility criteria:** Suicidal participants who were admitted to the psychiatry emergency department during the daytime working hours; men and women aged 18 or older, surviving a suicide attempt, discharged from the emergency department and referred to an outpatient follow-up program after a stay of less than 72 hours, giving consent, able to be contacted by phone (not incarcerated or homeless) and able to communicate in French without an interpreter.

**Unit of randomization:** Patient

**Number of participants:** 320

**Background:** Montgomery-Asberg Depression Rating Scale (MADRS) followed by an evaluation of the adherence to mental health services.

**Target:** Person who attempted suicide

**Comparator**

Usual care

Received a letter informing them of the result of the randomization process and another reminder letter in the 1st, 6th, and 11th month.

**Follow-up time:** 12 months

63 percent of the intervention participants responded to telephone calls

**Number of participants who agreed to enroll:** All eligible participants agreed to enroll

**Retention**

NR

---

### Participants

**Type of participants:** People who have attempted suicide

**Female:** 63 percent

**Age:** 65 percent intervention, 51 percent control were 15–25 years old

**Marital status:** 47 percent

**Military population:** Civilian

**Comorbidities:** Chronic psychiatric disorder: 80 percent intervention, 77 percent control

**History of suicide attempts:** 65.2 percent intervention and 62.9 percent control reported that they attempted suicide at least twice.

**Eligibility criteria:** 15 years old and older, history of at least two suicide attempts

### Intervention and Comparator

**Intervention**

**Category/type:** Outreach: Telephone follow-up contacts

**Description:** The intervention group was followed up with seven phone calls by a psychiatric final-year resident after discharge over six months to evaluate and document present condition. Guidance about better coping with harmful conditions and reducing stresses—and referrals to psychiatrist, psychologist, or social worker in case of needs—were provided.

