

Suicide Interventions Targeted Toward At-Risk Youth

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Abstract

Suicide is currently the third leading cause of death among youth; it has been named a public health concern. A number of programs have been developed to prevent suicide; many of these involve intervening with youth who are known to be at-risk because of their depression, expressed suicide ideation, or previous suicide attempts. This paper serves as a qualitative review of existing interventions for adolescent suicide. Long-term outcome data on existing programs are relatively scarce. However, promising current interventions include strategies to help youth tolerate intense negative affect and maintain emotional regulation. Individual psychotherapy for suicide prone youth is often conducted in conjunction with pharmacological treatments. Other noteworthy suicide interventions address the family dynamics surrounding suicidal youth, often by including the family in treatment. Interventions that increase the adolescent's motivation for treatment and likelihood of treatment compliance are also under current investigation. Modes of delivery for suicide interventions may also be changing with the inclusion of technology in service access and provision. Essential elements of effective suicide prevention programs and concerns with existing suicide-related interventions are also summarized.

Suicide Interventions Targeted Toward At-Risk Youth

Suicide is the third leading cause of death among both 10- to 14-year-olds and 15- to 19-year olds in the United States (Centers for Disease Control and Prevention [CDC], 2008). According to their self-report, approximately 15% of high school students have seriously contemplated suicide in the past 12 months while 7% indicated they had made an actual suicide attempt (Eaton et al., 2006). Suicidal ideation is a precursor of later suicide-related behavior (Crosby, Cheltenham, & Sacks, 1999), as 34.7% of life-time suicide ideators eventually make a suicide attempt (Kessler, Borges, & Walters, 1999). Although most adolescents who contemplate completing suicide will never act on those thoughts, the presence of suicide ideation is one of the most significant risk factors for subsequent suicide attempts in youth (Pinto, Whisman, & McCoy, 1997; Suominen et al., 2004) and thus it is often a focal point of adolescent suicide intervention and prevention efforts.

Suicidal behavior has been frequently considered to be defined along a continuum of severity (Mazza, 2006). One end of the continuum begins with thoughts of death and dying. Next is suicidal ideation, followed by plans to attempt suicide, and then suicide attempts. The final node of the continuum consists of suicide completion (Barrios, Everett, Simon, & Brener, 2000; Hovey & King, 2002; Scocco & De Leo, 2002). Recently, researchers have added risk-taking and self-injurious behaviors as initial points on the continuum (Ellis & Trumppower, 2008; Langhinrichsen-Rohling & Lamis, 2008), as these less overtly suicidal behaviors have been shown to constitute a component

of suicide proneness and may serve as another focus of early intervention and/or suicide prevention efforts (Langhinrichsen-Rohling & Lamis).

Overall, one important suicide prevention strategy has been to identify and intervene with individuals who are at early points along the continuum (e.g., target programs toward individuals who are engaging in high levels of risk taking behavior, or who are expressing suicide ideation, or who have made a suicide attempt). In fact, numerous suicide prevention efforts have focused on individuals who are deemed at-risk because of their experience of related risk factors for suicide including increased depression and/or hopelessness (Garrison, Lewinsohn, Marsteller, Langhinrichsen, & Lann, 1991; Konick & Gutierrez, 2005; Lamis, Malone, Langhinrichsen-Rohling, & Ellis, 2010). These programs have variously been considered either secondary prevention programs or early intervention programs. Compiling and reviewing the existing programs (whether they are considered secondary prevention or suicide intervention) that are specifically targeted toward at-risk youth and/or their families is the primary purpose of the current paper.

At the outset, it should be noted these interventions stand in contrast to primary suicide prevention efforts, which are distributed to the population as a whole (universal) and have often been delivered to youth in school settings. These primary prevention programs have been supported by U.S. Government Initiatives. Specifically, in 2000, the United States Department of Health and Human Services (USDHHS, 2000) launched the Healthy People 2010 initiative, which is a health promotion and disease prevention agenda designed to improve the health of people in the U.S. during the first decade of the new millennium. One of the objectives was to increase the proportion of middle and high schools that provide health education to prevent suicide (USDHHS). As of 2007, Kann, Brener, and Wechsler reported although the number of suicide prevention programs implemented in schools went up from 59.1% in 2005 to 63.1% in 2007, this figure falls far short of the 2010 target of 80% of schools regularly delivering effective suicide prevention programs. Additionally, the 2010 Healthy People suicide health objective does not identify a specific universal program that should be employed throughout the U.S. (Kann, Brener, & Allensworth, 2001).

