

AN EXAMINATION OF THE RELATIVE CONTRIBUTION OF DIAGNOSTIC AND  
PSYCHOSOCIAL FACTORS IN THE PREDICTION OF ADOLESCENT  
SUICIDAL IDEATION

by

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## (ABSTRACT)

The purpose of the current study was to investigate the relative importance of diagnostic and psychosocial factors in the prediction of adolescent suicidal ideation. Previous research has shown both sets of variables to be significantly related to suicidality but has failed to compare their relative efficacy in explaining suicidal ideation. It was hypothesized that diagnostic variables would afford better prediction of suicidal ideation than psychosocial variables, diagnostic variables would predict suicidal ideation above and beyond psychosocial variables, and psychosocial variables would predict suicidality after controlling for the effects of diagnostic variables. This study included valid diagnostic and psychosocial variables, employed independent diagnoses as opposed to diagnostic groupings, and utilized continuous measures of psychiatric symptomatology, in series of regression analyses to test these hypotheses. Results revealed that diagnostic variables, in particular, severity of major depressive disorder symptomatology, afforded the strongest prediction of suicidal ideation, even after controlling for psychosocial variables. The comorbid combination of mood disorder and generalized anxiety disorder was found to be the most strongly linked to suicidal ideation of all diagnostic combinations. However, social support added to the prediction of suicidal ideation above and beyond that offered by all diagnostic variables. Moreover, the interaction of social support and family environment predicted suicidality above and beyond severity of major depressive disorder symptomatology. It was concluded that optimal prediction of suicidality is likely obtained through the utilization of continuous measures of psychiatric symptomatology in suicide research. Moreover, suicide research and clinical practice should include examinations of both diagnostic and psychosocial variables to increase prediction and understanding of suicidal ideation in adolescents.

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In 1992, 2150 children and adolescents younger than 20 years of age committed suicide in the United States (Shaffer, Gould, Fisher, Trautman, Moreau, Kleinman, & Flory, 1996, as per National Center for Health Statistics, 1992). Although this number itself is alarming, research suggests that it could have been much higher. For every completed adolescent suicide, it has been estimated that there are approximately 20-200 attempted suicides compared to an adult ratio of one to six (Shaffer, 1988). In fact, current estimates reflect that as many as 1 in 10 adolescent girls and 1 in 25 adolescent boys will make a suicide attempt at some point in their adolescent lives (Lewinsohn, Rohde, & Seeley, 1996). Moreover, of those individuals who are not initially successful, it has been estimated that 10% to 50% will make multiple attempts and approximately 11% will eventually die by suicide (Spirito, Brown, Overholser, & Fritz, 1989). In light of these rates, it becomes obvious that research is needed to improve prediction of adolescents at risk for suicidal behavior.

To date, there are two separate bodies of literature devoted to improving prediction of suicidal behavior: one focusing on psychiatric diagnosis and the other on psychosocial factors. Research has revealed that between 80% to 90% of adolescents who make a suicide attempt have a diagnosable psychiatric disorder (Lewinsohn et al. 1996; Shaffer et al, 1996). Mood disorders (primarily major depressive disorder), disruptive behavior disorders (primarily conduct disorder), and substance use disorders (alcohol abuse/dependence and drug abuse/dependence) are the three types of disorders found to be most prevalent in both community (Lewinsohn et al., 1996; Beautrais, Joyce, & Mulder, 1996) and inpatient (Pfeffer, Klerman, Hurt, Lesser, Peskin, & Siefker, 1991) samples of suicidal adolescents, as well as psychological autopsy studies examining suicide completers (Shaffer et al., 1996). Although not found to be as consistently linked to suicidal behavior (Beautrais et al., 1996; Shaffer et al., 1996), there is also some evidence to suggest that certain anxiety disorders may be related to suicide attempts in community samples (Fergusson & Lynskey, 1995b; Reinherz, Giacona, Silverman, Friedman, Pakiz, Frost, & Cohen, 1995).

Specifically, research has revealed that most suicidal adolescents have a mood disorder diagnosis (major depressive disorder and dysthymia). Adolescents diagnosed with a mood disorder have been shown to be 17 times more likely to attempt suicide and up to 27 times more likely to complete suicide than adolescents without a mood disorder (Brent, Perper, Moritz, Allman, Friend, Roth, Schweers, Balach, & Baugher, 1993b; Fergusson & Lynskey, 1995b). Although not as strongly related to suicidal behavior, a disruptive behavior disorder diagnosis (conduct disorder and oppositional defiant disorder) has also been found to increase the odds of suicidal behavior. The odds of attempting suicide or completing suicide are approximately 13 and 6 times greater, respectively, in adolescents diagnosed with a disruptive behavior disorder when compared to those without this diagnosis (Brent et al., 1993b; Fergusson & Lynskey, 1995b). When examining the link between substance use and suicidality, research has revealed that adolescents with a substance use disorder (nicotine dependence, alcohol abuse, illicit drug abuse) are approximately 12 times more likely to attempt suicide and 9 times more likely to complete suicide than adolescents without a substance use disorder (Brent et al., 1993b; Fergusson & Lynskey, 1995b). Finally, research has revealed that adolescents with an anxiety disorder diagnosis (generalized anxiety disorder, separation anxiety disorder, overanxious disorder, and

social phobia) are approximately 5 times more likely to attempt suicide (Fergusson & Lynskey, 1995). However, research has not shown the presence of an anxiety disorder to increase the odds of suicide completion (Brent et al., 1993b).

Research has also revealed a high degree of comorbidity between mood disorders and disruptive behavior disorders, substance use disorders, and anxiety disorders. High rates of comorbidity have been found in suicidal adolescent community (Wagner, Cole, & Schwartzman, 1996), outpatient (Myers, McCauley, Calderon, Mitchell, Burke, & Schloredt, 1991), and inpatient (Borst, Noam, & Bartok, 1991) samples, as well as psychological autopsy studies (Brent et al., 1993b). Research conducted to assess the effects of comorbidity on suicidal behavior in adolescents has revealed that the risk of a suicide attempt significantly increases when an adolescent is diagnosed with a disruptive behavior disorder (Kovacs, Goldston, & Gatsonis, 1993; Wagner et al., 1996), a substance use disorder (Kovacs et al., 1993; Wagner et al., 1996), or an anxiety disorder (Brent et al., 1993b), in combination with a mood disorder. In fact, in a longitudinal study employing an adolescent outpatient sample, Kovacs et al. (1993) found a comorbid diagnosis of conduct disorder or a substance use disorder to increase the odds of a suicide attempt by a factor of 3 over a history of mood disorder alone.

Similar to the diagnostic literature, the psychosocial literature has also yielded a number of factors believed to be linked to adolescent suicidality. Among those found to be most consistently related to suicidality include a negative family environment, chronic and acute life stressors, low social support, and cognitive deficits. Specifically, three components of the family environment which have been examined in relation to suicidal behavior include family conflict, family cohesion, and family communication/expressiveness (Asarnow, Carlson, & Guthrie, 1987; Campbell, Milling, Laughlin, & Bush, 1993; Summerville, Kaslow, Abbate, & Cronan, 1994). The chronic and acute life stressors which have been predominantly examined include interpersonal conflict, parental absence, presence of economic difficulties, academic problems, legal problems, and general number of stressful life events (Adams & Adams, 1996; Brent, Perper, Moritz, Baugher, Roth, Balach, & Schweers, 1993c; Brent, Perper, Moritz, Baugher, Schweers, & Roth, 1994). Level of social support provided by family members and peers has also been subject to study (King, Raskin, Gdowski, Butkus, & Opipari, 1990; Morano, Cisler, & Lemerond, 1993). Finally, poor problem-solving skills has been frequently implicated in adolescent suicide (Adams & Adams, 1996; Sadowski & Kelley, 1993). Research has revealed adolescents with one or more of the aforementioned psychosocial stressors or deficits to be anywhere from 2 to 13 times more likely to engage in suicidal behavior (Beautrais et al., 1996; Fergusson & Lynskey, 1995b).