**Target:** Person who attempted suicide

**Comparator**

Usual care

NR

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### Uptake and Retention

**Uptake**

NR

**Retention**

NR
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</table>
| Naidoo, Gathiram, and Schlebusch, 2014 | Type of participants: People who have attempted suicide  
Female: 75 percent  
Age: 40 percent 20–29 years old  
Marital status: 26 percent  
Military population: Civilian  
Comorbidities: NR  
History of suicide attempts: NR  
Eligibility criteria: Adult patients aged 18 years and older and treated in the emergency units or admitted to the short- or long-stay wards in either hospital following a suicide attempt during the study period September 2007–March 2010.  
Unit of randomization: Patient  
Number of participants: 688 | Intervention  
Category/type: Psychoeducation: Buddy intervention  
Description: One one-hour session of individual psychotherapy and information sharing as close to the time of discharge as possible, aimed at education and increasing awareness of available resources; participants nominated “buddies” who were trained in three workshops, each lasting four hours, to provide basic counseling and facilitate specialized referral if required.  
Target: Person who attempted suicide | Uptake  
Number of participants who agreed to enroll: 688/690 of the participants who met inclusion criteria agreed to enroll  
Retention  
Number of participants who withdrew or were lost to follow-up: 13  
Number of participants who withdrew: 1 |
| O'Connor et al., 2017  
ISRCTN, 2012  
ISRCTN99488269  
UK | Type of participants: People who have attempted suicide  
Female: 63 percent | Intervention  
Category/type: Psychoeducation  
Description: An implementation intentions-based brief, self-directed | Uptake  
Number of participants who agreed to enroll: 518/647 of the eligible participants agreed to enroll |
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<tr>
<td>Inpatient RCT</td>
<td>Age: 36.50 (14.59) intervention, 36.07 (12.77) control&lt;br&gt;Marital status: 22 percent&lt;br&gt;Military population: Civilian&lt;br&gt;History of suicide attempts: 1.65 (0.88) intervention, 1.54 (0.93) control&lt;br&gt;Eligibility criteria: Participants were over the age of 16 years, admitted to acute care unit, had a self-reported history of self-harm, were fluent in English, were medically fit to interview, and were not participating in other research studies within the hospital.&lt;br&gt;Unit of randomization: Patient&lt;br&gt;Number of participants: 518</td>
<td>Psychological intervention (a volitional help sheet; VHS) given in hospital within 24 hours of a suicide attempt to reduce future self-harm.&lt;br&gt;Target: Person who attempted suicide&lt;br&gt;Comparator&lt;br&gt;Usual care&lt;br&gt;Treatment as usual plus psychosocial assessment&lt;br&gt;Follow-up time: Six months</td>
<td>Retention&lt;br&gt;Number of the intervention participants who completed the intervention: 248/259 of the intervention participants completed the intervention</td>
</tr>
<tr>
<td>O'Connor et al., 2015&lt;br&gt;University of Washington, 2015&lt;br&gt;NCT01355848&lt;br&gt;USA&lt;br&gt;Inpatient RCT</td>
<td>Type of participants: People who have attempted suicide&lt;br&gt;Female: 27 percent&lt;br&gt;Age: 43.67(13.13) intervention, 39.02(14.43) control&lt;br&gt;Marital status: NR&lt;br&gt;Military population: Civilian&lt;br&gt;Comorbidities: NR&lt;br&gt;History of suicide attempts: 4.14 (4.42) intervention, 10.21(18.4) control&lt;br&gt;Eligibility criteria: Patients who were admitted for self-directed violence with intent to die.&lt;br&gt;Unit of randomization: Patient&lt;br&gt;Number of participants: 30</td>
<td>Intervention&lt;br&gt;Category/type: Psychoeducation&lt;br&gt;Description: The Teachable Moment Brief Intervention (TMBI) occurs during inpatient treatment and is informed by the Collaborative Assessment and Management of Suicide (CAMS) and Dialectical Behavior Therapy (DBT). The goal is to help the patient identify the factors underlying their suicidal ideation and active suicide-related problem solving.&lt;br&gt;Target: Person who attempted suicide&lt;br&gt;Comparator&lt;br&gt;Usual care&lt;br&gt;Assessment and management of suicidal ideation by the Adult Psychiatry Consultation Service and assistance in disposition planning&lt;br&gt;Suicide attempters&lt;br&gt;Follow-up time: 1 month</td>
<td>Uptake&lt;br&gt;Number of participants who agreed to enroll: 31/35 of the eligible participants agreed to enroll&lt;br&gt;Retention&lt;br&gt;NR</td>
</tr>
<tr>
<td>Oquendo et al., 2011&lt;br&gt;Oquendo et al., 2012&lt;br&gt;USA</td>
<td>Type of participants: People who have attempted suicide</td>
<td>Intervention&lt;br&gt;Category/type: Medication: Lithium</td>
<td>Uptake</td>
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<tr>
<td>Outpatient RCT</td>
<td>Female: 76 percent Lithium, 69 percent Valproate&lt;br&gt;Age: 33(11) Lithium, 34(10) Valproate&lt;br&gt;Marital status: 19 percent Lithium, 25 percent Valproate&lt;br&gt;Military population: Civilian&lt;br&gt;Comorbidities: Bipolar disorder: 100 percent; depressed mood: 85 percent; anxiety disorder: 47 percent&lt;br&gt;History of suicide attempts: NR&lt;br&gt;Eligibility criteria: Patients had a DSM-IV diagnosis of a bipolar disorder and were in a depressive or mixed episode; at least one past suicide attempt; 18 to 75 years of age; exclusion criteria were lack of capacity to provide informed consent; pregnancy or lactation; active medical problems, including substance abuse problems requiring detoxification; contraindication to use of lithium or valproate; a history of nonresponse to adequate dosages of either lithium or valproate in the past two years; contraindication to the use of adjunctive antidepressants if in a depressed state or adjunctive antipsychotics if in a mixed or psychotic depressed state.</td>
<td>Description: Lithium (target blood level 0.6–1.0 mEq/dl) plus adjunctive medications for depression and/or psychosis&lt;br&gt;Target: Person who attempted suicide&lt;br&gt;Comparator&lt;br&gt;Pharmacological treatment: Valproate (target blood level 45–125 μg/ml) plus adjunctive medications for depression and/or psychosis&lt;br&gt;Suicide attempters&lt;br&gt;Follow-up time: 30 months</td>
<td>Number of participants who agreed to enroll: 98/104 of the eligible participants agreed to enroll&lt;br&gt;Retention&lt;br&gt;Average time in the study (days)&lt;br&gt;Average time in the study was not significantly different between the lithium and valproate groups</td>
</tr>
<tr>
<td>Patsiokas and Clum, 1985 USA Outpatient RCT</td>
<td>Type of participants: People who have attempted suicide&lt;br&gt;Female: NR&lt;br&gt;Age: NR&lt;br&gt;Marital status: NR&lt;br&gt;Military population: Civilian&lt;br&gt;Comorbidities: NR&lt;br&gt;History of suicide attempts: NR&lt;br&gt;Eligibility criteria: Suicide attempters without a diagnosis of psychosis, alcoholism, or substance abuse</td>
<td>Intervention&lt;br&gt;Category/type: Psychotherapy: Cognitive restructuring&lt;br&gt;Description: Ten one-hour sessions conducted over three weeks to identify cognitions, distortions, and related strategies&lt;br&gt;Target: Person who attempted suicide&lt;br&gt;Comparator&lt;br&gt;Nondirective control; psychotherapy problem-solving therapy&lt;br&gt;Ten individual sessions in which an open discussion occurred on their thoughts and feelings</td>
<td>Uptake&lt;br&gt;NR&lt;br&gt;Retention&lt;br&gt;NR</td>
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| **Reijas et al., 2013**  
Spain  
Outpatient  
Controlled study | **Type of participants:** People who have attempted suicide  
**Female:** 74 percent  
**Age:** 39.63(16.21)  
**Marital status:** NR  
**Military population:** Civilian  
**Comorbidities:** Affective disorder: 21.2 percent; personality disorder: 21.8 percent; adaptive disorder: 44.2 percent  
**History of suicide attempts:** 0.87(1.4)  
**Eligibility criteria:** Patients seen in the emergency service after a suicide attempt who did or did not require hospital admission and who were subsequently referred for outpatient treatment and who at least came to the first visit.  
**Unit of randomization:** NA  
**Number of participants:** 191 | **Intervention**  
**Category/type:** Psychotherapy: Cognitive behavioral therapy  
**Description:** Intervention consists of at least ten sessions over six months  
**Target:** Person who attempted suicide  
**Comparator**  
Historical cohort receiving conventional therapy  
In conventional therapy, the patient is initially seen by the nursing staff with a welcoming interview and then by a psychiatrist and/or clinical psychologist  
**Follow-up time:** 12 months | **Uptake**  
NR  
**Retention**  
NR |
| **Rotheram-Borus et al., 2000**  
Rotheram-Borus et al., 1996  
USA  
Emergency department  
Controlled study | **Type of participants:** Both people who have attempted suicide and their family members  
**Female:** 100 percent  
**Age:** 14.9 (1.4)  
**Marital status:** 47.7 percent (mothers)  
**Military population:** Civilian  
**Comorbidities:** NR  
**History of suicide attempts:** 30.7 percent had a history of previous suicide attempt  
**Eligibility criteria:** Participants who were admitted for a suicide attempt, aged 12–18 years old, not psychiatrically hospitalized for more than one week, female, and who were | **Intervention**  
**Category/type:** Psychoeducation  
**Description:** A 20 minute “soap opera video” regarding suicidality was shown to all suicide attempts and their mothers aimed at enhancing adherence to outpatient therapy; a family therapy session; and training for staff.  
**Target:** Person who attempted suicide and family member(s)  
**Comparator**  
Usual care  
Evaluation by a pediatrician and a child psychiatry fellow or psychiatric resident to determine whether the suicide | **Uptake**  
Number of participants who agreed to enroll: 150/158 of the eligible participants agreed to enroll  
**Retention**  
NR |
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| not referred to hospitals outside New York.  
Unit of randomization: NA  
Number of participants: 140 | attempt was serious enough for either medical or psychiatric hospitalization.  
Follow-up time: 18 months |  |  |
| Saikovskis, Atha, and Storer, 1990  
UK  
Inpatient/ home-based treatment  
RCT | Type of participants: People who have attempted suicide  
Female: 50 percent  
Age: 26.4 (6.0) intervention, 28.5 (7.9) control  
Marital status: 30 percent  
Military population: Civilian  
Comorbidities: NR  
History of suicide attempts: 2.6 (0.9) intervention, 3.0 (0.9) control  
Eligibility criteria: Patients aged 16 to 65 living within the Leeds Western Health Authority boundary and of fixed abode, not judged by the assessing psychiatrist to require immediate psychiatric treatment, not at present suffering from a psychotic or serious organic illness, and meeting two of the following criteria: (1) there had been two or more previous suicide attempts, (2) antidepressants had been taken as part of an overdose, and (3) patients scored at least 4 on the six-point scale devised by Buglass and Horton (1974) to predict repeated suicidal behavior.  
Unit of randomization: Patient  
Number of participants: 20 | Intervention  
Category/type: Psychotherapy: Cognitive behavioral problem-solving  
Description: Participants were provided five sessions of one-hour treatment delivered by community psychiatric nurses using a problem-solving approach.  
Target: Person who attempted suicide  
Comparator  
Usual care  
The duty psychiatrist decided whether patients required and would benefit from the range of treatment options normally available.  
Follow-up time: 12 months |  |
| Spirito et al., 2002  
USA  
Outpatient RCT | Type of participants: People who have attempted suicide  
Female: 90 percent  
Age: 15.0 (1.4)  
Marital status: NR  
Military population: Civilian  
Comorbidities: NR  
History of suicide attempts: 0.5 (0.8) intervention, 0.6 (1.0) control  
Eligibility criteria: Adolescents aged 12 to 18 years who had made a suicide attempt  
Number of participants: 20 | Intervention  
Category/type: Other intervention: Standard Disposition Planning Plus Compliance Enhancement Intervention  
Description: Following standard disposition planning, one-hour compliance enhancement intervention to review expectations for outpatient treatment and address treatment misconceptions; to review with adolescents and parents those factors | Uptake  
Number of participants who agreed to enroll: 76/82 (93 percent) of the eligible participants agreed to enroll  
Number of outpatient therapy sessions: 7.7  
Retention |
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<td>attempt and were receiving medical care in either the ED or pediatrics ward of a children's hospital in the Northeast. Unit of randomization: Patient Number of participants: 76</td>
<td>that might impede treatment attendance; and to make a verbal contract between parents and adolescent to attend at least four outpatient therapy sessions. Target: Person who attempted suicide Comparator Usual care Patient disposition was based on the judgment of the psychiatric clinician who conducted the evaluation. Some attempters in both groups had a brief inpatient psychiatric stay prior to receiving outpatient care. The remainder were provided with an outpatient appointment at the local mental health center. Follow-up time: 3 months</td>
<td>Number of participants who were lost to follow-up or dropped out: 7 Percentage of participants who terminated treatment prematurely: In the compliance enhancement group, 42 percent of the families reported stopping treatment prematurely compared with 52 percent in the standard core group. This difference was not statistically significant.</td>
<td></td>
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<tr>
<td>Stewart et al., 2009 Australia Outpatient RCT</td>
<td>Type of participants: People who have attempted suicide Female: 53 percent Age: 20–58 Marital status: NR Military population: Civilian Comorbidities: NR History of suicide attempts: NR Eligibility criteria: People with a recent suicide attempt and reported suicidal intent, over the age of 18, without intellectual disability or a current manic or psychotic illness Unit of randomization: Patient Number of participants: 32</td>
<td>Intervention Category/type: Psychotherapy: CBT Description: Seven weekly one-hour sessions of CBT administered by the researcher Target: Person who attempted suicide Comparator Usual care Problem-solving therapy Treatment as usual 4 weekly 1-hour sessions of problem-solving therapy administered by the researcher provides participants with skills to find more positive solutions to stressors, feel less hopeless, and choose solutions other than suicide Suicide attempters Follow-up time: 2 months</td>
<td>Uptake Number of participants who agreed to enroll: 98/241 of the eligible participants agreed to enroll Retention Number of participants who completed the intervention: 11</td>
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| **Sturm et al., 2012**  
Germany  
Hiking plus TAU  
RCT | **Type of participants:** People who have attempted suicide  
**Female:** 70 percent  
**Age:** 45.1 (10.4) Group 1, 41 (6.3) Group 2  
**Marital status:** NR  
**Military population:** Civilian  
**Comorbidities:** NR  
**History of suicide attempts:** 70 percent Group 1 and 50 percent Group 2 had two or more suicide attempts  
**Eligibility criteria:** Patients with a high suicide risk (defined as at least one reported previous suicide attempt), a current BHS sum score of >26; living no more than 50 km away from Salzburg (the place of the study) and a minimum age of 18; patients with coronary heart disease, cognitive impairments, and insufficient German skills were excluded.  
**Unit of randomization:** Patient  
**Number of participants:** 20 | **Intervention**  
**Category/type:** Other intervention: Hiking  
**Description:** Interventions consisted of a nine-week monitored hiking program. Three hikes (on Mondays, Wednesdays, and Fridays) were offered each week. Participants were invited to participate at least twice per week. Each hike lasted 2–3 hours and occurred at an intensity of 65–75 percent according to the Karvonen formula.  
**Target:** Person who attempted suicide  
**Comparator**  
No intervention (no wait list)  
In the control phase, the participants were not given special guidelines other than what they would be normally doing, in addition to their usual psychopharmacological and psychotherapeutic therapy.  
**Follow-up time:** 2 months | **Uptake**  
NR  
**Retention**  
NR |
| **Sun et al., 2014**  
Taiwan  
Either in hospital or at home  
RCT | **Type of participants:** Family members  
**Female:** 61 percent  
**Age:** 45.4 (13.4)  
**Marital status:** 55 percent  
**Military population:** Civilian  
**Comorbidities:** NR  
**History of suicide attempts:** 19 percent of the patients had more than three suicide attempts  
**Eligibility criteria:** Participants had to be older than 18 years old, be the primary caregiver, and caring for individuals who had previously attempted suicide or had suicidal tendencies for at least two weeks; participants having had mental impairments that would affect their | **Intervention**  
**Category/type:** Psychoeducation: Suicide education intervention  
**Description:** Suicide care educational intervention with guidance of suicide education handbook. The intervention included two hours of formal personal instruction using the suicide education handbook, and two individual follow-up consultations by telephone with a family researcher or research assistant  
**Target:** Person who attempted suicide  
**Comparator**  
Usual care  
Suicide education handbook and two follow-up consultations | **Number of participants who agreed to enroll:** 176/256 of the eligible participants agreed to enroll  
**Number of participants who completed the intervention:** 51 |
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<tr>
<td><strong>Tiihonen et al., 2006</strong>&lt;br&gt;Finland&lt;br&gt;National registry&lt;br&gt;Controlled study</td>
<td><strong>Type of participants:</strong> People who have attempted suicide&lt;br&gt;Female: 51 percent&lt;br&gt;Age: 38.8(15.5)&lt;br&gt;Marital status: NR&lt;br&gt;Military population: Civilian&lt;br&gt;Comorbidities: NR&lt;br&gt;History of suicide attempts: 0.12(0.63)&lt;br&gt;Eligibility criteria: Individuals without psychosis who were hospitalized with a diagnosis of suicide attempt.&lt;br&gt;Unit of randomization: NA&lt;br&gt;Number of participants: 15,390</td>
<td><strong>Intervention</strong>&lt;br&gt;<strong>Category/type:</strong> Medication: Antidepressant&lt;br&gt;<strong>Description:</strong> Monotherapy with antidepressants including tricyclic antidepressants (TCA; amitriptyline or doxepin hydrochloride), selective serotonin reuptake inhibitors (SSRI; fluoxetine, citalopram hydrobromide, paroxetine hydrochloride, sertraline, or fluvoxamine maleate), and SNA (mianserin hydrochloride, mirtazapine, or venlafaxine hydrochloride).&lt;br&gt;<strong>Target:</strong> Person who attempted suicide&lt;br&gt;<strong>Comparator</strong>&lt;br&gt;No antidepressant use</td>
<td><strong>Follow-up time:</strong> 3 months&lt;br&gt;<strong>Uptake</strong>&lt;br&gt;NR&lt;br&gt;<strong>Retention</strong>&lt;br&gt;NR</td>
</tr>
<tr>
<td><strong>Toffol et al., 2015</strong>&lt;br&gt;Finland&lt;br&gt;National registry data&lt;br&gt;Controlled study</td>
<td><strong>Type of participants:</strong> People who have attempted suicide&lt;br&gt;Female: 55 percent&lt;br&gt;Age: 41.7(12.8)&lt;br&gt;Marital status: NR&lt;br&gt;Military population: Civilian&lt;br&gt;Comorbidities: Bipolar disorder: 100 percent&lt;br&gt;History of suicide attempts: NR&lt;br&gt;Eligibility criteria: Individuals who were hospitalized in Finland because of a suicide attempt between January 1, 1996, and December 31, 2003, and in prospective screening had been hospitalized due to bipolar disorder before the index attempt.&lt;br&gt;Unit of randomization: NA&lt;br&gt;Number of participants: 826</td>
<td><strong>Intervention</strong>&lt;br&gt;<strong>Category/type:</strong> Medication: Lithium&lt;br&gt;<strong>Description:</strong> Use of lithium, antipsychotics, valproic acid, antidepressants, and benzodiazepines alike following index suicide attempt.&lt;br&gt;<strong>Target:</strong> Person who attempted suicide&lt;br&gt;<strong>Comparator</strong>&lt;br&gt;No lithium</td>
<td><strong>Follow-up time:</strong> 42 months&lt;br&gt;<strong>Uptake</strong>&lt;br&gt;NR&lt;br&gt;<strong>Retention</strong>&lt;br&gt;NR</td>
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| Vaiva et al., 2006 | **Type of participants:** People who have attempted suicide  
**Female:** 71 percent control, 78 percent telephone contact, 72 percent telephone contact at three months  
**Age:** 38(12) telephone contact at one month, 35(11) telephone contact at three months, 35(11) control  
**Marital status:** 51 percent control, 54 percent telephone contact at one month, 45 percent telephone contact at three months  
**Military population:** Civilian  
**Comorbidities:** Painful disease: 11 percent control, 11 percent intervention; chronic disorder: 13 percent control, 19 percent intervention  
**History of suicide attempts:** 9 percent telephone contact at three months, 9 percent telephone contact at one month, 9 percent control group had > four suicide attempts in past three years.  
**Eligibility criteria:** Participants had to be between 18 and 65 and had attempted suicide by drug overdose, had been examined by a psychiatrist who agreed to their discharge from the emergency department; homeless patients and those addicted to illegal drugs were excluded.  
**Unit of randomization:** Patient  
**Number of participants:** 605 | **Intervention**  
**Category/type:** Outreach  
**Description:** The intervention consisted of psychiatrists contacting participants by telephone at one or three months after discharge from an emergency department to enhance compliance with treatment and to provide brief crisis intervention when needed.  
**Target:** Person who attempted suicide  
**Comparator**  
Usual care  
Treatment as usual; no telephone contact  
Suicide attempters  
**Follow-up time:** 13 months | **Uptake**  
Number of participants who agreed to enroll: 605/842 of the eligible participants agreed to enroll | **Retention**  
Number of the intervention participants who completed the intervention: 204  
204/293 of the intervention participants completed the intervention |
| Gruat et al., 2010 | University Hospital Lille, 2015  
NCT01123174  
France  
Remote  
RCT | Type of participants: People who have attempted suicide  
**Female:** 63 percent  
**Age:** 38.3(13.3)  
**Marital status:** NR  
**Military population:** Civilian  
**Comorbidities:** Major Depressive Disorder: 48.7 percent, Dysthymia: 10.4 percent, Mania/hypomania: 3.6 percent, Panic disorder: 11.1 percent, Social phobia: 4.5 percent, Posttraumatic | |
stress disorder: 7.6 percent, Eating disorder: 4.8 percent, Generalized anxiety disorder: 13.8 percent

