1994

Cognitive Distortions, Impulsivity, and Stressful Life Events in Suicidal Adolescents.

Christine Sadowski

Louisiana State University and Agricultural & Mechanical College

Follow this and additional works at: https://digitalcommons.lsu.edu/gradschool_disstheses

Recommended Citation


https://digitalcommons.lsu.edu/gradschool_disstheses/5902
INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.
COGNITIVE DISTORTIONS, IMPULSIVITY, AND STRESSFUL
LIFE EVENTS IN SUICIDAL ADOLESCENTS

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Psychology

by

Christine Sadowski.
B.A., Swarthmore College, 1985
M.A. in Psychology, Louisiana State University, 1990
December, 1994
ACKNOWLEDGEMENTS

I would like to take this opportunity to thank all the people who have provided me with guidance and support throughout this process. First, I would like to thank the professors who have contributed to my education and professional development, particularly Jeanne Marecek, Ph.D., and Alan Schneider, Ph.D., for peaking my interest in psychology as a undergraduate and to Mary Lou Kelley, Ph.D., for allowing me to pursue clinical and research endeavors with adolescents as a graduate student. I would also like to express my appreciation to the members of my dissertation committee, Claire Advokat, Ph.D., W. Drew Gouvier, Ph.D., Roy Allen, Ph.D., and Abbas Tashakori, Ph.D. Second, I would like to thank the staff of Greenwell Springs Hospital, particularly Roy Allen, Ph.D., for providing me with a wonderful educational opportunity. Third, this process would have been unbearable without the support of my friends, including Lili Lengua, Sheri Jackson, Vesna Kutlesic, Mary Matese, Brian Betz, Buzz Prejean, Annie Colwell, and Esther Colwell. I would particularly like to express my gratitude to Elizabeth Lloyd for all her hard work on this project. Finally, I would like to thank my family for their encouragement and love.
# TABLE OF CONTENTS

ACKNOWLEDGMENTS.......................................................................................... ii

LIST OF TABLES.................................................................................................. iv

ABSTRACT............................................................................................................... v

INTRODUCTION..................................................................................................... 1

A. Historical Overview............................................................................... 2
B. Epidemiology of Adolescent Suicidal Behavior................................. 3
C. Risk Factors Associated with Adolescent Suicidality...................... 7
D. Models of Suicide.................................................................................. 21
E. Cognitions, Impulsivity, Stressful Life Events, and Suicidality............ 22

METHOD................................................................................................................. 25

RESULTS................................................................................................................. 35

DISCUSSION........................................................................................................... 47

BIBLIOGRAPHY................................................................................................... 54

APPENDICES.......................................................................................................... 69

VITA......................................................................................................................... 72
LIST OF TABLES

1. Demographic Characteristics of Suicide Attempters, Suicide Ideators, Psychiatric Controls, and Community Controls................................. 26

2. Diagnostic Characteristics of Suicide Attempters, Suicide Ideators, and Psychiatric Controls................................................................. 31

3. Means and Standard Deviations on Original Variables by Group........................ 39

4. Correlations Between Medical Lethality Factor and Measured Variables........... 42

5. Intercorrelation Matrix of Demographic Variables, Predictors, and Criterion ...... 43

6. Results of Regression Analysis.................................................................... 45
ABSTRACT

Among adolescents, escalating rates of completed and attempted suicide are reported worldwide (Maris, 1985). In the literature, a variety of risk factors have been associated with suicidality in adolescence. The purpose of this study was to examine the relationship between cognitive distortions, impulsivity, and stressful life events in suicidal adolescents. A total of 118 adolescents between the ages of 12 and 18 years participated in this investigation. The subjects comprised four groups: inpatient suicide attempters (n=33); inpatient and outpatient suicide ideators (n=17); inpatient, nonsuicidal controls (n=33), and community high school controls (n=35). Subjects completed self-report measures of cognitive distortions, depression, impulsivity, life events, and daily hassles and a semi-structured interview for suicidal behavior. Multivariate analyses revealed group differences in depression, hopelessness, and cognitive distortions and in life events and daily hassles; in addition, univariate analysis revealed group differences in impulsivity. Suicidal adolescents reported greater depression, hopelessness, and cognitive distortions than psychiatric and community controls. In addition, self-reported depression distinguished ideators and attempters. Suicidal adolescents reported greater negative life events and daily hassles than psychiatric and community controls. Impulsivity also differentiated suicidal adolescents from psychiatric and community controls. Among suicide attempters, medical lethality of suicide attempt was associated with hopelessness, daily hassles, and depression. Cognitive distortions and negative life events contributed to the prediction of suicidal behavior, above and beyond demographic variables, past suicide attempt(s), and depression.
INTRODUCTION

In the past thirty years, there has been a dramatic rise in attempted and completed suicide among adolescents (Diekstra, 1989). In the literature, various risk factors for adolescent suicidal behavior are identified, including biological and genetic factors, such as serotonergic dysfunction and family history of affective disorder (Linnoila, Virkkunen, George, & Higley, 1993); psychological factors, such as depression (Pfeffer, Klerman, Hurt, Lesser, Peskin, & Siefker, 1991), and substance abuse (Brent et al., 1993); developmental and cognitive factors, including problem-solving (Sadowski & Kelley, 1993) and hopelessness (Steer, Kuman, & Beck, 1993); social and cultural factors, such as family dysfunction (Callahan, 1993) and lack of social support (Heikkinen, Aro, & Lonnqvist, 1993); and a variety of situational factors, including stress, abuse, and physical illness (Spirito, Stark, Overholser, & Fritz, 1989).

While numerous risk factors for suicidal behavior have been identified, further inquiry into the relationship between cognitive factors, impulsivity, and stressful life events is warranted. Despite the plethora of studies on cognitive distortions and depression (Asarnow & Bates, 1988; Curry & Craighead, 1990; McCauley, Mitchell, Burke, & Moss, 1988; Thurber, Crow, Thurber, & Woffington, 1990), few studies have examined maladaptive cognitions in suicide attempters relative to other adolescent populations. It has been suggested that negative orientation towards problems (e.g., worrying about problems, doubting ability to solve problems, negative affect associated with problem solving) differentiates suicide attempters from distressed and nondistressed peers (Sadowski & Kelley, 1993). In addition, impulsivity may complicate suicide attempters' efforts to resolve dilemmas (Kashden, Fremou, Callahan, & Franzen, 1993). Although major life events have been associated with suicidal ideation and behavior in adults and children, inconsistent findings are documented with adolescents (Dubow, Kausch, Blum, Reed, & Bush, 1989; Lewinsohn, Rohde, &
Seeley, 1994). In addition, there has been little study of impact of daily hassles on suicidality, in spite of the strong association that has been documented between physical illness and daily hassles (Faccini, 1992). Thus, the way adolescents think about and deal with their problems, ranging from major life events to daily hassles, appears to be a worthwhile area of inquiry. The purpose of this study was to examine the relationship between cognitive distortions, impulsivity, and stressful life events in suicidal adolescents. After a brief overview of the historical events that contributed to an understanding of adolescent suicidality, the following review addresses the epidemiology of adolescent suicidal behavior, the risk factors associated with suicidal behavior in young people, and recent developments in causal modeling of suicidality.

**Historical Overview**

Over the past two centuries, several critical events have contributed to our knowledge of suicide (Klerman, 1987). In 1892, Emile Durkheim conducted the first sociological survey of variations in reported suicide deaths in France which contributed to his development of the concept of social anomie or alienation. Prior to the turn of the century, Kraepelin proposed that "manic depressive insanity" (bipolar affective disorder) and "dementia praecox" (schizophrenia) were two distinct disorders which resulted in the study of suicide rates as "an unfortunate outcome of certain psychiatric disorders (Klerman, 1987)." In his classic paper "Mourning and Melancholia", Freud suggested that hostility turned inward contributed to suicidal ideation in individuals with melancholic depression. On the basis of his analysis of the World Health Organization (WHO) epidemiologic data, Stengel (1964) concluded that suicide attempters could be differentiated from suicide completers based on demographic and psychiatric characteristics. In the 1960s, the National Institute of Mental Health (NIMH) commenced a national suicide prevention program. During this program, the psychological autopsy technique was developed. This technique facilitated the
systematic investigation of suicide by reconstruction of the backgrounds of suicide victims. In addition, the knowledge gained from psychological autopsies was utilized to develop interventions for people at high risk for suicide. In the past twenty years, suicide research has been driven by escalating rates of suicidal behavior among young people. Epidemiological surveys and comparative studies have identified numerous risk factors that have, in turn, facilitated the development of models of suicidal behavior. Our knowledge of suicidality has been advanced by the use of larger sample sizes, structured interviews, and explicit diagnostic criteria; judicious selection of comparison groups; and additional cognizance of suicidal ideation, suicide attempts, and death by suicide as discrete phenomena (Clark, 1993). Yet, it is clear that suicidality is a complex biopsychosocial phenomenon, "a final common behavioral pathway reached by many different routes (Callahan, 1993)."

Epidemiology of Adolescent Suicidal Behavior

Adolescent suicidal behavior is a significant mental health problem. From 1960-1980, suicides among 15-24 year olds increased 237% (Maris, 1985). In the United States, about 2,000 adolescents die by suicide every year (Clark, 1993). While suicide currently is the 9th-10th leading cause of death overall, it is the 3rd leading cause of death among teenagers after accidents and homicide (Clark, 1993; Diekstra, 1989; Rosenberg, Smith, Davidson, & Conn, 1987). Moreover, the teenage suicide rate is probably underestimated due to misclassification, changes in the classification systems for suicide as a cause of death, personal biases, incomplete information, cultural resistance and pressure from families and communities (Brent, Perper, and Allman, 1987; McClure, 1984). For example, some victim-precipitated homicides among black youth (Gibbs, 1988) and alcohol-related automobile fatalities among Indian teenagers (Berlin, 1987) may be suicides.
While the completed suicide rate for adolescents is relatively low, the attempted rate has increased by approximately tenfold with repetition rates between 5-40% (Manson, Beals, Wiegman, Dick, & Duclos, 1989; Maris, 1985; Pfeffer, Newcorn, Kaplan, Mizruchi, & Plutchik, 1988). Further, adolescent attempters are at increased risk for future attempts and completed suicide (Gispert, Davis, Marsh, & Wheeler, 1987; Goldacre & Hawton, 1985; Lewinsohn et al., 1994). Ten to 14% percent of suicide attempters will eventually die from suicide (Diekstra, 1989). Although it is difficult to determine the rate of nonfatal suicidal ideation and behavior, community surveys indicate that between 36-60% of adolescents have experienced suicidal ideation in the previous year; in addition, 7-10% of community adolescents report having made a suicide attempt (Dubow et al., 1989; Harkavy-Friedman, Asnis, Boeck, & Difiore, 1987; Garrison, Addy, Jackson, McKeown, & Waller, 1991).

Males commit suicide more than females; however, females are between 2-9 times more likely than males to make an attempt (Hawton, O'Grady, Osborn, & Cole, 1982a; Kotila & Lonnqvist, 1988; Riggs et al., 1990). Generally, females tend to use less lethal methods (McKenry, Tishler, & Kelley, 1983). However, gender differences in lethality are not found among violent, aggressive teenagers (Cairns, Peterson, & Neckerman, 1988).

Although suicide potential for adolescent males increases with age, suicide potential for females tends to remain constant throughout adolescence (Cairns et al., 1988; Rey & Bird, 1991). Suicidal behavior among adolescents peaks between 14-17 years (Kinkel, Bailey, & Josef, 1992; Kovacs, Goldston, & Gatsonis, 1993). Lethal suicide attempts tend to occur in late adolescence (Rao, Weissman, Martin, & Hammond, 1993). It is possible that cognitive immaturity may limit planning and implementation of lethal attempts in children and preadolescents (Clark, 1993).
The suicide rate for white adolescents is about twice that for African-Americans or Hispanics; however, certain Native American tribes have the highest suicide rates in the United States (Clark, 1993). Evidence regarding socioeconomic status (SES) is mixed with higher rates of suicidal behavior reported among high and low SES teenagers (Gispert, Wheeler, Marsh, & Davis, 1985; Lukianowicz, 1968; White, 1974).

While firearms and hanging are the most common methods of suicide among adolescents, overdoses are the most prevalent method of attempted suicide, particularly among females (Deykin, Alpert, & McNamara, 1985; Gispert et al., 1987). Overdoses of over-the-counter medication and prescription medication are roughly equal (Spirito, Stark, Hart, & Fristad, 1988). Brent (1987) suggested that over-the-counter medications are more likely to be used in impulsive attempts, while overdoses by prescription medication or a combination of the two are more characteristic of hopeless, dysphoric attempters.