As is evident, the diagnostic and psychosocial literatures each yield a separate set of variables shown to be related to suicidality. Given this division, the question arises as to whether diagnostic and psychosocial variables are equally powerful predictors of suicidal behavior and whether the presence of one set of factors subsumes the other set. Knowledge of such information could be used to increase understanding of the development of suicidal ideation, guide future research pursuits, as well as aid in decisions regarding appropriate assessment and treatment of suicidal adolescents. Although there are a handful of studies which could potentially be used to delineate the relative efficacy of diagnostic vs. psychosocial factors as predictors of suicidal behavior, namely, those that examine diagnostic and psychosocial factors in the same study, their findings are limited by a number of methodological shortcomings (Beautrais et al.,

1996; Brent, Kolko, Wartella, Boylan, Moritz, Baugher, & Zelenak, 1993a; Brent et al., 1994; Fergusson & Lynskey, 1995a, 1995b; Garfinkle, Froese, & Hood, 1982; Hollis, 1996; Lewinsohn, Rohde, & Seeley, 1993; Myers, Burke, & McCauley, 1985; Paulszny, Davenport, & Kim, 1991; Reinherz et al., 1995). First, these studies do not include the psychiatric diagnoses, comorbid combinations of these diagnoses, and the psychosocial variables found to be most consistently linked to suicidality, thus a true estimate of their relative contributions cannot be ascertained. For example, in the most comprehensive study conducted to date, Fergusson & Lynskey (1995b) examined the link between suicidality and mood, disruptive behavior, substance use, and anxiety disorders, but comorbid combinations were not examined. Similarly, in regard to psychosocial variables, family conflict, parental stability, economic difficulties, academic problems, and legal stressors were examined, however, key factors such as family cohesion and communication, interpersonal conflict, social support, and problem-solving deficits were not included. Second, most of these studies did not examine diagnostic categories on a continuous basis. This is problematic given that dichotomous measures do not yield information related to severity of diagnosis (e.g., difference in number and severity of symptoms within diagnostic categories) which could potentially add to the prediction of suicidal behavior. Finally, in many of these studies (Beautrais et al., 1996; Fergusson & Lynskey, 1995a, 1995b; Garfinkle et al., 1982), the relationship between specific mood disorders such as major depressive disorder, dysthymia, and bipolar disorder, and suicidality, were not examined independently, but were combined into one mood disorder category. This procedure is problematic given that it negates the ability to determine which, if any, of the specific mood disorders is linked to suicidality, and furthermore, could potentially attenuate the relationship between the mood disorders category and suicidality if symptoms associated with a specific mood disorder unrelated to suicidal behavior are included. The same problems also exist in studies examining the relationship between disruptive behavior disorders, substance use disorders, and anxiety disorders in relation to suicidality.

As is evident, research is not available to adequately compare the importance of diagnostic and psychosocial variables in the prediction of suicidality. However, it may be possible to obtain an estimate of the relative contribution of diagnostic and psychosocial factors to the development of suicidal ideation in adolescents by examining the manner in which these two sets of variables are related to one another, as well as to suicidality. Research exists which demonstrates that both psychiatric diagnoses and psychosocial stressors precipitate suicidal ideation and behavior in adolescents. Two of the most comprehensive studies follow. Reinherz et al. (1995) conducted a comprehensive 14 year longitudinal community study to examine diagnostic and psychosocial risk factors for adolescent suicidal ideation and attempts. Risk factors were assessed at developmental periods from birth to age 15, most of which were examined prospectively through the use of multiple informants. Suicidal ideation was assessed at age 15 and lifetime suicide attempts at age 18. They found that early onset (before age 14) major depressive disorder, early onset alcohol abuse/dependence, early onset drug abuse/dependence, and early onset anxiety disorders predict suicidal ideation at age 15, as well as suicide attempts by age 18. They also examined psychosocial factors in relation to suicidal ideation and found: poor peer support at age 9; more family arguments and violence between the ages of 10 and 14; and negative life events such as parental death, separation, or divorce, before the age of 15, predict suicidal ideation at the age of 15.

In a similar yet less comprehensive longitudinal study, Lewinsohn, Rohde, & Seeley (1994c) examined the psychosocial risk factors which precede a suicide attempt. Utilizing a sample of adolescents who made a suicide attempt between two time periods one year apart, they found that poor family and peer support, emotional reliance (desire for more support), major life events, and poor coping skills predict a suicide attempt.

Based on the aforementioned research findings, it appears safe to conclude that both psychosocial variables and psychiatric diagnoses predate the onset of suicidality. Research also tends to suggest that many of the psychosocial factors shown linked to suicidality also predate the onset of psychiatric diagnoses. Lewinsohn, Roberts, Seeley, Rohde, Gotlib, & Hops (1994b) conducted a study to identify risk factors for major depressive disorder and dysthymia. A sample of adolescents who were not depressed at Time 1 but became depressed between Time 1 and Time 2 (one year apart), were compared to those with a history of depression and those who were never depressed. Among the psychosocial variables found to predict future depression were: low family support, emotional reliance (desire for more support), interpersonal conflict with parents, major life events, poor coping skills, and dissatisfaction with grades.

In a second study, Lewinsohn, Gotlib, & Seeley (1995a) examined psychosocial risk factors for major depressive disorder and substance use disorder in adolescents. They found that emotional reliance, conflict with parents, major life events, poor coping skills, and dissatisfaction with grades, antedate and predict the onset of major depressive disorder. They also found that conflict with parents, poor coping skills, and self and parental dissatisfaction with grades predict a substance use disorder in adolescents.

There has also been longitudinal research conducted to examine psychosocial predictors of anxiety disorders in children and adolescents. Rueter, Scaramella, Wallace, & Conger (1999) followed families with an adolescent between the ages of 12-13 years for a 3-4 year period and annually assessed for internalizing symptomatology and parent-adolescent conflict/ disagreements. At age 19 to 20 years, the adolescents were assessed for an anxiety disorder using structured diagnostic interviews. They found that parent-adolescent disagreement significantly predicted the onset of an anxiety disorder in adolescents through its relationship to prodromal internalizing symptoms.

Although not longitudinal in design, there is also an abundance of additional research which has revealed that high family conflict, low family cohesion, poor family communication, negative life events, low social support, and/or problem-solving deficits are linked to mood (Adams & Adams, 1991; Adams & Adams, 1996; Garrison, Waller, Cuffe, McKeown, Addy, & Jackson, 1997; Kashani, Burbach, & Rosenburg, 1988; Martin, Rozanes, Pearce, & Allison, 1995; Puig-Antich, Kaufman, Ryan, Williamson, Dahl, Lukens, Todak, Ambrosini, Rabinovich, & Nelson, 1993), disruptive behavior (Dadds, Sanders, Morrison, & Regbetz, 1992; Hastings, Anderson, & Kelly, 1996; Joffe, Dobson, Fine, Marriage, & Haley, 1990; Rey & Plapp, 1990; Sanders, Dadds, Johnston, & Cash, 1992; Slee, 1996), substance use (Barnes & Windle, 1987; DeMarsh & Kumpfer, 1985; Mezzich, Tarter, Hsieh, & Fuhrman, 1992; Needle, McCubbin, Lorence, & Hochhauser, 1983), and anxiety (Goodyer & Altham, 1991; Goodyer, Wright, & Altham, 1990; Manassis & Hood, 1998) disorders and symptomatology.