In fact, a review of the literature indicates many different youth suicide prevention programs have been proposed (Miller, Eckert, & Mazza, 2009). However, the majority of these programs share at least one of two general goals: 1) enhancement of protective factors and reduction of risk factors and/or 2) identification and referral of individuals who emerge as high-risk (Gould & Kramer, 2001). Accordingly, these goals have been addressed among high school students in a variety of ways including suicide awareness curriculums (Ciffone, 2007; Kalafat & Elias, 1994), skills training (Thompson, Eggert, Randell, & Pike, 2001; Zenere & Lazarus, 2009), screening (Aseltine & DeMartino, 2004), and peer helper and gatekeeper training (Stuart, Waalen, & Haelstromm, 2003). Although numerous suicide prevention strategies have been developed and implemented, the majority of them have not been subjected to rigorous testing and evaluation (Macgowan, 2004). This means there is considerable diversity in programming even among schools that are currently offering a suicide prevention curriculum.

Consequently, an alternative route has been to target suicide intervention programs toward adolescents who are already exhibiting risk factors for suicide. This strategy makes particular sense given suicide is a very low base rate behavior. However, when designing and/or implementing a suicide intervention for adolescents, there are essential developmental elements to consider. These elements may vary among at-risk adolescents of different ages and young adults (e.g., there are risk factors that are specific to college students vs. those in high school, Langhinrichsen-Rohling, Klibert,

& Williams, 2011). There are also aspects of adolescent suicidal behavior that may manifest differently in particular subgroups of adolescents (e.g., suicidal behavior may manifest differently in adolescents who have been adjudicated as delinquent (Langhinrichsen-Rohling, Arata, Bowers, O'Brien, & Morgan, 2004), versus those who have co-morbid depression, (Kisch, Leino, & Silverman, 2005). Some of the important program-related considerations will be described below.

First, adolescents tend not to be formal help-seekers, even in times of acute crisis (Gould et al., 2004; Gulliver, Griffiths, & Christensen, 2010). Therefore, offering informal opportunities for guidance and non-stigmatizing ways to access effective help are important considerations for adolescent-directed interventions. Furthermore, intervention efforts for adolescents must be appropriate to their developmental level (which can vary widely among youth of the same age and across youth in middle versus high school versus college). Successful programs should also work well in concert with the multiple contexts to which the adolescent belongs (e.g., school, church, friends, and family; Daniel & Goldston, 2009). One important context facing today's youth is the widespread use of technology and the greater likelihood of exposure of personal information via social networking sites such as Facebook. Navigating this new technology in a socially acceptable and appropriate fashion requires the development of an additional set of adolescent social skills; unfortunately, many of these skills may be unfamiliar to adult help providers.

Of particular concern is some adolescents have used the internet and social networking sites as a forum to harm others. Specifically, cyber-bullying has been defined as "willful and repeated harm inflicted through the use of computers, cell phones, and other electronic devices" (Hinduja & Patchin, 2010, p. 208). Cyberbullying involves sending harassing or threatening messages (via text or email), posting insulting comments about someone on an online site or social networking site such as Facebook or Myspace, or threatening or intimidating someone through an online medium (Patchin & Hinduja, 2006). To date, very little research has been conducted on cyberbullying and suicidal behavior. However, one study, which utilized a large sample of middle-school students (Hinduja & Patchin, 2010), determined that youth who experienced cyberbullying, as either an offender or a victim, had significantly more suicidal thoughts and were more likely to attempt suicide than those who had not experienced bullying through an online setting.

Conversely, online resources may serve as a protective factor against suicide for some at-risk adolescents (Barak, 2007) as they offer many ways for socially isolated youth to find a peer group and to develop a sense of belonging to a like-minded community. These sites also are impacting and potentially enhancing our ability to reach adolescents who may be reluctant to seek more formal help. For example, Greidanus and Everall (2010) found that internet-based helping communities provided a peer-based support system for adolescents experiencing suicidal thoughts. These communities are able to offer feedback and support to others on an immediate basis; they are often active around the clock, and the help occurs in a relatively informal and anonymous context, a context that is particularly well-suited to the developmental needs of at-risk adolescents. In support of these contentions, Barak reported a confidential online environment has facilitated the rescue of a significant number of individuals who were threatening to commit suicide or were actually in the process of attempting suicide. Moreover, well-timed supportive conversations or referrals to appropriate help resources through online websites have often been shown to prevent impulsive death-promoting decisions by distressed people contemplating suicide (Barak).

Directing suicide interventions towards high-risk youth has worrisome aspects. One concern is there is a documented contagion factor related to adolescent suicide (Poijula, Wahlberg, &

Dyregrov, 2001). Talking about, glorifying, or highly publicizing an existing adolescent suicide may particularly increase the risk of copycat behaviors among high-risk youth (Range et al., 1997).

It is also possible exposure to some types of suicide prevention materials can inadvertently promote suicidality in at-risk adolescents and young adults. For example, some programs tend to downplay the link between suicide and mental illness (paradoxically suggesting the suicide is a mentally healthy response). Some programs exaggerate suicide rates to dramatize the degree of the problem (paradoxically implying that adolescent suicidal behavior is more common and normative than it is). Many programs show case examples, which are meant to depict familiar situations (paradoxically suggesting that suicidal behaviors can be normative coping responses). Clearly, rigorous research is needed to determine what elements are effective and which should be avoided in suicide interventions targeted toward male and female at-risk youth (Langhinrichsen-Rohling, Kilbert & Williams, 2011).