Common precipitants of suicidal behavior include interpersonal conflict and loss, particularly with family members and boy/girlfriends; school difficulties; and legal and disciplinary problems (Brent et al., 1993d; Kienhorst, Wolters, Diekstra, & Otte, 1987; Spirito, Overholser, & Stark, 1989; Tishler, McKenry, & Morgan, 1981; White, 1974). In a chart review of psychiatrically hospitalized attempters, Pfeffer and associates (1988) found that precipitants differed for females (loss of boyfriend, recent sexual abuse, school change) and males (experience assaultive behavior in family, suicidal sibling). Shaffer (1974) noted that one third of adolescent suicide attempts were precipitated by a disciplinary crisis. Generally, suicide attempts involve a short-term precipitant (48 hours) in the context of long-term problems (Hawton et al., 1982a; Kerfoot, 1988).

Generally, teenagers who attempt suicide communicate their intent. Oftentimes, attempts occur in the presence of others and precautions against discovery are not taken.
In a prospective study of male suicide attempters, Motto (1984) found that psychiatrically hospitalized adolescents who eventually attempted suicide clearly communicated their intent or actively sought the help of someone who had attempted suicide. While Hoberman and Garfinkel (1988) found that 62% of teenage suicide victims made a remark about death, 29% actively avoided discovery. Further, it may be difficult to determine intent, particularly among attempters hospitalized on pediatric units, who often falsely deny having experienced intent (Gispert et al., 1985). In a prospective study of adults, precautions against discovery was the only significant predictor of future suicide (Beck & Steer, 1989).

Typically, adolescents who make medically lethal suicide attempts tend to be similar to suicide completers: males with an affective disorder, a history of drug use, high suicidal intent with suicidal plan, and family history of affective disturbance (Brent, 1987).

Thus, the majority of adolescent suicide attempts are of mild to moderate lethality, but efforts to avoid discovery, strong wish to die, and previous nonlethal attempts appear to be particularly foreboding signs (Gispert et al., 1987; Hawton, Cole, O'Grady, & Osborn, 1982b; Levy & Deykin, 1989).

Overall, there is a consistent pattern of epidemiological findings regarding the nature of suicidal behavior in young people, but the cause of the rise in adolescent suicide is unknown. It has been theorized that the increased prevalence of adolescent alcohol abuse (Brent et al., 1987), changing age distributions in the general population (Holinger, Offer, & Zola, 1988), and/or the demise of the nuclear family (Callahan, 1993) may account for the rise in adolescent suicide. At this point, none of these causal models have been convincingly validated. It is likely that a confluence of factors accounts for rising suicidality in adolescents.
Risk Factors Associated with Adolescent Suicidality

Biological & Genetic Factors. Recent investigations into the biology of suicide have focused on neurotransmitters, particularly the serotonergic system and, to a lesser extent, noradrenergic functioning. Early Swedish and American studies found that patients with unipolar depression with histories of violent suicide attempts and repeatedly aggressive Marines, had relatively low concentration of the main serotonin metabolite, 5-hydroxyindoleacetic acid (5-HIAA), in the cerebrospinal fluid (Brown et al., 1982; Linnoila et al., 1993). While early studies focused on serotonin and violence, subsequent inquiries suggest that serotonergic dysfunction may be related to poor impulse control which, in turn, may precipitate suicidal behavior, violence towards others, and/or alcohol abuse (Linnoila et al., 1993). In post-mortem brain studies of suicide completers, differences in the number of serotonin (5-HT) receptor sites; in addition, differences in noradrenergic receptors and norepinephrine levels are also observed (Arango, Ernsberger, Sved, & Mann, 1993; Mann, DeMeo, Keilp, & McBride, 1989). Depressed and suicidal adolescents, adult suicide attempters, and aggressive adults with mental retardation have decreased binding of the psychopharmacologic agent imipramine to platelet markers, an effect related to low serotonergic and/or beta-adrenergic functioning (Marazziti et al., 1993; Ryan et al., 1988). Given that alcoholism is the second most common mental disorder among patients who commit suicide, it is noteworthy that certain subtypes of alcoholism have been associated with alterations in central serotonin functioning (Roy & Linnoila, 1989). In placebo-controlled studies, psychopharmacologic agents that are serotonergic agonists, such as fluoxetine, carbamazepine, and sertraline, diminish violent behavior and depressive symptoms (Linnoila & Vikkunen, 1991). While low serotonin may be indicative of a vulnerability to self-destructive acts, it is not a unique marker for suicidality (Trad,
Rather, there appears to be a constellation of symptoms, including suicidality, violence, and impulsivity, that are associated with serotonergic dysfunction.

Hereditary factors in suicidality have been examined via familial, twin, and adoption studies. In a follow-up study of 500 psychiatric patients and their relatives, first degree relatives of attempters, especially males, were found to be eight times more at risk for suicide, particularly if the attempters suffered from an affective disorder (Tsuang, 1983). Among adolescents, significantly greater amounts of suicidal behavior are documented among relatives of suicide attempters (Garfinkel, Groese, & Hood, 1982; Shaffer, 1974; Shafii, Carrigan, Whittinghill, & Derrick, 1985; Tishler, 1981). A greater incidence of suicidal behavior also is documented in identical, but not fraternal, twins; however, the presence of affective disorder confounds these findings (Roy, 1989). Danish-American adoption studies provide the most convincing evidence for a hereditary component in suicidal behavior. Schulsinger, Kety, & Rosenthal (1979) reported that significantly more biological relatives of adoptees committed suicide than controls, independent of psychiatric disorder. While the genetic findings suggest a hereditary component in suicidality, it is unlikely that there is a "suicide gene." Rather, it is likely that a biological vulnerability, such as serotonergic dysfunction, is transmitted which, in turn, increases the risk of suicidal behavior as well as impulsivity and/or aggression. In this vein, a recent, controlled study of impulsive, violent offenders with a history of suicide attempts found that a genetic variant of the tryptophan hydroxylase (TPH) gene may influence 5-HIAA concentration in the cerebrospinal fluid (Nielson et al., 1994). TPH is an enzyme involved in the production of serotonin. Thus, biochemical and genetic factors may create a predisposition to suicidal behavior; however, it is clear that a purely biological model does not capture the complexity of suicidal behavior.
Psychological Factors. Affective and behavioral factors, such as depression, conduct problems, substance abuse, impulsivity, and past psychiatric history, particularly past suicide attempts, have been related to suicidal behavior in adolescents. Internalizing symptoms (e.g., depression, anxiety) are more common among female attempters and externalizing behaviors (e.g., anger, aggression) are more prevalent among male attempters (Bettes & Walker, 1986). However, even among aggressive, violent teenagers, aggressive females have the highest rates of suicidal behavior (Cairns et al., 1988).

Depression has been associated with suicidal behavior in psychiatric and pediatric populations (Bettes & Walker, 1986; Pfeffer et al., 1988). Dysphoria and vegetative symptoms of depression are noted in suicide attempters admitted to the emergency room (Christoffel, Marcus, Sagerman, & Bennett, 1988; Tishler, 1981; Withers & Kaplan, 1987), "normal" high school attempters (Kienhorst, DeWilde, Van den Bout, & Diekstra, 1990), and Native-American attempters (Manson et al., 1989). Diagnostically, suicidal behavior is associated with major depressive disorder and dysthymia in children (Weiner & Pfeffer, 1986; Pfeffer et al., 1988) and adolescents (Chabrol and Moron, 1988; Kovacs et al., 1993). In a 6- to 8-year follow-up study, Pfeffer and her associates (1991, 1994) found that suicide attempters were 6-7 times more likely to be diagnosed with a mood disorder. While depression is not a prerequisite for suicidal behavior, it is clearly a significant risk factor.

Alcohol and drug problems also are prevalent among adolescent suicide attempters, particularly Native Americans (Berlin, 1987; Howard-Pitney, LaFromboise, Basil, September, & Johnson, 1992) and males (Headlam, Goldsmith, Hanenson, & Rauh, 1979; Hoberman & Garfinkel, 1988). Among psychiatric patients, alcohol and substance abuse are associated with increased risk of multiple attempts and of more lethal attempts (Brent et al., 1993b; Robbins & Alessi, 1985). Pfeffer and colleagues

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
(1988) found that the best predictor for suicidal behavior among psychiatrically hospitalized adolescents was alcohol use. Although there are contrary findings (Spirito, Stark, Fristad, Hart, & Owens-Stively, 1987), substance abuse appears to be a significant risk factor for suicidal behavior (Burkstein et al., 1993).

Several studies indicate that comorbid diagnoses of affective disorder plus conduct and/or substance abuse disorders increase suicide potential (Brent et al., 1993b; King, Raskin, Gdowski, Butkus, & Opipari, 1990; Kovacs et al., 1993). Higher levels of acting out and delinquent behavior are reported among adolescent female attempters from low SES backgrounds, juvenile delinquent attempters, and runaway attempters (Alessi, McManus, Brickman, & Grapentine, 1984; Miller, Chiles, & Barnes, 1982; Stiffman, 1989). In one study that compared depressed and conduct disordered suicide attempters on a psychiatric unit, conduct disordered adolescents received higher suicidality ratings (Apter, Bleich, Plutchik, Mendelson, & Tyano, 1988). Yet, Brent and associates (1993a) found no differences in physical aggression and assaultiveness between suicide attempters and psychiatric controls suggesting that alternate symptoms, such as impulsivity, may account for increased risk of suicidal behavior in adolescents with comorbid affective and disruptive behavior disorders.

It is frequently noted that impulsivity increases the risk of suicide (Affra, 1983; Williams, Davidson, & Montgomery, 1980). Impulsivity has been defined as "a behavior that is socially inappropriate or maladaptive and is quickly emitted without forethought (Oas, 1985)." It is a characteristic frequently seen in adolescent suicide attempters (Brent et al., 1986; Slap, Vorters, Chaudhur, & Centor, 1989). In adolescents with affective disorders, comorbid psychiatric disorders characterized by impulsivity, such as conduct disorder, substance abuse, and certain personality disorders, increase suicide risk (Brent et al., 1993b; Kovacs et al., 1993). A recent study utilizing a series of laboratory tasks designed to measure impulsivity and sustained attention found that
suicidal inpatients were more impulsive than either nonsuicidal inpatients or community high school students (Kashden et al., 1993). Yet, the study of impulsivity and suicide is compromised by divergent definitions of impulsivity and methodological problems associated with assessing impulsivity, such as low correlations between self-report measures, behavioral rating scales, and vigilance tasks of attention and impulsivity; limited validity of some psychological tests utilized to measure impulsivity; and poor discrimination between clinical samples (Barkley, 1991; Lovejoy & Ramussen, 1990; Oas, 1985).

Suicidal behavior has been documented in diverse adolescent populations, ranging from teenagers diagnosed with severe mental illnesses, such as psychosis and personality disorders, to "normal" high-school students. In a chart review of psychotic adolescent inpatients, 43% of the subjects had a history of suicidal behavior and 28% had a history of both suicidal and violent behavior (Inamadar, Otnow-Lewis, Siomopoulos, Shanok, Lamela (1982). Some authors find greater incidence of personality disorders, particularly borderline symptomology, among adolescent suicide attempters (Brent et al., 1993a; Crumley, 1981; Pfeffer et al., 1988). Yet, suicidal behavior also is evident among "normal" populations of high school students (Harkavy-Friedman et al., 1987; Riggs et al., 1990). Interestingly, the presence of a gun in the home is the strongest predictor of completed suicide among adolescents without apparent psychopathology (Brent, Perper, Moritz, Baugher, & Allman, 1993).

Numerous studies indicate that past suicidal behavior is a predictor of nonfatal suicide attempts and death by suicide (Clark, 1993; Lewinsohn et al., 1993). In addition, past psychiatric history is associated with suicidal behavior (Deykin et al., 1985; Harkavy et al., 1987; Spirito et al., 1988). Interestingly, suicide attempters keep fewer outpatient appointments and drop out of treatment quicker than nonattempters (Trautman, Stewart, & Morishima, 1993). Yet, there are mixed findings about suicide...
completers' involvement with the mental health profession. While psychological autopsy studies indicate that the majority of suicide victims met the criteria for at least one psychiatric diagnosis, it is also noted that suicide completers are less likely to have had contact with mental health professionals (Clark, 1993; Hoberman & Garfinkel, 1988; Marttunen, Aro, Henriksson, & Lonnqvist, 1991).

