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Cognitive Behavioral Therapy Approach for Suicidal Thinking and Behaviors in Depression

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<http://dx.doi.org/10.5772/52418>

1. Introduction

1.1. Overview of cognitive behavioral therapy

Cognitive therapy is based on cognitive theory, which is an information processing model. Cognitive refers to how an individual interprets and assigns meaning to his or her experiences. We as humans are continually trying to make sense of our internal and external experiences for the purposes of survival and attachment. How we scan our environment and choose stimuli to attribute meanings is variable from person to person and based on past learning and beliefs. Over the course of our development, we acquire beliefs about ourselves, others, our environment, and our future. A.T. Beck et al. (1979) refers to these beliefs that have durability and rigidity over time as core beliefs [1]. J.S. Beck (2005) categorizes core beliefs based on individuals sense of their lovability, worth, and control [2]. These categories of core beliefs can be adaptive or maladaptive depending on our long-term experiences with significant people and situations. Thus, maladaptive core beliefs would be associated with beliefs of unlovability, worthlessness, and helplessness. New information is processed in the moment based on the balance between adaptive and maladaptive core beliefs among these three categories. Individuals who grow up in a mostly negative environment will likely develop more maladaptive than adaptive core beliefs. These core beliefs, when activated by associated events in the moment, influence objectivity and thus color how we interpret our experience in the present. Thus, the thoughts or interpretations in the present do not equal fact, but are subject to change with new information. When we are functioning well in the present moment, our adaptive core beliefs are prominent in conscious awareness and determine, in a positive manner, how we scan our environment and attribute meanings to new information. However, under stress, a crisis, or an acute onset or recurrence of a psychiatric disorder, our maladaptive core beliefs surface to conscious awareness and have a negative impact on how we scan our environment

and process new information. When activated, maladaptive core beliefs mold new information to fit the current maladaptive core belief, thus making it stronger. Persistent maladaptive core beliefs are the basis, in part, of most psychopathology; however, CBT acknowledges the impact of biological and genetic factors, particularly in the case of major mental illnesses.

Cognitive theory teaches that our emotions, physiological responses, and behaviors are a product of our thinking in the present moment. The spontaneous, unpremeditated interpretations associated with specific events in the present are referred to as automatic thoughts [1]. When the automatic thoughts are misinterpretations of current events, Beck refers to them as dysfunctional automatic thoughts [1]. If in a given situation an individual has the dysfunctional automatic thought, “I’m a loser”, this interpretation is likely due to the activation of the maladaptive core belief “I’m incompetent”. The products of the dysfunctional automatic thought, “I’m a loser”, might include sadness, anxiety, increased autonomic system activity, and a desire to avoid people. Cognitive theory also teaches that our emotions, physiological responses, and behavior influence our thinking and beliefs as well. Studies have shown that people who are depressed have difficulty accessing positive memories of past experiences and past successes [3,4]. Because depressed patients tend to withdraw and isolate, they miss opportunities to obtain information that might provide a more balanced view of themselves. Thus, there are multiple interactions among thoughts, feelings, physiological reactions, and behaviors as shown in Figure 1.

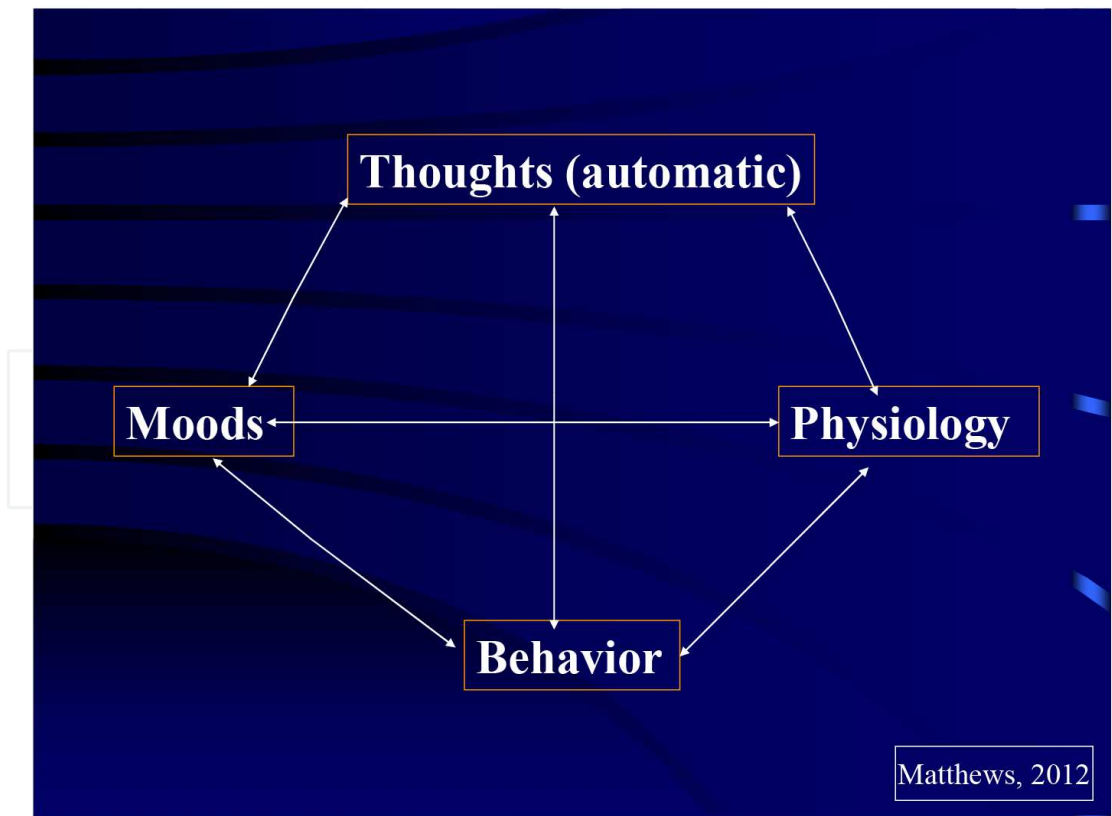


Figure 1.