Furthermore, if the intervention is targeted toward adolescents who have already made a suicide attempt, an understanding of the community's standard of care for an adolescent suicide attempt is essential. For example, if formal attention is received, the majority of suicide cases are handled through hospital emergency departments. Care in these environments typically consists of being hospitalized, briefly treated by the psychiatrist on call, and then referred to providers in the community upon discharge (Daniel & Goldston, 2009). Consequently, suicide interventions with at-risk youth should be designed not only to reduce the prevalence of recurrent suicidal behavior, ideation, and attempts, but also to increase compliance with efficacious follow-up medical recommendations upon discharge from residential care (Daniel & Goldston).

It is also well-established that a substantial number of risk factors tend to co-occur among high-risk adolescents (Jessor, 1992). Similarly, adolescents at risk for suicide have been shown to have a variety of life stressors (Grover et al., 2009; Wilburn & Smith, 2005) and interpersonal problems (Beautrais, Joyce, & Mulder, 1997; Kerr & Capaldi, 2011). They tend to be more impulsive (Langhinrichsen-Rohling & Lamis, 2008), and have more diagnosable psychiatric disorders than low-risk adolescents. Most notably there is a high rate of affective disorders (Major Depressive Disorder, Bipolar Disorder) among suicidal adolescents (Jacobson, Marrocco, Kleinman, & Gould, 2011; Javdani, Sadeh, & Verona, 2011; Lewinsohn, Rohde, & Seeley, 1996). Taken together, these findings support the need for programs aimed at reducing a wide array of co-occurring risk factors while enhancing the use of generally effective social and emotional coping mechanisms for youth at risk for suicide. Effective programs may also need to provide adolescents with skills to cope with intense negative affect and/or experiences of emotional dysregulation.

In a series of publications generated from a longitudinal study of the suicidal behavior of depressed adolescents, Lewinsohn and colleagues employed a multiple risk factor model of suicidal behavior (Lewinsohn, Rohde, & Seeley, 1993; Lewinsohn, Rohde, & Seeley, 1994; Lewinsohn, Rohde, & Seeley, 1996; Lewinsohn, Rohde, Seeley, & Baldwin, 2001). This model is in keeping with the concept that an array of factors associated with suicide risk should be considered when developing suicide interventions for youth. It is also relevant to Bronfenbrenner's (1977; 1994) ecological model in that risk and protective factors are thought to occur at multiple levels of the microsystem (individual, school, and family) to the macrosystem (institutional patterns of culture including customs, economics, and bodies of knowledge). According to this model, in order to understand the development of the desire to end one's life, it is necessary to consider both characteristics of the individual as well as features of the entire ecological system in which the individual is operating.

Two important considerations can be derived from this model. First, reducing related risk factors (e.g., depressive symptoms, alcohol use and misuses) can be expected to have the ancillary benefit of reducing suicidal behavior in youth. Second, adolescents each have a unique constellation of factors operating in their unique ecological system. Some aspects of particular systems may require the development of a culture-specific intervention. In other cases, a culturally relevant adaptation of an already accepted program may be warranted. While we know the prevalence of suicidal behavior differs between genders, across age groups, and among cultures (Langhinrichsen-Rohling, Friend, & Powell, 2009), relatively little research has been conducted to determine what, if any, adaptations are needed for existing suicide interventions.

Kraemer and colleagues (1997) suggested the effectiveness of most suicide interventions will depend largely on how well each of these programs serves to mitigate the key risk factors for suicidal behavior. It is also essential that a wide variety of strategies be utilized to identify the whole range of at-risk individuals, as evidence suggests existing suicide prevention centers and traditional mental health resources will miss the majority of young people at high risk for suicide (Kisch, Leino, & Silverman, 2005). Unfortunately, the majority of current clinical suicide risk assessment methods focus on assessing suicide risk directly. Few clinicians are routinely using indirect suicide risk assessment methods or systematically measuring an array of risk factors that may be associated with a higher probability of suicidal behavior.

Nock and Banaji (2007a) noted that relying on overtly assessing suicidal intent is problematic because individuals who are experiencing suicidal thoughts often conceal or deny such thoughts in order to avoid unwanted formal interventions and/or potentially stigmatizing treatment. Thus, although research using direct methods has shown suicide ideation to be prevalent among adolescents, relying on youth to self-report their suicidal thoughts so they may be included in a formal suicide intervention may not best serve our need in identifying as many at-risk adolescents as possible.