In summary, it is clear that having a depressive disorder, particularly with a comorbid substance abuse and/or conduct disorder characterized by impulsivity, increases suicide risk in young people. Further, the best predictor of suicidality in adolescents is past suicide attempt(s). Among children and adolescents, dysphoric, hopeless, high intent attempters are often differentiated from impulsive attempters, who make attempts of variable lethality (Brent, Kalas, Edelbrock, Costello, Dulcan, & Conover, 1986; Brent, 1987). In adolescence and adulthood, suicide completers tend to be males with an affective disorder, a history of drug use, high suicidal intent with suicidal plan, and family history of affective disturbance (Brent, 1987).

**Developmental Factors.** In recent years, researchers have examined the role of developmental factors in suicidality. It has been suggested that the "angst-ridden" nature of adolescence is a predisposing condition to suicidality because it is "a time of developing identity, of experimentation, and of emerging independence (Callahan, 1993). On the other hand, Cole (1989) has suggested that adolescents' "personal fable" may be a protective factor. The "personal fable" is the common belief among adolescents that they are special and that bad things that happen to others will not happen to them (Cole, 1989). Recent findings purport that increasing ego development, not age, is associated with vulnerability to suicidal behaviors in adolescents diagnosed with conduct and/or affective disorder (Borst, Noam, & Bartok, 1991). Based on Loevinger's theory of ego development, Borst & Noam (1993) reported that female attempters who attain more advanced levels of social-cognitive development
("conformist") diverge in diagnoses, symptoms, and defense mechanism from female attempters of less advanced social-cognitive development levels ("preconformist"). The preconformist attempters are characterized as angry, action-oriented, and having limited capacity for self-reflection. These "angry defiant suicidal types" exhibit externalizing and internalizing symptoms and appear to be at risk for impulsive suicide attempts as well as dangerousness to others. The conformist attempters are characterized as dysphoric and self-blaming. In addition, strong identification with other peoples opinions results in vulnerability to criticism and feelings of guilt. These "self-blaming suicidal types" rely on more complex defense mechanism, such as intellectualization and reaction formation, and display few aggressive and delinquent behaviors. Interestingly, it is noted that the self-blaming types tend to be better off than angry defiant types because they elicit help rather than hostility from the environment (Borst & Noam, 1993). These findings suggest that younger children may be less likely to kill themselves because they lack the cognitive capacity to plan ahead; in addition, the externalizing qualities of earlier developmental stages may inhibit suicidal behavior. However, it is also possible the awareness of the consequences of suicide available to more advanced developmental levels may serve as a buffer against the impulsive self-destructive acts that are characteristic of less advanced developmental positions (Borst, Noam, & Bartok, 1991; Shaffer & Fisher, 1981).

**Cognitive Factors.** Prominent cognitive theories proposed by Beck and Abramson document the role of hopelessness and cognitive distortions (Beck, 1963) and attributional style (Abramson, Seligman, & Teasdale, 1978) in depression and suicidality. Other researchers have focused on the roles of controllability and self-efficacy (Bandura, 1986; Brown & Siegel, 1988; Weisz et al., 1989), external locus of control (Pearce & Martin, 1993), cognitive rigidity (Bartfai, Winborg, Nordstrom, & Asberg, 1990), and problem solving skills (Sadowski & Kelley, 1992). Adaptive skills
that serve as buffers against suicidality have also been investigated (Cole, 1989; Linehan, Goodstein, Nielsen, & Chiles, 1983).

According to Beck (1963, 1967), depression is attributable to a triad of cognitive patterns characterized by: (1) a negative view of the self; (2) a negative view of the world; and (3) a negative view of the future. Maladaptive thinking styles including, cognitive distortions, irrational beliefs, and dysfunctional attitudes, maintain these negative views that lead to the overt, behavioral symptoms of depression and suicidality. Cognitive distortions refer to the frequency of actual depressogenic thoughts. In contrast, irrational beliefs and dysfunctional attitudes are incorporated into one’s belief system, but may not necessarily be thought about in a ruminative manner. These cognitive patterns are derived in early childhood and may be exacerbated by environmental stressors. While hopelessness is strongly associated with suicidality in adults (Beck, Steer, Kovacs, Garrison, 1985) and children (Asarnow, Carlson, & Guthrie, 1987; Kazdin, French, Unis, Esveldt-Dawson, & Sherick, 1983), mixed results are found with adolescents suggesting that hopelessness is less important with adolescent attempters, particularly males and minority females (Cole, 1989; Rotherman-Borus and Trautman, 1988). The relationship between cognitive distortions and depression is documented in children, adolescents, and adults (Kazdin, 1990; Harrell & Ryon, 1983; Hollon, Kendall, & Lumrey, 1986). Although several studies suggest that the cognitive aspects of depression are more closely linked to suicide than affective symptoms (Beck, Beck, & Kovacs, 1975; Wetzel & Reich, 1989), few studies specifically examined the relationship between maladaptive cognitions and suicidal behavior in adolescents.

According to Abramson and associates (1978), individuals who explain negative events with internal, stable, and global causes and positive events with external, unstable, and specific causes are prone to depression. This revised learned helplessness
model of depression is supported in the literature (Haley, Fine, Marriage, Moretti, & Freeman, 1985; Seligman et al., 1984; Sweeney, Anderson, & Bailey, 1986); however, mixed findings are reported with adolescents. In terms of adolescent suicidal behavior, attributional error is reported among pediatric (Spirito et al., 1987) and psychiatric (Kienhorst, de Wilde, Diekstra, & Wolters, 1992) samples of suicide attempters. Although adolescent attempters are more likely to attribute good events to global causes than psychiatric controls, no differences in attributions for negative events are noted (Spirito et al., 1991). Further, maladaptive attributions for negative events are more strongly related to depression than suicidal behavior.

Adaptive abilities, such as coping skills, problem solving, and reasons for living, may serve as buffers against suicidal behavior (Linehan et al., 1983; Spirito et al., 1987; Sadowski & Kelley, 1993). It has been suggested that adolescent suicide may reflect a lack of effective coping strategies or the use of more maladaptive strategies, such as avoidance, social isolation, substance abuse (Curren, 1987; Diekstra, 1989). Adolescents' conceptions of death and suicide may also be mitigating factors (Ellis & Range, 1989). While suicidal behavior among teenagers is related to diminished fears of death or "death anxiety" (Lester, 1967b), suicidal ideation is associated with increased death anxiety suggesting that strong fears of death may serve as a coping mechanism in preventing suicide attempts (D'Attilio & Campbell, 1990). Suicide attempters also tend to have distorted perceptions of death in that death is viewed as "an attractive state and as a continuum of life under improved conditions in which long-standing wishes may come true (Orbach, Kedem, Gorchover, Apter, & Tyano, 1993)."

Thus, high fears and accurate perceptions of death are protective factors and low fears and distorted conception of death are risk factors.

Based on the literature, there appears to be a relationship between cognitions and suicidality in adolescents. While the relationship between hopelessness and suicide is
well-documented in adults and children (Beck, Kovacs, & Weissman, 1975; Beck & Steer, 1989; Kazdin et al., 1983), mixed findings with adolescents are documented (Steer, Kumar, & Beck, 1993; Cole, 1989). It is possible that other cognitive characteristics, such as negative problem orientation may be more strongly associated with adolescent suicidality; in addition, several studies have illuminated the protective and/or inhibitive role of certain cognitions, such as reasons for living and death anxiety, on suicidality in adolescents (Sadowski & Kelley, 1993; Linehan et al., 1983; Orbach et al., 1993). Unfortunately, there is little integration of the findings on the countervailing nature of negative and positive cognitions in suicidality.

**Family Factors.** Suicide attempters tend to come from dysfunctional families, characterized by psychopathology, suicidal behavior, and conflict; however, the specific nature of family problems are not delineated in a consistent manner. The characteristics that have been associated with the families of suicidal children and adolescents include: parent loss and/or marital conflict (Barter, Swaback, & Todd, 1968; Stanley & Barter, 1970; White, 1974); single parenthood (Garfinkel et al., 1982; Gispert et al., 1985); family violence (Withers & Kaplan, 1987; Levin and Schonberg, 1987), and decreased family support (Dubow, Kausch, Blum, Reed, & Bush, 1988). Although a family history of psychopathology, particularly affective disorder, is more common among suicide attempters (Friedman, Corn, Hurt, Fibel, Schulick, & Swirsky, 1986; Nelson, Faberow, & Litman, 1988), no differences between suicide attempters and psychiatric controls also are reported (Carlson & Cantwell, 1982; Pfeffer et al., 1988). However, it should be noted that family history of affective illness is related to medical lethality and completed suicide (Brent, 1987). Suicidal adolescents in psychiatric (Spirito et al., 1989), pediatric (Topol & Reznikoff, 1982), and high school settings (Kienhorst et al., 1990) report more problematic relationships with their parents. In addition, adolescent attempters and their parents perceive time with the family as less enjoyable (McKenry et al., 1990).
Poor parent-adolescent communication and family discord are also evident (King, Segal, Naylor, & Evan, 1993; Lea, 1991; Kosky, Silburn, and Zubrick, 1990). Despite the abundance of research on the role of familial variables in child and adolescent suicidal behavior, methodological problems are evident in many studies. The use of control groups has been inconsistent and observational studies of family interactions are limited. In the few observational studies of suicide attempters and their families, dysfunctional interaction patterns and high levels of conflict and negative reinforcement (Williams & Lyons, 1976) and inappropriate parental response to adolescent distress (Stivers, 1988) are found. Due to the plethora of family problems associated with suicidal behavior, the families of suicidal children and adolescents are probably best characterized as "dysfunctional."

Interpersonal Factors. Interpersonal problems, particularly isolation, loss, and conflict are associated with suicidal behavior in adolescents (Altier, 1992; King, Raskin, Gdowski, Butkis, & Opipari, 1990). Lack of social support, characterized by living alone, diminished number of close friends, residence changes, and poor interactions between family members, is a risk factor for suicidality (Heikkinen et al., 1993; Marttunen, Aro, & Lonnqvist, 1993). In a 6- to 8-year follow-up study of pre-pubescent inpatients, poor social adjustment was a significant risk factor for suicidal behavior (Pfeffer et al., 1994). Interpersonal and/or school problems are often precipitants of suicidal behavior in adolescents (Schlebusch, 1986); however, Khan (1987) found suicidal psychiatric patients and outpatient controls reported equally high levels of peer difficulties (72-87%). While Spirito and associates (1990) suggest that social support deficits lead to social isolation and depression which, in turn, facilitates suicidal behavior, depression is not a prerequisite for suicidality. According to Jacobs (1971), suicidal behavior in adolescents occurs following a long history of problems that intensify in adolescence, leading to progressive social isolation and deterioration of
relationships prior to the suicide attempt. Yet, it is also possible that suicidal adolescents' perception of social support or the lack thereof may contribute to interpersonal maladjustment and isolation. Several studies suggest that suicide attempters are less likely to share problems with others, even if support persons are available (Topol & Reznikoff, 1982; King et al., 1990). Thus, it appears that suicidality may be attenuated or expedited by social support or isolation, respectively. In addition, the role of adolescents' perception of social support and/or isolation warrants further investigation.

**Situational Factors.** While a relationship between stressful life events, depression, and suicidality has been found (Dubow et al., 1989; Gispert et al., 1985; Isherwood, Adams, & Hornblow, 1982; Jacobs, 1971), the association has not been demonstrated on a consistent basis (Fremouw, Callahan, Kashden, 1993, Lewinsohn et al., 1994). A variety of negative life events have been associated with suicidal ideation and behavior, including interpersonal separations and conflict; intense, chaotic family events; social instability; negative life stress; and physical illness, particularly chronic medical illnesses such as seizure disorders and diabetes (Brent et al., 1986; Cohn-Sandler et al., 1982; DeWilde, Kienhorst, Diekstra, and Wolters, 1992; Christoffel et al., 1988; Kaminer & Robbin, 1988; Garfinkel et al., 1982). A negative life event that is consistently associated with suicide attempts in children and adolescent is physical and/or sexual abuse (Levin & Schonberg, 1987; Riggs et al., 1990; Shaunesey, Cohen, Plummer, & Berman, 1993; Withers & Kaplan, 1987). This association is true even in studies that control for the incidence of economic deprivation and emotional loss among abused children (Stone, 1993). While there have been numerous studies documenting the impact of daily hassles in adult symptomatology, few studies of adolescents have been conducted. In one study, hopelessness, problem orientation, and minor life events contributed to suicide probability (Faccini, 1992).
While life events appear to be associated with suicidality, there is considerable variability in the findings. Further, life events research has many methodological problems, including differences in data collection methods and types of life events studied; small sample sizes; and lack of appropriate control samples (Heikkinen, Aro, & Lonnqvist, 1993). In one case-controlled study, suicide completers were more likely to have experienced interpersonal conflict with parents and/or boy/girlfriends; disruption of romantic attachment, and legal or disciplinary problems in the previous year (Brent, Perper, Moritz, Baugher, Roth, Balach, & Schweers, 1993). Contradictory findings regarding the importance of problem frequency (Nelson, 1992) versus perceived impact of problems (Pearce & Martin, 1993) also are documented. It has been suggested that the way "an individual perceives and reacts to stressors may be more important and characteristic of him or her than the stressful event itself (Botsis, Soldatos, Liossi, Kokkevi, & Stefanis, 1993)." Further, the consistent association between past abuse and suicidality suggest "life events may have a long-term risk effect and a short-term precipitating effect on suicidality (Heikkinen et al., 1993)."

