Psychotherapeutic Interventions to Prevent Repeated Suicidal Behavior

Paul S. Links, MD, FRCP(C)
Yvonne Bergmans, MSW
Michele Cook, RN

This paper addresses two questions: Can psychotherapeutic interventions prevent repeated suicidal behavior? If so, what are the mechanisms of action that might explain such interventions? Research that focuses on suicidal behaviors as the outcome and uses psychotherapeutic interventions falls into three main areas: problem-solving strategies, treatment of borderline personality disorder, and modifications of hopelessness. Randomized controlled trials demonstrate the efficacy of these approaches, but to understand mechanisms of action, psychotherapy process research will be needed. Models incorporating emotions, perception of safety or validation, and positive emotions are presented. [Brief Treatment and Crisis Intervention 3:445–464 (2003)]

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Suicide attempters are estimated to have a risk of dying from suicide in the first year following their attempt that is more than 66 times the annual risk of suicide in the general population (Hawton, Zahl, & Weatherall, 2003). Approximately 15% of attempters will reattempt suicide within the following year (Schmidtke et al., 1996; van der Sande et al., 1997). Although there is little data on the rates of suicide attempts from community samples, suicide attempts and other forms of self-injury without intent to die are estimated to occur at a rate of 300 persons per 100,000 per year (Linehan, 1997). The most systematic study done in Canada found an overall incidence rate of attempts for those aged 15 years and over of more than 400/100,000 (Bland, Newman, & Dyck, 1994). Given the frequency, morbidity, and mortality associated with suicide attempts, this paper addresses two questions: Can psychotherapeutic interventions prevent repeated suicidal behavior? If so, what are the mechanisms of action that might explain this prevention?
First, a definition of psychotherapy and suicidal behavior will be provided. Second, the evidence based on randomized controlled trials will be discussed demonstrating that psychotherapeutic interventions may prevent repeated suicidal behavior. Finally, the paper will highlight some promising mechanisms of action that might explain how psychotherapeutic interventions would prevent suicidal behavior. An analogy can be drawn between this question and questions that are asked of pharmacologic interventions. Increasingly, evidence exists that lithium and, more recently, clozapine may have specific antisuicidal properties and prevent repeated attempts in individuals at high risk for suicidal behavior (Meltzer et al., 2003; Tondo, Ghiani, & Albert, 2001). Research focusing on these medications may explicate specific biological mechanisms of action in creating this reduction in the suicide rate. In addition to addressing how the targeting of psychological factors by psychotherapeutic interventions may be effective in reducing repeated suicidal behaviors, the current paper hopes to shed light on the etiology of suicide.

Definition of Parameters

For the purposes of our review, the research of interest is randomized controlled trials in which the outcome was suicidal behavior and interventions were targeted at individuals at risk. Though individuals are certainly at risk because of the diagnosis of psychiatric disorders, the specific treatment of these disorders per se is beyond the focus of the present discussion. For our purposes, suicidal behavior is defined as comprising three components: suicide, suicide attempts, and self-injurious behaviors. O’Carroll et al. (1996) defined suicide as self-injurious behavior with a fatal outcome for which there is evidence (either explicit or implicit) that the individual intended at some (nonzero) level to kill him or herself. Simeon and Favazza (2001) defined self-injurious behaviors as all behaviors that involve deliberate infliction of direct physical harm to one’s body with zero intent to die as a consequence of this behavior.

This review focuses specifically on psychotherapeutic interventions. The purpose is to differentiate psychotherapeutic interventions from other types of psychosocial interventions. Psychotherapy, for the purpose of this review, relates to a specific treatment intervention that involves the use of a professional relationship that focuses on specific forms of communication between the client and the therapist. Psychotherapy is a psychological treatment that focuses on psychological concepts in order to create the desired outcome (Ennis, 1998). Based on this definition, specific forms of service delivery including intensive outreach or specialized services are not the focus of this review. For example, so-called “green card” studies have attempted to look at whether easing access to care would reduce the risk of recurrent suicidal behavior. Studies in this regard show some promise (e.g., Gray & Otto, 2001) but are beyond the specific focus of the current paper. Three authoritative reviews of psychosocial interventions for the prevention of suicidal behavior exist, i.e., Hawton and colleagues (2000), who did a thorough investigation for the Cochrane controlled trials registry; Linehan (1997); and Gray & Otto (2001).

Review of Evidence from Randomized Controlled Trials

Using the parameters outlined above, research that focuses on suicidal behaviors as the
outcome and uses psychotherapeutic interventions falls into three main areas: problem-solving strategies, treatment for borderline personality disorder, and modifications of hopelessness. Each of these areas will be reviewed with a particular focus on the implications of the evidence from randomized controlled trials regarding whether psychotherapy can prevent repeated suicidal behavior.

**Problem-solving Interventions**

A deficit in problem solving is identified as being common for people with suicidal behavior. Randomized and nonrandomized trials utilizing problem-solving interventions have been implemented over the years, but conclusions suggest that more work needs to be done to determine efficacy of this modality.

Two studies, one randomized (van der Sande et al., 1997) and one not randomized (Hengeveld, Jonker, & Rooijmans, 1996), suggested there are no differences in outcomes for persons treated with a problem-solving intervention. Hengeveld et al. (1996) found that their nine patients, identified as recurrent suicide attempters with personality disorders, showed no change in psychiatric symptomatology or repetition of suicide attempts at the end of 8 weeks and two “booster” sessions. Van der Sande et al. (1997) concluded that there was no difference in outcomes between groups in their brief admission plus problem-solving intervention compared with a treatment-as-usual group. The authors of these studies identify a number of issues which might need to be taken into consideration. Dropouts and thus follow-up were problems. Hengeveld et al. (1996) wondered if those who were major repeaters (>4 occurrences) would always remain major repeaters and would be resistant to treatment.