The function of cognitive therapy is to reduce negative emotional reactions, distressing physiological responses, and self-defeating behaviors by modifying dysfunctional automatic thoughts, initially, followed by modifying maladaptive core beliefs. Dysfunctional automatic thoughts are challenged by having the patient look for evidence against the negative thoughts and/or by having the patient identify alternative explanations in a given situation. Maladaptive core beliefs are modified through a process called "belief work" [5], which will be reviewed later in the chapter. The underlying maladaptive core beliefs are revealed by observing patterns of dysfunctional automatic thoughts across multiple situations in the present. Although the primary focus of CBT is on targeting dysfunctional automatic thoughts and maladaptive core beliefs, negative emotions, distressing physiological responses, and self-defeating behaviors also become targets for treatment. In the case of a depressed patient, who was avoiding others out of fear of being criticized, behavioral activation strategies enabled him to discover that there were several supportive people available to him, which resulted in a marked decrease in his fear and anxiety. Thus, the behavioral intervention had a positive impact on both his negative thinking and negative emotions. According to A.T. Beck et al. (1979), in order to achieve lasting change of our emotional distress and self-defeating behaviors, cognitive and behavioral interventions are required to change the underlying maladaptive core beliefs [1].

In addition to dysfunctional automatic thoughts and maladaptive core beliefs, there are two other problematic aspects of cognition, maladaptive intermediate beliefs and errors in logic [5]. In view of the fact that awareness of one's maladaptive core beliefs creates emotional distress, the individual develops and implements cognitive compensatory strategies or maladaptive intermediate beliefs in order to prevent maladaptive core beliefs from being activated. Maladaptive intermediate beliefs consist of rules or assumptions that guide interactions with others and one's environment. These rules or assumptions take on a form of "if...then..." statements that take on either a positive or negative valence. For example, a patient with a core belief, "I am incompetent" may develop a maladaptive intermediate belief, "If I avoid making mistakes, my weaknesses will not be seen by others" (positive form). Alternatively, "If I do not perform perfectly, I will fail" (negative form). In stressful situations, the negative forms are more prominent [5]. From a treatment perspective, it is important to identify a patient's maladaptive intermediate beliefs since they contribute to his or her self-defeating behaviors. Frequently, there are corresponding maladaptive behaviors associated with maladaptive intermediate beliefs. J.S. Beck (2011) refers to these behaviors as compensatory strategies [5]. Like maladaptive intermediate beliefs, compensatory strategies serve the function of preventing maladaptive core beliefs from being activated. In the above example, "If I avoid making mistakes, my weaknesses will not be seen by others", a typical behavioral compensatory strategy might be perfectionism. A patient would try to do his or her work perfectly in order to avoid the activation of his or her core belief "I'm incompetent". Although performing perfectly has value in many situations, when perfectionism becomes a way of life, it can limit one's experience and interfere with achieving value-based goals. Errors in logic are the final problematic aspects of cognition to be addressed. The most common errors in logic include: mind reading (assumption that others are reacting negatively without sufficient evidence); overgeneralization (specific events defines life in general); all-or-nothing thinking (events are

seen in one of two mutually exclusive extreme categories); personalization (assuming responsibility for negative outcomes without considering other contributing factors); and catastrophic thinking (experiences or events are interpreted in terms of the worst possible outcomes). Errors in logic also contribute to faulty information processing and thus lead to misinterpretations of events and experiences in the present.

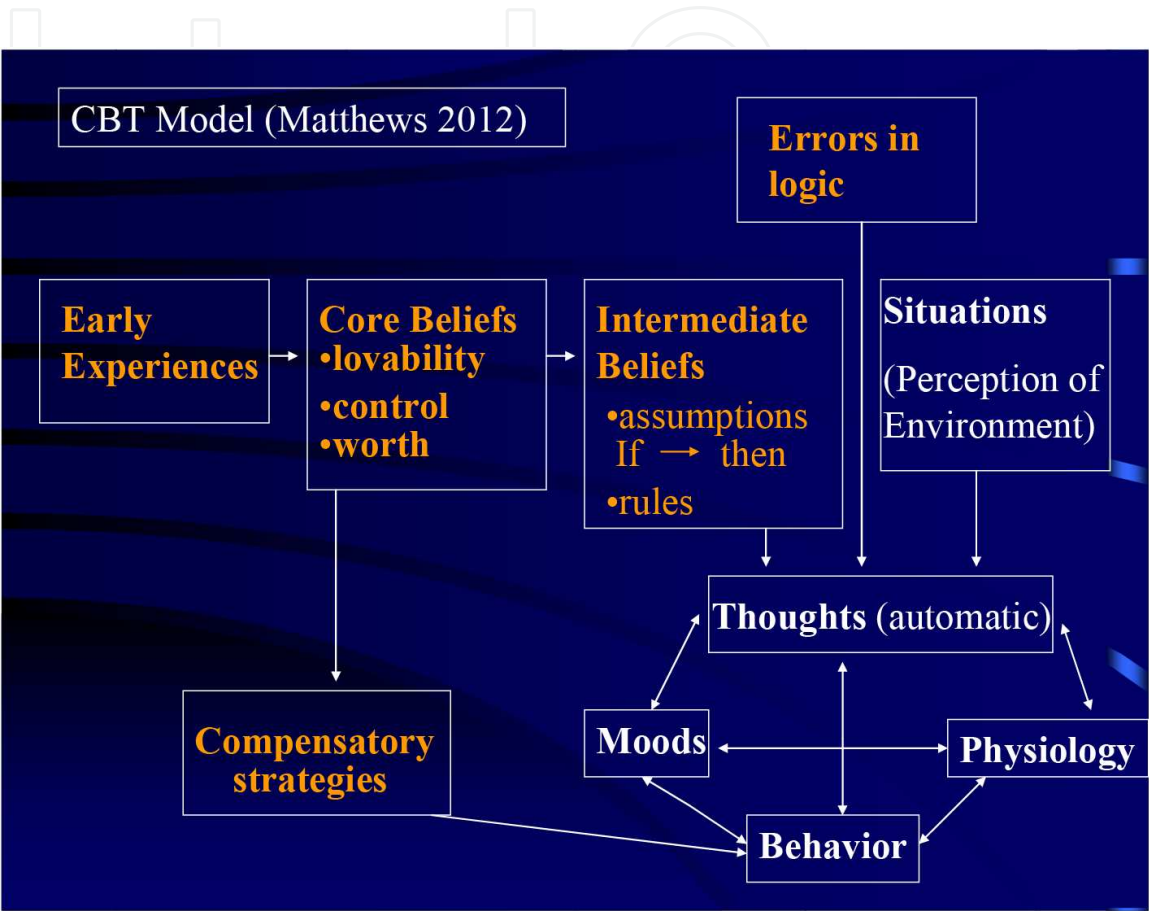


Figure 2.