Social & Cultural Factors. In the past twenty years, there has been renewed interest in cluster suicides or the so-called "Werther effect", named after Goethe's The Sorrows of Young Werther whose publication lead to rash of suicides, (Phillips & Paigh, 1987; Phillips & Carstensen, 1986). Cluster suicides are more prevalent among adolescents and females (Phillips & Carstensen, 1986; Phillips & Paigh, 1987). It has been hypothesized that the transmission of suicidal behavior occurs via direct exposure, such as having a close personal relationship with suicide victim or witnessing the suicide; indirect exposure, such as viewing a fictional or nonfictional account of a suicidal act in the media; or by combination of direct and indirect exposure in a insular milieu, such as a school or psychiatric unit (Hazell, 1993).
There are several studies of indirect transmission of suicide via the media; however, these studies should be interpreted cautiously due to the lack of standard definition of clusters, cohort effects, limitations of cluster analyses, and use of aggregate data (Hazell, 1993). One correlational study found that suicides increased following broadcasts and were highly correlated with number of news shows carrying the program (Phillips & Carstensen, 1986; Phillips & Paight, 1987). It is also noted that the amount of publicity is proportional to the increase in the suicide rate with the suicide of celebrities leading to more imitative suicide than those of unknowns (Gould & Shaffer, 1986). In addition, sensationalized or repeated reporting of suicide is more likely to lead to clustering than restrained reporting.

Recent studies of the effect of intermediate and direct exposure to adolescent suicide suggest several possible mechanisms, including contagion, pathological bereavement, and post-traumatic stress disorder (PTSD). While suicide attempters are more likely to have a family member and/or friend who engaged in suicidal behavior than suicide ideators or normals (Harkavy-Friedman et al., 1987; Smith & Crawford, 1986; Lewinsohn et al., 1993), Brent and associates (1993e-g) documented a higher prevalence of known risk factors for suicide, such as previous suicide attempts, depression, substance abuse, personality disorder, recent losses and legal problems, in adolescent cluster suicides. Yet, closeness to the initial suicide victim has been associated with psychiatric sequelae in adolescents irrespective of premorbid risk factors (Brent et al., 1993e-g). In one controlled study, exposure to suicide was related to increased risk of depression, but not to increased long-term risk for suicide attempts.

The process of contagion whereby one suicide facilitates another in an at-risk peer provides a parsimonious explanation of adolescent suicidal behavior following exposure to peer suicide (Hazell, 1993). However, alternate mechanisms, such as pathological bereavement and PTSD, are warranted in certain situations. Pathological
bereavement is more likely in individuals with vulnerability to affective illness or close friends of suicide victim (Brent et al., 1993e; Brent et al., 1994). Post-traumatic stress disorder is more likely in individuals who witness a suicide or find the body (Brent et al., 1993f-g). While post-traumatic stress disorder is not directly related to suicidality, it can be complicated by depressive symptoms.

Models of Suicide

On the basis of recent findings, several models of suicidality have been proposed. According to Plutchik and van Praag's (1986) two stage model of suicide and violence, aggression and impulsivity can be amplified or attenuated by various countervailing forces to produce either suicidal or violent behavior. Although the model was developed with adults and provides little elaboration on the nature of the countervailing forces, particularly cognitive and social forces, it integrates genetic, biological, and diagnostic issues in a parsimonious fashion. The nature of the countervailing forces in suicide is addressed in several models. Schotte and Clum's (1987) proposed a diathesis-stress model of suicide in which stress, such as a major life event, interacts with a vulnerability (e.g., problem-solving deficits) to produce suicidal behavior. Although the specific nature of the vulnerability is debatable, this model is a reasonable attempt to provide a theoretical framework for recent research findings in the cognitive domain. It is likely that a multi-factor diathesis-stress model better illustrates suicidal behavior. Based on their work with Danish adolescents, Kienhorst, deWilde, Diekstra, and Wolters (1992) proposed a model of the dynamics of interacting situational (e.g., disruptions in family life, sexual abuse) and psychological (e.g., negative and/or paranoid cognitions, permissive attitudes towards suicidal behavior, social withdrawal) characteristics leading to a suicide attempt. The Danish model is an excellent counterpart to the two-stage model of violence and suicide (Plutchik & van Praag, 1986) because the nature of the countervailing forces are explicated on the basis
of recent research on adolescent suicidality. In an effort to integrate research findings, Heikkinen and associates (1993) suggested a process model of suicide. In this model, suicide is viewed as a “time-advancing process that is affected by complex biological, psychological, social, and cultural factors” with precipitating events or triggers, such as negative life events and other psychosocial stressors contributing to suicidality which, in turn, may be attenuated or exacerbated by protective factors or the lack thereof. At this time, the development of suicidality models is in a nascient stage; however, the integration of research findings and theory is a crucial field of inquiry.

**Cognitions, Impulsivity, Stressful Life Events, and Suicidality**

In an effort to explicate the nature of adolescents suicidality, this investigation focused on the role of cognitive distortions, impulsivity, and stressful life events in suicidal adolescents. Although the relationship between hopelessness and suicide is well-documented in adults and children (Beck, Kovacs, & Weissman, 1975; Beck & Steer, 1989; Kazdin et al, 1983), contrary findings with adolescents suggest that additional factors may expedite teen suicide (Cole, 1989). In a recent study of social problem solving, Sadowski and Kelley (1993) reported that negative cognitive orientation towards problems distinguished suicide attempters from other emotionally-disturbed and normal samples. Yet, depressogenic cognitions are not a prerequisite for suicidal behavior. While many adolescent suicide attempters are depressed and hopeless, the prevalence of so-called “impulsive” attempters is documented (Borst & Noam, 1993; Brent et al., 1986; Brent, 1987). In addition, biological and psychological findings have demonstrated an association between suicide, aggression, and impulsivity that may be
associated with serotonergic dysfunction (Kashden et al., 1993; Linnoila et al., 1993). According to Kienhorst, and associated (1993), suicidal adolescents can be classified into two categories characterized by primarily “problematic circumstances” or “problematic behaviors.” It is possible that “problematic circumstances” may be associated with psychosocial stressors, such as major life events and daily hassles. In light of the research on impulsivity and suicidality, it might also be argued that “problematic behaviors” may be associated with impulsivity and/or maladaptive cognitive patterns. Moreover, maladaptive cognitions may be exacerbated by psychosocial stressors (Beck, 1963; Kienhorst, deWilde, Diekstra, & Wolters, 1992). In the literature, major life events have been associated with suicidality, but few studies have examined the impact of daily hassles in spite of the strong association between physical illness and daily hassles (Faccini, 1992). Given that suicide attempts often involve a short-term precipitant in the context of long-term problems (Hawton et al., 1982a; Kerfoot, 1988), it is possible that daily hassles may play a significant role in suicidality.

On the basis of these findings, the role of cognitive distortions, impulsivity, and stressful life events in adolescents suicidality was explored in this study. First, it was theorized that suicide attempters would report higher levels of negative automatic thoughts than suicide ideators, psychiatric controls, or community controls. It was also theorized that suicide ideators would more closely resemble suicide attempters than psychiatric and community controls. Second, it was hypothesized that attempters, ideators, and psychiatric controls would report more hopelessness than community controls; however, minimal differences among the clinical groups were expected. Third, it was theorized that cognitive distortions would be associated with greater suicide intent.
and medical lethality. Fourth, it was hypothesized that suicide attempters would more closely resemble psychiatric controls than suicide ideators and community controls in terms of impulsivity. Fifth, it was suggested that the attempters, ideators, and psychiatric controls would report more negative life events and daily hassles than community controls. Sixth it was theorized that the interactions between cognitive distortions and impulsivity and between daily hassles and stressful life events would be predictive of suicidal behavior, above and beyond depression.
METHOD

Subjects

A total of 118 adolescents between the ages of 12 and 18 years participated in this study. The subjects comprised four groups: inpatient suicide attempters (n=33); inpatient and outpatient suicide ideators (n=17); inpatient, nonsuicidal controls (n=33); and community high school controls (n=35). In order to participate in the study, subjects had to: (a) provide informed parent and adolescent consent (Appendix A), (b) have no evidence of acute psychosis, and (c) have an estimated IQ greater than 70. If psychological testing was not available, IQ was approximated with the Vocabulary and Block Design subscales of the Wechsler Intelligence Scale for Children, Third Edition (WISC-III) or Wechsler Adult Intelligence Scale-Revised (WAIS-R), which have been found to be highly correlated with Full Scale IQ score (Sattler, 1986). In terms of subjects that were excluded from the study, 5 adolescents and/or their parents refused to participate, 6 adolescents provided incomplete questionnaires, 15 adolescents had IQs less than 70, and 4 adolescents were acutely psychotic.

The demographic characteristics of the four groups are summarized in Table 1. The sample was composed of 63 males and 55 female adolescents. Ages ranged from 12 to 18 years, with a mean age of 14.80 (SD = 1.43). The sample was primarily Caucasian (69.8% Caucasian, 22.4% African-American, 6.0% Asian, Other 1.7%). According to Hollingshead and Redlich's (1957) classification, subjects were from upper (8.5%), upper-middle (15.3%), middle (28.8%), lower-middle (23.7%), and poverty-level (23.7%) socioeconomic classes.

Suicide Attempters. The suicide attempter group was recruited from consecutive admissions to private and state psychiatric facilities. In order to be included in the attempters group, the patients must have: 1) engaged in overt, self-destructive behavior and 2) verbalized intent to inflict lethal self-harm and/or wish to
<table>
<thead>
<tr>
<th>Variable</th>
<th>Community (n = 35)</th>
<th>Psychiatric (n = 31)</th>
<th>Ideator (n = 17)</th>
<th>Attempter (n = 33)</th>
<th>X² or F</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>15.17 1.34</td>
<td>14.33 1.27</td>
<td>14.71 1.69</td>
<td>14.91 1.55</td>
<td>2.03</td>
<td>3,114</td>
<td>.113</td>
</tr>
<tr>
<td>IQ</td>
<td>95.14 13.60</td>
<td>88.97 13.94</td>
<td>94.63 16.73</td>
<td>90.84 13.56</td>
<td>1.26</td>
<td>3,114</td>
<td>.292</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.82</td>
<td>3</td>
<td>.185</td>
</tr>
<tr>
<td>Male</td>
<td>22 62.9</td>
<td>20 60.6</td>
<td>8 47.1</td>
<td>13 39.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>13 37.1</td>
<td>13 39.4</td>
<td>9 52.9</td>
<td>20 60.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10.00</td>
<td>9</td>
<td>.359</td>
</tr>
<tr>
<td>White</td>
<td>22 62.9</td>
<td>26 78.8</td>
<td>13 76.5</td>
<td>20 64.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>8 22.9</td>
<td>6 18.2</td>
<td>4 23.5</td>
<td>8 25.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>5 14.3</td>
<td>0 0.0</td>
<td>0 0.0</td>
<td>2 6.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>0 0.0</td>
<td>1 0.9</td>
<td>0 0.0</td>
<td>1 0.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16.74</td>
<td>12</td>
<td>.160</td>
</tr>
<tr>
<td>I</td>
<td>4 11.4</td>
<td>0 0.0</td>
<td>2 11.8</td>
<td>4 12.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>8 22.9</td>
<td>5 15.2</td>
<td>4 23.5</td>
<td>1 3.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 1