In keeping with this goal, researchers have delineated a construct of suicide proneness (Lewinsohn et al., 1995; Lewinsohn, Langhinrichsen-Rohling, Rohde, & Langford, 2004) that is defined to include both overtly suicidal behaviors and less overtly death-promoting behaviors that have known associations with suicidality. According to Lewinsohn and colleagues' theory, suicide proneness consists of a single domain to which all varieties of potentially life-threatening and life-extending behaviors belong. Life-threatening and life-extending behaviors were broadly defined to include thoughts, feelings, and actions by these colleagues. Therefore, the high-risk suicide prone individual is one who is both engaging in life-threatening thoughts, feelings, and actions as well as failing to engage in various types of life-extending behaviors. Measuring both aspects broadly should facilitate our ability to detect high-risk adolescents.

At the theoretical level, Lewinsohn et al. (1995) also asserted that suicide proneness is comprised of four disparate suicide-related domains: death and overtly suicide behaviors; illness and health behaviors; risk and injury behaviors; and self-denigrating or self-enhancing behaviors. Recognizing the interrelationships among these four suicide-related domains was expected to facilitate the process of identifying individuals engaging in life-threatening behavior that may be less overtly suicidal and thus, missed by other suicide-focused assessment strategies. Lewinsohn and colleagues then constructed an instrument to measure the overall construct of suicide proneness. This measure, the Life Attitudes Schedule (LAS), subsequently evolved to include the Life Attitudes Schedule-Short Form (LAS-SF). Use of either of these measures has shown to be effective in

identifying youths at-risk for suicide (Langhinrichsen-Rohling & Lamis, 2008; Langhinrichsen-Rohling, Sanders, Crane, & Monson, 1998). Consequently, it should be considered as an additional screening measure for youth suicide prevention programs.

Another group of researchers have also considered using less overt or direct methods to identify youth at-risk for suicide. Specifically, a variation of the computer administered Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998) has been developed to assess suicidal behavior through the measurement of implicit cognitions (Nock & Banaji, 2007b). To date, the studies which have used this task to assess suicidal intentions indirectly have been shown to add incremental validity to the suicide risk assessment process (Nock & Banaji, 2007a; 2007b; Nock et al., 2010). Although this type of assessment requires more resources for administration, it also should be considered as an addition to a traditional screening protocol for suicide among youth.

A recent model of how suicide develops has generated considerable recent research and clinical interest; this model also has important implications for suicide risk assessment and suicide intervention efforts with youth. The model is called The Interpersonal-Psychological model of suicide (Joiner, 2005). It was developed to increase the precision with which suicidal behavior could be predicted. This model consists of three proximal, causal, and interactive factors (Van Orden et al., 2010). According to Joiner's theory, two of these factors work in concert to increase a person's desire to commit suicide. The first factor is thwarted belongingness, which is experienced through intense feelings of loneliness and social isolation. Joiner theorized that the need to belong is fundamental. When this need is satisfied, it operates as a protective factor but, when unmet, it becomes a significant risk factor for suicidal behavior. Joiner's belongingness construct is similar to what Heisel, Flett, & Hewitt, (2003) has labeled as social hopelessness. Social hopelessness has been characterized as the anticipation that one will never "fit in" and that the need to belong will be left unsatisfied indefinitely. Thwarted belongingness or social hopelessness is thought to occur when one feels alienated from others or when a person is displaced outside of one's desired social support network.

Joiner's second factor is perceived burdensomeness. Individuals who perceive themselves to be a burden on others, particularly family members and loved ones, have been shown to be more likely to think about killing themselves (Van Orden, Witte, Gordon, Bender, & Joiner, 2008). These individuals are also more likely to possess misinterpretations about their ability to be effective in group activities. Specifically, they believe their feelings of ineffectiveness are stable and permanent and are impinging upon other people's ability to accomplish goals and tasks (i.e., they believe that their loved ones would be better off without them). Theoretically, according to Joiner's Interpersonal-Psychological model, when both thwarted belongingness and perceived burdensomeness are activated, it is expected the individual will have a strong desire to kill himself or herself. This desire might manifest in youth engagement in suicidal gestures and behaviors.

Joiner's Interpersonal-Psychological model of suicide contains a third factor that is hypothesized to explain how an individual might progress from a desire to die (suicide ideation) to actually engaging in a suicide attempt or completing the act of suicide. According to Joiner's model, suicidal behaviors and actions will only occur in individuals who have acquired the capability to suppress their physiological self-preservation mechanisms. Self-preservation instincts help individuals avoid painful experiences and self-harm whenever possible. According to the model, in order to attempt or complete suicide, an individual has to have an acquired capability for the self-destructive behavior (i.e., an increased tolerance of pain in conjunction with a reduced fear of death). While

habitual self-mutilation or intentional self-injury are proposed ways to learn to suppress self-preservation instincts, Joiner also noted that accidental injuries, illness, violent victimization, child abuse and/or repeated engagement in risky or dare-devil behaviors would also be effective ways to reduce fear of death and increase one's tolerance of self-inflicted pain. As predicted by the model, painful and provocative experiences have been shown to predict adolescents' levels of acquired capability for self-harm (Witte et al., 2008). Thus, this model has already received a considerable amount of research support; however, it has yet to be directly translated into an efficacious intervention for youth. None-the-less, measuring these constructs in youth (thwarted belongingness, perceived burdensomeness, and acquired capability) are also likely to aid the suicide risk assessment process. These constructs may also serve as markers of success in an efficacious intervention.