Figure 2 summarizes what has been reviewed thus far. Cognitive therapy begins by helping patients see the relationships among thoughts, feelings, physiological responses, and behaviors in a variety of situations in the present (illustrated in white). As patterns of interpretations emerge, the therapist and patient develop a case formulation with the goal of identifying core beliefs, intermediate beliefs, and compensatory strategies based on an analysis of the interpretations from multiple situations in present, and based on a review of probable contributing negative experiences from the past (illustrated in yellow). Once the individual's core belief/s are identified, the focus of therapy is on modifying the underlying maladaptive core beliefs. J.S. Beck (2011) describes this process as "Belief Work" [5]. In the case of a patient with a core belief, "I'm a failure", the therapist would first have the patient reframe the maladaptive belief in less severe terms, "Having weaknesses does not mean I'm a total failure". The therapist next has the patient identify evidence against the maladaptive or old belief and supports the new

belief, "My evaluations at work are good, but not perfect". Finally, the therapist has the patient identify evidence that supports the old belief, but with a reframe, "Although I have deficiencies, I am more than my weaknesses." To further enhance perspective building with regards to maladaptive core beliefs, the therapist has the patient perform a historical review in order to identify important events in his or her life that might have contributed to the development of the maladaptive core belief. The therapist then has the patient focus on specific relevant events and generate alternative explanations by taking on an observer role using cognitive restructuring (identifying evidence for and against the belief); in addition, the therapist assists the patient in collateral data collection by designing behavioral experiments [5].

2. Cognitive factors for suicidal thinking and behaviors

There are a number of cognitive factors that contribute to suicidal thinking and behaviors. These factors can be categorized as cognitive content deficits and cognitive information processing deficits.

2.1. Cognitive content deficits

Beck's cognitive triad: A. T. Beck's cognitive triad forms the foundation of the CBT model for suicidal thinking and behaviors. According to A.T. Beck, depressed suicidal patients view themselves as defective, inadequate, diseased, or deprived and thus worthless and undesirable; they view others as rejecting and unsupportive by making too many demands; and they view their future as hopeless since they do not believe that they have the internal and external resources to solve their problems [1]. Their sense of defectiveness contributes to a passive approach to solving the problems that are creating their distress; they avoid making attempts at solving their problem/s and they may even hope for a spontaneous solution [6]. Because they believe that no one really cares about them and because their problem/s seem overwhelming to manage on their own, they give up. Without the personal skills and the support of others, they conclude that there can be no future.

Hopelessness: Hopelessness is a primary contributing factor in the development of suicidal thinking and behaviors and distinguishes depressed suicidal patients from depressed non-suicidal patients [7]. Hopeless is the consequence of seeing no solutions to problems and the activation of beliefs related to negative expectations: "*I can never be happy*"; "*I am a burden to my family and they will be better without me*". Hopelessness is more strongly related to suicide intent than depression or severity of symptoms [1,8]. More recent studies have demonstrated that hopelessness can be measured reliably and that it is a mediator between depression severity and suicidal thinking and behaviors [9]. Thus, hopelessness predicts current and future suicidal thinking and behaviors. Researchers have distinguished between state and trait hopelessness. State hopelessness is associated with the acute act of suicide; whereas, trait hopelessness is associated with long-term negative expectations for the future. A. T. Beck (1986) argues that with strong trait hopelessness, it takes less stress to trigger a suicidal crisis and state hopelessness [10]. Young et al. (1996) found that persistent levels of hopelessness, in

depressed patients who had achieved remission, was more predictive of suicide attempts than high levels of hopelessness at a given time [11].

Psychological/Physical Pain: Shneidman was among the first to stress the importance of the experience of pain in contributing to suicidal thinking and behaviors. He referred to the pain of the suicidal patient as *psychache* and he strongly believed that *psychache* was the driving force for a patient attempting suicide. “Psychache is at the dark heart of suicide; no psychache, no suicide” (p.200) [12]. Chiles and Strosahl (2005) note that in a suicidal crisis, it is likely that an individual will experience emotional or physical pain that he or she believes is “Intolerable”, “Inescapable”, “Interminable” [13]. According to Chiles and Strosahl, pain is viewed as intolerable if it exceeds one’s defined threshold; pain is viewed as inescapable if one does not see any solutions to the problem causing the pain; and pain is viewed as interminable if one believes that it will never change on its own accord. The authors also stress that much of the distress associated with pain is due to one’s relationship to his or her pain. A patient gets into a struggle with his or her pain by resisting it and refusing to accept it in the context of there being no immediate solutions. Acceptance does not mean that a patient is giving-in, giving-up, or has to be satisfied with his or her situation. Acceptance reduces the distress of wanting to be elsewhere than where one is, thus putting him or her in a better attitude or frame of mind to work on the problem that is responsible for his or her pain.

2.2. Cognitive information processing deficits

Cognitive rigidity and dichotomous: Cognitive rigidity and dichotomous thinking are constructs that were proposed by Shneidman (1959) [14] and validated through research by Neuringer [15,16]. Cognitive rigidity refers to the inability to see options or alternative courses of actions in problematic situations; in addition, a patient also fails to anticipate the array of possible consequences. Dichotomous thinking (“all-or-nothing thinking”) categorizes experiences into one of two extremes, “good/bad” or “success/failure”. Thus a patient experiences difficulty in acknowledging nuances and subtleties in problem situations. These two cognitive processes contribute to the problem solving deficits seen in a depressed suicidal patient [17]. The steps to effective problem solving include: identify the possible solutions; review the pros and cons of each possible solution; choose the best solution from the pros and cons analysis; plan the implementation of the best solution; implement the plan; and evaluate the effectiveness of the plan [18, 19]. Problem solving deficits are a function of cognitive rigidity and dichotomous thinking. Cognitive rigidity contributes to a decreased ability to generate new ideas and anticipate various course outcomes; whereas, dichotomous thinking contributes to a tendency to focus on the negative consequences of potential courses of action.

Attentional bias: As previously discussed, cognitive theory teaches that an individual selectively scans his or her environment, makes interpretations of his or her observations, and recalls relevant information from the past in the process of trying to make sense of his or her internal experiences. The processes of selection and interpretation are determined by past experiences, memories, and beliefs. Suicidal patients will automatically focus and select information that is suicide-related, thus narrowing their perspective and awareness of other courses of action than suicide. Studies supporting this concept have shown that patients who

have attempted suicide show an attentional bias towards words that are related to suicide on the Emotional Stroop Task compared to negative or neutral words [20, 21].

Attentional fixation: Wenzel et al. (2009) note that in suicidal patients that they have studied, patients report a mental state of confusion and disorientation immediately prior to their suicide attempt [22]. They are experiencing racing thoughts, agitation, “tunnel vision” as well as deep emotional pain. Suicide seems to be the only way out of their distress. Wenzel et al. (2009) compare this state of mind to what patients with panic disorder experience during a panic attack. Beck (1988) describes a “dissociation of higher-level reflective processes from automatic cognitive processing” [23]. Wenzel et al. (2009) believe that there is a similar process in operation just prior to a suicide attempt [22]. Higher-level processing is unavailable to broaden awareness and to assist in identifying options that could lead to solving those problems that are creating deep emotional pain. Attentional fixation interferes with rational information processing and makes it difficult to disengage from suicide-related information, thus interfering with problem solving and increasing as sense of hopelessness.