Salkovskis, Atha, and Storer (1990), working with 20 persons with a history of overdosing and considered at high risk of repeated suicidal behavior, compared short-term cognitive behavioral problem solving (n = 12) with treatment as usual (n = 8). The experimental intervention was considered to be effective in reducing the client’s distress compared with the control group, with generalization seen with respect to other problems. However, the effect was lost over a longer period of time. As the authors noted, initial treatment response might have been therapist specific, in that a single therapist was providing the intervention, rather than the response being related to the therapeutic modality.

McLeavey, Daly, Ludgate, and Murray (1994) compared two types of problem solving, manualized interpersonal problem-solving skills training (IPSST) (n = 19) versus brief problem solving (n = 20), and found a significant increase in problem-solving skills and ability to cope with everyday problems in the IPSST group. There was no change in the number of current problems an individual reported; however, perceived ability to solve current problems showed significant improvement, as did self-perception and scores on a self-rated problem-solving scale. Of the initial number of subjects invited into the study, only 42.8% participated, suggesting that a degree of self-selection occurred and that only the most motivated participated in the study.

Evans et al. (1999) used manual-assisted cognitive therapy (MACT) to compare 18 persons considered at high risk for repetition of deliberate self-harm with 16 people with similar presentations in a treatment-as-usual arm. The MACT utilized bibliotherapy that contained chapters dealing with problem solving, basic cognitive techniques to manage emotions and negative thinking, and relapse prevention strategies. Thirty-two (94.1%) patients were still available for follow-up at 6 months. Results suggested that cognitive problem solving might be effective in reducing the number and frequency of self-harm episodes,

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with simultaneous reduction in depressive symptoms. The authors suggested that this intervention was encouraging because only two to seven sessions were required, making the treatment brief and economical.

Two of the studies reviewed included only people with recurrent deliberate self-harm (Evans et al., 1999; Salkovskis et al., 1990), with the others including both first-time and repeat attempters. In addition, the content and context of problem-solving interventions varied among studies, making comparison difficult.

Several reviews (Arensman et al., 2001; Eurosave, 2001; Hawton et al., 2000; Townsend et al., 2001) identified issues involved in studying problem-solving interventions. Samples varied across studies. Actively suicidal clients were not included (Hawton et al., 2000; Vastag, 2001) in all studies. Distinctions were not made between clients who were chronic versus acute in their self-harm or suicide attempts. Repetition of self-harm was not well defined in terms of whether the event resulted in presentation to hospital, nor was the method of self-harm consistently indicated across studies (Hawton et al., 2000). The populations studied were often heterogeneous, and adequate descriptions of them were not provided (Arensman et al., 2001), nor were details of standard care provided in all cases (Arensman et al., 2001). Studies were not representative of the larger population of people who self-harm, due to the focus on those who had been admitted (Hawton et al., 2000), and generalizability was compromised due to difficulties in recruitment into studies (Townsend et al., 2001). Further, national differences in definitions and diagnosis of suicide and deliberate self-harm added to the difficulty of considering data across studies (Eurosave, 2001). Longitudinal data are not yet available (Hawton et al., 2000).

Overall, there were too few participants to generate significance showing problem solving as an effective intervention for decreasing repetition of self-harm (Arensman et al., 2001; Townsend et al., 2001). Time-limited cognitive-behavioral therapies appeared to indicate a trend toward decreasing relapse and readmission rates while a person was engaged in treatment; overall suicidality and depression, however, did not seem to be significantly different in the long term (Orbach, 1999). The time allocation for intervention seemed to be both unclear and artificial, since integration of lifelong issues, such as sensitivity to rejection, were not necessarily solvable in a short period of time (Orbach, 1999).

The definition of problem solving is not consistently utilized in the above reports, or in other literatures. It has been described as emotional problem solving (Kehrer & Linehan, 1996), cognitive-behavioral problem solving (Hengeveld et al., 1996), interpersonal problem solving (Salkovskis et al., 1990), or self-soothing problem solving (Kehrer & Linehan, 1996). This suggests that there are a variety of what could be considered target areas for intervention, including emotions, interpersonal relationships, and problems of daily living such as finances, housing, et cetera. Some studies reported that “problems to be solved” were those which the patient brought to the session; others used a more generic strategy. Using bibliotherapy, Evans et al. (1999) encouraged patients to focus on the chapter that had the most meaning for them at the time, with the intent being that by the end of the intervention, they would have completed all areas. Engagement with the content of the intervention may be necessary for it to be effective. If the content has no meaning for the client, engagement may be compromised, thus reducing compliance and attendance.

Are there difficulties with learning or comprehension that explain the deficits in problem solving for the suicidal individual? Is it comprehension of material, with difficulties in information or auditory processing, or are there
other learning disabilities which can be exacerbated when an individual is in crisis? Learning styles and strengths and inherent learning capacities are not generally discussed in the literature on intervention for suicidal clients. O’Leary (2000) suggested that for persons suffering from borderline personality disorder, it is not so much the inability to remember new information that is the problem, rather, there appears to be some retrieval impairment in accessing learned material. MacLeod et al. (1998) suggested that suicidal clients have distinct deficits in positive future thinking. Pollock and Williams’ (2001) discussion of first-time suicide attempters indicated that specific autobiographical recall is necessary for problem-solving interventions to be efficacious. They felt that skills preventing feelings of hopelessness escalating into suicidal crisis are needed, keeping in mind the difficulties that attempters have in retrieving information. Problem solving was identified as “useful,” yet how one might consider and treat issues of specific autobiographical recall in relationship to this skill building was not discussed.