**History of suicide attempts:** 54.2 percent = one suicide attempt, 26.8 percent = two suicide attempts, 12.3 percent = three suicide attempts, 6.7 percent = more than three suicide attempts

**Eligibility criteria:** Patients, 18 years or older, who had survived a suicide attempt with suicide intent that had occurred within the previous seven days and had to be contactable by phone for 13 months; those without suicide intent, who were homeless, were under guardianship, or presented with four or more suicide attempts in the past three years were excluded.

**Unit of randomization:** Patient

**Number of participants:** 1,040

---

**Type of participants:** People who have attempted suicide

Female: 66 percent

**Age:** 35.8 (15.6) intervention, 36.8 (14.6) control

**Marital status:** 32 percent intervention, 25 percent control

**Military population:** Civilian

**Comorbidities:** Mood disorder: intervention 27.9 percent, control 35.8 percent; adjustment disorder: intervention 17.9 percent, control 11.4 percent

**History of suicide attempts:** 48.9 percent intervention and 25.2 percent control had more than 1 previous suicide attempt

**Eligibility criteria:** All patients over 15 years of age attending Utrecht University Hospital between January 1993 and March 1995 for somatic treatment of the consequences of a suicide attempt. Patients displaying

**Intervention**

**Category/type:** Psychoeducation

**Description:** Treatment consisted of a short period of admission ranging from one to four days to a small unit with four beds and nursing staff trained and supervised to provide a supportive milieu for suicide attempters.

**Target:** Person who attempted suicide

**Comparator**

Usual care

Routine clinical service, could consist of all currently available alternative treatments.