One structural model has also been put forth to empirically test whether certain psychosocial variables are indirectly related to suicidality via diagnostic variables. Harter, Marold,



and Whitesell (1992), utilizing a sample of youths between the ages of 12-15, found two domain specific self concepts (appearance, peer likability, and self-concept; scholastic competence and behavioral conduct) to influence two measures of social support (peer and parental), which in turn predicted the depression composite score, which was directly related to suicidal ideation. However, it should be noted that a self-rated depression inventory was used in this study to provide a measure of depressive symptomatology, thus it is unclear whether the same relationship would be found if a mood disorder diagnosis was examined.

Intuitively and empirically, it appears logical to conclude that diagnostic and psychosocial variables predate the onset of suicidal ideation, and that psychosocial variables predate the onset of psychiatric diagnoses. Thus, by deduction, psychosocial variables may be at least partially linked to suicidality through their association with psychiatric variables. If valid, when examined concurrently, psychiatric diagnoses should be more strongly linked to suicidality than psychosocial variables due to their closer proximity to suicidal ideation, and furthermore, diagnostic variables should predict suicidality after controlling for the effects of psychosocial variables.

It also appears reasonable to predict that there are circumstances in which psychosocial variables continue to predict suicidality after controlling for psychiatric diagnoses. After all, if psychiatric diagnoses directly predict suicidality, then why don't all adolescents with a psychiatric disorder known related to suicidality experience suicidal ideation or make an attempt? And why do attempters with psychiatric disorders often wait for a prolonged period of time subsequent to onset of symptomatology before acting? In fact, results of a large scale psychological autopsy study revealed that only 31% of adolescents diagnosed with major depressive disorder completed suicide 3 months into the episode, 41% at 6 months into the episode, and 48% at 12 months into the depressive episode. The duration of psychiatric symptomatology associated with conduct and substance use disorder before suicide completions was even longer. Few of those with conduct disorder (11%) or a substance use disorder (17%) committed suicide within 12 months of onset, rather the median duration from onset of symptomatology for both was 36 months (Brent et al., 1993b). Given the aforementioned finding, it appears reasonable to hypothesize that certain psychosocial events may occur within the time period between onset of psychiatric symptomatology and suicidal behavior that further increase risk for suicidal behavior.

A number of studies suggest that interpersonal conflict or relationship problems with either family members, peers, or boy/girlfriends, immediately precede attempts by adolescents (Kienhorst, De Wilde, Diekstra, & Wolters, 1992; Rich, Warstadt, Nemiroff, Fowler, & Young, 1991; Spirito, Bond, Kurkjian, Devost, Bosworth, & Brown, 1993; Withers & Kaplan, 1987). In fact, Marttunen (1994) conducted a review of six studies of adolescent suicide based on a nationwide suicide research project in Finland, and found psychosocial stressors to precipitate suicides in 70% of the cases reviewed, 62% of which fell into the category of interpersonal separation, conflict, or other interpersonal problem. These stressors occurred within the 24 hours preceding the suicide attempt in 47% of the cases, and during the final week in 70% of the cases.

There has also been research conducted to suggest that some of the same psychosocial variables shown to precede the onset of psychiatric disorders have also been found to be by-products of psychopathology. Research conducted in the area of mood disorders suggests that a number of psychosocial variables identified as antecedents to this psychiatric diagnosis have also been shown to be produced by depressive symptomatology. For example, low peer support has

been shown to antedate onset of depression and suicidal behavior (Reinherz et al., 1995); however, Lewinsohn et al. (1994b) found low social support from friends and low self-rated social competence to be concomitants of the depressive state. These findings may not be contradictory but may suggest that low levels of peer support may precede psychiatric diagnosis but onset of depressive symptomatology may further worsen this state. For example, it is possible that depressive symptomatology, such as a diminished interest in activities, would lead the adolescent to further disengage from peers, resulting in lower levels of peer support than was evident before depressive onset. The adolescent may eventually lose all peer support which may increase risk for suicidal ideation and possibly even an attempt.

Similar results have been found in relation to problem-solving deficits and depression. There is some empirical evidence to suggest that problem-solving deficits preface self-rated depressive symptomatology (Schotte & Clum, 1987), as well as research, albeit conducted with an adult population, which shows that depression, itself, can produce deficits in interpersonal problem-solving ability (Schotte, Cools, & Payvar, 1990). Problem-solving deficits may exist at a moderate level previous to onset of depressive symptomatology but are then exacerbated to more severe deficits by depressive symptomatology. For example, onset of depressive symptoms such as poor concentration and indecisiveness would likely lead to further deterioration of problem-solving skills, through their effect on thought processes. Depressive symptoms and problem-solving deficits may reciprocally interact until the adolescent is rendered cognitively vulnerable, increasing the chance that suicide will be viewed as a viable option.

Similar phenomena may occur in adolescents with diagnoses of conduct disorder, substance use disorder, and anxiety disorders although the basis for their relationship to suicide is more theoretical given that less longitudinal research has been conducted with these populations. For example, current theory suggests that poor parenting practices in the form of poor family communication and high levels of family conflict are precursors to the development of conduct disorder in children and adolescents (Hemphill, 1996). However, it is also likely that family communication worsens and family conflict increases as the adolescent continues to violate family rules, a common symptom of conduct disorder. In support of this theory, research suggests that family interactions in homes with antisocial children often become progressively worse with continued defiance of parental authority. Specifically, family members begin engaging in low level coercive behaviors such as noncompliance, whining, teasing, yelling, scolding, threatening, and disapproval, which progressively give way to high amplitude aggressive behaviors such as physical attacks (Patterson, 1986). The adolescent may eventually leave home or is removed from it, resulting in complete loss of familial support and leaving the adolescent at higher risk for suicidal behavior.

In regard to substance use disorders, exacerbation of psychosocial stressors and symptomatology may occur through chronic substance use. As was found in a longitudinal study conducted by Lewinsohn et al. (1995a), interpersonal conflict with parents was found to predict a substance use disorder diagnosis in adolescents. However, it seems plausible that continued use of substances would increase interpersonal conflict with parents, as parents would likely confront and chastise their adolescent upon discovery of continued use of substances as well as maladaptive substance related behaviors (i.e., poor academic performance) that may arise. Given that interpersonal conflict with parents would likely not serve as a deterrent to a subset of drug

addicted adolescents, and may even lead to increased use of the substance as a coping mechanism, this cycle may continue until the adolescent is eventually placed in a drug rehabilitation center or, alternatively, leaves the home. Those adolescents who lose familial support and do not seek treatment would likely be at higher risk for suicidal behavior.

Similar to mood disorders, research in anxiety disorders suggests that psychosocial variables such as poor peer support may increase the probability that an adolescent will develop an anxiety disorder (Goodyer et al., 1990). It also seems plausible that chronic symptoms of excessive worry, as well as associated somatic complaints, may leave the adolescent feeling so psychologically and physically ill that he/she may not have the desire to spend time with peers, bolster peer support, or work through existing peer difficulties. As the adolescents peer support decreases, his/her worry likely increases, until the adolescent eventually reaches the point of social isolation and chronic distress. The adolescent may then contemplate suicide as a means to escape his/her pain.