Orbach (1999) questioned limiting the therapeutic focus to only problem-solving deficiencies, noting that such an approach assumes that emotional disturbances and coping are directly attributable to cognitive modes of functioning and that changing these cognitive modes will result in overall improvement in affect and behavior. The problem-solving modality does not take into account the wide range of personal experiences, unique challenges, and individual personality traits, alongside complex implicit dynamics, involved in the interaction of depression and suicide.

Family physicians and private practice psychotherapists remind us that it is important for interventions to be transferable to a wide array of clinicians. Problem solving is considered the most accessible form of cognitive intervention, available to general practitioners when dealing with individuals suffering from depression (Hickie, 2000). Practicality and efficaciousness are issues that need to be considered when working with clients at increased suicidal risk. Day-to-day frontline work with these patients can look and feel very different from the experience of the clinical researcher. The practitioner’s sense of accomplishment and the development of a practical goal-oriented treatment plan for worrisome clients need to be taken into account.

Reviews concluded that problem-solving therapy for clients with deliberate self-harm showed promise especially as a pragmatic strategy for use by a variety of clinicians, being brief, relatively cost efficient, and easily taught (Townsend et al., 2001). Effectiveness of the treatment in the wider community still remains to be proven.

Taking into consideration the complexities of understanding learning processes, of understanding suicide, and of understanding emotions and their relationship to problem solving, we can see that problem solving as an efficacious intervention continues to be a problem yet to be solved.

**Treatment of Borderline Personality Disorder**

Specific therapeutic interventions for individuals with borderline personality disorder are relevant to this review because suicidal behavior is included in the definition of borderline personality disorder, studies of which have examined suicidal behavior as an outcome. Estimates indicate that 75% of patients with borderline personality disorder have made at least one suicide attempt in their lifetime (Davis, Gunderson, & Myers, 1999). Persons with this disorder are also at risk for suicide, with estimates suggesting a lifetime incidence of suicide of approximately 9% (Davis et al.,
Three types of psychotherapeutic interventions have been tested using randomized controlled trial designs. The first approach studied in borderline personality disorder for reducing suicidal behavior was dialectical behavior therapy (DBT) (Linehan, Armstrong, Suarez, Allmon, & Heard, 1991). DBT is a comprehensive treatment that blends cognitive behavioral approaches and acceptance-based practices adopted from Zen Buddhism. The intervention includes four basic modes of psychotherapeutic strategies, including individual therapy, a skills training group, telephone consultation with clients, and consultative team meetings to support therapists' capabilities. This psychotherapeutic intervention is focused on reducing life-threatening and suicidal behaviors. In fact, this focus is established with a hierarchical approach to therapeutic interventions, with decreasing life-threatening and suicidal behaviors as the highest priority for therapeutic intervention. Linehan et al. (1991) completed the initial randomized controlled trial of DBT versus treatment as usual with the goal to reduce parasuicidal behavior, which included self-injurious and suicidal behavior. The sample included women with borderline personality disorder and at least two incidents of parasuicidal behavior in the past 5 years, with the last attempt being in the last 8 weeks prior to the trial. The study demonstrated that the subjects exposed to DBT showed significantly less parasuicidal behaviors and less medically severe suicidal behavior. Subjects in the DBT arm also had significantly better treatment retention (DBT, 83%; treatment-as-usual, 42%). Although the DBT intervention was effective for suicidal behavior, the study found no differences on measures of depression, suicide ideation, hopelessness, or reasons for living between the experimental and control groups. Further studies have indicated important interpersonal outcomes. In a subsample of the initial study, the DBT intervention showed improvement in anger and evidence of better self-reported and observer-rated social adjustment compared with treatment as usual (Koerner & Linehan, 2000). Other studies of DBT have not focused specifically on the reduction of suicidal behavior. For example, in two recent studies, the primary target for the DBT intervention was a reduction in substance abuse (Linehan et al., 2002; Linehan et al., 1999). In the first study, DBT was found to be superior to the treatment-as-usual arm in terms of better treatment retention; however, in the second study the comparison arm demonstrated better treatment retention than the DBT arm.

Verheul et al. (2003) replicated the original study of Linehan et al. (1991) comparing DBT with a treatment-as-usual condition in women with borderline personality disorder; however, these women were not required to have had recent suicidal behavior to enter the study. The study found that DBT led to significantly better treatment retention and reductions in self-mutilating and impulsive behaviors compared with the treatment-as-usual condition. Fewer subjects in the DBT arm attempted suicide \(n = 2 [7\%]\) compared with the control group \(n = 8 \[26\%]\), but this difference was not statistically significant. The study is somewhat difficult to interpret because the comparison group involved subjects returning to the original referral source for care. Therefore, the Hawthorne effect might well explain some or all of the differences found between DBT and this treatment-as-usual condition.