**Demographic Characteristics of Suicide Attempters, Suicide Ideators, Psychiatric Controls, and Community Controls.**

<table>
<thead>
<tr>
<th></th>
<th>Suicide Attempters</th>
<th>Suicide Ideators</th>
<th>Psychiatric Controls</th>
<th>Community Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>III</td>
<td>11 31.4</td>
<td>13 39.4</td>
<td>4 23.5</td>
<td>6 18.2</td>
</tr>
<tr>
<td>IV</td>
<td>5 14.3</td>
<td>7 21.2</td>
<td>4 23.5</td>
<td>12 36.4</td>
</tr>
<tr>
<td>V</td>
<td>7 20.0</td>
<td>8 24.2</td>
<td>3 17.6</td>
<td>10 30.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Living Situation</th>
<th>35.39</th>
<th>12</th>
<th>.0004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological</td>
<td>20 57.1</td>
<td>6 18.2</td>
<td>6 35.3</td>
</tr>
<tr>
<td>Single Parent</td>
<td>8 22.9</td>
<td>18 54.5</td>
<td>5 29.4</td>
</tr>
<tr>
<td>Step-Family</td>
<td>3 8.6</td>
<td>6 18.2</td>
<td>3 17.6</td>
</tr>
<tr>
<td>Extended Family</td>
<td>4 11.4</td>
<td>1 3.0</td>
<td>2 11.8</td>
</tr>
<tr>
<td>Non-Family</td>
<td>0 0.0</td>
<td>2 6.1</td>
<td>1 5.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Past Outpatient Treatment</th>
<th>35.92</th>
<th>9</th>
<th>.00004</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>31 88.6</td>
<td>11 34.4</td>
<td>5 29.4</td>
</tr>
<tr>
<td>Brief</td>
<td>2 5.7</td>
<td>8 25.0</td>
<td>1 5.9</td>
</tr>
<tr>
<td>Intermediate</td>
<td>2 5.7</td>
<td>7 21.9</td>
<td>5 29.4</td>
</tr>
<tr>
<td>Extended</td>
<td>0 0.0</td>
<td>6 18.8</td>
<td>6 35.3</td>
</tr>
</tbody>
</table>

| Past Inpatient            | 0 0.0 | 9 27.2 | 6 35.3 | 10 35.4 |

**Note:** F statistics were used for mean level comparisons of the continuous variables. Chi-squares were used for contingency table analyses.
kill themselves. Overall, feeling "depressed" and/or overwhelmed by multiple problems (27.3%) and arguments with parents (24.8%) were the most common precipitant of suicide attempts followed by conflict with peers (9.1%), conflict in romantic relationship (9.1%), and interpersonal loss (9.1%). Additional precipitants included: voices or flashbacks (6.1%), "can't remember" (6.1%), conflict with siblings (6.1%), and legal problems (3.0%). The majority of the attempters reported little forethought about suicidal acts. Thirty-eight percent of attempters reported thinking about killing themselves for minutes (36.4%) or less than an hour (24.2%) before attempting suicide. The remainder of the attempters reported thinking about suicide for hours (9.1%), a day (12.1%), several days (9.1%), several weeks (6.1%), and more than one month (3.0%). Types of attempts included: drug overdose (42.4%), self-cutting (21.2%), gunshot (12.1%), hanging (9.1%), and jumping in front of moving vehicle (6.1%). In addition, 9.1% of the attempters utilized multiple methods.

Suicide Ideators. The suicide ideator group was recruited from inpatient and outpatient private and state facilities. In order to be included in the ideator group, the patients must have: 1) verbalized intent to harm and/or a wish to kill themselves, 2) obtained a score above the 90th percentile Junior Suicide Ideation Questionnaire (SIQ-J) or Suicide Ideation Questionnaire (SIQ), and 3) not have any history of suicide attempt(s). Thirteen adolescents were recruited from consecutive admissions to psychiatric hospitals for depression and suicidal ideation and 4 adolescents were in outpatient therapy for suicidal ideation and depression. No significant differences between inpatients and outpatients emerged on the measured variables in T-tests (range T values: .04 - .81, ns) or in regression diagnostics for outliers and influential cases.

Psychiatric Controls. The psychiatric control group consisted of adolescents admitted to psychiatric facilities for problems other than suicidal ideation and/or behavior. In order to be included in the psychiatric control group, the patients must: 1)
have no history of suicide attempt(s) and 2) obtain a score below the 70th percentile on the SIQ-J or the SIQ. The majority of the adolescents in this group diagnosed with disruptive behavior disorders (68.9%). Additional diagnoses included: alcohol/substance abuse, adjustment disorder, and depression (see Table 2).

Normal Controls. The normal control group was comprised of adolescent volunteers from local junior and senior high schools. Undergraduates at a local university received extra credit in psychology courses for enlisting adolescent(s) in the study. Community residents excluded from the study included adolescents with (1) a history of suicide attempt(s); (2) a score above the 70th percentile on the SIQ-J or SIQ, (3) evidence of psychiatric diagnosis on interview, and/or (4) a history of intensive psychiatric treatment (greater than 6 months).

Diagnoses

Psychiatric diagnoses for the hospitalized groups were based on the revised third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III-R; American Psychiatric Association, 1987) according to information gathered by the psychiatrist and psychologist in multiple interviews with the adolescent and the parents and from observations by other hospital staff. A reliability check of the diagnoses was performed by having two independent raters apply DSM-III-R criteria to a randomly selected group of charts. Twenty-five percent of the Axis I diagnoses were reviewed by graduate students in clinical psychology. Interrater reliability on the randomly selected group of charts was high (kappa = .92). The reliabilities between the independent raters and primary (kappa = .88) and secondary (kappa = .78) psychiatric diagnoses at discharge were within acceptable limits. Overall, the principal Axis I diagnoses for the clinical groups were: Conduct Disorder (22.7%), Oppositional-Defiant Disorder (16.0%), Major Depression (17.3%), Adjustment Disorder (9.3%), Depression Not Otherwise Specified (9.3%), Attention Deficit Hyperactivity Disorder (5.3%), Alcohol
and/or Substance Abuse (5.3%), Dysthymia (4.0%), Bipolar Disorder or Cyclothymia (4.0%), Atypical Psychosis (2.7%), Anxiety Disorder (2.7%), and Impulse Control Disorder (1.3%). The primary and secondary diagnoses for the clinical groups are presented in Table 2.

Measures

After a semi-structured clinical interview to obtain necessary criteria for inclusion in study, all subjects completed a demographic questionnaire (Appendix B) and the following measures. The measures were counterbalanced across subjects to control for ordering effects. Finally, all subjects completed the semi-structured interview for suicidal behavior (Reynolds, 1991).

Automatic Thoughts Questionnaire (ATQ). The ATQ (Hollon & Kendall, 1980) is a 30-item measure assessing the frequency of occurrence of automatic thoughts. Each item reflects a single thought, such as "I hate myself" or "I am a failure." Subjects rate frequency of rumination on a 5 point scale (1 = "not at all" to 5 = "all the time"). Total scores range from a minimum of 30 to a maximum of 150, with higher scores reflecting more frequent maladaptive attributions. Satisfactory reliability estimates (alpha = .90 -.98) for the ATQ have been reported (Kazdin, 1990; Harrell & Ryon, 1983; Hollon & Kendall, 1980). Factor analysis revealed four dimensions reflecting personal maladjustment and desire for change; negative self-concept and negative expectations; low self-esteem, and giving up/helplessness. Convergent and discriminative validity for the ATQ have been documented with older children and adults (Dauth & Zettle, 1990; Kazdin, 1990).

Reynolds Adolescent Depression Scale (RADS). The RADS (Reynolds, 1986) is a 30-item measure for assessing depressive symptoms in adolescents. Items are scored on a 4 point scale, from 0 indicating "almost never" to 4 meaning "most of the time." Internal consistency coefficients between .92 to .96 and test-retest reliability of...
Table 2.

**Diagnostic Characteristics of Suicide Attempters, Suicide Ideators, & Psychiatric Controls.**

<table>
<thead>
<tr>
<th>Axis I Diagnosis</th>
<th>Psychiatric Controls (n=33)</th>
<th>Suicide Ideators (n=17)</th>
<th>Suicide Attempters (n=33)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary n (%)</td>
<td>Secondary n (%)</td>
<td>Primary n (%)</td>
</tr>
<tr>
<td>Major Depression</td>
<td>2 (6.0)</td>
<td>6 (34.8)</td>
<td>10 (30.0)</td>
</tr>
<tr>
<td>Dysthymia</td>
<td>0 (0.0)</td>
<td>1 (5.8)</td>
<td>2 (6.0)</td>
</tr>
<tr>
<td>Bipolar/Cyclothymia</td>
<td>0 (0.0)</td>
<td>1 (5.8)</td>
<td>2 (6.0)</td>
</tr>
<tr>
<td>Depression NOS</td>
<td>2 (6.0)</td>
<td>4 (12.0)</td>
<td>4 (12.0)</td>
</tr>
<tr>
<td>Conduct Disorder</td>
<td>9 (27.0)</td>
<td>3 (17.4)</td>
<td>6 (18.0)</td>
</tr>
<tr>
<td>Oppositional Defiant Disorder</td>
<td>8 (24.0)</td>
<td>3 (17.4)</td>
<td>2 (6.0)</td>
</tr>
<tr>
<td>Attention Deficit Disorder</td>
<td>5 (15.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Impulse Control Disorder</td>
<td>1 (3.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Alcohol/Substance Abuse</td>
<td>1 (3.0)</td>
<td>4 (12.0)</td>
<td>2 (6.0)</td>
</tr>
<tr>
<td>Adjustment Disorder</td>
<td>4 (12.0)</td>
<td>1 (5.8)</td>
<td>1 (3.0)</td>
</tr>
<tr>
<td>Anxiety Disorder</td>
<td>0 (0.0)</td>
<td>1 (5.8)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Atypical Psychosis</td>
<td>1 (3.0)</td>
<td>0 (0.0)</td>
<td>1 (3.0)</td>
</tr>
<tr>
<td>Parent-Child Problem</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>None</td>
<td>14 (42.0)</td>
<td>9 (52.2)</td>
<td>18 (54.0)</td>
</tr>
</tbody>
</table>
.84 have been reported. Normative data on 6,000 adolescents of various SES levels has been collected (Reynolds, 1984).

**Hopelessness Scale for Children (HSC).** The HSC (Kazdin, French, Unis, Esveldt-Dawson, & Sherick, 1983) consists of 17 true-false items that reflect negative expectations toward the future. Internal consistency of .97 and test-retest reliability of .52 have been reported (Kazdin, Colbus, & Rogers, 1986). Adequate psychometric properties of the HSC have also been demonstrated with normal and emotionally disturbed adolescents (Spirito, Williams, Stark, & Hart, 1988).

**Barratt Impulsivity Questionnaire (BIS).** The BIS-11 (Barratt, 1967; Barratt & Patton, 1993) is a 30-item measure of impulsiveness. It is comprised of three scales: (1) motor impulsiveness or acting without thinking; (2) cognitive impulsiveness or making quick decisions; and (3) non-planning impulsiveness or lack of "futuring." Each item is rated on a 4-point scale (rarely/never, occasionally, often, almost always/always). Items are weighted resulting in a final score for each subscale and a total score. Adequate internal consistency estimates (alpha = .89 - .92) have been reported; in addition, concurrent and discriminate validity with adults has also been reported (Barratt & Patton, 1993).

**Life Events Checklist (LEC).** The LEC (Johnson & McCutcheon, 1980) is a 46 item measure of major life events that are often experienced by older children and adolescents. While the first 18 items reflect events over which the respondent has little control (e.g., death of family member), the remaining items address situations that are potentially under the respondent's control (e.g., joining a club). In addition to indicating whether or not an event occurred in the past year, respondents must (1) indicate whether the event was **good** or **bad** and (2) rate the impact of the event on their lives (1 = no effect, 4 = great effect). Frequency and impact scores are calculated for positive and
negative life events; in addition, frequency and impact scores for controllable and uncontrollable events can also be determined.

**Daily Hassles Questionnaire (DHQ).** The DHQ (Rowison & Felner, 1988) is a 81-item measure assessing typical, every-day concerns of older children and adolescents, such as "school being too hard" and "parents nosy about what you do." Respondents were to rate the extent to which an item was a hassle over the past two weeks on a four point scale (1 = not at all a hassle, 4 = a very big hassle). Total hassles score is derived by summing item ratings. Adequate internal consistency estimates (alpha = .95) have been obtained.

**Suicide Ideation Questionnaire (SIQ).** The SIQ (Reynolds, 1987a) is a measure of suicidal ideation in adolescents and young adults. There are two forms of the SIQ: a 30-item form for older adolescents (grades 10-12) and young adults referred to as the SIQ and a 15-item form for younger adolescents (grades 7-9) referred to as the SIQ-JR. Cutoff scores to demarcate at-risk levels of suicidal ideation are provided for each form. Reliability estimates of .97 for the SIQ and .94 for the SIQ-JR have been reported (Reynolds, 1988). Validity evidence has also been documented.