As is evident, there does appear to be some research to support the contention that certain psychosocial stressors may occur subsequent to the onset of psychiatric symptomatology, and thus may contribute to the prediction of suicidality beyond diagnosis. It is possible that psychosocial stressors may initially occur after the onset of psychiatric symptomatology, such as an unexpected breakup with girlfriend/boyfriend in the life of a depressed adolescent, or that stressors were present before the onset of a psychiatric disorder but exacerbated as a result of symptomatology. Through either means, it appears likely that certain psychosocial variables may predict suicidality after controlling for psychiatric symptomatology.

In summary, research tends to suggest that both psychiatric diagnosis and psychosocial variables precede suicidal behavior, some of the same psychosocial variables that predict suicidality also predict psychiatric diagnoses, and that certain psychosocial stressors may develop subsequent to or possibly be exacerbated by psychiatric symptomatology. Based on these findings, the following hypotheses are offered: 1) Psychiatric diagnoses will account for more of the variance in suicidal ideation than psychosocial variables; 2) Diagnostic variables will continue to predict suicidality after controlling for the effects of psychosocial variables; and 3) Psychosocial variables will predict suicidality after controlling for the effects of diagnostic variables.

In examining these hypotheses, previously noted methodological flaws were addressed. First, the specific psychiatric diagnoses and psychosocial variables shown most consistently linked to suicidal behavior were examined to obtain a true estimate of their relative contributions. The diagnostic variables examined included the single and comorbid combinations of mood disorders (major depressive disorder and dysthymia), disruptive behavior disorders (oppositional defiant disorder and conduct disorder), substance use disorders (alcohol abuse/dependence and substance abuse/dependence), and generalized anxiety disorder. The psychosocial variables investigated included negative family environment (family conflict, family cohesion, family expressiveness), chronic and acute life stressors (interpersonal conflict, parental absence, economic difficulties, academic problems, legal problems, and general number of stressful life events), low social support (family, teacher, and peer), and cognitive deficits (poor problem-solving appraisals). Second, psychiatric diagnoses were examined independently, as opposed to combining them into broad diagnostic groupings, to more accurately determine which diagnoses are related to suicidality. Finally, the current study also utilized continuous measures of psychiatric

symptomatology as opposed to dichotomous measures for optimal prediction.

## Method

### Participants

One hundred and ten adolescents enrolled in one of three public high schools in the Montgomery County Public School System (ages 14-18) in Virginia were asked to participate in the study on a voluntary basis. Adolescents were selected based on referrals obtained from school psychologists, guidance counselors, and special education teachers. These school personnel were asked to identify adolescents who exhibited any type of emotional disturbance (i.e., depression, conduct problems). Of those referred, 13 parents refused to allow their child to participate, 5 adolescents refused to participate, 7 parents did not sign for the certified mail which contained the parental consent forms, and 3 adolescents were deemed by the examiner to be too low functioning to complete the assessment. In addition, 2 adolescents were placed on homebound, 5 dropped out of school, and 2 graduated between the time consent was obtained and the date of assessment. The final sample included 73 adolescents, 37 males and 36 females, obtained over a 3 month period. The participants ranged in age from 14 to 18 years old, with a mean age of 16 years. The sample was 94.5% Caucasian, 2.7% African American, and 2.8% other nationalities (Asian, Indian). The grade levels of the participants included 9th (38.4%), 10th (23.3%), 11th (24.7%), and 12th (13.7%), with a mean grade level of 10.1. Approximately 56 % of the sample indicated that they experienced some suicidal ideation.

### Measures

Family Environment Scale (FES). (Moos & Moos, 1981). This is a 90 item self-report instrument designed to measure the social-environmental characteristics of all types of families. It contains ten subscales including cohesion, expressiveness, conflict, independence, achievement orientation, intellectual-cultural orientation, active recreational orientation, moral-religious emphasis, organization, and control. The ten subscales assess three underlying domains: the relationship dimension, the personal growth dimension, and the system maintenance dimension. Only the subscales which comprise the relationship dimension (cohesion, conflict, and expressiveness) will be used in the present study as they have been shown to be consistently related to suicidal behavior in children and adolescents (Asarnow et al., 1987; Meneese & Yutrzecka, 1990). Participants are asked to indicate whether they find the statements about their family environment to be true or false. Unhealthy items are reverse scored. Internal consistency estimates for the cohesion, conflict, and expressiveness subscales were found to be acceptable, .78, .75, .69, respectively, as were test-retest reliability estimates, .86, .85, .73, respectively, in adolescent and adult populations. Test-retest stabilities for all scales were also found to be relatively high at 4 and 12 month intervals (Moos & Moos, 1981). In the current study, the reliabilities for the total relationship, cohesion, conflict, and expressiveness scales were .85, .82, .78, and .53, respectively. The total relationship scale was created by reverse scoring the conflict subscale and then adding scores across cohesion, conflict, and expressiveness scales, so that higher scores reflected better family functioning.

Life Events Checklist (LEC). (Johnson & McCutcheon, 1980). This is a 50 item instrument designed to measure the number, impact (positive or negative), and intensity of stressful life events experienced during the past year. Participants are asked to indicate whether any of the listed events occurred, whether they would consider them to be good or bad, and how

much the event has affected their lives. Since the intensity ratings have not been shown to contribute to prediction over that offered by simply summing negative and positive events, giving each a weight of one (unit rating procedure), they were not included. This scale yields two scores: the sum of the events judged to be negative (NEG) and the sum of the events judged to be positive (POS). Only the NEG scale was used in analyses because it has been shown to be related to suicidal behavior in adolescents, whereas the same relationship has not been found for the POS scale (King et al., 1990; Wetzler, Asnis, Hyman, Virtue, Zimmerman, & Rathus, 1996). Using the unit rating procedure, the LEC has been shown to have adequate test-retest reliability for both the NEG and POS scales (.72 and .69, respectively) in child and adolescent populations (ages 10-17) (Brand & Johnson, 1982). The NEG scale has been shown to have concurrent validity with measures of depression, anxiety, and locus of control, and discriminant validity with measures of social desirability. It also discriminates clinic from non-clinic groups (Johnson & McCutcheon, 1980).

Survey Of Children's Social Support - Short Version. (SOCSS; Dubow & Ullman, 1989; Dubow, Edwards, & Ippolito, 1997). This is a 9 item instrument designed to measure perceived social support from three sources: family, teacher, and peers. It is comprised of three subscales including family support, teacher support, and peer support. It is an abbreviated version of the original 41 item scale, created by including the three items with the highest factor loadings on each of the three abbreviated subscales. Participants are asked to rate their degree of support to statements using a 5 point likert type scale. Scores are obtained by summing individual item ratings in each subscale. In the current study, a total scale score was also computed by summing scores across the three subscales. Higher scores reflect higher perceived social support. The SOCSS has been shown to have high internal consistency and good test-retest reliability in child and adolescent populations. It also has good factorial validity and concurrent validity with measures of depression (Dubow & Ullman, 1989). Coefficient alphas for the short form of the family and peer support scales have been found to be .75 and .57, respectively (Dubow, Edwards, & Ippolito, 1997). In the current study, the reliabilities for the total, family, teacher, and peer support scales were found to be adequate, .62, .79, .75, and .63, respectively.