**Follow-up time:** 12 months

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**van der Sande et al., 1997**

**van der Sande, Buskens, and van der Graaf, 1998**

**Netherlands**

**Inpatient RCT**

**Number of participants who agreed to enroll:** 274/336 of the eligible participants agreed to enroll

**Retention**

NR
<table>
<thead>
<tr>
<th>Study Details</th>
<th>Participants</th>
<th>Intervention and Comparator</th>
<th>Uptake and Retention</th>
</tr>
</thead>
</table>
| Verkes et al., 1998 | **Type of participants:** People who have attempted suicide  
**Female:** 59 percent  
**Age:** 34.1 (11.6) intervention, 37.1 (13) control  
**Marital status:** NR  
**Military population:** Civilian  
**Comorbidities:** Dysthymia: 7 percent; anxiety disorder: 4 percent; dissociative disorder: 9 percent; alcohol abuse: 44 percent; adjustment disorder: 21 percent; major depressive disorder: 25 percent  
**History of suicide attempts:** 35 percent intervention and 27 percent control had five or more suicide attempts.  
**Eligibility criteria:** Suicide attempters who had at least one previous suicide attempt, were 18 years or older, did not have a major affective disorder, psychotic disorders, substance abuse disorder, and did not use antidepressants or antipsychotics.  
**Unit of randomization:** Patient  
**Number of participants:** 274 | **Intervention**  
**Category/type:** Medication: Paroxetine  
**Description:** Paroxetine (20 mg/day) for one week followed up 40 mg/day for up to 52 weeks, and supportive psychotherapy was offered on a weekly basis.  
**Target:** Person who attempted suicide  
**Comparator**  
Placebo  
Placebo plus supportive psychotherapy was offered on a weekly basis. | **Uptake**  
**Number of participants who agreed to enroll:** 91/145 of the participants who met inclusion criteria agreed to enroll  
**Retention**  
**Number of participants who dropped out before 52 weeks:** 35 |
| Brent et al., 2009; National Institute of Mental Health (NIMH),| **Type of participants:** People who have attempted suicide  
**Female:** 77 percent  
**Age:** 15.7 (1.5) | **Intervention**  
**Category/type:** Psychotherapy: Cognitive behavioral therapy | **Uptake**  
**NR**  
**Retention** |
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<th>Study Details</th>
<th>Participants</th>
<th>Intervention and Comparator</th>
<th>Uptake and Retention</th>
</tr>
</thead>
</table>
| 2004; Stanley et al., 2009  
NCT00080158  
USA  
Outpatient  
Controlled study | **Marital status:** NR  
**Military population:** Civilian  
**Comorbidities:** Anxiety disorder: 54 percent; ADHD: 21 percent; ODD/CD: 15.3 percent  
**History of suicide attempts:** 43.6 percent had a history of multiple suicide attempts  
**Eligibility criteria:** Age 12–18 years, suicide attempt in the last 90 days, met current criteria for major depressive disorder, dysthymic disorder, or depressive disorder not otherwise specified, on the Schedule for Affective Disorders and Schizophrenia for School-Age Children–Present and Lifetime Version, and had a score of 36 or greater on the Children’s Depression Rating Scale–Revised (CDRS-R).  
**Unit of randomization:** NA  
**Number of participants:** 124 | **Description:** Six months of up to 22 sessions of manualized cognitive behavioral therapy with focus on suicide prevention, including both individual and parent-youth session, and antidepressant pharmacotherapy.  
**Target:** Person who attempted suicide and family member(s) | **Number who dropped out prior of the end of the 24-week study:** 27/93 of participants dropped out |
| Wang et al., 2016  
Taiwan  
Case management plus six-week coping card training sessions  
RCT | **Type of participants:** People who have attempted suicide  
**Female:** 73 percent  
**Age:** 37.95(11.07)  
**Marital status:** 30 percent  
**Military population:** Civilian  
**Comorbidities:** 60.9 percent had a psychiatric history  
**History of suicide attempts:** 36 percent  
**Eligibility criteria:** Reported for case management services following attempted suicide during January 2012 to December 2012, resided in Chia-Yi City, and were able to sufficiently read Chinese in order to understand the coping cards; participants were excluded if they had moved to other cities; refused to visit three times; or recipient unknown, hospitalized, or imprisoned for a month or more. | **Intervention**  
**Category/type:** Psychoeducation  
**Description:** There were four major components included in the crisis coping card interventions: self-awareness of suicide ideation, coping strategies with suicide ideation by emotion regulation including shifting attention and engaging in enjoyable activities, help-seeking resources, and a 24-hour crisis hotline telephone number and local medical information. The duration of the treatment was three months, which included six-week coping card training program.  
**Target:** Person who attempted suicide | **Number of participants who agreed to enroll:** 67/78 of the eligible participants agreed to enroll |
|  | **Comparator**  
Usual care  
Treatment as usual included ordinary case management services, which | **Retention**  
**Number of participants who dropped out:** 1 |
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<th>Intervention and Comparator</th>
<th>Uptake and Retention</th>
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</thead>
</table>
| Wei et al., 2013 China Outpatient and telephone RCT | Type of participants: People who have attempted suicide  
Female: 76 percent  
Age: 31.41 (11.95) intervention, 34.06 (15.84) active comparator, 32.12 (13.87) control  
Marital status: 44 percent  
Military population: Civilian  
Comorbidities: DSM-IV-TR Axis I disorders: 69.46 percent  
Eligibility criteria: Having made a suicide attempt; over 15 years old; had at least one contact person to enable follow-up; were able to understand the study procedures and agreed to provide written informed consent; only the first episode was considered for all enrolled patients.  
Unit of randomization: Patient  
Number of participants: 239 | Intervention  
Category/type: Psychotherapy: Cognitive therapy  
Description: Cognitive therapy (ten 45- to 60-minute individual therapy sessions provided by a psychotherapist on a weekly, biweekly, or as-needed basis over three months).  
Target: Person who attempted suicide  
Comparator  
Usual care  
Telephone support  
No intervention except the necessary psychotropic medication if a psychiatrist advised and clinical conditions indicated  
Telephone intervention (12 weekly phone calls of 20–40 minutes provided by professors providing support and advice over three months).  
Suicide attempters | Uptake  
Number of participants who agreed to enroll: 239/330 of the eligible participants agreed to enroll  
Retention  
Number of participants who dropped out of the intervention: 57 |
| Welu, 1977 Welu and Picard, 1974 USA Outpatient RCT | Type of participants: People who have attempted suicide  
Female: NR  
Age: NR  
Marital status: NR  
Military population: Civilian  
Comorbidities: NR  
History of suicide attempts: NR | Intervention  
Category/type: Psychoeducation  
Description: A team of nurses, social workers, and community workers provided treatment depending on the needs of the participants weekly or biweekly for four months, including face-to-face and telephone consultation.  
Target: Person who attempted suicide | Uptake  
Number of participants who received first therapy contact: 57  
Retention  
NR |
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<th>Intervention and Comparator</th>
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</thead>
</table>
| Xu et al., 2012 | Eligibility criteria: Participants presenting to the emergency room for a suicide attempt, older than age 16, did not reside in either university housing or a caregiving institution.  
Unit of randomization: Patient  
Number of participants: 120 | Comparator  
Usual care  
Treatment as usual  
Follow-up time: 4 months | Uptake  
Number of participants who agreed to enroll: 115/115 of the eligible participants agreed to enroll  
Retention  
NR |
| China  
Emergency department intervention and home visits  
RCT | Type of participants: People who have attempted suicide  
Female: 68 percent  
Age: 37.5 (14.3) intervention, 32.8 (13.5) control  
Marital status: NR  
Military population: Civilian  
Comorbidities: Depressive disorder 21 percent; bipolar disorder: 1 percent; schizophrenia: 5 percent; mental retardation: 2 percent; psychosexual disorder: 1 percent; psychosexual addiction: 1 percent  
History of suicide attempts: NR  
Eligibility criteria: Suicide attempters who were treated in emergency room of a rural general hospital.  
Unit of randomization: Patient  
Number of participants: 115 | Intervention  
Category/type: Psychoeducation  
Description: One-hour individual psychosocial education in emergency department followed by six home visits over 18 months.  
Target: Person who attempted suicide  
Comparator  
Usual care  
Debriefing at the emergency department  
Follow-up time: 18 months | |

NOTE: NR = not reported.
Table B.2. Risk of Bias

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<th>Selection Bias and Confounding</th>
<th>Performance Bias/Blinding of Participants and Personnel</th>
<th>Detection Bias/Blinding of Outcome Assessment</th>
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Appendix C. Excluded Studies and Background Literature

This appendix provides citations for all the studies excluded at the full text review stage and for the identified background literature.