**Suicidal Behaviors Interview (SBI).** The SBI (Reynolds, 1990) is a semi-structured clinical interview of suicidal behavior in adolescents and young adults (12-19). The SBI is comprised of two sections and questions are scored on a 0-2 or 0-4 point scale with half point specificity (.5). The first section of the SBI contains questions about (1) generalized level of psychological distress, including anxiety, depression, and hopelessness; (2) severity of daily chronic strains; (3) level of social support (reverse scored); and (4) evaluation of recent major negative life events. The second section involves questions specific to suicidal behavior and related risk factors including mild suicidal ideation, overt behaviors related to suicide, and suicide attempt(s). High internal consistency (alpha = .92) and interrater reliability ($r_{ir} = .92$);
Correlations with self-report measures of depression ($r = .47$) and suicide ideation ($r = .62$ and .68) have also been documented. Factor analysis yielded three factors corresponding to: 1) suicidal behavior (e.g., suicidal ideation, intent, and plans of suicide); 2) psychological distress (e.g., anxiety, depression) and environmental stress (e.g., daily stressors, major life events, lack of social support); and 3) specific suicide attempt (e.g., recency, seriousness, and lethality of attempt).

Twenty-five percent ($n = 30$) of the interviews were rated by two graduate students for reliability purposes. In this study, interrater reliabilities for the suicidal behavior and related risk factors score ($r = .80$) and total SBI score ($r = .60$) were adequate.

**Procedure**

After an initial assessment by a psychiatrist, consecutive admissions who met the criteria for inclusion in the study were recruited. After informed parent and adolescent consent were obtained, adolescents were interviewed in a private room. Subjects who had not received intellectual testing completed the WISC-III or WAIS-R Vocabulary and Block Design subtests. Subsequently, the subjects completed questionnaires, either independently or with the assistance of the examiner. Finally, the subjects were interviewed with the SBI. Testing was completed within 2-5 days of admission, if medically possible. Outpatient suicide ideators and community controls were assessed in a similar manner in an office at the local university.
RESULTS

Data Management & Preparation.

Prior to the principle analyses, the assumptions of normality, linearity, and homoscedasticity were evaluated because violations of these assumptions can result in inaccurate estimation of the relationship among variables (Stevens, 1986; Tabachnick & Fidell, 1983). If warranted, transformations were utilized to reduce skewness of distributions and improve the normality, linearity, and homoscedasticity of residuals. First, outliers in predictor and criterion space were assessed using the standardized residual statistics and leverage, respectively (Neter, Wasserman, & Kutner, 1989). Influential data points were identified using Cook's distance and DFBeta statistics (Bollen & Jackman, 1990). These statistics give an indication of the influence of each case upon the total variance and the individual regression coefficients, respectively. Based on the guidelines provided by Bollen and Jackman (1990), one case was identified as an outlier and also appeared to be an influential case. The main analyses were conducted dropping the influential case from the sample. The pattern and magnitude of results remained largely the same whether the data were analyzed including or not including the influential case. Therefore, the influential case was retained in the subsequent analyses. Second, the univariate measures of distribution, skewness and kurtosis, were inspected for major deviations from normality. Multivariate procedures have been demonstrated to be robust to modest departures from multivariate normality. While univariate normality does not guarantee multivariate normality, univariate procedures are likely to detect anomalies in most cases (Stevens, 1987). Absolute values of skewness and kurtosis were within acceptable limits for the majority of the variables, except for DHQ and LEC scores. A square-root transformation was utilized to normalize the DHQ and LEC distributions. Third, bivariate and residual scatterplots were examined for linearity and homoscedasticity. In
addition, the univariate and multivariate statistics for homogeneity of the variance and covariance matrices, Cochran's and Box's M statistics, were examined. While the oval shape of the bivariate plots was indicative of linearity, the horn-shaped pattern of the residual plots suggested heteroscedasticity. Moreover, the Cochran's statistics were significant for HSC and ATQ scores. A square-root transformation was utilized to stabilize the variance for HSC and SBI scores. A logarithmic transformation was used with ATQ scores. Following the transformations, the Cochran's and Box's M statistics were not significant which indicates homogeneity of the variance and covariance matrices, respectively, and the residual plots were within acceptable limits.

Preliminary Analyses

Group Comparability. Group differences on sociodemographic characteristics were explored by means of one-way analysis of variance (ANOVAs) or chi-square tests. There were no significant differences in age, sex, race, SES, and IQ (see Table 1). There were a few statistically significant group differences of less relevance with regard to the sociodemographic characteristics of living situation, \( \chi^2(12) = 35.93, p < .0004 \), treatment history \( \chi^2(9) = 35.92, p < .00004 \), and self-reported family history of substance abuse \( F(3,114) = 3.96, p < .01 \) and problems with the law \( F(3,114) = 2.75, p < .05 \). Specifically, community controls were more likely to be living with both biological parents than suicide attempters and psychiatric controls; in addition, suicide attempters were more likely to be living with extended family members than psychiatric controls. In terms of treatment history, attempters, ideators, and psychiatric controls were more likely to be involved in outpatient treatment than controls, but no differences among the clinical groups in duration of outpatient treatment were noted. No differences in self-reported family history of psychiatric illness, hospitalizations, and suicidal behavior were documented. While suicide attempters reported a greater family history of substance abuse and problems with the law than community controls, no
differences were noted between the clinical groups. Overall, the four groups were reasonably similar on the majority of the sociodemographic variables.

**Group Validity.** The validity of group membership was examined to ensure that the attempters, ideators, psychiatric controls, and community controls differed in the expected fashion in suicidality, as measured by SBI scores. An ANOVA with follow-up Scheffe contrasts was conducted. There was a significant effect for group membership on SBI scores \( (F(3,114) = 139.11, p < .0001) \). Attempters reported greater suicidal behavior than ideators who, in turn, reported greater suicidal behavior than psychiatric controls. Community controls reported the lowest levels of suicidal behavior.

**Main Analyses**

**Group Differences.** In order to test the hypotheses regarding group differences in depression, cognitive distortions, and hopelessness and in life events and daily hassles, multivariate analyses of variance (MANOVAs) with planned multivariate comparisons were conducted (Stevens, 1987). In addition, step-down analyses were utilized to explore the unique contribution of various measures to group differentiation because a priori ordering of the variables is suggested in the literature. In stepdown analysis, the highest priority variable is tested in a univariate ANOVA and subsequent variables are analyzed with the higher priority variables treated as covariates (Tabachnick & Fidell, 1983). Due to unequal group sizes, the Pillais statistic was utilized to determine significance (Tabachnick & Fidell, 1983). In terms of impulsivity, group differences were investigated via ANOVA with planned univariate contrasts. In the univariate and multivariate analyses, planned comparisons were made between the (1) attempter versus ideator, (2) attempter and ideator versus psychiatric control, and (3)

---

1 In MANOVA, there is an assumption that a conceptual relationship exists among the variables. The use of multiple univariate F tests to clarify multivariate findings falsely assumes that the variables are statistically independent; in addition, the use of MANOVA to control for Type I error is confounded by the increased risk of Type I error associated with multiple univariate F tests.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
attempter and ideator versus community control groups. Because multiple tests of significance create an increased risk of Type I error, the Bonferroni procedure was utilized to identify a more conservative familywise estimate of significance. Statistical tests associated with the .016 level were considered significant. The means and standard deviations on measures of depression, cognitive distortions, hopelessness, impulsivity, and psychosocial stressors for the attempters, ideators, psychiatric controls, and community controls are presented in Table 3.

A significant effect for group membership emerged for RADS, HSC, and ATQ scores (Pillais = .3967, F = 5.79, p < .0001). While the attempter versus ideator group planned comparison failed to attain significance (Hotellings $T^2 = .0512, ns$), the remaining comparisons indicated that suicidal adolescents differed from psychiatric controls (Hotellings $T^2 = .2625, p < .0001$) and community controls (Hotellings $T^2 = .3109, p < .0001$). These results indicate that suicide attempters and ideators reported more depression, hopelessness, and negative automatic thoughts than psychiatric and community controls. In the stepdown analyses, a priori ordering of RADS, HSC, and ATQ scores was warranted because adolescent suicidality has been consistently linked to depression (Pfeffer et al., 1993) with mixed findings for hopelessness (Cole, 1990, Steer, Kumar, & Beck, 1994) and little investigation of negative automatic thoughts. Stepdown analysis indicated that RADS scores contributed significantly to group differentiation, stepdown $F(3,114) = 11.03, p < .0001)$. After RADS scores were entered, HSC scores did not contribute to group differentiation, stepdown $F(3,113) = 1.90, ns$. Finally, a unique contribution to predicting group differences was made by ATQ scores, above and beyond RADS and HSC scores (stepdown $F(3,112) = 6.98, p < .0001$). Thus, depression and negative automatic thoughts discriminated among suicidal adolescents, psychiatric controls, and community controls better than hopelessness (see 2 For k groups, there are (k-1) degrees of freedom which allow for only (k-1) non-redundant contrasts (Stevens, 1987). In this study, k = 4; therefore, three non-redundant contrasts were conducted because a limited number of contrasts based on the a priori hypotheses improves power.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Table 3
Means and Standard Deviations on Original Measures by Group.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Community (n = 35)</th>
<th>Psychiatric (n = 33)</th>
<th>Ideator (n=17)</th>
<th>Attempter (n=33)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>RADS</td>
<td>56.31</td>
<td>11.01a</td>
<td>61.76</td>
<td>14.19a</td>
</tr>
<tr>
<td>HSC</td>
<td>3.06</td>
<td>2.17a</td>
<td>3.42</td>
<td>2.19b</td>
</tr>
<tr>
<td>ATQ</td>
<td>49.80</td>
<td>11.01a</td>
<td>57.00</td>
<td>14.81a</td>
</tr>
<tr>
<td>BIS</td>
<td>46.80</td>
<td>13.17a</td>
<td>50.85</td>
<td>13.62a</td>
</tr>
<tr>
<td>LEC-Frequency</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postive</td>
<td>3.86</td>
<td>2.65a</td>
<td>3.00</td>
<td>1.97b</td>
</tr>
<tr>
<td>Negative</td>
<td>3.11</td>
<td>2.61a</td>
<td>4.64</td>
<td>3.69b</td>
</tr>
<tr>
<td>LEC-Impact</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postive</td>
<td>10.89</td>
<td>8.65a</td>
<td>7.33</td>
<td>5.18b</td>
</tr>
<tr>
<td>Negative</td>
<td>8.43</td>
<td>7.02a</td>
<td>12.58</td>
<td>10.62b</td>
</tr>
<tr>
<td>DHQ</td>
<td>64.57</td>
<td>60.02</td>
<td>53.58</td>
<td>47.01</td>
</tr>
</tbody>
</table>

Note: Values with different superscripts are significantly different at p < .016 (Bonferroni-adjusted significance level) per stepdown F by planned comparison. RADS = Reynolds Adolescent Depression Inventory; HSC = Hopelessness Scale for Children; ATQ = Automatic Thoughts Questionnaire; BIS = Barratt Impulsiveness Scale; LEC = Life Events Checklist; DHQ = Daily Hassles Questionnaire.
Table 3). In addition, self-reported depression distinguished between suicide ideators and suicide attempters. Interestingly, ideators reported higher levels of depression than attempters.

The MANOVA for psychosocial stressors, as measured by the frequency of negative and positive LEC and DHQ scores, also revealed a significant main effect for group membership (Pillais = .2860, F = 4.01, p = .0001). Nonsignificant findings emerged in the attempter versus ideator comparison (Hotellings $T^2 = .0071, ns$), but suicidal adolescents differed significantly from psychiatric controls (Hotellings $T^2 = .1026, p < .012$) and community controls (Hotellings $T^2 = .2612, p < .0001$). These results indicate that suicidal adolescents reported more negative life events and daily hassles and fewer positive life events than psychiatric and community controls. However, the suicidal groups reported comparable amounts of life events and daily hassles. In the stepdown analysis, a priori ordering of frequency of negative LEC, frequency of positive LEC, and DHQ scores is suggested in the literature because stressful life events often precipitate increased daily hassles (Rowilson & Felner, 1990). The frequency of negative LEC scores contributed significantly to group differentiation, stepdown $F(3,114)= 9.75, p < .0001$. After frequency of negative LEC scores were entered, neither the frequency of positive LEC scores (stepdown $F(3,113) = 1.83, ns$) nor DHQ scores (stepdown $F(3,112) = 1.73, ns$) were significant. Thus, frequency ratings for negative life events discriminated among suicidal adolescents, psychiatric controls, and community controls better than the frequency ratings for positive life events and daily hassles (see Table 3).