Existing Interventions

There have been two very recent and comprehensive review papers that focused on evaluating suicidal interventions for young people (Daniel & Goldston, 2009; Robinson, Hetrick, & Martin, 2010). Both reviewers concluded there is limited evidence about the effectiveness of existing interventions and there is not enough data from controlled trials to recommend one intervention over another. However, each systematically searched the literature for effectiveness trials that contained outcome data (Daniel & Goldstein, 2009; Robinson et al., 2010) and both compiled tables of existing suicide interventions. Thus, each made an important contribution to the literature.

Another recent review (2009) by Miller, Eckert, and Mazza focused only on suicide prevention programs ($n = 13$) that were implemented in schools. Consistent with the other reviews, these authors lamented the absence of measures of program implementation integrity, component analysis, and longitudinal data about program replicability. However, Miller et al. did identify two programs that may be particularly efficacious. One was a universal program that focused on psychological education about suicide, while including distress and coping skills (Klingman & Hochdorf, 1993). The other was a 30-week program (3 session per week) that combined suicide awareness with a focus on addressing and diminishing related risk-taking behaviors (LaFromboise & Howard-Pitney, 1995).

Another systematic review, utilizing the *Guide to Community Preventive Services* was recently conducted by York and colleagues (in press). This later review focused exclusively on universal suicide prevention programs (strategies directed toward the population as a whole) of which 16 were identified. The approaches included in this review included behavioral change interventions, health and education system level interventions, and environmental interventions. No studies evaluating legislation or public policy interventions were identified for inclusion; however, many have suggested that restricting youth access to firearms shows promise as a prevention approach (e.g., Eddy, Wolpert, & Rosenberg, 1987).

Several conclusions were derived from the York and colleagues (in press) review. First, student curriculum, competence based programs, and student curriculum in conjunction with gatekeeper training, have been demonstrated to increase students' knowledge of suicide and to positively impact their suicide-related attitudes and risk factors (e.g., hopelessness). Unfortunately, however, there is little evidence that these universal programs serve to decrease youth engagement in suicidal behavior (York et al., in press).

In addition, in 2003, Gould, Greenberg, Velting, and Shaffer published a critical review of the previous ten years of youth suicide risk and prevention interventions. They focused on the three domains in which youth suicide programs are implemented: school, community, and health-care systems. School programs vary in nature and include: adding awareness curriculum; offering skills training, introducing a screening protocol, giving school based personnel gatekeeper training, developing peer mentors, and providing more accessible crisis/postvention services within the school environment. Community services range from crisis centers and hotlines, to media education and guideline development about the nature and extent of the publicity that should be accorded to a youth suicide. Within the health-services domain, efforts have focused on increasing provider education, facilitating service utilization and access to psychotherapy and medication, training staff in suicide crisis management, and encouraging compliance with inpatient care and outpatient follow-up treatment. Across these domains, Gould et al. (2003) concluded that school based skills-training, physician and media education, and restriction of access to firearms, in conjunction with enhanced access to and utilization of psychopharmacological and psychological interventions for individuals screened to be at-risk, all show promise and warrant continued investigation.

Therefore, to take a different approach from the existing reviews, in the current review, we will limit our focus to existing interventions that can be categorized into one of three categories: interventions dedicated to primarily improving the well-being of the already suicidal youth, interventions dedicated to helping the suicidal youth and their family, and interventions primarily dedicated to improving the family functioning as a whole in the wake of suicidal activity by the youth. These programs can all be considered interventions rather than general suicide prevention programs. When there has been research to determine the effectiveness of each of these programs, most of these existing youth suicide interventions have been compared to standard emergency department care (routine care or treatment as usual); as a wait-list or no treatment condition for suicidal youth would be unethical.

Youth Focused Suicide Interventions

When discussing interventions wherein the primary intended effect is improving the well-being of the suicidal youth, a number of interventions have been utilized including: the rapid response intervention (Greenfield, Larson, Hechtman, Rousseau, & Platt, 2002), the supportive and educational intervention (Deykin, Hsieh, Joshi, & McNamara, 1986), the social support intervention (King et al., 2006), the skills based (cognitive-behavioral) intervention (Donaldson, Spirito, & Esposito-Smythers, 2005), the developmental group therapy intervention (Wood, Trainor, Rothwell, Moore, & Harrington, 2001), the service utilization "green card" intervention (Cotgrove, Zirinsky, Black, & Weston, 1995), the psychopharmacological intervention (Brent et al., 2009), the interpersonal problem solving intervention (McLeavey, Daly, Ludgate, & Murray, 1994), the LifeSPAN therapy intervention (Power et al., 2003), and variants of cognitive-behavioral therapy (CBT) (Slee, Garnefski, van der Leeden, Arensman, & Spinhoven, 2008). Even though each one of these interventions embraces the same goal of suicide prevention in high-risk youth and most primarily focus on intervening directly with the suicidal youth; each has at least one important difference in how the intervention approach is manifested. These differences will be highlighted in the descriptions below.