Overgeneralized memory: Overgeneralized memory is another information processing defect observed in depressed suicidal patients [24]. Studies have demonstrated that when patients who have made recent suicide attempts are cued to provide details about a past personal experience, they respond with vague recollections that summarize multiple experiences; these results were independent of processing speed [25, 21]. This finding is also seen when suicidal patients were provided further prompts, explanations, and practice items in an attempt to help clarify their responses [26]. This type of information processing interferes with effective problem solving, which relies on the recall of details from past problem solving successes.

3. A CBT model of suicide

Figure 3 summarizes the research that has been presented in the previous paragraphs. This model emphasizes that an individual considers suicide if he or she sees no solutions to the problem that is creating pain that is perceived as intolerable, inescapable, and interminable. Thus, the focus of CBT in the depressed suicidal patient is to: identify the perceived unsolvable problem; reduce cognitive distortions and errors in logic with regards to his or her views of self, others, and future; improve problem solving skills; increase motivation to problem solve; reduce perceived emotional pain; and encourage acceptance of emotional pain as part of everyday life.

4. Assessment

There are a number of predictors of suicidal thinking and behaviors that have been identified over the years including being elderly, male, divorced, widowed, separated, medically ill in the past 6 months, depressed, addicted to substances, and having made suicide attempts in the past to name a few [27]. However, from a CBT perspective, it is not solely the

situation that determines suicidal thinking and behaviors, but, the meaning that an individual attributes to his or her situation. This is not to say that the above predictors do not have some contribution to an individual's decision to attempt suicide; rather, these predictors might indirectly contribute by increasing the individual's vulnerability to choose suicide.

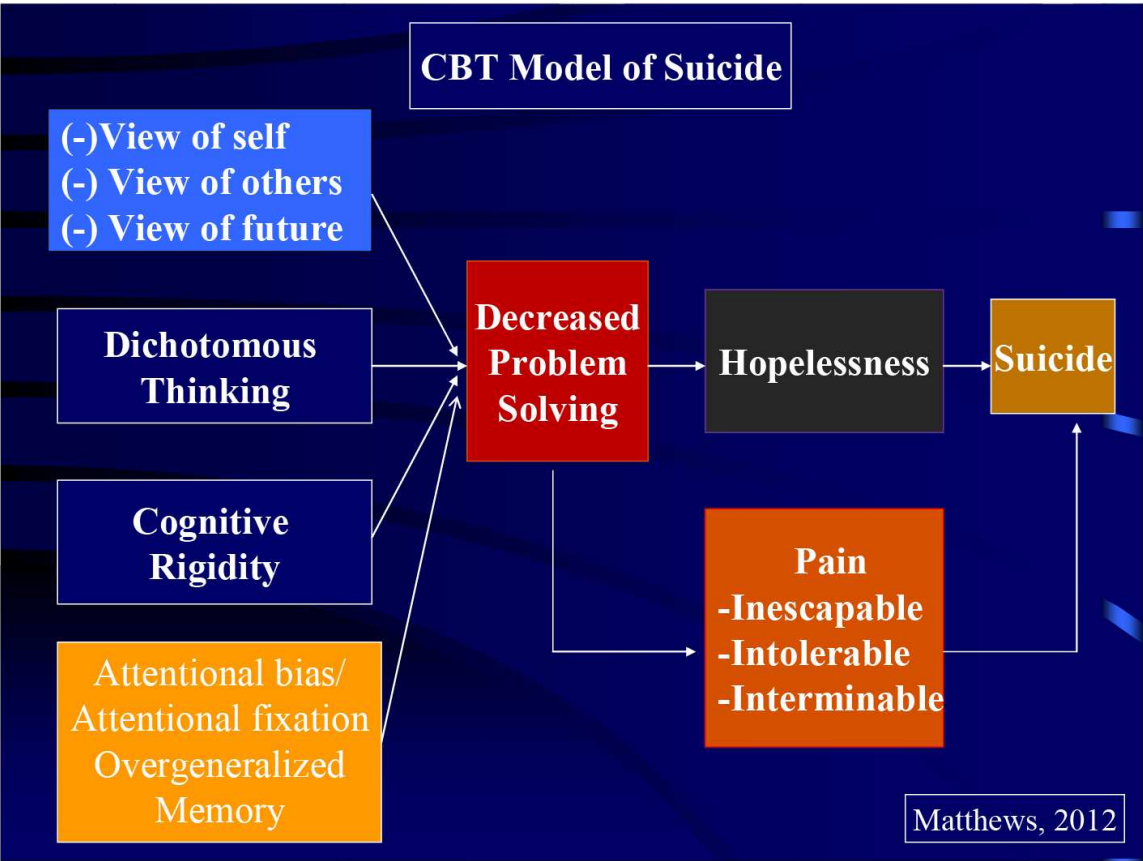


Figure 3.

4.1. Rating scales

Beck Hopelessness Scale (BHS) [8]: The Beck Hopelessness Scale is a twenty item, self-administered, true false questionnaire developed to assess the degree of positive and negative beliefs about the future during the previous week. It can be used in inpatient and outpatient settings and for both adults and adolescence. The score ranges from 0 to 20; patients who score above 8 are 11 times more likely to commit suicide than patients who score 8 or below [28]. In a study to predict suicide over a 10-year period in outpatients with mixed diagnoses (N=1,958), while using a total score of ≥ 9 , Beck et al. (1990) found a false-positive rate of 59% (those with a score of ≥ 9 and who did not commit suicide) and a false-negative rate of 5.9% (those with a score of < 9 , but committed suicide) [29]. The test is an indirect indicator of suicide risk in depressed patients who have made suicide attempts and it is also useful for detecting hopelessness severity.

Beck Scale for Suicidal Ideation (BSS) [30]: The Beck Scale for Suicidal Ideation measures the intensity, pervasiveness, and characteristics of suicidal ideations in adults and adolescence and has been used in a variety settings including, inpatient, outpatient, emergency services, and medical services [30]. An earlier self-administered version, the Scale for Suicidal Ideation (SSI) used the same questions, but is no longer in print. The BSS is a 21-item, self-administered questionnaire that asks questions regarding suicidal ideations over the past week. It is scored on a 3-point Likert scale from 0=not present to 2=maximum severity of suicidal ideation. If items 4 (“Desire to make active suicide attempt”) and 5 (“Passive suicidal desire”) are rated as a 1 (weak) or 2 (moderate to strong), the patient rates the rest of the items. The severity of the suicidal ideations are calculated from the first 19-items and the range of scores is from 0-38. There is no cut-off score, but the severity of suicidal ideations are determined by increasing scores. Items on the scale can be re-examined over time in order to monitor for changes in the risk for suicide. The scale does not predict since there are no studies demonstrating that higher scores on the BSS predict immediate risk for a suicide attempt. Although most individuals who have suicidal ideations do not attempt suicide, high scores on the BSS can alert clinicians to perform a more comprehensive assessment of suicide risk.