While the relationship between the cumulative number of life events and psychological distress has been demonstrated in the literature, there has been less emphasis on the role of perceived impact of life events. It has been suggested that frequency and impact ratings are comparable in subclinical samples, but that impact
ratings may be confounded by psychopathology in clinical samples (Rowilson & Felner, 1988). In this study, the impact ratings for life events was examined by substituting impact of positive and negative LEC scores for frequency scores in a MANOVA with DHQ scores. There was a significant effect for group membership on impact ratings for negative and positive LEC and DHQ scores (Pillais = .3510, F = 5.03, p < .0001). In addition, planned comparisons revealed that suicidal adolescents differed from psychiatric (Hotellings $T^2 = .1484, p < .001$) and community (Hotellings $T^2 = .3227, p < .0001$) controls. Nonsignificant results also emerged in the ideator versus attempter comparison (Hotellings $T^2 = .0127, ns$). The results of the stepdown analyses for impact ratings for life events indicated that only impact ratings for negative life events contributed uniquely to group discrimination (stepdown $F(3,112) = 13.21, p < .0001$). Overall, the MANOVA results for frequency versus impact of life events are similar (see Table 3). In the subsequent analyses, frequency rather than impact ratings were used in order to reduce multicollinearity and to allow for comparisons with past studies on psychosocial stressors.

In terms of impulsivity, the ANOVA for BIS scores revealed a significant effect for group membership, $F(3,114) = 6.31, p < .0005$ (see Table 3). Planned comparisons indicated that suicide attempters and ideators reported comparable levels of impulsivity ($T(114) = .790, ns$). Suicidal adolescents reported higher levels of impulsivity than psychiatric controls ($T(114) = 2.93, p < .004$) and community controls ($T(114) = 4.15, p < .0001$).

Medical Lethality. Among the attempters, the relationship between measured variables and medical lethality of suicide attempt was examined. Medical lethality is determined by the risk of self-harm of the suicide method coupled with the possibility of rescue by others from the suicidal act. The correlations between ATQ, RADS, HSC, BIS, LEC, DHQ, and SBI Factor 3 scores are presented in Table 4. A Bonferroni-
Table 4

Correlations Between Medical Lethality Factor and Measured Variables.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reynolds Adolescent Depression Scale</td>
<td>.4801***</td>
</tr>
<tr>
<td>Hopelessness Scale for Children</td>
<td>.5347***</td>
</tr>
<tr>
<td>Automatic Thoughts Questionnaire</td>
<td>.4205*</td>
</tr>
<tr>
<td>Barratt Impulsiveness Scale</td>
<td>.3203</td>
</tr>
<tr>
<td>Daily Hassles Questionnaire</td>
<td>.5070***</td>
</tr>
<tr>
<td>Frequency of Positive Life Events</td>
<td>.4068*</td>
</tr>
<tr>
<td>Frequency of Negative Life Events</td>
<td>.3767*</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .005
<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td></td>
<td>-.0862</td>
<td>-.0710</td>
<td>-.0956</td>
<td>.0278</td>
<td>-.1519</td>
<td>-.0271</td>
<td>-.1230</td>
<td>.2266**</td>
<td>.1001</td>
<td>.0832</td>
<td>-.0642</td>
<td>-.0319</td>
</tr>
<tr>
<td>2. Sex</td>
<td></td>
<td>-.0090</td>
<td>-.0651</td>
<td>.1292</td>
<td>.2771**</td>
<td>.2372**</td>
<td>.2122*</td>
<td>.0557</td>
<td>.1849*</td>
<td>.1129</td>
<td>.1972*</td>
<td>.2719**</td>
<td></td>
</tr>
<tr>
<td>3. Race</td>
<td></td>
<td>-.4005***</td>
<td>-.0159</td>
<td>.0086</td>
<td>.0689</td>
<td>.0637</td>
<td>.0317</td>
<td>.0256</td>
<td>.1314</td>
<td>.0934</td>
<td>-.0705</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. SES</td>
<td></td>
<td>.0501</td>
<td>.0239</td>
<td>-.0120</td>
<td>.0777</td>
<td>.0890</td>
<td>-.1399</td>
<td>-.0767</td>
<td>.0343</td>
<td>.1349</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Past Suicide</td>
<td></td>
<td>.1736</td>
<td>.1659</td>
<td>.3323***</td>
<td>.2977**</td>
<td>.1473</td>
<td>.0702</td>
<td>.2175*</td>
<td>.4421***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. RADS</td>
<td></td>
<td></td>
<td></td>
<td>.6751***</td>
<td>.7656***</td>
<td>.4695***</td>
<td>.4977***</td>
<td>.0904</td>
<td>.5385***</td>
<td>.4224***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. HSC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.7077***</td>
<td>.5302***</td>
<td>.4279***</td>
<td>.1787</td>
<td>.4331***</td>
<td>.4698***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. ATQN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.5731***</td>
<td>.4604***</td>
<td>.1068***</td>
<td>.5716***</td>
<td>.5982***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. BIS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.3760***</td>
<td>.0004</td>
<td>.4758***</td>
<td>.3715***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. DHQ</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.1508</td>
<td>.4491***</td>
<td>.2316**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. LEC(+)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.2527**</td>
<td>.0680</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. LEC(-)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.4689***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. SBI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .001

Note: Sex (0=Male, 1=Female); Race (0=Other, 1=Caucasian); Past Suicide Attempt(s) (0=No, 1=Yes). RADS = Reynolds Adolescent Depression Scale; HSC = Hopelessness Scale for Children; ATQ = Automatic Thoughts Questionnaire; BIS = Barratt Impulsiveness Scale; DHQ = Daily Hassles Questionnaire; LEC = Life Events Checklist; SBI = Suicidal Behaviors Interview (Part II).
adjusted significance level of .006 was utilized to account for multiple tests of significance. Medical lethality of suicide attempt, as measured by SBI Factor 3 scores, was significantly correlated with daily hassles (r = .5070, p = .003), hopelessness (r = .5347, p = .001), and depression (r = .4801, p = .005).

**Regression Analyses.** Prior to the regression analyses, the intercorrelations between sociodemographic, predictor, and criterion variables were investigated. The intercorrelation matrix is presented in Table 5. Gender, age, and past suicide attempt(s) were significantly correlated with several predictors as well as the criterion. In order to account for the contribution of these variables to any variance in criterion explained by predictors, significant sociodemographic factors were entered first in all of the regressions (Cohen & Cohen, 1983). Given that several of the predictors also were intercorrelated, multicollinearity was explored with the variance inflation factor (VIF) statistics. VIF values can range from 1 when the predictors are independent to infinity when the predictors completely overlap, and should not exceed 6 or 10 (Neter, Wasserman, & Kutner, 1989). In the present sample, the VIFs for all variables were within acceptable limits, ranging from 1.12 to 3.29.

In order to explore the relative contribution of depression, hopelessness, negative automatic thoughts, impulsivity, and psychosocial stressors in predicting suicidality, pre-planned stepwise regression analyses were conducted. The order of entry of the predictors was as follows: (1) gender and age (2) past suicide attempt(s), (3) RADS score, and (4) ATQ, HSC, BIS, frequency ratings for negative and positive LEC, and (5) DHQ scores. The results of the regression are presented in Table 6. Gender and age accounted for 7% of the variance in SBI scores, but the addition of past suicide attempt(s) in the second step increased the explained variance to 24%. In the third step,

---

3 The first section of the SBI, which involves four questions dealing with psychological distress, daily hassles, social support, and major life events, was not included in the regression to prevent these symptoms from producing spuriously high correlations with the predictors. In addition, the suicide (#14) and hopelessness (#30) items on the RADS were omitted from the calculation of total depression score (Steer, Kumar, & Beck, 1994).
Table 6

Results of Regression Analyses.

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>Beta</th>
<th>R</th>
<th>R²</th>
<th>R² Adjusted</th>
<th>F</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sex</td>
<td>.1219</td>
<td>.2632</td>
<td>.0693</td>
<td>.0531</td>
<td>4.28</td>
<td>2,115</td>
<td>.02</td>
</tr>
<tr>
<td></td>
<td>Age</td>
<td>.0346</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>Past Attempt(s)</td>
<td>.2632***</td>
<td>.4907</td>
<td>.2408</td>
<td>.2408</td>
<td>12.05</td>
<td>3,114</td>
<td>.0001</td>
</tr>
<tr>
<td>Step 3</td>
<td>RADS</td>
<td>-.1149</td>
<td>.5796</td>
<td>.3359</td>
<td>.3124</td>
<td>14.29</td>
<td>4,113</td>
<td>.0001</td>
</tr>
<tr>
<td>Step 4</td>
<td>HSC</td>
<td>.1493</td>
<td>.6851</td>
<td>.4694</td>
<td>.4252</td>
<td>10.62</td>
<td>9,108</td>
<td>.0001</td>
</tr>
<tr>
<td></td>
<td>ATQ</td>
<td>.4154**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIS</td>
<td>-.0153</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LEC(-)</td>
<td>.2115*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LEC(+)</td>
<td>-.0616</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 5</td>
<td>DHQ</td>
<td>-.1073</td>
<td>.6904</td>
<td>.4766</td>
<td>.4330</td>
<td>10.93</td>
<td>9,108</td>
<td>.0001</td>
</tr>
</tbody>
</table>

* p < .05; **p < .005; *** p < .001

Note: RADS = Reynolds Adolescent Depression Scale; HSC = Hopelessness Scale for Children; ATQ = Automatic Thoughts Questionnaire; BIS = Barratt Impulsiveness Scale; LEC = Life Events Checklists; DHQ = Daily Hassles Questionnaire.
RADS scores were entered into the equation resulting in an increase in explained variance to 34%. When all the variables were entered into the regression, the overall amount of explained variance in SBI scores being explained was 47%. Past suicide attempt(s), ATQ, and frequency of negative LEC scores were the only variables contributing unique variance to the explanation of SBI scores. The interactions between impulsivity and maladaptive cognitions and between daily hassles and negative life events were investigated by computing an additional regression with the interaction and non-linear terms entered simultaneously in the final step\(^4\); however, nonsignificant findings emerged for all interaction and nonlinear effects (Aiken & West, 1991). Subsequently, discriminant function analysis was utilized to determine classification rates for attempters, ideators, psychiatric controls, and community controls. The combination of RADS, ATQ, HSC, BIS, and frequency of negative and positive LEC scores correctly classified 58.1% of the community controls, 48.5% of the psychiatric controls, and 70.0% of the suicidal adolescents. Overall, the classification rate was 60.2%. The addition of age, sex, and past suicide attempt(s) increased the global classification rate to 66.1%.

\(^4\) Non-linear effects also were investigated because "moderator effects" may be artifacts of unidentified non-linear trends (Lubinsky & Humphrey, 1990).
DISCUSSION

The results of this study indicate that cognitive distortions, impulsivity, and negative life events are related to adolescent suicidal behavior. In this investigation, suicidal adolescents reported greater depression and cognitive distortions—negative automatic thoughts and hopelessness—than psychiatric and community controls. However, negative automatic thoughts, not hopelessness, distinguished suicidal adolescents from psychiatric and community controls, above and beyond the effect of depression. Self-reported depression was the only variable that distinguished between ideators and attempters; however, the magnitude of the effect was small. Interestingly, suicide ideators reported more depression than suicide attempters. Suicidal adolescents also reported greater impulsivity than psychiatric and community controls. No differences in impulsivity were noted between suicide ideators and attempters. In terms of psychosocial stressors, suicidal adolescents reported greater negative life events and daily hassles and fewer positive life events than psychiatric and community controls; however, this finding appeared to be primarily attributable to group differences in negative life events. Yet, medical lethality of suicide attempts was associated with daily hassles in addition to hopelessness and depression. Finally, cognitive distortions and negative life events contributed uniquely to the prediction of suicidal behavior, above and beyond demographic factors and self-reported depression.

There is controversy in the literature regarding the scope of suicidal behavior. According to Carlson and Cantwell (1982), the unpredictable nature of suicide contradicts the view that suicidality exists on a continuum, from ideation to completed suicide (Pfeffer, 1989). While small sample size may account for the lack of differences between attempters and ideators in this study, several studies with larger samples have found that the two groups tend to overlap (Kosky, Silburn, & Zubrick, 1990). Yet, differences in self-reported depression were evident in this investigation.
Although this finding should be interpreted cautiously due to the small magnitude of the effect, it is interesting that ideators reported greater levels of depressive symptoms than attempters. This finding may be attributable to several factors, including temporal factors associated with the measurement of depression, divergent symptoms of depression, and/or attitudes towards death and suicide. Prior to attempting suicide, attempters may have experienced levels of depression comparable to ideators; however, depressive symptoms may have receded following the attempt. The decision to attempt suicide and/or making a suicide attempt may provide a respite from depressive symptoms, particularly in light of suicidal adolescents' tendency to have distorted perceptions of death and suicide (Lester, 1973; Orbach et al., 1993). Following the suicidal act, decreased environmental demands and increased social support may diminish depressive symptoms. Psychiatric hospitalization also may have an impact on depressive symptoms, ranging from minimization of symptoms to increase privileges within the inpatient milieu to exaggeration of symptoms in response to hospitalization.