Although Linehan’s studies remain pivotal in our understanding of psychotherapeutic interventions for suicidal behavior, many criticisms have been launched against this research. First, the studies have focused primarily on women, and it is not clear whether this intervention is effective with men with suicidal behavior. Aside from Verheul et al. (2003), most of the evidence comes from the originator of the
approach, although major replication studies are under way. The treatment-as-usual comparison in Linehan’s original study (1991) was not provided by experts, and there are questions about whether access to care was ensured. MacKenzie (2001) reports that his understanding was that 75% of the treatment-as-usual sample received “no active treatment at all.” Finally, the DBT approach has been criticized because the implementation of the therapy is complex, labor intensive, and difficult to transfer to other mental health settings. DBT theoretically proceeds through four separate stages; however, only the first stage has been empirically tested.

The next round of studies focused on a psychoanalytically oriented partial hospitalization (PPH) intervention for patients with borderline personality disorder. These studies were reviewed because they have been utilized as evidence for psychoanalytic approaches in individuals with the disorder (Bateman & Fonagy, 1999; Bateman & Fonagy, 2001). However, PPH consisted of a wide variety of interventions. Specifically, PPH included once-weekly individual psychoanalytic therapy, thrice-weekly group analytic therapy, once-weekly psychodrama, weekly community meetings within the partial hospitalization program, monthly meetings with the case administrator, and monthly reviews of medication, which were also prescribed to participants. This study involved the comparison of PPH versus general psychiatric services that included a regular psychiatric review up to two times per month, the availability of inpatient care as needed, and outpatient sessions with a community nurse up to every two weeks. This randomized controlled trial studied in-patients with borderline personality disorder and included men and women, with 68% of the sample being female. The results of the study indicated that PPH significantly improved psychiatric symptoms and reduced suicidal acts over 6 months of follow-up. In the last 6 months of the intervention, there were significant reductions in the frequencies of hospitalization and in hospital stays. An 18-month follow-up of the original samples showed that the subjects receiving PPH maintained their gains and continued to show statistically significant improvement over the follow-up (Bateman & Fonagy, 2001). The PPH study is important because it suggests that psychoanalytic therapies may be effective to reduce suicidal behavior. It also suggests that these interventions may be applicable to both men and women. Also, the intervention had effects not only on suicidal behavior, but also on symptoms and interpersonal functioning. Obviously dismantling studies are needed to know whether it was the psychotherapeutic interventions specifically that led to significant changes. Additionally, there was no careful control for the experience and training of the staff.

Interpersonal group psychotherapy has been tested against psychodynamic individual psychotherapy by Marziali and Munroe-Blum (1995) and Munroe-Blum and Marziali (1995). This therapy was based on a model called relationship management (Dawson, 1988). The authors adapted this particular process of therapy to a group format. Specifically they tested the group psychotherapy intervention against psychodynamic individual psychotherapy in 110 subjects who were randomized to either approach. Seventy-nine subjects accepted treatment; however, there were no differences found between those who accepted and those who refused treatment. Significant benefit was demonstrated in both treatment arms in terms of self-reported depression, general symptoms, and psychosocial adjustment. Changes in behaviors, including suicidal behaviors, were not evident at termination but were demonstrated across both arms at one-year follow-up. The study suggested that
interpersonal group psychotherapy was effective for patients with borderline personality disorder and may be cost effective compared with individual psychotherapies. While this study indicated that specific interpersonal group psychotherapy might be effective, the therapy required extensive specialized training to be implemented. The high dropout rate, particularly in the group psychotherapy intervention, would need to be further investigated. Finally this study, which used perhaps the most robust comparison group, did not find significant differences between the experimental and control interventions.

**Interventions for Hopelessness**

That hopelessness is strongly correlated with suicide is now well established in the research literature (Beck, Brown, Berchick, Stewart, & Steer, 1990; Beck, Steer, Kovacs, & Garrison, 1985; Drake & Cotton, 1986; Dyer & Kreitman, 1984; Elliott & Frude, 2001; Minkoff, Bergman, Beck, & Beck, 1973; Soloff, Lynch, Kelly, Malone, & Mann, 2000). This fact directs our attention to what interventions, if any, demonstrate the ability to modify hope and hopelessness, and whether these interventions then also alter suicidality.

Since 1977, there have been six randomized controlled trials examining the effect of various psychotherapies on suicidal ideation and hopelessness; only three measured actual repeat self-harm and/or suicide attempts. The varying psychotherapies included are as follows:

- Two studies testing a cognitive-based problem-solving intervention delivered by community nurses in subjects’ homes versus treatment as usual; one study included the possibility of subjects’ beginning with a brief crisis admission (Salkovskis et al., 1990; van der Sande et al., 1997);
- Lerner and Clum’s (1990) comparison of D’Zurilla & Goldfried’s (1971) stage-based problem-solving guidelines versus supportive therapy;
- Scott et al.’s (2000) examination of cognitive therapy (CT) versus clinical management;
- Linehan et al.’s (1991) trial of DBT versus treatment as usual; and
- Nordentoft et al.’s (2002) examination of integrated treatment (similar to assertive community treatment) against “standard treatment” for subjects given various schizophreniform diagnoses.

Observed was that four of the six available randomized controlled trials tested cognitive-based interventions on hopelessness and suicidality. Additionally, four of the six utilized Beck’s Hopelessness Scale as their outcome instrument, which is also based on a cognitive theoretical model. The primary theoretical assumption regarding hopelessness is that it arises out of the combination of stressful circumstances and the person’s perception of what the available options are in order to solve some problem. Those with a limited ability to problem solve, which, as previously stated, could include several cognitive and emotional elements, become frustrated and hopeless. Needing “a way out” or “escape” from the unbearable anxiety of untenable choices thereby connects hopelessness to the choice of suicide.