Specifically, the rapid response intervention (Greenfield et al., 2002) helps facilitate post-emergency department care by contacting families and arranging after-care services to begin

immediately following the emergency department visit. This strategy differs from standard emergency department care or treatment as usual in which there can be long waits for after-care service provisions to begin and often access to these services must be initiated by the suicidal youth and his or her family.

The supportive and educational intervention (Deykin et al., 1986) uses community outreach social workers to provide support and advocacy to the suicidal adolescent. This pragmatic type of intervention is administered rather than providing more feeling focused therapy. This intervention also offers education to potentially suicidal youth who are located within the school or health service systems.

In the social support intervention (King et al., 2006), suicidal youths are assigned to a Youth-Nominated Support Team (YST) on which they can independently choose who they desire as their support persons. During this intervention, weekly contact between the YST and the suicidal youth is encouraged. Special training is provided to the members of the YST in order to enhance their effectiveness. The purpose of this intervention is to decrease suicidal youth's feelings of loneliness or thwarted belongingness.

The skills based intervention (Donaldson et al., 2005) emphasizes enhancing the youth's ability to problem solve and manage their affect appropriately. This intervention is predicated on the notion that the youth feels powerless to influence others in socially acceptable ways (Berman & Jobes, 1991). In this intervention, parents can provide collateral information to the help providers when it is deemed necessary. Other interventions that focus on improving interpersonal problem solving skills exist (McLeavey et al., 1994; Rudd, et al., 1996); some of these interventions are conducted in a group format (Hazell, et al., 2009). Others focus on problem-solving around barriers to post-discharge treatment compliance (Spirito, Boergers, Donaldson, Bishop, & Lewander, 2002).

Moreover, several therapists have adapted cognitive-behavioral therapy to meet the needs of suicidal adolescents. One of the most well-known adaptations was constructed by Rudd, Joiner, and Rajab (2001). These authors have created a treatment manual for their time-limited approach that is described in their book, "Treating suicidal behavior: An effective, time-limited approach." Slee and colleagues (2008) utilized a similar approach by providing 12-sessions of cognitive behavioral therapy for individuals who had engaged in deliberate self-harm.

The developmental group therapy intervention for suicidal youth (Wood et al., 2001) consists of an initial assessment and six acute group sessions. Each of these sessions focuses on one of the six main themes that are deemed relevant to the suicidal adolescent. After this, the adolescent remains in a more general long-term therapy group until the youth feels ready to terminate the help.

As a component of the service utilization intervention (Cotgrove et al., 1995), adolescents are presented with a green card or token. This token allows each adolescent to gain re-admission to the hospital as needed. Youths in this intervention also receive routine care. It is thought that possession of the token will provide the youth with a general mental safety net, as well as access to a physical oasis should they need additional safety as they work through their suicidal crisis.

Some individually focused suicide interventions (Brent et al., 2009) are psychopharmacological in approach. They tend to consist of treating youth with medications such as selective serotonin reuptake inhibitors (SSRIs) in order to alleviate the underlying depression or the presumed

neurochemical imbalance. These interventions are often used in conjunction with individual psycho-therapy.

In contrast, the LifeSPAN suicide intervention (Power et al., 2003) was developed for adolescents with severe mental illness. This intervention consists of individual sessions that directly focus on cognitive-oriented therapy and suicide prevention as manifested in an individual who is suffering with a severe mental disorder. Lastly, many existing youth-focused suicide interventions use variants of cognitive behavior therapy combined with treatment as usual in order to prevent subsequent suicidal behavior (Slee et al., 2008).

Family Inclusive Suicide Interventions

Interventions dedicated to simultaneously helping the suicidal youth and their families have also been developed and implemented. These programs are thought to be beneficial as an adolescent suicide attempt typically has a widespread impact on the youth's family (Daniel & Goldston, 2009). Family factors that are related to youth suicide include frequent and unresolved parental conflict, the presence of childhood abuse or neglect, and the occurrence of unmet or unrealistic expectations (Langhinrichsen-Rohling, Monson, Meyer, Caster, & Sanders, 1998).