Beck Suicide Intent Scale (SIS) is a clinician-administered measure of the intensity of the suicide attempter’s desire to die at the time of the attempt [31, 32]. The scale consists of 20 items on a 0-2 Likert scale for each item. Items 1-8 focus on preparation and manner of execution of the attempt, the setting, likelihood of rescue. Items 9-15 focus on the attempter’s perception of the lethality of the attempt, expectations of rescue, degree of premeditation, and the purpose of the attempt. Items 16-20 include the attempter’s reaction to the attempt, number of previous attempts, and the use of substances at the time of the attempt; items 16-20 are not included in the total score. Studies have shown that items 1-8 distinguished fatal from non-fatal attempts. The total score differentiates repeat attempters from non-repeaters. One study found that the “Precautions against Discovery and/or Intervention was associated with increased risk of eventual suicide [28]. However, there is no data to suggest that the SIS can be used to predict suicide.

Columbia-Suicide Severity Rating Scale (CSSRS) The Columbia-Suicide Severity Rating Scale was developed as a single measure to assess severity of suicidal ideation and behavior and to track them as well. The CSSRS was designed to distinguish suicidal ideation and behavior. In the past, suicidal ideation and behavior were considered to be on a continuum [33]. The scale is divided into four subscales: severity subscale; intensity subscale; behavior subscale; and the lethality subscale. The severity subscale measure severity of suicidal ideations on a 5-point ordinal scale where 1=wish to be dead, 2=nonspecific active suicidal thoughts, 3=suicidal thoughts with methods, 4=suicidal intent, and 5=suicidal intent and plan. The intensity subscale consists of 5 items, each rated on a 5-point ordinal scale with measures on frequency, duration, controllability, deterrents, and reasons for ideations. The behavior subscale is rated on a nominal scale that includes actual, aborted, and interrupted suicide attempts as well as measures on preparatory behavior and non-suicidal self-injurious behavior. The lethality subscale, which assess actual attempts, is rated on a 6-point ordinal scale; an actual attempt is given a score of 0 and potential lethality of attempts is rated on a 3-point ordinal scale. The CSSRS uses

different life-time assessment periods and studies have shown that the “worst-point ideation” was a stronger predictor of subsequent suicide than current ideation [34,35]. The inclusion of all of the items in the scale were based on previous research that demonstrated that these measures predicted risk for future suicidal behaviors. In a recent study, Posner et al. (2011) demonstrated that the CSSRS has good convergent and divergent validity with other suicidal ideation and behavior scales (e.g. Scale for Suicidal Ideation, Beck’s Lethality Scale, Beck Depression Inventory, Columbia Suicide History Form) and high sensitivity and specificity for suicidal behavior compared to another behavior scale [33]. In addition, they found that the ideation and behavior subscales were sensitive to change over time.

4.2. Motivation for suicide

Identifying the motive for suicide is crucial for determining the treatment approach. There are two primary motives for suicide, to escape from life with its pain or to produce some interpersonal change or change in their environment [36]. In a study of 200 inpatients who had made a suicide attempt prior to admission, Kovacs, et al. (1975) found that 111 (56%) reported escape as their primary motive, whereas, 26 (13%) reported hope to effect a change in others or in their environment [36]. The remainder reported motives that were a combination of the two. The motive to escape was associated with more serious suicide attempts. Escape from life with its pain may be based on reality (poverty, medical problems, social isolation, chronic illness); thus, the focus of treatment is on appropriate biopsychosocial interventions. However, the motivation to end one’s life may be based on distorted or pathological ways of viewing oneself, others, and the world, thus, the focus is directed on misperceptions and irrational belief systems. When the primary motivation is to create interpersonal or environmental change, the common reasons are for love and affection, revenge, or control. Under these circumstances, the focus of treatment is on improving social skills and learning more effective and adaptive ways of communicating.

4.3. Triggers for suicide

Rudd et al. (2001) stress the importance of identifying triggers of suicidal thinking and behaviors [6]. Triggers can be categorized as being internal and external experiences or themes. Internal triggers include thoughts, images, feelings and physical sensations. External triggers include people, places, circumstances, and situations. Thematic triggers include activation of abandonment concerns or fears of rejection. Tools that can assist in identifying triggers include dysfunctional thought records and chain analyses. A dysfunctional thought record is divided into five columns including: situation, emotions, dysfunctional automatic thoughts, rational response, and re-rating the belief in the original dysfunctional automatic thoughts. The Dysfunctional Thought Record provides a strategy to not only identify the trigger for the decision to choose suicide, but it identifies the misinterpretations associated with the trigger as well. The sequential links in the Chain Analysis strategy include: **vulnerabilities** (depression, stress, substance use, medical illness, loss etc.) → **prompting event** (the event outside of the person that was the “last straw”) → **linked thoughts and feelings** → **suicide attempt** → **review consequences of suicide attempt** → **review alternatives to suicide attempt**.

5. Treatment

The goals of treatment for the depressed suicidal patient include: address specific cognitive biases and distortions; develop behavior skills (problem solving); acceptance and tolerance of emotional pain; improve communication skills (social skills, assertiveness training, conflict resolution skills); reduce environmental stress; and develop supports [13,27].

In order to engage a patient in the treatment of his or her suicidal thinking and behaviors, the clinician must convey an empathic approach. The patient enters therapy with concerns that he or she will be perceived as being irrational, trying to get attention, not being taken seriously, or potentially being punished. These are based on typical responses he or she has received from relatives and friends. It is important not to start psychotherapy by trying to talk him or her out of suicide. Such an approach convinces the patient that the therapist does not understand his or her situation and what he or she is experiencing. Rather, try to understand the patient's logic for choosing suicide. Ask the question, "Help me understand what got you to the point that suicide seemed to be the only solution". Through understanding his or her logic, the therapist may experience, to some degree, the patient's despair. The therapist might also help normalize the patient's decision by saying that "If I was in your situation, I might have also considered suicide". However, it is important to offer hope by informing the patient that, by working together, solutions or partial solutions to his or her problem will emerge, thus, providing alternatives suicide. It is also important for the therapist to be aware of his or her beliefs about the patient, such as "He is untreatable" or "He is just being manipulative". Awareness of these negative beliefs must be addressed by finding common ground from which to continue to work together.