Van der Sande et al. (1997) tested an intensive psychosocial treatment that included brief crisis admission plus problem-solving outpatient follow-up, including home visits by a community registered nurse (RN) as needed. The control arm received “any form of appropriate treatment.” While the study targeted suicide attempters and had a reasonable sample size ($N = 274$), patients “displaying habitual self-mutilation (wrist cutting)” were excluded.
The researchers found that hopelessness significantly decreased (i.e., improved) for subjects in both conditions during the first 3 months of intervention but had no further reduction thereafter. Given that 90% of control subjects were referred to an outpatient clinic, one could surmise that this form of validation and promise of treatment had a short-term placebo effect on their sense of hopelessness. Interestingly, however, only 55% of control subjects actually eventually received outpatient care. Regardless, at the 12-month mark, there was neither a significant treatment effect nor any significant treatment by time effect on hopelessness. As reported above, Salkovskis et al. (1990) also trialed a short-term cognitive problem-solving intervention delivered by a single community RN therapist in patients’ homes. Again, the control condition was treatment as usual. Unlike van der Sande et al. (1997), the population sampled in this study specifically recruited subjects with a history and potential for recurrent suicidal behavior; however, the researchers’ subsequent sample size was unfortunately quite small ($N = 20$). Whereas van der Sande et al. found no specific treatment effect; Salkovskis’ team did find a significant treatment effect on hopelessness at one month when subjects received their fifth and final treatment session. Once again, however, there was no significant group by time effect.

With regard to recurrent suicide attempts, van der Sande et al. (1997) found no difference between groups in the probability of repeated suicide at the end of 12 months. Whether or not the rate of suicide attempts decreased during the initial period when hopelessness was decreased was not analyzed. Salkovskis’ study noted that the proportion of patients reattempting within the 6-month follow-up was significantly better for the intervention versus the control group (i.e., none versus 3 subjects who made four attempts; $p = .049$). Additionally, the average time to a subsequent attempt was longer at 9.3 months (intervention) versus 3 months (treatment as usual).

“Treatment as usual” in several randomized controlled trials has essentially meant little or no treatment (Salkovskis et al., 1990; van der Sande et al., 1997; Verheul et al., 2003). With no clearly defined control condition, it becomes impossible to confidently analyze what the therapeutically active ingredients are. Lerner and Clum (1990) pitted social problem-solving therapy against a more substantial and descriptive control condition, supportive therapy. Subjects experiencing “clinically significant suicidal ideation” were recruited; some had a history of several suicide attempts. Similar to the Salkovskis and van der Sande studies, while the problem-solving group was significantly more effective in reducing hopelessness, even at the 3-month follow-up, the effect on suicidal thinking did not reach statistical significance.

Scott et al. (2000) examined hopelessness and suicide risk in a study comparing CT versus clinical management in a sample of 158 individuals with residual symptoms of a major depressive episode. Measures of hopelessness and suicide risk were pulled from the Clinical Interview for Depression scale. The experimental group subjects received 18 sessions of manualized cognitive therapy, modified from Beck’s model, plus ongoing medication management and monitoring over 32 weeks. Clinical management subjects continued to receive only medication management and limited support for 30 minutes once a month during treatment and every 2 months thereafter. Over the course of the study, a significant effect of group over time arose on the measure of hopelessness favoring the CT-enhanced arm. Again, however, there was no evidence of CT impacting on suicide risk. This, and the previous studies combined, begins to suggest that psychotherapeutic interventions may have a positive impact on hopelessness but not necessarily result in lessened suicidality.
Linehan et al. (1991), as discussed above, trialed a one-year DBT intervention against treatment as usual with subjects specifically meeting criteria for borderline personality disorder. While this study found that DBT treatment resulted in fewer incidences of para-suicide, there were no between-group differences on measures of hopelessness, depression, or suicidal ideation. Linehan’s findings also highlight the potential of psychotherapeutic interventions to achieve a reduction in para-suicidal behavior without altering hopelessness. That interventions targeting suicidality will not necessarily result in a positive change in the patient’s sense of hope, and vice versa, is counterintuitive given the significant statistical evidence previously linking the two concepts.

Nordentoft et al. (2002) was the only study to examine a noncognitive-based intervention and to use a different measure of hopelessness. “Integrated treatment” was compared with “standard treatment” in a randomized 2-year trial of a final N = 227 subjects with varying schizophréniform diagnoses. Integrated treatment consisted of assertive community treatment (with a caseload ratio of 10:1), antipsychotic medication, family psychoeducation, and social skills training, whereas standard treatment was to offer follow-up at a community mental health center where caseload ratios varied from 20 to 30:1; antipsychotic medication was offered on the same prescribing principles.

Hopelessness was quite significantly lower at one-year follow-up for the integrated treatment arm. Additionally, hopelessness at the one-year measure was significantly associated with measures of suicide planning and suicide attempts. Unfortunately, there was no significant difference between groups in the number of suicide attempts after one year of treatment. Over the course of the study, 11.3% of subjects attempted suicide (12% integrated treatment vs. 10.4% standard treatment). Additionally, the integrated treatment arm had one suicide, while the standard treatment arm had one death by drowning where intent versus accident was undetermined. That hopelessness but not suicide attempts was impacted by integrated treatment is consistent with previous study findings pointing to some disconnect between hopelessness and suicidal behavior.