There are several existing family based interventions for youth suicide which deserve comment. For example, there is the motivational educational emergency room intervention (Rotheram-Borus et al., 1996, 2000), which begins with requiring the family to view a videotaped presentation which describes the dangers of youth suicidal behavior and benefits of treatment for the adolescent and the family. This treatment also includes one crisis family therapy session. The youth simultaneously receives brief individual cognitive-behavioral therapy. As part of this intervention, all emergency department staff are also provided with education about youth suicidal behavior. In contrast, Harrington and colleagues (1998) offer a brief 5-session home-based family intervention that occurs once the adolescent is discharged from inpatient treatment. Donaldson and colleagues (2005) tested a 6-month intervention that combined individual and family sessions and included both an active phase of treatment (over the first three months) and a maintenance phase of treatment (over the last three months).

Recently, several groups have begun utilizing family-inclusive adaptations of dialectical behavior therapy (DBT) to treat suicidal youth (Katz, Cox, Gunasekara, & Miller, 2004; Rathus & Miller, 2002, Turner, 2000). These adaptations have worked to increase their relevance to adolescents by reducing the length of therapy and by simplifying the skills training components of traditional DBT. In the modified DBT, the parents are involved in the skills training group. They are then encouraged to serve as coaches for their adolescent. The family members are also involved in the individual therapy sessions. A recent treatment outcome study of suicide-related DBT compared with treatment as usual ($n = 62$ adolescents) revealed that while both treatments reduced youth parasuicidal behavior, depressive symptoms and one year incidence of suicide ideation, DBT also resulted in a significant reduction of behavior incidents during admission (Katz et al., 2004).

Even more recently, Diamond and colleagues (2010) reported on an attachment-based family therapy intervention for suicidal youth (Diamond et al., 2010). This intervention combines behavioral, cognitive, and psycho-educational therapy. The treatment consists of five tasks for the family to complete. These tasks are: a relational reframe task, the adolescent alliance task, the parent alliance task, the reattachment task, and the competency task. It is thought that the family

will increase their sense of connectedness and improve their ability to communicate effectively through completion of these tasks.

Family Focused Suicide Interventions for Youth

The third set of youth suicidal interventions are predicated on the assumption that any youth who is engaging in suicidal behavior has experienced a family environment which is in some way dysfunctional. Consequently, these interventions target the family's functioning as the way to reduce the suicide risk to the adolescent. One of these interventions is the in-home family program and another is called multi-systemic family therapy (MST) (Harrington et al., 1998; Huey et al., 2004). The in-home family intervention sessions focus on improving family problem solving and communication while simultaneously exploring how the adolescent's developmental issues may be affecting the family. In contrast, the MST intervention was designed for families that contain a youth who has identified behavioral and emotional problems. This intervention works to improve parenting abilities while enhancing the families' ability to communicate with their problematic youth. The program also encourages social activity among youth involved in the program. Other general family-focused interventions may also be effective with suicidal adolescents and their families (The Strengthening Families Program, Kumpfer, 2004).

Taken as a whole, the existing interventions for youth seem to recognize the need to enhance the suicidal adolescent's sense of belonging by increasing social skills and through involvement in group therapy. In many of the programs, there is also a recognition that facilitating the relationships between the youth and his or her family is likely to reduce suicidality. Strategies to help families include enhancing communication skills, facilitating family problem solving, and encouraging the completion of shared family-oriented tasks that promote alliance building and perceived support among family members.

Evidence for the Effectiveness of Suicide Interventions

The empirical literature validating the effectiveness of particular suicide interventions is relatively sparse; clearly, this is an area that needs continued attention in spite of the difficulties inherent in studying programs directed toward youth who are potentially suicidal (Daniel & Goldston, 2009). In fact, in 2009, Daniel and Goldston's review concluded that "despite public health concern, there are insufficient data available from controlled trials to recommend one intervention over another for the treatment of suicidal youths" and "to date, however, it appears that interventions for suicidal youth have been, in general, more successful at affecting aspects of service utilization and delivery than in reducing rates of suicide attempts per se" (Daniel & Goldston, 2009, p. 259).

Gender, At-risk Populations, and Youth Suicidal Behavior

Even less is known about the degree to which existing suicide interventions may be differentially effective for male versus female adolescents or for youth who are embedded in an at-risk population or culture (Langhinrichsen-Rohling et al., 2009). However, we do know that the prevalence and expression of various types of suicidal behaviors are impacted by gender, age, race, sexual orientation, and culture. It stands to follow existing interventions may need to be modified to be well-suited for delivery in particular contexts and with particular subgroups of individuals (Langhinrichsen-Rohling, O'Brien, Klibert, Arata, & Bowers, 2006).

For example, a gender paradox has been demonstrated such that women are more likely than men to express suicide ideation and make non-fatal suicide attempts, whereas men complete suicide at higher rates than women (Canetto & Sakinofsky, 1998). In keeping with this paradox, a recent review of 128 studies of 513,188 adolescents indicated that girls engage in suicide ideation, plans and attempts at higher rates than do boys (Evans, Hawton, Rodham, & Deeks, 2005). At the same time, however, within the United States, male adolescents have been shown to complete suicide at higher rates than female adolescents (American Association of Suicidology [AAS], 2010) and the rate at which male youth commit suicide increases from ages 11 to 21 (Conner & Goldston, 2007).