5.1. Cognitive/behavioral targets for treatment

Hopelessness: The immediate goal in addressing hopelessness is to challenge the belief that the patient's situation cannot get better. The depressed suicidal patient overestimates the magnitude of his or her problem and underestimates the available resources. It is important to create a disequilibrium in the patient's distorted beliefs by introducing evidence that contradicts his or her belief. Teaching problem solving skills and identifying available family and community resources provide internal and external resources that can be used to solve his or her problems, thus, enhancing self-efficacy. For a patient who became suicidal because he believed that his musical career was over because of a single poor performance at a recent concert, his overestimation of the consequences and his belief he had no resources were challenged by having him market himself, which resulted in him successfully getting another performance. He had resisted marketing himself in the past; however, his success at marketing enhanced his self-efficacy.

Cognitive rigidity: With regards to cognitive rigidity, it is important to frame beliefs as testable hypotheses and not fixed rules and to generate alternative explanations and test them behaviorally. Strategies to accomplish this include role play and visual imagery. In the case of role play, the patient plays his or her critical voice and the therapist rationally responds; this is followed by reverse role play where the patient is played by the therapist and the patient

responds to the critical voice. Visual imagery provides the patient an opportunity to imagine the various solutions and potential outcomes. Both strategies enhance self-efficacy and reduce his or her sense of helplessness and vulnerability. In the case of a patient who was convinced that his mother wanted him dead because she did not come to rescue him when he was feeling very depressed and suicidal, he discovered later that she had not come to see him because of her own insecurities about being a good mother and because of her fears that she might say the wrong thing and, thus, make him feel worse. This only became clear after the patient queried about why she did not come to visit him when he was at a very low point; he had not anticipated that this would have been his mother's response.

Dichotomous thinking: Challenge dichotomous thinking by developing a continuum between extremes. In the case of a suicidal patient who overdosed because he believed that he could never have another job as good as the one he lost, the therapist had the patient list the elements of the ideal job. The therapist then had the patient compare his previous jobs with each element of the ideal job; the patient discovered that many of his past jobs also had value and shared many of the listed ideal elements. When previous jobs were placed on a continuum, some of his previous jobs ranked higher, in some respects, than the job that he had just lost. The patient's all-or-nothing thinking interfered with being aware of the strengths of previous jobs. Another strategy is to have the patient keep track of all-or-nothing thinking and then practice thinking and speaking in less extreme terms; a less extreme response to the belief, "I'm a total failure" could be, "Although I am not perfect, I have made some accomplishments".

Problem solving: Schotte and Clum (1982) [37] were among the first to show that there is a significant relationship between poor problem solvers, who are experiencing high levels of stress, and the likelihood of developing suicidal thoughts. These researchers subsequently demonstrated that patients with suicidal ideations are less likely to come up with alternative solutions to their problems, they have little confidence in their problem solving ability, and they tend to focus on the potentially negative outcomes of their problem solving attempts. D'Zurilla et al. (2004) [38] conceptualize the problem solving deficits seen in suicidal patients into two categories, deficits in the skill of rational problem solving and deficits in motivation to engage in problem solving due to the lack of confidence and the tendency to expect negative outcomes. This distinction helps therapist to decide whether to focus treatment on building problem solving skills or working on the development of confidence while addressing unrealistic expectations or both. Reinecke et al. (2001) [39] demonstrated that the severity of depressed mood also interferes with problem solving by not only impacting motivation but by interfering with the encoding and retrieval of information. Studies by Teasdale and others have shown that the depressed state interferes with the acquisition of past positive experiences and successes [3,4].

Reinecke (2006) recommends the following approach to problem solving with the depressed suicidal patient [40]. Treatment begins by helping the patient identify the problem that suicide would solve and to provide psychoeducation and understanding of potential contributing factors. From a CBT perspective, suicide is one solution to the problem that is creating emotional distress. The therapist next assesses the patient's motivation and attitude about engaging in problem solving. According to Reinecke, ways to promote a more positive attitude

about problem solving include helping the patient to accept that problems are a part of normal life, identifying possible contributing factors to his or her problem, identifying and correcting errors in logic (magnification, overgeneralization, personalization, etc.) that may interfere with problem solving, instilling a sense of self-efficacy and expectation that solutions will come, acknowledging that there may be only partial solutions, and that it might take time for the solutions to be realized [40]. With improvement in motivation, the focus of therapy turns to improving rational problem solving skills. Once the problem is clearly identified, the patient is encouraged to articulate his or her related concerns and understanding of what maintains the problem. The patient is then encouraged to identify realistic goals regarding the problem and then start working on steps to solve the problem. Skills in generating alternative solutions, than suicide, become the next focus of attention. With each alternative solution, the patient carries out a pros and cons analysis, determines the short- and long-term consequences, selects what appears to be the most effective solution, implements a plan, and assesses the outcome. Reinecke utilizes psychoeducation, Socratic dialogue, role plays, and modeling to effect this approach.

Acceptance of pain: One of the essential goals of therapy with the suicidal patient is to assist the patient in being able to have a life in spite of his or her pain. The suicidal patient is operating out of the belief that there is no reason to live if there is suffering. As a result, the patient's predominant focus of attention is to resist their pain and ruminate about how this could have happened to him or her and to worry about a future of suffering. As a result there is no room in the patient's experience for a purposeful and meaningful life. Unfortunately, for many of the problems that create suffering in suicidal patients, there are no immediate solutions. So the task is to make room in conscious awareness for suffering while carrying out one's responsibilities and working on solutions to the problem that is creating the suffering.

Chiles and Strosahl (2005) identify two strategies, recontextualization and comprehensive distancing, to assist the patient in accepting painful thoughts and feelings [13]. According to Chiles and Strosahl, "The objective of recontextualization is not to get rid of disturbing thoughts or feelings but to teach the patient to make room for them and do what needs to be done to get on with life. The objective is met when your patient learns that negative thoughts or feelings do not block adaptive behavior. The two can coexist". With recontextualization, our thoughts and feelings do not define our experience, but are just there to be observed as an opportunity to learn in the process of problem solving. Comprehensive distancing refers to the willingness of the suicidal patient to detach from his or her suicidal thoughts and emotional distress. Chiles and Strosahl recommend the dual-thermometer exercise which is carried out by the patient daily. The patient will keep a daily diary and make daily ratings on two 1-10 thermometer scales with regards to two dimensions of experience, willingness and suffering. The ratings on the Willingness Thermometer, measure willingness of being present without judgment, being mildly interested, and being just an observant of what is. Alternatively, the Suffering Thermometer rates how much distress the patient feels with his or her daily experiences as a result of ruminating and worrying about his or her condition. The patient makes daily notes on factors that either increase or decrease ratings on the two measures. The ratings tend to be reciprocal of each other. The purpose of this exercise is to point out the

uselessness of attaching to our negative thoughts and feelings. During the course of therapy, suicidal thoughts can be used as a measure of non-acceptance of negative emotions since the purpose of suicidal thinking is to avoid experiencing negative emotions.