While it is possible that temporal factors associated with the measurement of depression following suicide attempt and hospitalization may have contributed to group differences in self-reported depression in this study, specific types of depressive symptoms have been found to discriminate between suicide attempters and depressed adolescents (Kienhorst, deWilde, Diekstra, & Wolter, 1992). Specifically, suicide attempters' exhibited depression that was characterized by emotional lability in combination with social withdrawal and isolation. In contrast, depressed adolescents were more likely to display passive, fatigued symptoms or bipolarity which may be better sampled by self-report measures of depression.

In the literature, there are disparate findings regarding the role of hopelessness in adolescent suicidality (Cole, 1989; Steer et al., 1993). In this study, hopelessness, as measured by the HSC, failed to make a unique contribution to the discrimination of
suicidal adolescent from psychiatric and community controls; in addition, hopelessness did not contribute to the prediction of suicidal behavior. Although negative automatic thoughts have received less scrutiny in the literature, it was found that negative automatic thoughts, as measured by the ATQ, contributed to group discrimination and were predictive of suicidal behavior. According to Kendall and Ryon (1980), certain clusters of ATQ items appear to be consistent with two of three of the components of Beck’s (1963) negative triad—negative views of self and future—as well as the tendency to attribute nonsuccess to internal, global, and stable over time factors that is associated with the learned helplessness model of depression (Abramson et al., 1987). Thus, the ATQ may have tapped a broader range of cognitive characteristics associated with depression and suicide than the HSC.

While negative automatic thoughts reflect the temporal processing of information, hopelessness is associated with future orientation (Hollon & Ryon, 1980). Previous studies have indicated that a future orientation characterized by hopelessness is a critical factor in adolescent depression (Thurber, Crow, Thurber, & Woffington, 1990). Yet, the results of this study suggest that the temporal processing of information in a negative, distorted manner rather than future orientation may distinguish suicidal adolescents from their peers, particularly in light of suicidal adolescents’ tendency to have permissive and/or distorted perceptions of suicide and death (Kienhorst et al., 1992; Orbach et al., 1993). According to Orbach and associates (1993), suicide attempters view death as "a continuum of life under improved circumstances in which longstanding wishes may come true." It is possible that suicidal adolescents may have a more positive, albeit distorted, view of the future that contrasts starkly with the depressogenic ruminations associated with the present. Future research comparing nonsuicidal, depressed adolescents and their suicidal peers might clarify these issues.
In this study, impulsivity distinguished suicidal adolescents from psychiatric and community controls. Interestingly, attempters and ideators did not differ significantly in impulsivity. These findings are consistent with recent studies of impulsivity in suicidal adolescents, including studies that have utilized vigilance tasks to measure impulsivity (Kashden et al., 1993). Given the high rate of externalizing disorders in the psychiatric control group, it is somewhat surprising that suicidal adolescents reported higher levels of impulsivity than their nonsuicidal, distressed peers. While this finding may be attributable to the diverse nature of the psychiatric control group, it is also consistent with the prevalence of depression and comorbid disorders characterized by impulsivity, such as conduct disorder and/or substance abuse, in suicidal adolescents (Apter et al., 1988). In this study, impulsivity did not uniquely contribute to the prediction of suicidal behavior, either alone or in interaction with cognitive distortions. Plutchick and van Praag (1986) have suggested that impulsivity has an indirect effect on suicidality via aggression which might account for the limited predictive utility of impulsivity in adolescent suicidal behavior. The controversy in the literature regarding the definition and measurement of impulsivity indicates that clearly defined, accurate multi-method assessment of impulsivity coupled structural modeling of the interrelationship between predictors of suicide is necessary to explicate the role of impulsivity in adolescent suicidality (Barkley, 1991; Oas, 1985).

While the combination of life events and daily hassles distinguished suicidal adolescents from psychiatric and community controls, these findings were primarily attributable to negative life events. This finding is consistent with previous research on the role of negative life events and psychopathology, particularly abuse (Levin & Schonberg, 1987; Riggs et al., 1990; Shaunesey et al., 1993), interpersonal loss (Kosky et al., 1990), and recent attempt by a friend (Lewinsohn, Rohde, & Seeley, 1994). It appears that positive life events and daily hassles may be more useful in predicting
suicidality in subclinical samples than in clinical samples. Several studies of community residents have documented a relationship between psychosocial stressors and suicidality (Dubow et al., 1989; Windle, 1992), but these findings appear to be confounded by demographic factors and/or psychopathology in clinical samples (Fremouw, Callahan, & Kashden, 1993). It is also possible that methodological problems associated with the study of life events also may have contributed to limited impact of positive life events and daily hassles. Prospective investigation of daily hassles using daily journals or ratings may be more useful than omnibus checklists. In addition, it may be useful to utilize a life history interview rather than a self-report measure to obtain a greater breadth of information from adolescents (Kienhorst et al., 1992).

Despite the limited utility of negative and positive life events and daily hassles in predicting suicidality per se, daily hassles was associated with medical lethality of suicide attempt. In addition, medical lethality of suicide attempt was associated with hopelessness, and, to a lesser degree, depression. While the associations among hopelessness, depression, and medical lethality are well-documented, daily hassles have rarely been examined in this context. In the literature on psychosocial stressors, it has been noted that life events may precipitate increases in daily hassles or, perhaps, in perceived daily hassles (Botsis et al., 1993; Rowilson & Felner, 1989). In this study, the frequency of negative life events contributed to the prediction of suicidality in this study; in addition, there was a significant association between negative life events and daily hassles. On the other hand, suicidal adolescents were distinguished by cognitive distortions which, in turn, may have altered perceptions of daily hassles in an adverse fashion. While further research is necessary to disentangle the relationship between cognitive distortions, daily hassles, and suicidality, daily hassles were associated with increased lethality of suicide attempts in this study. In clinical settings, assessments of
frequency as well as perceived impact of daily hassles may be useful in determining suicide risk.

Demographic factors, particularly past suicide attempt(s), coupled with cognitive distortions and negative life events were predictors of suicidal behavior, above and beyond depression. While impulsivity failed to make a unique contribution to the prediction of suicidal behavior, self-reported impulsivity distinguished suicidal adolescents from their distressed and nondistressed peers. Taken together, these findings are consistent with previous studies which have identified two subgroups of suicidal adolescents: hopeless, dysphoric attempters in problematic situations and impulsive, labile attempters with behavior and substance abuse problems (Borst & Noam, 1993; Kienhorst et al., 1992). Conduct-disordered adolescents also have been found to utilize maladaptive cognitive styles (Curry & Craighead, 1990). Thus, negative automatic thoughts, as measured by the ATQ, may have sampled a broader range of maladaptive cognitions in a diverse population resulting in better prediction of suicidal behavior.

The association between cognitive distortions, impulsivity, negative life events, and suicidality has implications for the assessment and treatment of suicidal adolescents. Although Steer and associates (1993) suggest that adult measures of hopelessness are useful predictors of suicidal ideation in adolescents, it is possible that other types of cognitive distortions, such as negative automatic thoughts, may be more useful in determining suicide risk in adolescents, particularly in chronologically and/or developmentally younger adolescent populations. In addition, daily hassles may be useful in identifying adolescents at risk for lethal suicide attempts. In regards to treatment, these findings support the use of cognitive behavioral strategies to address maladaptive cognitive patterns characteristic of suicidal adolescents. Further, self-
control and problem solving skills training may be helpful with impulsive, suicidal adolescents.

It should be noted that there are several limitations to this study. It is unclear whether cognitions and behaviors assessed by self-report measures are similar to the natural occurrence of these cognitions and behaviors. In future research, external ratings and behavioral observations would validate self-report findings. Given the controversy in the literature regarding impulsivity, multiple measures of impulsivity, including self-report, behavioral observations, and computerized tasks, are warranted. Further exploration of possible differences between suicide attempters and ideators is recommended with larger samples. A larger sample of suicidal adolescents would also allow for more rigorous statistical procedures (i.e., structural modeling). In this study, the reliability of psychiatric diagnoses and family history of psychopathology might have been increased with the use of a structured interview.

In summary, the present study examined the role of cognitive distortions, depression, impulsivity, life events, and daily hassles in suicidal behavior in adolescents. Suicidal adolescents reported greater depression, hopelessness, and cognitive distortions than psychiatric and community controls. In addition, self-reported depression distinguished ideators and attempters. Although suicidal adolescents reported greater negative life events and daily hassles than community controls, significant differences were not evident between the clinical groups. Suicidal adolescents reported higher levels of impulsivity than psychiatric and community controls. Among suicide attempters, medical lethality of attempts was associated with hopelessness, daily hassles, and depression. Cognitive distortions and negative life events contributed to the prediction of suicidal behavior, above and beyond demographic variables, past suicide attempt(s), and depression.
BIBLIOGRAPHY


Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.


Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.


Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.


APPENDIX A

Consent Form

This study is being conducted by Dr. Mary Lou Kelley and Christine Sadowski of the Psychology Department at LSU. The purpose is to explore ways in which different groups of adolescents deal with the difficult social and emotional problems they face. This survey includes explicit questions regarding some serious topics, such as drug use, self-destructive behavior, and family problems. The information gathered from these questions is purely for research purposes and taking part in this study does not imply anything about your teenager's mental health.

All responses to the questionnaires will remain strictly confidential. If respondent may be at risk for self-injury, confidentiality will be waived and a referral to appropriate professionals will be made. Only the researchers will have access to the data and the questionnaires will be coded by number NOT by name. All results are based on group responses, NOT the responses of single individuals. If you are interested, we would be happy to provide you with the results of the study. This research may be used for published work.

Your adolescent will be asked to complete several questionnaires which should take approximately 30-45 minutes. Data will also be gathered from your adolescent's medical chart. If you have any questions, feel free to ask the experimenter. Your participation is strictly voluntary. If you decide to participate, please sign this form. You may withdraw from the study at any time.

Thank you very much for your participation.

__________________________  ____________________________
Parent Signature          Adolescent Signature

__________________________  ____________________________
Witness                   Date
APPENDIX B

Demographic Questionnaire

Sex: Male ______ Female______ Age: ______
Grade: ______

Race: ______ White
______ African-American
______ Other (please specify ____________________________)

Who are you living with
______ Mother & Father
______ Father & Stepmother
______ Mother only
______ Father & Stepfather
______ Other: (Please specify ____________________________)

What do the parents you're living with do for employment?
Mother's (or Step-mother's) Job: ____________________________
Father's (or Step-father's) Job: ____________________________
Other's Guardian's Job: ____________________________

Mother's (or Step-mother's) Education: Father's (or Step-Father's) Education:
______ Elementary
______ Junior High (6th-8th)
______ Some High School
______ High School Graduate
______ Some College
______ or Trade School
______ College Graduate
______ Graduate School
(i.e., Law, Masters)

Have you ever had psychological problems that required you to see a psychiatrist, psychologist, or counselor?
______ No ______ Yes Duration: ______
______ one visit only
______ less than 1 month
______ 1-2 months
______ 3-6 months
______ 6 months to 1 year
______ more than 1 year

Have you ever been hospitalized for emotional problems?
______ No ______ Yes (If yes, how long? ____________)

Have you ever tried to kill yourself? ______ No ______ Yes
Has anyone in your family had any of the following:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Mother</th>
<th>Father</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe Depression?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety or Nerve Problems?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other mental illness (specify________________)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospitalized for mental problems?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problems with drugs and/or alcohol?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tried to kill themselves?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trouble with the law?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
VITA

Christine Sadowski was born in Hartford, Connecticut. She attended college at Swarthmore College in Pennsylvania. She majored in psychology and graduated Phi Beta Kappa in June, 1985. Subsequently, she was worked with children and adolescents with developmental disabilities and psychiatric disorders for several years. In September, 1989, Christine enrolled in graduate school at Louisiana State University to pursue a doctoral degree in clinical psychology. During her graduate career, Christine worked with a variety of child and adolescent populations and conducted research on adolescent suicide and social problems solving. She received her masters degree in December, 1991. She completed her internship at the University of Washington in Seattle in July, 1994. In December, 1994, Christine received her doctoral degree in psychology from Louisiana State University.
DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Christine Sadowski

Major Field: Psychology

Title of Dissertation: Cognitive Distortions, Impulsivity, and Stressful Life Events in Suicidal Adolescents

Approved:

[Signature]
Major Professor and Chairman

[Signature]
Dean of the Graduate School

EXAMINING COMMITTEE:

[Signature]

[Signature]

[Signature]

Date of Examination: _____________

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.