Problem-Solving Inventory (PSI). (Heppner & Petersen, 1982). This is a 35 item self-report instrument designed to measure subjective appraisal of problem-solving ability. Respondents are asked to indicate, on a 6 point Likert type scale, the degree to which they agree or disagree with items pertaining to their problem-solving ability. This instrument contains three subscales: perceived confidence, approach-avoidance style, and personal control. Each participant receives a score for each subscale as well as a total composite score. The items are reverse scored such that lower scores reflect greater perceived problem solving abilities. This instrument has been shown to have high internal consistency (coefficient alpha=0.90 for composite score) as well as test-retest reliability ( $r=0.89$ ) in college populations (Heppner & Petersen, 1982). It has also demonstrated high concurrent validity with other problem-solving measures and high divergent validity with intelligence and social desirability measures (Heppner & Petersen, 1982). This scale was slightly modified for use in this study. Some of the more complex vocabulary was changed to make it more comprehensible to an adolescent population (e.g. changing "complex" to "difficult"). Only the confidence subscale was used in the current study because it has been shown to be the most strongly related to suicidality (Clum & Febbraro,

1994) and was the only scale found to be comprehensible by adolescents, even after vocabulary revisions. The reliability for the confidence scale in the current study was .83.

Schedule for Affective Disorders and Schizophrenia for School-Age Children Epidemiological Version-5 (K-SADS-E). (Orvaschel, 1995). The K-SADS-E is a semi-structured diagnostic interview designed to assess lifetime signs and symptoms of Axis I disorders, according to DSM-IV criteria, in children and adolescents (ages 6-17). Sections of the mood disorder (major depressive disorder and dysthymia), disruptive behavior disorder (oppositional defiant disorder and conduct disorder), substance abuse/dependence (alcohol and drug), and anxiety disorders (generalized anxiety disorder) sections were administered. Given that anxiety disorders have not been consistently linked to adolescent suicidality as well as methodological time constraints, only generalized anxiety disorder was examined in this study as it is an anxiety disorder often associated with older adolescence (Brent et al., 1993b, Fergusson & Lynskey, 1995b). Interrater reliability for diagnoses of major depressive disorder, dysthymia, conduct disorder, and anxiety disorders (generalized anxiety disorder, obsessive compulsive disorder, post traumatic stress disorder), calculated by Orvaschel (1995), using the 5th version of K-SADS-E were shown to be acceptable (Kappa=.73, .72, .68, .63, respectively). Interrater reliability for the diagnosis of oppositional defiant disorder was low (Kappa=.51). Insufficient data were available to compute an interrater reliability estimate for substance use disorders (Orvaschel, 1995).

Interrater reliability in the current study was computed by having one of two bachelor level psychology undergraduate student raters, trained by the examiner, listen to audiotapes of the semi-structured interviews. The first 20 audiotaped interviews of the K-SADS-E with clear resolution were reviewed, and 10% of subsequent interviews. In instances of disagreement of diagnosis between the examiner and rater, a second rater reviewed the audiotape and the majority judgement held. Kappas for the individual diagnoses are listed in Table 1. For a sample of 25 subjects, kappa or the measure of agreement above that expected by chance, ranged from a low of .65 to a high of 1.00. All reliability estimates were higher than those reported by Orvaschel (1995).

Three measurements of psychiatric symptomatology were created from the K-SADS. A diagnosis variable was computed by dummy coding each diagnosis (1=no diagnosis, 2=diagnosis). A frequency of psychiatric symptomatology score was created by summing the number of symptoms endorsed across each separate diagnosis. Finally, a severity of psychiatric symptomatology score was created by summing the severity ratings of symptoms endorsed within each diagnosis. Creating these three different measurements of psychiatric symptomatology afforded the opportunity to examine whether frequency or severity of psychiatric symptoms increased the strength of the relationship between psychiatric symptomatology and suicidality in comparison to using a dichotomous measure alone.

Modified Scale for Suicidal Ideation (MSSI). (Miller, Norman, Bishop, & Dow, 1986). This is an 18 item self-report instrument designed to assess the extent of suicidal ideation and intent. The MSSI is a modified version of the Scale for Suicidal Ideation (SSI) designed by Beck, Kovacs, and Weissman (1979). Scores range from 0 to 54 with higher scores reflecting higher levels of suicidal ideation. Total scores from the MSSI have been shown to correlate significantly with scores from the SSI (Clum & Yang, 1995; Miller et al., 1986). The MSSI has high internal consistency (coefficient alpha=.94) as well as satisfactory levels of concurrent, discriminant, and

construct validity in adult populations (Miller et al., 1986). This scale was slightly modified for use in this study. Some of the more complex vocabulary was changed to make it more comprehensible to an adolescent population (e.g., changing “attempted suicide” to “tried to kill yourself”). In the current study, the internal consistency estimate for the MSSSI was high (coefficient alpha=.95).

### Procedure

Permission to conduct the study was obtained from the Montgomery County Public School Board Office, the principals at participating schools, as well as the school psychologists located at each of the high schools in the district. Once permission was granted, the examiner and doctoral students trained in the administration of the K-SADS-E worked collaboratively with the school psychologists to devise and run the research protocol. First, the examiner called all referred adolescents from class in small groups to introduce the study and determine their interest. A description of the study and a passive parental consent form were then sent via certified mail, with a return receipt, to the parents of all adolescents who indicated interest (See Appendix A for cover letter and parental consent form). Parents were asked to read the description of the study and to return the parental consent form to the examiner within one week of receipt only if he/she did not want his/her child to participate. Failure to return the consent form was indication of passive parental consent. A stamp was enclosed to ensure parents did not accrue any cost for refusing to allow their children to participate. The examiner then waited one week from the date that the return receipt was received to assess adolescents.

Those adolescents who received parental consent were called out of elective courses (when possible, to ensure minimal academic disruption), individually, to complete the study. The examiner asked the adolescents to read a thorough description of the study contained on the adolescent assent form and offered to answer any questions that arose. Those who agreed to participate after reading the assent form were asked to sign and date it (see Appendix B for assent form). Those that did not agree to participate were thanked for their time and immediately returned to class. The research battery was administered to the adolescents in a private room at school. Adolescents were told to take their time, answer the questions honestly, and that they may withdraw from the study at any time without penalty. They were also informed that their information may be shared with the school psychologists for the purpose of aiding in the development of recommendations and counseling goals if needed. Their information would only be shared with their parents or doctors if the examiner felt that they were at risk of hurting themselves or others. The battery took approximately 1- 2 hours to complete depending upon the extent of endorsement of psychiatric symptomatology. The primary examiner administered 67 of the batteries and one of three trained doctoral students administered the other 6 batteries. The diagnostic interviews were audiotaped so that they could later be reviewed for reliability. Each adolescent was given a subject number which was placed on all assessment material and only the examiner was able to match the number to the appropriate name for confidentiality purposes. All assessment materials were locked up in the office of the examiner.

Upon completion of the assessment, the adolescents were told to contact the school psychologists or examiners with any questions that might arise. They were also encouraged to talk to their parents or the school psychologists about any problems that they might experience in the future and were provided with a business sized card, created by the examiner, with referral

numbers. In addition, a thank you letter was sent home to the parents of all adolescents who participated along with a list of warning signs for adolescent mental illness and referral numbers of local psychological services for adolescents and families (see Appendix C for parent materials).