Several other studies examined the impact of varying problem-solving and/or cognitive therapy interventions on hopelessness but did not examine suicidal behavior or ideation among their outcomes (DeRubeis et al., 1990; Rush, Beck, Kovacs, Weissenburger, & Hollon, 1982; Rush, Kovacs, Beck, Weissenburger, & Hollon, 1981). With this observation alone, one could easily state that our understanding of other components and dynamics of hope and hopelessness is limited by the dominant cognitive theory underpinning recent research. Clearly much work remains within the quest to understand the importance of hopelessness as a target of intervention in attempts to reduce suicidal behavior. Is hopelessness an etiological factor or simply a risk factor for suicidal behavior? The evidence may eventually point out a differentiation between elements of hopelessness impacted upon by the emotional aspect of the therapy relationship and elements of hopelessness lying within the cognitive constriction associated with suicidal behaviors.

In summary, the evidence reviewed somewhat supports psychotherapeutic interventions as efficacious in preventing repeated suicidal behavior. Problem-solving strategies have proven of value for reducing depression and hopelessness and improving problem solving; however, their impact on reducing repeated suicidal behavior has not been proven (Arensman et al., 2001; Townsend et al., 2001). Similarly, hopelessness has been altered by psychotherapy interventions; however, reductions in hopelessness have not shown direct benefits on preventing repeated suicidal behavior. The methodological obstacles to
demonstrating efficacy for interventions for preventing repeated suicidal behavior are many and well articulated in the review paper by Arensman et al. (2001). One of the greatest difficulties is having an adequate sample size given the low rate of the expected repeated suicide attempts. The studies of interventions targeting problem solving and hopelessness may have failed to demonstrate significant findings because of the lack of adequate sample size. Several other explanations might explain the lack of the relationship between changes in problem solving and hopelessness and a reduction in suicidal behavior. Perhaps these two factors are so-called “proxy risk factors” and correlate with a third strong risk factor, although they are not causally or directly related to the outcome (Kraemer, Stice, Kazdin, Offord, & Kupfer, 2001). Sometimes a weak or inconsistent relationship between a purported risk factor and outcome is explained by a moderator that specifies the conditions under which a given effect occurs (Holmbeck, 1997; Kraemer et al., 2001). In the next section, we explore whether the level of previous suicidal behavior may moderate the relationship between problem solving and a reduction of suicidal behavior, so that this relationship may be direct and powerful only in individuals with infrequent previous suicide attempts. Obviously, there may be several complex causal chains explaining the temporal relationship between changes in hopelessness or problem solving and reductions in suicidal behavior. Busch, Fawcett, and Jacobs (2003) noted that based on current knowledge, very little is known about the timing of risk factors and whether they indicate a chronic or immediate risk for suicidal behavior. Complex causal chains usually imply mediating factors that are independent variables influencing the mediator which, in turn, influence the outcome. In the next section, we explore a causal chain model that includes affect as a variable within the causal chain of events leading to a reduction in suicidal behavior.

Three of the four trials targeting suicidal behavior in borderline personality disorder have shown reductions in suicidal behavior following exposure to the interventions. In their recently completed study of DBT, Verhuel et al. (2003) demonstrated effectiveness in reducing self-mutilation and impulsive behavior but no significant reductions in suicidal behavior. Taken together, these results support further effort to develop and test psychotherapeutic interventions to reduce the repetition of suicidal behavior. Unfortunately, to date, these promising psychotherapeutic interventions are highly complex and multifaceted. As a result, the active ingredients in these psychotherapeutic interventions are unknown and likely obscured by a large amount of unnecessary interventions. Large multicenter intervention trials that might allow for the testing of moderators and mediators are difficult and expensive to launch, while smaller comparative trials are unlikely to further our understanding commensurate with the efforts required to complete the trial (Bateman & Fonagy, 2000). In the next section, we discuss the importance of psychotherapy process research in understanding potential mechanisms of action.

Understanding Mechanisms of Action

Evidence is accumulating that psychotherapeutic interventions can have an impact on preventing repeated suicidal behavior. The next step in our understanding would be to clarify the mechanisms of change that specifically prevent repeated suicidal behavior in individuals at risk. To understand these mechanisms of change, attention would shift to psychotherapy process research. Llewelyn and Hardy (2001) indicated that process research falls within three broad types, with the
third type focused on examining the links between specific psychotherapy process and theories of change. Process research has been utilized to study how change itself occurs, including changes in parasuicidal behavior, and to look at the relationships between specific psychotherapeutic processes and theories of change (Shearin & Linehan, 1994). Jones and Pulos (1993) argued that comparative studies provide only “indirect and limited” evidence on theoretical constructs. To understand theories of change, studies require process techniques. For example, the therapeutic alliance has been demonstrated to be significantly related to positive outcomes in psychotherapeutic research. However, Ablon and Jones (1999) felt that this demonstration was “too high a level of abstraction” and that more extensive psychotherapeutic processes need to be studied to clarify what aspects of a therapeutic alliance predict change. Therefore, elaborating specific models explaining mechanisms of change and using process psychotherapeutic research may lead to advances in our understanding of how psychotherapeutic interventions prevent recurrent suicidal behavior.

Shneidman (1993) crystallized our understanding of how affective states are determinants of suicide and suicidal behavior. He coined the term “psychache” to reflect the intolerable emotional pain that a person experiences leading to an attempt to end his or her life. The discussion will now review the elements of emotion in definition and function and how models of change might be developed incorporating emotion using an example of existing psychotherapy research.