View of suicide as being a desirable solution: The desirability of suicide as a solution also needs to be a target of treatment. In the case where a patient's motive is to create a change in his or her relationships or environment, it is important to have the patient challenge the assumption that suicide will achieve his or her goal. Typical motives include revenge or to provide relief for family and friends. In the case of seeking revenge, the patient can be asked, "How certain are you that the person for whom you are seeking revenge will own the intended responsibility". Another patient may believe that the act of suicide will provide relief for his or her family. Pointing out evidence to the contrary may help the patient achieve a more realistic perspective. It is also important to have the patient consider the short- and long-term consequences of committing suicide. A patient in our clinic acknowledged that she would miss seeing her nephew's graduation from high school. Marsha Linehan (1993) stresses the importance of having the suicidal patient identify reasons for living in order to motivate him or her to consider alternatives to suicide [41]. The advantages and disadvantages of suicide and not suicide analysis is an effective technique to identify the positive and negative reinforcers of suicide. By identifying the positive reinforcers, the focus of treatment is directed towards identifying alternatives to suicide in order to achieve the desired results; it is also important to correct any cognitive distortions about the advantages of dying. Awareness of the negative reinforcers provides motivation not to suicide. In the case of a patient in our clinic, the **advantage of suicide** was that she would no longer be a burden to her family; the **disadvantage of not suicide** was that her pain would continue; the **advantage of not suicide** was that she could enjoy her children and grandchildren; and the **disadvantage of suicide** was that it would prove that she was a failure. The advantage of not suicide and the disadvantage of suicide were the negative reinforcers and helped motivate her not to act on her suicidal thoughts. The advantage of suicide and the disadvantage of not suicide were the positive reinforcers to suicide; however, these positive reinforcers were challenged in therapy and she realized that her children and grandchildren would be devastated if she ended her life and that there were alternative ways of managing her pain using Mindfulness techniques and psychopharmacological interventions.

6. Summary of a CBT approach to suicidal thinking and behavior in depression

In summary, I recommend the following approach to the acutely depressed patient with suicidal thoughts and behaviors. First, the therapist must determine what problem suicide would solve, followed by identifying the individual's motive for suicide; is suicide desired to escape from pain or to make a change in his or her relationships or environment or a combination of both. In order to engage the patient and to develop trust, the therapist should inquire as to what got him or her to the point that suicide seemed to be the only solution; the therapists asks for understanding. Once the therapist believes he or she understands the patient's logic, the thera-

pist can acknowledge with the patient that he or she might have come to the same conclusion under similar circumstances; this response serves to help normalize the patient's experience. However, the therapist next provides hope by stressing that there are solutions or partial solutions that the patient might have overlooked and that together alternatives to suicide will become apparent. If the patient believes that the therapist understands his or her perspective and rationale without judgment, the patient will more likely engage in treatment. Once engaged, the task is to understand the internal, external, and or thematic triggers for suicidal thinking and behaviors, as well as the factors that maintain the desire to suicide, using thoughts records and/or chain analyses. Next, the therapist assists the patient in challenging the distortions and misconceptions, including core beliefs, that interfered with his or her motivation to initiate the process of problem solving; this is followed by promoting the development of problem solving skills, if needed. In addition, the therapist addresses the patient's view that he or she does not have the internal or external resources to solve his or her problem. An advantages and disadvantages analysis of suicide and not suicide should be performed early in the treatment in order to identify the positive and negative reinforcers for suicide. The negative reinforcers will help motivate the patient to think of reasons to live and not choose suicide; the positive reinforcers will be used to assist in identifying alternatives to suicide. Also, identifying alternatives to suicide helps to begin the task of problem solving. Once the alternatives have been identified, the patient continues with a pros and cons analysis for each alternative. The patient then develops an action plan once the best alternative is identified; this helps motivate the patient to implement the plan followed by an assessment of the outcome. Effective problem solving will be in the service of developing self-efficacy and to counter the patient's sense of helplessness and worthlessness. Simultaneously with problem solving, the therapist helps the patient reduce his or her level of distress by working on acceptance of emotional and/or physical pain. The mindfulness strategy of learning the skill to broaden one's awareness in the moment enables the patient to see that there is more to his or her reality than one's pain. Learning to refocus attention on purpose without judgment, especially when the pain is intense, or observing the pain in order to determine what makes it worse or better are mindfulness skills that can be empowering. As with all CBT treatments, the final phase of treatment focuses on relapse prevention. The relapse prevention phase gives the patient an opportunity to demonstrate his or her ability to make use of the skills learned during the treatment and it gives the therapist an opportunity to assess whether the patient is appropriately applying his or her new skills, and thus ready for termination. Wenzel et al., (2009) caution about the risk of having an unprepared patient destabilize while re-examining the events that lead to the suicide attempt, especially through imagery [22]. Careful collaboration with the patient about his or her readiness to review the suicide attempt in detail is essential along with close monitoring of his or her distress level in the review process. The patient may find it too overwhelming to use imagery, as if the events were occurring in the present. In this case, Wenzel et al. recommend using the past tense in summarizing the events and applying the newly learned techniques. I refer the reader to Wenzel et al. (2009) for the details regarding this exercise. Finally, relapse prevention focuses on having the patient imagine potential future suicide crises and review in detail how he or she would make use of cognitive and behavioral strategies to reduce the chance that he or she would engage in suicidal behaviors.