All data collected by the examiner was shared with the school psychologist responsible for the adolescent, following the assessment. This was done so that the school psychologist could use this information to make more specific recommendations in his/her assessment of the adolescent and devise appropriate counseling goals if needed. It also enabled the school psychologist, in collaboration with the examiner, to follow-up with parental contact and seek appropriate intervention for any adolescents who indicated serious suicidal thoughts or behavior during the assessment period, in accordance with the standard school policy for reporting suicidal behavior. Although it is acknowledged that passing on information provided during the assessment to school psychologists may have affected the extent to which adolescents reported psychopathology, as they may have underreported to avoid receiving professional help or to prevent their parents from learning about their current mental state, this was a necessary part of the research design.

## Results

### AXIS I diagnoses.

Seventy-four percent of the participants received a diagnosis as assessed by the K-SADS-E yielding a total of 124 diagnoses. The frequencies and percentages of adolescents with current Axis I diagnoses are given in Table 1. As a group, the most common diagnoses were the substance use disorders, with alcohol abuse comprising 23% of diagnoses and alcohol dependence comprising 8% of the diagnoses. For drug use disorders, which was primarily comprised of marijuana use, 34% of the sample met criteria for drug abuse and 19% met criteria for drug dependence. There were also a large percentage of disruptive behavior disorders diagnosed in this sample. Forty-two percent of adolescents received a diagnosis of oppositional defiant disorder and 14% received a diagnosis of conduct disorder. The depressive disorders were also frequently diagnosed, with major depressive disorder comprising 40% of the diagnoses and dysthymia comprising 7%. Only 19% of the sample met criteria for generalized anxiety disorder.

### Diagnosis and suicidality.

In an effort to examine whether the frequency and severity of psychiatric symptomatology improved the relationship between psychopathology and suicidality over diagnosis alone, a correlation matrix was computed. Table 2 presents the correlations among the three variations of the diagnostic categories (diagnosis, frequency of symptoms, and severity of symptoms) and severity of suicidal ideation. Across most diagnostic categories, the frequency and severity of symptomatology ratings evidenced stronger relationships with suicidality than diagnosis alone, with severity of symptoms producing the highest correlations. The only exceptions were conduct disorder and drug abuse, in which there did not appear to be any relationship between psychiatric symptomatology and suicidality, regardless of the mode of analysis. Given that these variables were not related at the bivariate level, they were not included in any multivariate regression analyses. Moreover, since the severity of symptomatology scores evidenced the strongest relationship to suicidality across almost all disorders, as predicted, they were used in all subsequent regression analyses.

Given that severity of psychiatric symptomatology was the most highly correlated to



suicidal ideation of the three variations used to compute diagnostic categories, additional analyses were conducted to determine whether correlations between MSSSI severity and psychiatric severity ratings were significantly greater than those between MSSSI severity and psychiatric symptoms measured dichotomously. A series of tests for the difference between dependent correlations were conducted which revealed significant differences in correlations between MSSSI severity and severity of psychiatric symptomatology, and MSSSI severity and psychiatric diagnosis measured dichotomously, for major depressive disorder ( $t=4.93$ ,  $df=70$ ,  $p<.05$ ), dysthymia ( $t=5.15$ ,  $df=70$ ,  $p<.05$ ), oppositional defiant disorder ( $t=3.48$ ,  $df=70$ ,  $p<.05$ ), and alcohol abuse ( $t=2.33$ ,  $df=70$ ,  $p<.05$ ). Significant differences between correlations for MSSSI severity and severity of psychiatric symptomatology, and MSSSI severity and psychiatric diagnosis measured dichotomously, were not found for conduct disorder ( $t=.12$ ,  $df=70$ ,  $p>.05$ ), generalized anxiety disorder ( $t=.27$ ,  $df=70$ ,  $p>.05$ ), alcohol dependence ( $t=1.17$ ,  $df=70$ ,  $p>.05$ ), drug abuse ( $t=.75$ ,  $df=70$ ,  $p>.05$ ), or drug dependence ( $t=1.18$ ,  $df=70$ ,  $p>.05$ ).

#### Psychosocial variables and suicidality.

Table 3 presents mean scores, standard deviations, and intercorrelations among all psychosocial total scales and subscales, and suicidal ideation as measured by the MSSSI. As can be seen, the total scales assessing negative life events, social support, family environment, and problem-solving confidence were significantly correlated with suicidal ideation. Moreover, the total scale scores for the social support and family environment scales appeared to be more strongly related to suicidal ideation than the subscales. Given that the total scale scores produced strong correlations with the MSSSI and that the sample size was somewhat small relative to the number of variables under investigation, it was decided that subsequent analyses would utilize the total scale scores for the social support and family environment scales.

#### Diagnostic vs. psychosocial variables and suicidality.

Correlations and stepwise and hierarchical multiple regression analyses were used in examining the data. Table 4 presents mean scores, standard deviations, and intercorrelations among psychiatric symptomatology severity scores, psychosocial total scale scores, and suicidal ideation.

A series of stepwise and hierarchical regression analyses was conducted to examine questions related to the relative predictive power of diagnostic vs. psychosocial factors in the prediction of adolescent suicidal ideation, as measured by the MSSSI. The criterion for entry into and for being retained in regression equations was  $p=.05$  and  $p=.10$ , respectively. A stepwise regression analysis was first used to test whether severity of psychiatric symptomatology across diagnoses were independently predictive of suicidal ideation. This approach was chosen because no a priori hypothesis was made regarding the order or relative predictive power across diagnostic variables. The sole purpose of this stepwise regression analysis was to examine the validity of each diagnostic variable as a predictor of suicidal ideation. In this stepwise regression analysis, major depressive disorder symptomatology was found to be the only significant predictor of MSSSI severity, accounting for 46.7% of the variance, as shown in Table 5.

A second hierarchical regression analysis was conducted to determine whether any diagnostic variables predict MSSSI severity after controlling for all psychosocial variables. For the hierarchical regression analysis, four psychosocial variables were forced into the model (NLE, FES, SOS, PSI). Major depressive disorder, dysthymia, generalized anxiety disorder,

oppositional defiant disorder, alcohol abuse, alcohol dependence, and drug dependence were then tested in a stepwise fashion. The results of the hierarchical regression analysis revealed that severity of major depressive disorder symptomatology predicted MSSSI severity after controlling for all psychosocial variables, as shown in Table 5. The model accounted for 52.3% of the variance, with psychosocial variables accounting for 32% of the variance in MSSSI severity, and severity of major depressive disorder symptomatology accounting for an additional 20.3% of the variance.

A second stepwise regression analysis was used to test whether psychosocial variables were independently predictive of suicidal ideation. This approach was chosen because no a priori hypothesis was made regarding the order or relative predictive power across psychosocial variables. The sole purpose of this stepwise regression analysis was to examine the validity of each psychosocial variable as a predictor of suicidal ideation. In this stepwise regression analysis, social support and negative life events were found to be significant predictors of MSSSI severity, accounting for 29.2% of the variance, as shown in Table 6.

A hierarchical regression was then conducted to determine whether psychosocial variables predict suicidality after controlling for all diagnostic variables. For the hierarchical regression analysis, seven diagnostic variables were forced into the model (MDD, DYS, GAD, ODD, AAB, ADE, DDE). Negative life events, family environment, social support, and problem-solving confidence were then tested in a stepwise fashion. The results of the hierarchical regression analysis revealed that social support continued to predict MSSSI severity after controlling for all diagnostic variables, as shown in Table 6. The model accounted for 53.8% of the variance, with diagnostic variables accounting for 49.8% of the variance in MSSSI severity, and social support accounting for an additional 4.0 % of the variance.