In addition, two important risk factors for suicide are known to have gender-specific components to their prevalence and expression. The first is depressive symptomology, which tends to be more frequently reported by girls (Blair-West & Mellsop, 2001; Lamis et al., 2010). The second is alcohol and substance use (see Bagge & Sher, 2008 for a review) which tends to be more frequently reported by boys. Across these two risk factors, cross-gender behavior may signal greater risk. For example, depression is more commonly diagnosed in women than in men. However, the risk of suicide may be as much as ten times higher for men with depression than women with depression (Blair-West & Mellsop, 2001). Similarly, although mood variability is more common for college women than men, emotional dysregulation or variability was a better predictor of the suicide attempts of college men than of college women (Witte, Fitzpatrick, Joiner, & Schmidt, 2005).

Conversely, boys have been shown to have higher rates of conduct disorder and to engage in more frequent acts of delinquency than girls. However, higher levels of delinquency were more associated with suicide proneness for female than male college students (Langhinrichsen-Rohling et al., 2004). Likewise, recent alcohol consumption was a unique predictor of suicide ideation for college women but not for men (Stephenson, Pena-Shaff, & Quirk, 2006), even though alcohol abuse disorders are more common among men than women (Canetto, 1991).

Identifying with a sexual orientation other than heterosexual may also be associated with additional suicide risk. Researchers have consistently demonstrated that adolescents experiencing same-sex sexual attractions or endorsing a lesbian, gay, or bisexual (LGB) sexual orientation report more suicidal ideation and higher rates of suicide attempts than exclusively heterosexual adolescents (e.g., Haas et al., 2011; Kitts, 2005; Langhinrichsen-Rohling, Lamis, & Malone, 2011; Russell, 2003). Specifically, a review of the relevant research studies concludes LGB youth are one and a half to three times more likely to report suicidal ideation and one and a half to seven times more likely to have attempted suicide than non-LGB youth (Suicide Prevention Resource Center, 2008). Likewise, a 2003 meta-analysis concluded that sexual minority youth and young adults are two to four times more likely to make a suicide attempt than are their non-sexual minority peers (Burckell & Goldfried, 2003). A second even more recent meta-analysis focusing on population based studies reported a two fold increase in suicide attempts in gay, lesbian, and bisexual individuals (King et al., 2008). Suicide interventions directed toward these at-risk factors may need to be tailored to address the particular concerns and challenges faced by LGB youth, including increased incidents of discrimination and harassment, and greater likelihood of experiencing thwarted belongingness.

Ethnicity has also been related to suicide risk. For example, Native American adolescents form another specific high-risk group while both Asian Americans and African Americans tend to exhibit lower rates of suicide compared Caucasian adolescents (Langhinrichsen-Rohling et al., 2009). Subgroup differences within ethnic groups may also influence the risk of suicidal behavior. For

example, although African Americans have a low overall risk of suicide, the gender disparity in their rates is high (African American males are disproportionately at risk). Conversely, although Native Americans have a high overall risk of suicide, the gender disparity between rates is very low (e.g., Native American females are disproportionately at risk, Langhinrichsen-Rohling et al., 2009). These subgroup differences in suicide rates and risk factors have highlighted the need for researchers to develop, adapt, and evaluate existing suicide intervention programs so they can be appropriately targeted toward particular high-risk groups (Arria et al., 2009).

In conclusion, additional work is needed in order to develop and test evidence-based interventions to intervene with suicidal adolescents of both genders who are embedded in a variety of types of romantic relationships, who come from different family structures and who have experienced different cultural contexts. It is likely that interventions that impact multiple risk factors, and that are gender-specific, multi-contextual, and developmentally appropriate, will be the most successful. In the review by Robinson and colleagues (2010), it is clear that research on the effectiveness of interventions is ongoing as a number of current studies have been registered with the clinical trials registry. These include testing SAFETY (Arsanow, 2011), mindfulness based cognitive therapy (Klerk, 2011) and an integrated suicide and substance use intervention (Esposito-Smythers, 2011) among others.

As of now, promising suicide interventions are including strategies to help youth tolerate intense negative affect and maintain emotional regulation. Individual psychotherapy for suicide prone youth is typically being conducted in conjunction with pharmacological treatments; advances in anti-depressant medication that can be used with adolescents is ongoing. Other noteworthy suicide interventions have highlighted the need to address the family dynamics surrounding suicidal youth, often by including the family in treatment. Interventions that increase the adolescent's motivation for treatment and likelihood of treatment compliance are also under current investigation. Modes of delivery for suicide interventions may also be changing with the inclusion of technology in service access and provision. Advances in the nature of suicide interventions, their adaptability to particular subgroups of youth, and their mode of delivery are likely to be emerging. It is expected that these innovations will improve our ability to prevent suicide in youth.

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