Excluded Studies

“Anti-Inflammatory Treatment to Decrease Suicidality in Patients with a Recent Suicide Attempt and a Depressive Disorder,” clinical trial, EUCTR2010-021024-10-SE, April 19, 2011.  
Outcome


ACTRN12605000210673, “Comparing Problem Solving Therapy, Cognitive-Behaviour Therapy and Treatment as Usual, in Clients with a Past Suicide Attempt to Decrease the Likelihood of a Future Suicide Attempt,” 2005. Outcome

ACTRN12605000337673, “Problem Solving Therapy After Attempted Suicide,” 2005. Outcome


ACTRN12605000743662, “Psychotherapeutic Intervention for Suicide Attempters: A Randomized Controlled Study,” 2005. Outcome

ACTRN12605000789662, “Post Discharge Care for High-Risk Psychiatric Patients,” 2005. Outcome

ACTRN12607000114448, “Multisite Intervention Study on Suicidal Behaviours (SUPRE-MISS),” 2007. Outcome

ACTRN12616000266460, “A Feasibility Study of a Text Message Brief Intervention Following a Suicide Attempt,” 2016. Outcome


Andreasson, Kate, Jesper Krogh, Christina Wenneberg, Helle K. L. Jessen, Kristine Krakauer, Christian Gluud, Rasmus R. Thomsen, Lasse Randers, and Merete Nordentoft, “Effectiveness of Dialectical Behavior Therapy Versus Collaborative Assessment and Management of Suicidality Treatment for Reduction of Self-Harm in Adults with Borderline Personality Traits and Disorder—A Randomized Observer-Blinded Clinical Trial,” Depression and Anxiety, Vol. 33, No. 6, June 2016, pp. 520–530. Duplicate


Aresman, Ella, Carmel McAuliffe, Paul Corcoran, and Ivan J. Perry, “‘Randomized Controlled Trial of Brief Cognitive Behaviour Therapy Versus Treatment as Usual in Recurrent Deliberate Self-Harm: The POPMACT Study’: Comment,” Psychological Medicine, Vol. 34, No. 6, 2004, pp. 1143–1144. Study design


Asarnow, Joan, “Family Based Intervention for Adolescent Suicide Attempters,” clinical trial, CN-00875941, 2006. Study design


Assistance Publique—Hôpitaux de Paris, “Effectiveness of a 24 Hour Phone Line on the Rate of Suicide Attempts in Borderline Patients,” clinical trial, NCT00603421, last updated February 25, 2016. *Participants*


Aursnes, Ivar, Ingunn Fride Tvete, Jorund Gaasemyr, and Bent Natvig, “Even More Suicide Attempts in Clinical Trials with Paroxetine Randomised Against Placebo,” *BMC Psychiatry*, Vol. 6, 2006, article 55. *Participants*


Bales, Dawn, Nicole van Beek, Maaike Smits, Sten Willemsen, Jan J. V. Busschbach, Roel Verheul, and Helene Andrea, “Treatment Outcome of 18-Month, Day Hospital Mentalization-Based Treatment (MBT) in Patients with Severe Borderline Personality Disorder in the Netherlands,” *Journal of Personality Disorders*, Vol. 26, No. 4, August 2012, pp. 568–582. *Participants*


Barnhofer, Thorsten, Catherine Crane, Kate Brennan, Danielle S. Duggan, Rebecca S. Crane, Catrin Eames, Sholto Radford, Sarah Silverton, Melanie J. V. Fennell, and J. Mark G. Williams, “Mindfulness-Based Cognitive Therapy (MBCT) Reduces the Association Between Depressive Symptoms and Suicidal Cognitions in Patients with a History of Suicidal Depression,” *Journal of Consulting and Clinical Psychology*, Vol. 83, No. 6, December 2015, pp. 1013–1020. *Participants*


Beijing HuiLongGuan Hospital, Suicide Prevention International, Harvard University, University of Rochester, People’s Hospital of Yucheng County, and Bureau of Health of Ji County, “Socio-Educational Intervention for Rural Suicide Attempters,” clinical trial, NCT00808873, last updated December 16, 2008. *Outcome*

Beijing HuiLongGuan Hospital, Suicide Prevention International, Harvard University, University of Rochester, People’s Hospital of Yuncheng County, and Bureau of Health of Ji County, “Socio-Educational Intervention for Rural Suicide Attempters,” clinical trial, NCT00808873, last updated December 16, 2008. *Outcome*


Berrouiguet, Sofian, Mark Erik Larsen, Catherine Mesmeur, Michel Gravey, Romain Billot, Michel Walter, Christophe Lemey, and Philippe Lenca, “Toward mHealth Brief Contact Interventions in Suicide Prevention: Case Series from the Suicide Intervention Assisted by Messages (SIAM) Randomized Controlled Trial,” *JMIR mHealth uHealth*, Vol. 6, No. 1, January 10, 2018, e8. *Participants*

**Outcome**


**Duplicate**


Bliokas, Vida V., Alex R. Hains, Jonathan A. Allan, Luise Lago, and Rebecca Sng, “Community-Based Aftercare Following an Emergency Department Presentation for Attempted Suicide or High Risk for Suicide: Study Protocol for a Non-Randomised Controlled Trial,” *BMC Public Health*, Vol. 19, No. 1, October 26, 2019, article 1380. *Study design*


Boston Children’s Hospital and American Foundation for Suicide Prevention, “Brief Alcohol Intervention for Adolescents Who Have Attempted Suicide,” clinical trial, NCT02426957, last updated July 24, 2018. **Duplicate**

Boston Children’s Hospital, “Brief Alcohol Intervention for Adolescents Who Have Attempted Suicide,” clinical trial, NCT02426957, last updated July 24, 2018. **Intervention**


Brown University and Butler Hospital, “Coping Long Term with Attempted Suicide—Adolescents (CLASP-A),” clinical trial, NCT01748760, last updated January 13, 2017. *Participants*

Brown University and National Institute of Mental Health, “Concurrent Treatment for Depressed Parents and Depressed Adolescents,” clinical trial, NCT00951821, last updated August 31, 2015. *Participants*


Bryan, Craig J., Alan L. Peterson, and M. David Rudd, “Differential Effects of Brief CBT Versus Treatment as Usual on Posttreatment Suicide Attempts Among Groups of Suicidal Patients,” Psychiatric Services, Vol. 69, No. 6, June 2018, pp. 703–709. Participants


Centre for Addiction and Mental Health, Institutes of Health Research, and Unity Toronto, “Hope for the Chronically Suicidal Patient,” clinical trial, NCT00154154, last updated December 12, 2012. **Participants**

Centre for Addiction and Mental Health, Canadian Institutes of Health Research, and Simon Fraser University, “DBT for Chronically Self-Harming Individuals with BPD: Evaluating the Clinical and Cost Effectiveness of a 6 Mo. Treatment (FASTER-DBT),” clinical trial, NCT02387736, last updated January 7, 2021. **Participants**

Centre for Addiction and Mental Health, “Magnetic Seizure Therapy for the Treatment of Borderline Personality Disorder,” clinical trial, NCT03361826, last updated January 26, 2021. **Outcome**


Centre Hospitalier Universitaire de Nimes, “Cognitive Behavioural Group Therapy Versus Individual Supportive Therapy for the Prevention of Repeat Suicide Attempts (G-PACTS),” clinical trial, NCT02664701, last updated January 27, 2022. **Outcome**


Children’s Hospital of Philadelphia and American Foundation for Suicide Prevention, “Family Therapy as Hospital Aftercare for Adolescent Suicide Attempters,” clinical trial, NCT01195740, last updated December 17, 2012. *Outcome*

Children’s Hospital of Philadelphia and American Foundation for Suicide Prevention, “Family Therapy as Hospital Aftercare for Adolescent Suicide Attempters,” clinical trial, NCT01195740, last updated December 17, 2012. *Outcome*

Children’s Hospital of Philadelphia and American Foundation for Suicide Prevention, “Family Therapy as Hospital Aftercare for Adolescent Suicide Attempters,” clinical trial, NCT01195740, last updated December 17, 2012. *Participants*


Cleveland Clinic and Case Western Reserve University, “Promote Access to Stop Suicide: Comparison of Follow Up Services for Youth at Risk for Suicide,” clinical trial, NCT03016572, last updated September 14, 2021. *Participants*


Cooper, Jayne, Cheryl Hunter, Amanda Owen-Smith, David Gunnell, Jenny Donovan, Keith Hawton, and Navneet Kapur, “‘Well It’s Like Someone at the Other End Cares About You.’ A Qualitative Study Exploring the Views of Users and Providers of Care of Contact-Based Interventions Following Self-Harm,” *General Hospital Psychiatry*, Vol. 33, No. 2, March–April 2011, pp. 166–176. *Participants*