A hierarchical regression analysis was used to test the interactions of negative life events x family environment, negative life events x social support, negative life events x problem-solving confidence, family environment x problem-solving, family environment x social support, and social support x problem-solving, to suicidal ideation. For the hierarchical regression analysis, the four psychosocial variables were forced into the model (NLE, SOS, FES, PSI). Interactions were then tested in a stepwise fashion. The results of the hierarchical regression analysis yielded significant interactions for family environment x social support, as shown in Table 7. The model accounted for 40.2% of the variance, with main effects accounting for 32% of the variance in MSSSI severity, and the interactions of social support x family environment accounting for an additional 8.2% of the variance.

Another hierarchical regression analysis was then conducted to determine whether any interaction between psychosocial variables predict suicidality after controlling for all diagnostic variables. For the hierarchical regression analysis, seven diagnostic variables were forced into the model (MDD, DYS, GAD, ODD, AAB, ADE, DDE) in the first step and four psychosocial variables in the second step (NLE, FES, SOS, PSI). Negative life events x family environment, negative life events x social support, negative life events x problem-solving confidence, family environment x problem-solving, and social support x problem-solving were then tested in a stepwise fashion. The results of the hierarchical regression analysis did not yield any significant interactions, as shown in Table 7. The model accounted for 57.0% of the variance in MSSSI severity, with diagnostic variables accounting for 49.8% of the variance and psychosocial

variables accounting for an additional 7.2% of the variance.

Finally, one additional hierarchical regression was conducted to determine whether any interactions between psychosocial variables predict suicidality after controlling for severity of major depressive disorder symptomatology, given that it was the only significant predictor of suicidal ideation among the diagnostic variables. For the hierarchical regression analysis, major depressive disorder was forced into the model (MDD) in the first step, and the four psychosocial variables in the second step (NLE, FES, SOS, PSI). Negative life events x family environment, negative life events x social support, negative life events x problem-solving confidence, family environment x problem-solving, family environment x social support, and social support x problem-solving were then tested in a stepwise fashion. The results of the hierarchical regression analysis yielded a significant family environment x social support interaction, as shown in Table 7. The model accounted for 55.4% of the variance in MSSSI severity, with severity of major depressive disorder symptomatology accounting for 46.7% of the variance, psychosocial variables accounting for an additional 5.6%, and the family environment x social support interaction accounting for an additional 3.0% of the variance.

In order to examine the nature of the above interaction, a median split was performed on the family environment scale and the social support scale. The adolescents were divided into one of four groups: low social support x low family environment, low social support x high family environment, high social support x low family environment, and high social support x high family environment. The direction of the interactions are presented in Table 8. The low social support x low family environment group had the highest MSSSI score followed by the low social support x high family environment, high social support x low family environment, and finally, the high social support x high family environment group. A one way ANOVA was then conducted to test for differences between these groups in MSSSI severity. Main effects revealed a significant difference between groups in MSSSI severity  $F(3,69)=3.38, p=.02$ . Post hoc analyses were conducted using LSD, which revealed the low social support x low family environment group to have significantly higher MSSSI scores than the high social support x high family environment and the high social support x low family environment groups.

In addition to the aforementioned regression analyses, a test for the difference between dependent correlations was conducted to determine whether severity of major depressive disorder symptomatology ( $r=.683$ ) was more strongly related to suicidal ideation than social support ( $r=.50$ ), given that these two variables independently predicted suicidal ideation after controlling for psychosocial and diagnostic variables, respectively. Results revealed a significant difference between correlations ( $t=2.11, df=70, p<.05$ ). Severity of major depressive disorder symptomatology was more strongly related to MSSSI severity than social support.

#### Demographic variables and suicidality.

No significant differences across age, grade, or race were found in level of suicidal ideation as measured through the MSSSI. However, a significant gender difference was found, with females (mean=2.73, SD=6.14) demonstrating significantly higher MSSSI scores than males (mean= 2.73, SD=9.82) ( $F=6.16, df=1,72, p<.05$ ). All of the aforementioned regression analyses were computed controlling for gender but the variables shown to predict suicidality did not differ from those found above, with no more than a 4% increase in the amount of variance accounted for within equations, with one exception. In the regression analysis computed to determine

whether any psychosocial variables independently predict suicidality, NLE dropped out of the equation so that only SOS predicted MSSSI severity, and resulted in a slight increase in the amount of variance accounted for (29% vs. 32.8%) in MSSSI severity.

#### Comorbidity.

Given that severity of major depressive disorder symptomatology proved to be the most powerful predictor of suicidal ideation, an exploratory analysis was done to determine whether any comorbid combination of psychiatric disorders measured would prove to be more strongly related to suicidality than a mood disorder alone. Although it would have been best to utilize individual diagnoses in this analysis, a review of data revealed that there was an insufficient number of adolescents with individual diagnoses to statistically examine differences between individual diagnoses and their comorbid combinations on levels of suicidality. There were only 17 adolescents with an individual diagnosis (6 with major depressive disorder, 6 with oppositional defiant disorder, 1 with conduct disorder, 1 with alcohol dependence, 1 with substance abuse, and 2 with substance dependence) and the rest had more than one diagnosis. Thus, individual diagnoses were combined into appropriate diagnostic groupings: mood disorders (major depressive disorder, dysthymia), disruptive behavior disorders (oppositional defiant disorder, conduct disorder), and substance use disorders (alcohol abuse, alcohol dependence, drug abuse, drug dependence) in order to conduct analyses. Conduct disorder and drug abuse were reintroduced into the analysis because it is possible that they could aid in the prediction of MSSSI severity when in comorbid combination.

A one-way anova was conducted to assess whether comorbidity is associated with higher levels of suicidal ideation in adolescents, and further, to determine which comorbid combinations of diagnoses, if any, are associated with an increase in suicidal ideation. Results revealed that no non-depressive comorbid combinations of diagnoses was associated with a significant increase in MSSSI severity above a mood disorder diagnosis alone ( $x=8.00$ ). However, there were significant differences in MSSSI severity between pure disruptive behavior disorders, pure substance use disorders, and comorbid combination of diagnoses. Specifically, the comorbid combination of mood and generalized anxiety disorder lead to the highest level of suicidal ideation ( $x=18.25$ ) followed by the combination of mood disorder, generalized anxiety disorder, disruptive behavior disorder, and substance use disorder diagnoses ( $x=18.00$ ). The MSSSI scores associated with these two comorbid combinations were significantly higher than those associated with a pure disruptive behavior disorder ( $x=1.57$ ), pure substance use disorder ( $x=3.50$ ), and comorbid combinations including mood and substance use disorders ( $x=4.00$ ), mood and disruptive behavior disorders ( $x=2.33$ ), disruptive behavior and substance use disorders ( $x=2.29$ ), as well as mood, disruptive behavior, and substance use disorders ( $x=4.86$ ).

Noteworthy is the finding that although there appeared to be a large MSSSI mean difference between a pure mood disorder diagnosis ( $x=8.00$ ), and the comorbid combinations of mood and generalized anxiety disorder ( $x=18.25$ ) as well as the mood, generalized anxiety disorder, disruptive behavior, and substance use disorder combination ( $x=18.00$ ), differences were not statistically significant. It is possible that the failure to find a significant difference was a function of low power. As can be seen in the table, the sample size for the combination of mood and generalized anxiety disorder, and the combination of mood, generalized anxiety, disruptive behavior, and substance use disorder were relatively small ( $n=4$  and  $4$ , respectively) and the

standard deviations were relatively large (SD=13.07 and 14.76, respectively). Thus, the aforementioned results should be interpreted with caution.