Emotion has been defined as a collection of responses not requiring consciousness, many of which can be publicly observed. Panksepp’s (1998) research pointed to basic emotions being created in the paleocortical and subcortical systems of the brain. Izard (2002) identified emotion activation as being the result of multisystems which include both cognitive and noncognitive processes, each type of process suggesting different implications for intervention. She suggested that the noncognitive activation processes, or “low road” emotions, were those which cross “only a few synapses and require only a few milliseconds,” without any cortical processing and higher-order cognition for action necessarily taking place. Alongside noncognitive processes, emotion states can be part of, or result from, trait emotionality or temperament and potentially explain particular emotion thresholds (Izard, 2002).

Izard (2002) reported that emotions have a profound influence on perception, cognition, and action. They can provide adaptive functions, motivate adaptive thought and action, and facilitate prosocial behaviors and creative problem solving. She stated that they are the “primitives of awareness” (p. 797), capable of influencing the mind prior to registering in self-reflective consciousness, and have the ability to preempt information-processing mechanisms and cognition and influence actions. Thus, interventions utilizing emotions need to focus on the adaptive functioning they possess. Greenberg (2000) and Goleman (1995) suggested that emotions are global evaluations wired to fight or flight before cognition registers and responds. Greenberg and Pavio (1997) suggested that emotions assist in guiding and enhancing decision making and problem solving, noting that emotions will establish goal priorities and organize a person for action. They hypothesize that emotions will set the end goals, while cognition and learning provide the means to whether the goal will be met or not. Emotion is the motivator and actor, setting the goals and preparing the person for action, whereas cognition is about knowledge, involving analyzing a situation and deciding on the appropriate action. The authors identify the need for integration of emotion and cognition in
order for an adaptive response to occur. For an individual experiencing the “low road” of emotion, feelings may emerge in consciousness without labels or connections to language (Izard, 2002). Izard’s core thesis for intervention suggests that motivation and adaptiveness are defining features of emotions. The motivational and organizing factors of emotions can facilitate behavioral change and develop socio-emotional competence, but it requires the ability to discriminate emotions, to acquire accurate labels that symbolize them in consciousness, and to discuss and deepen the understanding of their causes and motivational features.

Izard (2002) wrote that emotion, cognition, and action are systems that need to be brought together for effective coping, usually connected by early childhood. These connections will form the basis of emotion knowledge and constitute a critical factor in emotion regulation and utilization in subsequent relationships and development. The coping strategies and connections are influenced by a number of factors, including attachment to a primary caregiver, economic disadvantage, socialization, social leaning, and neglect and abuse. Korman and Greenberg (1996) opine that an individual’s primary reactive system is maladaptive when a person is unable to access information from her or his emotional system. The person is, in effect, disoriented. It could be hypothesized that a person suffering “psychache” may be disoriented, acting on the low road of emotion. This emotional state preempts cognitive processes and leads to action such as suicidal or self-injurious behavior. The essential element of this model is that the emotional system temporally precedes the cognitive features, although these features are related to one another and important in the causal chain of events leading to suicidal and self-injurious behavior.

This essential element suggests that emotion’s impact on repeated suicidal behavior might be mediated by cognitive change. This mediational model has been tested in regard to positive emotions. Although Shneidman brought to our attention the absence of joy in the suicidal individual, the understanding of positive psychology has only recently been applied to interventions with suicidal individuals. Fredrickson (2001, 2000) developed a model that explained the importance of positive emotions such as joy, interest, and contentment. She explained that positive emotions all share the ability to broaden a person’s momentary thought and action repertoire and build enduring personal resources, including physical, intellectual, social, and psychological ones (Fredrickson, 2001). Positive emotion is felt to have an important role in helping an individual have a flexible cognitive orientation and an ability to integrate diverse material. This cognitive state is directly contrary to the cognitive constriction that is described in the suicidal state of mind. Positive emotions have also been linked to their ability to “undo” the effects of negative emotion, and this has now been demonstrated with research describing the physiologic benefits of positive emotion. In addition to having temporary benefits, positive emotion is also seen as having an enduring quality, and more recent research has tied positive emotion to psychological resilience, suggesting an important interaction. Individuals who experience positive emotions may be more resilient to adversity; and as they cope better with adversity, an important outcome is more positive emotional experiences (Fredrickson & Joiner, 2000).

The most specific test of this positivistic hypothesis of suicidal behavior and psychotherapeutic interventions comes from Joiner et al. (2001). These researchers tested the “broaden-and-build” model by examining whether patients who were more prone to positive moods, compared with those less prone to positive moods, would show enhanced...
problem-solving attitudes following a problem-solving intervention. The problem-solving intervention was targeted at reducing the recurrence of suicidal behavior in individuals at risk. Participants in this study included 113 individuals who had been part of a larger treatment study of suicidal young adults who were exposed to a problem-solving treatment to prevent repeated suicidal behavior. In this study the authors measured the level of positive affect using the Millon Clinical Multiaxial Inventory (MCMI)-II, which captures aspects of positive affect. They measured the problem-solving attitudes using the Problem Solving Inventory, and suicidal ideation (one of their primary outcomes) using the Modified Scale for Suicidal Ideation and the Suicide Probability Scale.