7. Evidence for CBT preventing suicide in depressed patients

There are very few randomized controlled trial (RCT) studies assessing the effectiveness of CBT in preventing suicide attempts in adult depressed patients. Earlier studies that focused on problem solving alone have failed to consistently demonstrate a reduction in future suicidal thinking and behaviors when compared to treatment as usual (TAU) [40]. These findings argue for a more comprehensive CBT approach including not only problem solving, but cognitive restructuring, behavioral strategies, stress reduction and mindfulness, and interpersonal skills training. To date, there is only one adequately powered (RCT) study that included many of these treatment elements [42]. Most other studies target changes in predictors of suicidal attempts rather than suicide attempts as the primary outcome measure. In the Brown et al., (2005) study, the researchers evaluated 350 adults and randomized 120 to 10 sessions of CBT or TAU, within 48 hours of admission to a university hospital emergency room after a suicide attempt [44]. Seventy-seven per cent of the patients met DSM-IV criteria (SCID interview) for major depressive disorder and 68% had a substance use disorder; 85% had more than one psychiatric disorder. Sixty per cent were African American, 35% Caucasian, and 5% were Hispanic. The elements of the CBT treatment included; identification of proximal thoughts, images, and core beliefs to the suicide attempt; cognitive and behavioral strategies to address the identified proximal thoughts and beliefs prior to the suicide attempt; development of adaptive ways of coping with stress; targeting hopelessness, poor problem solving, impaired impulse control, non-adherence to treatment, social isolation; and relapse prevention. From baseline to reassessment at 18 months, 24% of the CBT group and 41.6% of TAU group made at least one suicide attempt (asymptotic z score, 1.97; $P=.049$). Survival analysis (Kaplan-Meier) at month-18 showed a reattempt-free probability of 0.76(95% confidence interval [CI], 0.62-0.85) in the CBT group and 0.58(95% CI, 0.44-0.70) in the TAU group. Patients in the CBT group had a significantly lower reattempt rate (Wald $X^2/1=3.9$; $P=.049$) and were 50% less likely to reattempt suicide than the TAU group (hazard ratio, 0.51; 95% CI, 0.26-0.997). With regards to the secondary analyses, the CBT group scored significantly lower than the TAU group on Beck Depression Inventory at 6 months ($P=.02$), 12 months ($P=.009$), and 18 months ($P=.046$). The CBT group scored significantly lower on the Beck Hopelessness Scale than the TAU group at 6 months ($P=.045$). There were no differences between the two groups in the Scale for Suicide Ideation. It is important to point out that Brown et al. adequately powered their study; the sample size of 120 provided at least 80% power to detect a hazard ratio of 0.44 with regards to a subsequent suicide attempt between the two groups [42]. Brown et al., point out that their results were consistent with an earlier small RCT study ($n=20$) by Salkovskis et al. (1990) [43]. Salkovskis et al. demonstrated that patients randomized to a CBT problem solving therapy were significantly ($p=0.049$) less likely to repeat a suicide attempt compared with the TAU group at six months after the index suicide attempt. The mean time to the next suicide attempt was 9.3 months for the CBT group compared to 3 months in the TAU group. Raj et al., (2001) [44] examined the effectiveness of CBT ($n=20$) versus treatment as usual ($n=20$) in ages between 16 and 50 in reducing deliberate self-harm. Patients were included with anxiety, depression, or adjustment disorder; psychotic patients were excluded. The 10 session CBT therapy consisted of cognitive and behavioral strategies, problem-solving skills, and behavioral

counseling to significant others. The CBT group, compared to TAU, showed significant decreases on the Scale for Suicidal Ideations, Beck Hopelessness Scale, Problem Solving Inventory, and on the Hospital Anxiety and Depression Scale.

Tarrier et al. (2008) performed a meta-analysis on 28 select studies (based on quality) to investigate whether CBT reduced future suicidal behavior [45]. This is the first systematic review and meta-analysis of CBT and the prevention of suicidal behaviors. Suicidal behavior included completed suicides, suicide attempts, suicide intent or plans, and suicidal ideations. The diagnostic categories were broad across the 28 studies and not limited to depression. There were studies of patients with schizophrenia, first psychotic episodes, borderline personality, major depressive disorder, and personality disturbances. Thus their findings were not limited to a particular diagnostic disorder. Tarrier et al., concluded that CBT was highly effective in reducing suicidal behaviors within the 3 month period post treatment (combined Hedge's $g=-0.59$, $z=-5.26$, $p<.0001$, 95% CI=-0.811 to -0.371). Subgroup analysis of CBT demonstrated significant results with: controls of minimal treatment, treatment as usual, or active psychological treatments; adults only; treatment directed towards reducing suicidal behavior rather than associated symptoms like depression; and reductions in hopelessness. Also, CBT studies using an individual approach were effective whereas group CBT was ineffective. The authors are cautious in their conclusions because of publication biases. Small studies with large effect sizes had a disproportionately large impact on the overall effect size.

A recent study by Stewart et al. (2009) [46] was among the first to compare CBT and SPST (Social Problem Solving Therapy) with each other and against TAU. However, rather than measuring suicide attempts as their primary outcome measure, their outcome measures focused on predictors of suicide attempts including hopelessness (Beck Hopelessness scale), poor problems solving (Social Problem Solving Therapy), suicidal ideation (Beck Scale for Suicidal Ideation), and treatment dissatisfaction (Client Satisfaction Questionnaire-8). Subjects completed 8.73 treatment sessions in the CBT group (SD=1.04, range from 7-10 sessions), 4.75 sessions in the SPST group (SD=1.42, range 3-7 sessions), and .67 in the TAU group (SD=2.0, range from 0-6 session). Eleven subjects completed the CBT therapy, compared to 12 subjects in the SPST therapy, and 9 in the TAU intervention (33.4%, 37.5%, and 26.1% respectively). Over the course of treatment, subjects receiving CBT showed significant improvement in hopelessness (Beck Hopelessness Scale) ($z=-1.79$, $p<.05$, $r=.49$), suicidal ideations (Beck Scale for Suicidal Ideations) ($z=-2.32$, $p<.05$, $r=.49$), and patient satisfaction (Client Satisfaction Questionnaire-8) ($z=-2.81$, $p<$, $r=.60$); however, the CBT group did not show improvement in problem solving (Social Problem Solving Therapy) ($z=-1.02$, ns, $r=.21$). The TAU group did not show significant improvement in any of the predictors of suicidal behaviors. The authors suggest that treatment with CBT reduced hopelessness and suicidal ideations while improving treatment satisfaction. All three measures would presumably reduce the risk for future suicidal attempts. Also, the authors conclude that by empowering individuals to solve their problems, it follows that there was a reduction in hopelessness and suicidal ideations and an increase in patient satisfaction, all of which should help reduce the risk for future suicide attempts.

8. Conclusions

These limited studies provide cautious optimism that CBT is effective in reducing suicide attempts. However, there continues to be a great need for more studies, that are adequately powered and that not only examine the effectiveness of CBT in reducing predictors of suicide (e.g. hopelessness; decreased problem solving) but also measure the rates of suicide attempts as the primary outcome measure. As noted above, the Brown et al. (2005) protocol included several treatment components including cognitive restructuring, problem solving, treatment adherence, and identification of social supports [42]. It is unclear which elements are essential or most important for a positive outcome. Stress management and mindfulness training have not been consistently incorporated into CBT protocols for the suicidal patient; however, these elements should be considered for future studies. The duration, frequency, and intensity of CBT treatment for optimal outcomes is yet to be determined. Finally, future research needs to consider the value of CBT across clinical settings and various social economic groups.

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