Participants


Coupland, Carol, Trevor Hill, Richard Morriss, Antony Arthur, Michael Moore, and Julia Hippsley-Cox, “Antidepressant Use and Risk of Suicide and Attempted Suicide or Self Harm in People Aged 20 to 64: Cohort Study Using a Primary Care Database,” *BMJ*, Vol. 350, February 18, 2015, h517. Participants


Participants


Participants


Participants


Department of Veterans Affairs Office of Research and Development, Columbia University, and Rutgers University, “Mindfulness-Based Cognitive Therapy for Suicide Prevention (MBCT-S),” clinical trial, NCT01872338, last updated May 5, 2020. *Participants*


Ducasse, Déborah, Déborah Dassa, Philippe Courtet, Véronique Brand-Arpon, Audrey Walter, Sébastien Guillaume, Isabelle Jaussent, and Emilie Olié, “Gratitude Diary for the Management of Suicidal Inpatients: A Randomized Controlled Trial,” Depression and Anxiety, Vol. 36, No. 5, May 2019, pp. 400–411. Participants


Duke University; UConn Health; University of North Carolina, Chapel Hill; and University of North Carolina, Greensboro, “Relapse Prevention for Suicidal Dually Diagnosed Youths,” clinical trial, NCT00589641, July 10, 2014. Outcome

Ekeberg, O., “[Psychological Treatment in Attempted Suicide],” Tidsskr Nor Laegeforen, Vol. 121, No. 29, November 30, 2001, p. 3367. Study design

Eli Lilly and Company, “Antidepressant Drug Exposure and Risk of Suicide Attempt Resulting in Medical Intervention in US Adults,” clinical trial, NCT00763724, last updated March 10, 2010. Intervention


Evidence-Based Practice Institute, Mayo Clinic, Allina Health, Aurora Health Care, Harborview Injury Prevention and Research Center, and Catholic University of America, “CAMS Relational Agent System (CAMS-RAS) for Suicide Prevention,” clinical trial, NCT03584386, last updated April 21, 2021. *Outcome*


Finnish Association for Mental Health, “Brief Psychotherapeutic Interventions for Suicide Attempters,” clinical trial, ISRCTN13464512, last updated January 21, 2022. *Outcome*


Greenhill, L., “Treatment of Adolescent Suicide Attempters (TASA),” Cochrane Central Register of Controlled Trials, CN-00497135, 2004. Duplicate


Grupp-Phelan, Jacqueline, Leslie McGuire, Mathilde M. Husky, and Mark Olfson, “A Randomized Controlled Trial to Engage in Care of Adolescent Emergency Department Patients with Mental Health Problems That Increase Suicide Risk,” Pediatric Emergency Care, Vol. 28, No. 12, December 2012, pp. 1263–1268. Participants


Gunnell, David, Julia Saperia, and Deborah Ashby, “Selective Serotonin Reuptake Inhibitors (SSRIs) and Suicide in Adults: Meta-Analysis of Drug Company Data from Placebo Controlled, Randomised Controlled Trials Submitted to the MHRA’s Safety Review,” *BMJ*, Vol. 330, No. 7488, February 19, 2005, p. 385. *Participants*


Harbin Medical University, “Research on Suicidal Ideation of University Students in Harbin City and Cognitive Behavior Therapy,” clinical trial, NCT00575575, last updated February 26, 2009. 


Duplicate


Henry M. Jackson Foundation for the Advancement of Military Medicine, U.S. Department of Veterans Affairs, Duke University, University of Michigan, University of Pennsylvania, Walter Reed National Military Medical Center, and Fort Belvoir Community Hospital, “Post Admission Cognitive Therapy (PACT) for the Inpatient Treatment of Military Personnel with Suicidal Behaviors,” clinical trial, NCT01359761, last updated February 19, 2020. *Outcome*


Hetrick, Sarah E., Hok P. Yuen, Eleanor Bailey, Georgina R. Cox, Kate Templer, Simon M. Rice, Sarah Bendall, and Jo Robinson, “Internet-Based Cognitive Behavioural Therapy for Young People with Suicide-Related Behaviour (Reframe-IT): A Randomised Controlled Trial,” Evidence-Based Mental Health, Vol. 20, No. 3, August 2017, pp. 76–82. Participants


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Ilgen, Mark A., Alex H. S. Harris, Rudolf H. Moos, and Quyen Q. Tiet, “Predictors of a Suicide Attempt One Year After Entry into Substance Use Disorder Treatment,” *Alcoholism: Clinical and Experimental Research*, Vol. 31, No. 4, April 2007, pp. 635–642. *Participants*


Ilgen, Mark A., Quyen Tiet, John W. Finney, and Alex H. S. Harris, “Recent Suicide Attempt and the Effectiveness of Inpatient and Outpatient Substance Use Disorder Treatment,” *Alcoholism: Clinical and Experimental Research*, Vol. 29, No. 9, September 2005, pp. 1664–1671. *Participants*


IntruSt Post-Traumatic Stress Disorder Traumatic Brain Injury Clinical Consortium, U. S. Army Medical Research Materiel Command, Medical University of South Carolina, Ralph H. Johnson V.A. Medical Center, Walter Reed National Military Medical Center, and University of California San Diego, “Transcranial Magnetic Stimulation (TMS) for Suicidal Ideation,” NCT01212848, March 2013. *Participants*

Iran University of Medical Sciences, “Preventive Interventions Effect of Social Emergency and Telephone Follow Up Services on Suicidal Behaviors,” clinical trial, IRCT2013050813273N1, 2014. **Outcome**

IRCT20090304001742N2, “The Effect of Group Reminiscence Therapy on Young Adults with a History of Suicide Attempt,” clinical trial, 2018. **Outcome**

IRCT2014110419806N1, “The Effect of Follow Up in Prevention of Another Suicide in People with Recurrent Attempt,” clinical trial, 2015. **Outcome**


Isfahan University of Medical Sciences, “The Efficacy of Telephone Follow Up in Prevention of Recurrent Suicidal Attempt in Patient with Suicidal History Attended to Poisoning Emergency and Comparison with Control Group,” clinical trial, IRCT201109082232N3, 2012. **Outcome**


Intervention


Participants


Study design


Outcome


Participants


Participants


Participants


Participants


Participants


Participants

Participants


Lady Davis Institute, “Mindfulness Based Cognitive Therapy for Depression and Cognitive Inhibition in Suicide,” clinical trial, NCT02954250, last updated September 10, 2020. *Participants*


Participants


Louisville VA Medical Center and University of Louisville, “Teachable Moment Brief Intervention for Veterans Following a Suicide Attempt,” clinical trial, NCT03533075, last updated September 11, 2020. Outcome


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MacLeod, Andrew K., Philip Tata, Kathryn Evans, Peter Tyrer, Ulrike Schmidt, Kate Davidson, Susan Thornton, and Jose Catalan, “Recovery of Positive Future Thinking Within a High-Risk Parasuicide Group: Results from a Pilot Randomized Controlled Trial,” *British Journal of Clinical Psychology*, Vol. 37, No. 4, November 1998, pp. 371–379. *Participants*


Massachusetts General Hospital, “Development of a Positive Psychology Intervention to Reduce Suicide Risk,” clinical trial, NCT01398891, last updated March 5, 2013. Outcome

Massachusetts General Hospital, “The Impact of Ketamine on the Reward Circuitry of Suicidal Patients,” clinical trial, NCT02532153, last updated March 3, 2017. Outcome

Mayo Clinic, “Ketamine for Depression and Suicide Risk,” clinical trial, NCT02094898, last updated August 11, 2017. Participants


Meltzer, Herbert Y., Richard Perline, Betty Jo Tricou, Martin Lowy, and Alan Robertson, “Effect of 5-Hydroxytryptophan on Serum Cortisol Levels in Major Affective Disorders. II. Relation to Suicide, Psychosis, and Depressive Symptoms,” *Archives of General Psychiatry*, Vol. 41, No. 4, April 1984, pp. 379–387. Participants

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Mentari, Evelyn K., Marc Stone, and Tarek A. Hammad, “Antiepileptic Drugs and Suicide Attempts in Patients with Bipolar Disorder,” Archives of General Psychiatry, Vol. 67, No. 9, 2010, article 972. Study design


Michigan State University and Brown University, “Suicide Prevention Intervention for At-Risk Individuals in Transition (SPIRIT),” clinical trial, NCT02759172, last updated March 8, 2019. Outcome