When they created a regression model to predict posttreatment problem-solving attitudes and controlled for the initial level of problem-solving attitudes, Joiner et al. (2001) found that patients who scored higher positive affectivity improved more in terms of their problem-solving attitudes than patients scoring lower on the MCMI-II. This first finding supported the hypothesis that positive affectivity was related to more positive change in problem-solving attitudes. The researchers created a second regression equation, this time attempting to predict changes in suicidal symptoms. They again compared patients with higher positive affectivity versus those with lower positive affectivity, and the findings supported the hypothesis that the patients with higher positive affectivity demonstrated less suicidal symptoms at completion of the intervention. Finally, they tested for the mediational effects of positive affectivity on problem-solving attitudes which would lead to the ultimate improvement in suicidal symptom scores. For this regression equation, the dependent variable was the suicidal symptom scores, controlling for the baseline suicidal symptom scores, and then both the baseline and follow-up measures of problem-solving attitudes and the measure of positive affectivity through the MCMI-II were entered into the model. Consistent with mediational hypotheses, those with higher positive affectivity had fewer suicidal symptoms as a function of gains in problem-solving attitudes. The mediational claim was supported because the relationship between positive affectivity to suicidal symptoms was reduced when problem-solving attitudes were entered into the model. This unique research supported the broaden-and-build model in psychotherapeutic interventions in individuals with repeated suicidal behavior. This study suggests that psychotherapeutic interventions must support a positive affectivity, as positive affectivity may be an important factor in the development of improved cognitive problem-solving skills. This work begins to provide a basis for modifying and tailoring psychotherapeutic interventions for people with recurrent suicidal behavior. According to Fredrickson’s broaden-and-build model (1998, 2000, 2001), positive emotions such as interest, joy, and contentment arise in situations which the individual perceives as safe. In patients with repeated suicidal behavior, this sense of safety may develop once they feel validated and understood. Validation has been considered a necessary but not sufficient aspect of therapy and has been incorporated into DBT (McMain, Korman, & Dimeff, 2001) and other therapy models (Livesley, 2001). When the context is appraised as being safe and validating, the individual may experience positive emotion that facilitates change in the individual’s thought and action repertoire (Fredrickson, 2000). The future test of this model may be enhanced by studying the process aspects of a psychotherapeutic intervention to see if a sense of validation predicts positive affectivity that predates changes in cognitive skills. Research may also be enhanced by using more
established measures of positive affect. Finally the Joiner et al. (2001) study was done in a military environment, and it will be necessary to demonstrate that these findings generalize to other treatment settings.

Leenaars (1996) wrote that suicide is a “multidimensional malaise” and that various models are necessary to understand the suicidal mind. Being careproviders who seek answers to help those in distress, perhaps we jump too readily to implement interventions that suggest a “one size fits all” approach. This may help to alleviate our helplessness and give some sense of having “done something” for clients who are persistently seeking relief versus doing nothing at all for clients whose behaviors might be high risk and frighten us. Perhaps attention needs to be paid to subgroups in whom specific interventions might be more helpful for particular diagnoses or levels of severity. A stepped care approach to suicide intervention, with the intensity of treatment depending on the response to an initial brief therapy, has been suggested by Hawton and van Heeringen (2000). For example, brief therapy will not be effective, particularly for individuals with numerous self-injurious behaviors or suicide attempts who have experienced many invalidating encounters when seeking care. Herein lies the second essential element regarding the etiology of suicide. It is likely that different causal chains exist in distinct subgroups of individuals who have histories of suicidal behavior and are at risk for repeated suicidal behavior. For example, Hengeveld et al. (1996) proposed subgroupings based on the history of previous suicidal behavior, and the causal mechanisms might differ for major and minor attempters. As we have proposed, in individuals with a history of frequent previous attempts, the experience of safety or validation might be a precursor of the development of positive emotion that facilitates change in problem solving and ultimately leads to a reduction in suicidal behavior. For minor attempters, there may be a more direct causal pathway between problem solving and reduction in suicidal behavior. Moderating effects of the history of previous attempts need to be further understood.

Conclusions

Psychotherapeutic interventions to reduce repeated suicidal behavior show promise, deserve continued study, and remain a central aspect of the care of individuals at risk for repeated suicidal behavior. Randomized controlled trials will demonstrate the efficacy of the psychotherapy approaches, but to understand mechanisms of action, psychotherapy process research will be needed. Models incorporating emotions, perception of safety or validation, and positive emotions are presented. These models argue for a temporal relationship between cognition and emotion, with emotional predating cognitive factors. These models contend strongly for careful elucidation of the causal chains and the mediating role of cognitive and emotional factors. Finally, one model of causation will likely not suffice for the heterogeneous population of suicide attempters. Severity of attempts, history of previous attempts, and other possible moderators most likely operate to explain suicidal behavior in specific subgroups. Understanding the role and actions of psychotherapeutic interventions in individuals at risk for repeated suicidal behavior will answer many of the remaining mysteries of suicide and suicidal behavior.

Summary of Findings

- Psychotherapy interventions show promise to prevent repeated suicidal behavior and deserve further empirical study.
• Mechanisms of actions explaining how psychotherapy interventions prevent repeated suicidal behavior still need to be explicated.
• Emotional systems may precede changes in cognition and behavior in the causal chain leading to suicidal behavior.
• Likely different causal chains exist in distinct subgroups of individuals at risk for repeated suicidal behavior.

**Implications for Practice**

• Problem-solving interventions improve problem-solving skills, depression, and hopelessness but may not prevent repeated suicidal behavior.
• Hopelessness can be modified by psychotherapeutic interventions but may not prevent repeated suicidal behavior.
• For patients with repeated suicidal behavior related to borderline personality disorder, DBT and PPH appear to be more beneficial than treatment as usual. However, DBT and PPH are complex and involve multiple modalities.

**References**