Mishara, Brian L., François Chagnon, Marc Daigle, Bogdan Balan, Sylvaine Raymond, Isabelle
Marcoux, Cécile Bardon, Julie K. Campbell, and Alan Berman, “Comparing Models of
Helper Behavior to Actual Practice in Telephone Crisis Intervention: A Silent Monitoring
Study of Calls to the U.S. 1-800-SUICIDE Network,” Suicide and Life-Threatening

Modestin, J., and W. Boker, “[Neuroleptic Therapy and Suicide—Review of the Literature and
Personal Results],” Fortschrritte der Neurologie, Psychiatrie, und ihrer Grenzgebiete, Vol.
60, No. 4, April 1992, pp. 154–162. Participants

Modestin, Jiri, Desiree Dal Pian, and Puspa Agarwalla, “Clozapine Diminishes Suicidal
Behavior: A Retrospective Evaluation of Clinical Records,” Journal of Clinical Psychiatry,
Vol. 66, No. 4, April 2005, pp. 534–538. Participants

Psychiatrica Scandinavica Supplementum, Vol. 360, 1990, pp. 69–70. Participants

Möller, H.-J., and E. M. Steinmeyer, “Are Serotonergic Reuptake Inhibitors More Potent in
Reducing Suicidality? An Empirical Study on Paroxetine,” European
Neuropsychopharmacology, Vol. 4, No. 1, March 1994, pp. 55‐59. Participants

Montagnon, F., S. Saïd, and J. P. Lepine, “Lithium: Poisonings and Suicide Prevention,”

Participants

Montross Thomas, Lori P., Lawrence A. Palinkas, Emily A. Meier, Alana Iglewicz, Tabitha
Kirkland, and Sidney Zisook, “Yearning to Be Heard: What Veterans Teach Us About
design

Morey, Leslie C., Sara E. Lowmaster, and Christopher J. Hopwood, “A Pilot Study of Manual-
Assisted Cognitive Therapy with a Therapeutic Assessment Augmentation for Borderline
Participants

111-112. Participants


**Outcome**


National Health Service Research and Development Regional Programme Register, Department of Health, “Pilot Study of the Efficacy of a Psychosocial Intervention for Frequent Parasuicide Attempters with Personality Disturbance,” clinical trial, ISRCTN28223466, last updated January 13, 2015. **Participants**

National Science Council (Taiwan), “Effect of Psychosocial Treatment by a Case Manager in Patients After a Suicide Attempt,” clinical trial, ISRCTN87018843, last updated January 13, 2015. **Outcome**

National Taiwan University Hospital and Academia Sinica, Taiwan, “The Effect of a Brief Psychological Intervention on Reducing Self-Harm Repetition: Feasibility Study,” clinical trial, NCT03376113, last updated December 18, 2017. **Participants**

National Taiwan University Hospital, “The Effectiveness of Interactive Discussion Group Intervention About Suicide Risk Identification and Assessment for Clinical Nurses,” clinical trial, NCT02033915, last updated January 13, 2014. **Outcome**

National Taiwan University Hospital, “The Effectiveness of Interactive Discussion Group Intervention About Suicide Risk Identification and Assessment for Clinical Nurses,” clinical trial, NCT02033915, last updated January 13, 2014. **Participants**

*Participants*


NeuroRx, Target Health, Bracket, and Statistics Collaborative, “NRX101 for Moderate Bipolar Depression and Suicidal Ideation,” clinical trial, NCT03395392, last updated September 8, 2021. *Participants*


New York State Psychiatric Institute and National Institute of Mental Health, “Paroxetine/Bupropion in Depression with Suicide Attempt or Thoughts: fMRI Study,” clinical trial, NCT01748955, last updated November 21, 2017. *Participants*

New York State Psychiatric Institute and National Institute on Alcohol Abuse and Alcoholism, “Fluoxetine and Bupropion to Treat Patients with Depression and Alcoholism,” clinical trial, NCT00449007, last updated August 4, 2021. *Outcome*


Normand, D., S. Colin, V. Gaboulaud, T. Baubet, and O. Taieb, “Garder un lien après l’urgence, dispositif de rappels téléphoniques auprès d’adolescents et de jeunes adultes suicidants [How to Stay in Touch with Adolescents and Young Adults After a Suicide Attempt? Implementation of a 4-Phones-Calls Procedure over 1 year After Discharge from Hospital, in a Parisian Suburb],” *L’Encéphale*, Vol. 44, No. 4, September 2018, pp. 301–307. *Outcome*


Ohio State University and National Institute on Drug Abuse, “Suicide Prevention Among Substance Abusing Homeless Youth,” clinical trial, NCT02576834, last updated September 3, 2019. Outcome


Osakidetza and Eusko Jaurlaritza, “Prevention of Suicidal Behaviour with Telemedicine Techniques,” clinical trial, NCT03043040, last updated April 9, 2018. *Outcome*

Oslo University Hospital, “Long Term Efficacy of DBT-A in Adolescents with Repetitive Self-Harming and Suicidal Behaviours,” clinical trial, NCT01593202, last updated February 25, 2021. *Participants*


Pakistan Institute of Living and Learning, University of Manchester, Dow University of Health Sciences, Karachi Medical and Dental College, Services Hospital, Lahore, and Peshawar Medical College, “Multicenter Study to Evaluate the Clinical and Cost-effectiveness of a Culturally Adapted Therapy (C-MAP),” clinical trial, NCT02742922, last updated February 6, 2018. Outcome

Paracelsus Medical University, “The Effects of Regular Mountain Hiking on Hopelessness in Chronically Suicidal Patients,” clinical trial, NCT01152086, last updated September 23, 2011. Duplicate

Paracelsus Medical University, “The Effects of Regular Mountain Hiking on Hopelessness in Chronically Suicidal Patients (MOHS2010),” clinical trial, NCT01152086, last updated September 23, 2011. Participants


Region Skane, “Diclofenac Add-On to Treatment as Usual for Suicidal Patients,” clinical trial, NCT01413854, last updated January 10, 2019. Outcome


Retterstol, N., “[Treatment of Suicide Attempters in a Somatic Department],” Tidsskr Nor Laegeforen, Vol. 114, No. 20, August 30, 1994, pp. 2370–2371. Study design

Retterstol, N., and B. Strype, “[Personal follow-up investigation of suicide attempters who have been admitted to a psychiatric hospital],” Tidsskr Nor Laegeforen, Vol. 94, No. 8, March 20, 1974, pp. 491–494. Study design


Rihmer, Zoltán, “[Antidepressants, Depression and Suicide],” Neuropsychopharmacology Hungary, Vol. 15, No. 3, September 2013, pp. 157–164. Study design


*Participants*


Shen-Ing, Liu, and National Science Council, Taiwan, “Effect of Psychosocial Treatment by the Case Manager in Patients After a Suicide Attempt,” clinical trial, NCT00664872, last updated January 9, 2014. *Outcome*


Simon, Gregory E., Arne Beck, Rebecca Rossom, Julie Richards, Beth Kirlin, Deborah King, Lisa Shulman, Evette J. Ludman, Robert Penfold, Susan M. Shortreed, and Ursula Whiteside, “Population-Based Outreach Versus Care as Usual to Prevent Suicide Attempt: Study Protocol for a Randomized Controlled Trial,” *Trials*, Vol. 17, No. 1, 2016, article 452. *Participants*


Sundvall, Maria, Dag H. Tidemalm, David E. Titelman, Bo Runeson, and Sofie Bäärnhielm, “Assessment and Treatment of Asylum Seekers After a Suicide Attempt: A Comparative Study of People Registered at Mental Health Services in a Swedish Location,” *BMC Psychiatry*, Vol. 15, October 7, 2015, article 235. *Intervention*

Sunnybrook Health Sciences Centre, “Effect of Ketamine vs. Active Placebo on Suicidal Ideation in Depressed Inpatients with Major Depressive Disorder or Bipolar Depression,” clinical trial, NCT02593643, last updated July 26, 2017. *Participants*


Tel-Aviv Sourasky Medical Center, “Oral Ketamine for Suicidal Ideation,” clinical trial, NCT02037503, 2014. *Outcome*


Tyrer, Peter, Ulrike Schmidt, Kate Davidson, Simon Thompson, Sarah Byford, Martin Knapp, Jose Catalan, and Andrew MacLeod, “‘Randomized Controlled Trial of Brief Cognitive Behaviour Therapy Versus Treatment as Usual in Recurrent Deliberate Self-Harm: The POPMACT Study’: Reply,” Psychological Medicine, Vol. 34, No. 6, August 2004, pp. 1144–1146. Participants


United States Naval Medical Center, San Diego, “A Study to Decrease Suicidal Thinking Using Ketamine,” clinical trial, NCT02418702, last updated September 3, 2019. Participants

University Hospital Center of Martinique; Centre Hospitalier de Monteran, Guadeloupe; Centre Hospitalier Universitaire de Pointe-a-Pitre; Centre Hospitalier de Cayenne; Centre Hospitalier de Ouest Guyanais Franck Joly; Centre d’Accueil Psychiatrique Ouest-Centre, La Réunion; Centre d’Accueil d’Urgences Médico Psychologique, La Réunion; Centre d’Accueil Psychiatrique Nord, La Réunion; and Etablissement Publique de Santé Mentale de la Réunion, “Suicide Prevention Algorithm in the French Overseas Territories,” clinical trial, NCT03427190, last updated January 28, 2021. Outcome

University Hospital, Brest, “Short Message System (SMS) for Caregivers of Suicidal Patients to Prevent Recidivism of Suicide Attempts,” clinical trial, NCT03069560, last updated January 24, 2021. Outcome


University Hospital, Montpellier, “Outpatient Nurse Monitoring Under the Prevention of Recurrent Suicidal,” clinical trial, NCT02721316, last updated April 4, 2020. Outcome

University Hospital, Montpellier, “Positive Psychology in Suicidal Patients (POPS),” clinical trial, NCT02855736, last updated August 4, 2016. Outcome

University Hospital, Montpellier, “Positive Psychology in Suicidal Patients,” clinical trial, NCT02855736, last updated January 21, 2021. Outcome

University Hospital, Montpellier, Chu Marius Lacroix, Chu Gabriel Montpied, Chu Pasteur, Chu Charles Perrens, France Centre Psychothérapique de Nancy, Chu Le Vinatier, Chu Albert Michallon, and Chu Tarnier, “Psychoeducation for Suicidal Behavior (PEPSUI),” clinical trial, NCT03185026, last updated December 15, 2021. Outcome

University Hospital, Montpellier, University of Molise, and EMOTRA-AB, “Electrodermal Hyporeactivity and Depression,” clinical trial, NCT02915757, last updated September 27, 2016. Outcome

University Hospital, Toulouse, “Effectiveness of Standard Emergency Department Psychiatric Treatment Associated with Treatment Delivery by a Suicide Prevention Center,” clinical trial, NCT00641498, last updated March 30, 2015. Outcome

University of Arkansas, “Repetitive Transcranial Magnetic Stimulation as Treatment for Acute Suicidality in Adult Patients (rTMS),” clinical trial, NCT02693743, last updated May 18, 2021. Participants

University of California Davis, and Centers for Disease Control and Prevention, “Men and Providers Preventing Suicide (MAPS),” clinical trial, NCT02986113, last updated October 30, 2019. Outcome

University of California Los Angeles and National Institute of Mental Health, “Effectiveness of a Family-Based Intervention for Adolescent Suicide Attempters (The SAFETY Study),” clinical trial, NCT00692302, last updated June 6, 2013. Participants

University of California, Davis, “ED Treatment of Suicidal Patients with Ketamine Infusion,” clinical trial, NCT03502551, last updated May 1, 2019. Participants

University of California, Los Angeles, and the National Institute of Mental Health, “Effectiveness of a Family-Based Intervention for Adolescent Suicide Attempters (The SAFETY Study),” clinical trial, NCT00692302, last updated June 6, 2013. Participants
University of California, Los Angeles, Kaiser Foundation Research Institute, and University of Washington, “Randomized Trial of Stepped Care for Suicide Prevention in Teens and Young Adults (Step2Health),” clinical trial, NCT03092271, last updated August 13, 2021. **Outcome**

University of California, San Diego, and National Institute of Mental Health, “Development of a Mobile Health Augmented Brief Suicide Prevention Intervention for People with SMI,” clinical trial, NCT03198364, last updated September 5, 2021. **Participants**

University of Cincinnati, “Emergency Ketamine Treatment of Suicidal Ideation,” clinical trial, NCT02183272, last updated August 5, 2016. **Participants**

University of Colorado, Denver, Washington State University, University of New Mexico, and National Institute of Mental Health, “Suicide in Urban Natives: Detection and Networks to Combat Events (SUNDANCE),” clinical trial, NCT03136094, 2017. **Participants**

University of Dublin, Trinity College, Beaumont Hospital, and Royal College of Surgeons, Ireland, “Text Message Intervention to Reduce Repeat Self-Harm,” clinical trial, NCT01823120, last updated September 11, 2014. **Participants**

University of Manchester, Greater Manchester Mental Health NHS Foundation Trust, and Lancaster University, “Cognitive Approaches to Combatting Suicidality (CARMS),” clinical trial, NCT03114917, last updated May 6, 2020. **Participants**


University of Michigan and National Institute of Mental Health, “Peer Mentorship to Reduce Suicide Attempts Among High-Risk Adults,” clinical trial, NCT03373916, last updated July 22, 2021. **Outcome**

University of Michigan and National Institute of Mental Health, “Youth-Nominated Support Team Intervention for Suicidal Adolescents,” clinical trial, NCT00071617, last updated November 11, 2013. **Participants**

University of Michigan and National Institute of Mental Health, “Peer Mentorship to Reduce Suicide Attempts Among High-Risk Adults,” clinical trial, NCT03373916, last updated July 22, 2022. **Outcome**

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## Abbreviations

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<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>CAMS</td>
<td>Collaborative Assessment and Management of Suicidality</td>
</tr>
<tr>
<td>CDSR</td>
<td>Cochrane Database of Systematic Reviews</td>
</tr>
<tr>
<td>CBT</td>
<td>cognitive behavioral therapy</td>
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<tr>
<td>CI</td>
<td>confidence interval</td>
</tr>
<tr>
<td>CINAHL</td>
<td>Cumulative Index to Nursing and Allied Health Literature</td>
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<tr>
<td>DBL</td>
<td>dialectical behavior therapy</td>
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<tr>
<td>DoD</td>
<td>U.S. Department of Defense</td>
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<tr>
<td>EPC</td>
<td>Evidence-Based Practice Center</td>
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<tr>
<td>GRADE</td>
<td>Grading of Recommendations Assessment, Development and Evaluation</td>
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<tr>
<td>HAMD</td>
<td>Hamilton Depression Rating Scale—24-item</td>
</tr>
<tr>
<td>HAM-D17</td>
<td>Hamilton Rating Scale of Depression—17-item</td>
</tr>
<tr>
<td>ICTR</td>
<td>International Clinical Trials Registry Platform</td>
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<tr>
<td>KQ</td>
<td>Key question</td>
</tr>
<tr>
<td>MADRS</td>
<td>Montgomery and Asberg Depression Rating Scale</td>
</tr>
<tr>
<td>MD</td>
<td>mean difference</td>
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<tr>
<td>OR</td>
<td>odds ratio</td>
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<tr>
<td>PACT</td>
<td>Post-Admission Cognitive Therapy</td>
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<tr>
<td>PHCoE</td>
<td>Psychological Health Center of Excellence</td>
</tr>
<tr>
<td>PICOTSS</td>
<td>participants, interventions, comparators, outcomes, timing, settings, and study design</td>
</tr>
<tr>
<td>QoE</td>
<td>quality of the body of evidence</td>
</tr>
<tr>
<td>RCT</td>
<td>randomized controlled trial</td>
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<tr>
<td>RoB</td>
<td>risk of bias</td>
</tr>
<tr>
<td>RR</td>
<td>relative risk</td>
</tr>
<tr>
<td>SBT</td>
<td>Skills-Based Treatment</td>
</tr>
<tr>
<td>SD</td>
<td>standard deviation</td>
</tr>
<tr>
<td>SMD</td>
<td>standardized mean difference</td>
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<tr>
<td>SSRI</td>
<td>selective serotonin reuptake inhibitor</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
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CDC—See Centers for Disease Control and Prevention.


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Following a suicide attempt, components of aftercare can include efforts to reduce suicidal behavior (i.e., suicide, attempt, or ideation) of a person who has attempted suicide and facilitate the psychosocial adjustment of the patient and their family members. The purpose of this systematic review and meta-analysis of key outcomes was to synthesize the existing evidence on interventions for people who have attempted suicide and their family members.

The authors found that aftercare interventions show a statistically significant reduction in further suicide attempts for intervention participants. Studies also reported a reduction in suicide deaths, depression, and hopelessness, but the results are based on limited quality of evidence. The uptake of interventions and treatment retention varied widely by aftercare intervention. The authors could not explore the effects of the intervention target (e.g., participants who attempted suicide versus family members or both) or populations because of the homogeneity of the sample and the lack of studies measuring family member responses. The identified studies did not meaningfully address the effects of interventions on family members because these were rarely included in existing research studies.