#### Discussion

Psychiatric disorders have consistently been linked to suicidal behavior in adolescent populations (Lewinsohn et al. 1996; Shaffer et al, 1996). A common practice in this research is to compare adolescents with and without psychiatric diagnoses on the presence of suicidal behavior. Although this dichotomous approach often affords valuable information, the current study suggests that a continuous approach to measuring psychopathology may provide a more accurate prediction of suicidality when examining certain psychiatric diagnoses. It is often the case that individuals with the same diagnosis have different symptom patterns. There may be differences in the number of symptoms that individuals exhibit as well as the severity with which each symptom is experienced. For example, to meet criteria for a diagnosis of a major depressive disorder, one only needs to exhibit 5 out of 9 symptoms from the DSM-IV (American Psychiatric Association, 1994). It is possible that one person may experience 5 relatively mild depressive symptoms “most days” whereas another may report the experience of 9 severe symptoms “all days”. Both people would receive a diagnosis of major depressive disorder but their level of suicidality may differ depending on the severity of their symptom patterns. If these individuals were grouped together into one dichotomous category, the true relationship between major depressive disorder and suicidality would be suppressed.

This was the first study to empirically examine the predictive power of a dichotomous measure of a psychiatric diagnosis (diagnosis vs. no diagnosis) in comparison to a continuous measure of diagnostic criteria (DSM-IV symptoms as assessed through the K-SADS), in relation to adolescent suicidal ideation. Results indicated that symptomatology measured continuously was more highly correlated with suicidal ideation than that analyzed dichotomously. Specifically, severity ratings of psychiatric symptoms proved to be more strongly related to suicidal ideation than psychiatric symptoms measured dichotomously, when examining symptoms associated with major depressive disorder, dysthymia, oppositional defiant disorder, and alcohol abuse. Based on these findings, the current study employed psychiatric severity ratings in all diagnostic prediction equations. It should be emphasized that the use of psychiatric severity ratings is a unique approach to examining the impact of psychiatric diagnoses on suicidality and may offer optimal prediction depending upon the diagnosis under question.

When examining specific psychiatric diagnoses linked to adolescent suicidality, the multitude of research available suggests that mood disorders are most strongly associated with adolescent suicide (Brent et al., 1993b; Fergusson & Lynskey, 1995b) with one exception (Myers et al., 1991). The current study also found a strong relationship between mood disorder symptomatology and adolescent suicidal ideation. Specifically, severity of symptomatology associated with major depressive disorder alone accounted for almost 47% of the variance in suicidal ideation. This relationship remained significant even after controlling for all psychosocial factors. This finding in combination with previous research suggests that the link between major depressive disorder and adolescent suicidality is robust. A possible explanation for the strength of this relationship is offered later in the discussion.

Severity of symptomatology associated with the disruptive behavior disorders, substance use disorders, and generalized anxiety disorders were also found to be significantly correlated

with suicidal ideation. When examining the disruptive behavior disorders, severity of symptomatology definitive of oppositional defiant disorder was found to be significantly associated with suicidal ideation. This finding is consistent with research which has found a significant relationship between disruptive behavior disorders and suicidality (Beautrais et al., 1996; Brent et al., 1993b; Fergusson & Lynskey, 1995b; Pfeffer et al., 1991; Shaffer et al., 1996).

The positive relationship between oppositional defiant disorder and suicidality may arise in part from the predominantly negative interactions often evidenced between oppositional adolescents and those in their environment. As per the DSM-IV, adolescents who are oppositional tend to be argumentative, annoying, dishonest, irritable, angry, and vindictive, characteristics which tend to negate close relationships with others and get them into frequent conflict and trouble. As one would expect, research suggests that adolescents with such disruptive behavior tend to have poor family relationships as well as poor academic records (Tolan, 1988; Walker, Shinn, O'Neil, & Ramsey, 1987). The lack of support, frequent interpersonal conflict, and failure experiences resulting from their oppositional behavior may leave these adolescents feeling angry, unloved, worthless, and possibly even hopeless, which, in turn, may increase the chance of suicidal ideation.

Interestingly, a relationship was not found between conduct disorder and suicidal ideation. This finding is surprising given that adolescents with conduct disorder exemplify behaviors similar to adolescents with oppositional defiant disorder, just more severe. It is possible that a discrepancy in levels of impulsivity between adolescents with these two types of disorders may account for differences in suicidality. Conduct disorder is often referred to as “a disorder of impulse control” (Apter, Gothelf, Orbach, Weizman, Ratzoni, Har-Even, & Tyano, 1995) and there is much research to suggest that problems of impulse control are linked to suicidal behavior in adolescent populations (Kashden, Fremouw, Callahan, & Franzen, 1993; Wetzler et al., 1996). Given their level of impulsivity, it is possible that adolescents with conduct disorder immediately act on impulses to end their lives when emotionally overwhelmed or faced with impending severe consequences for their antisocial behavior. They may not frequently ideate or create well thought out suicide plans similar to other adolescents with severe mental illness but better impulse control. If this theory is valid, then a strong association between conduct disorder and suicidal ideation may not be found. However, a relationship should exist between conduct disorder and suicide attempts. The suicide literature has revealed such a relationship in adolescents (Kashden et al., 1993; Wetzler et al., 1996). Therefore, the failure to find a link between conduct disorder and suicidality in the current study may be the result of the suicide measure administered.

It is also possible that the study design may have impacted the findings. As previously noted, adolescents were told that the findings would be shared with the school psychologists. Adolescents with conduct disorder, in comparison to other adolescents, may have felt a stronger need to “protect their reputations” and thus underreport. Such adolescents often develop reputations as “tough and impervious teens” and fail to engage in behaviors which signify any sign of weakness. Since suicide is viewed by some as an “easy way out” they may be less likely to report thoughts of suicide.

Finally, it is important to note that the sample was comprised of fewer adolescents with conduct disorder relative to adolescents with most other types of disorders. It is possible that

many adolescents with conduct disorder had already dropped out or been removed from school by the time the study was conducted or that they were not as frequently referred for the study due to the belief that they would not cooperate. This relatively smaller sample of adolescents with conduct disorder could have resulted in a restriction of range thus decreasing the probability of finding positive results.

When examining substance use disorders, a strong relationship was found between severity of symptomatology associated with alcohol and drug dependence, and adolescent suicidality, consistent with previous research (Beautrais et al., 1996; Brent et al., 1993b; Fergusson & Lynskey, 1995b; Pfeffer et al., 1991; Shaffer et al., 1996). There are a number of possible explanations for this relationship. First, many adolescents in the current study endorsed daily substance use at the time of assessment. For these adolescents, substances may have been used for the purpose of self-medication, indicative of severe psychopathology and/or chronic stressors. By using the substances regularly, they remain in a constant state of “self-medication”. During the diagnostic interview, a number of adolescents verbally reported that their regular cannabis use helped them to “remain numb”, however, when they stop using substances for any period of time, suicidal ideation emerged.

There is also research which suggests that regular substance use can increase risk for suicidal behavior. Adolescents who are substance dependent are intoxicated more frequently than substance abusers and thus at higher risk of experiencing cognitive symptoms found to be associated with suicidality such as poor impulse control, disinhibition, poor judgement, and mood lability (Eisen, Youngman, Grob, & Dill, 1992; King, Hill, Naylor, Evans, & Shain, 1993; Marzuc & Mann, 1988; Mezzich, Tarter, Kirsci, Clark, Buckstein, & Martin, 1993). Moreover, since many adolescents who are substance dependent use substances and become intoxicated when they are alone, the chance that they will chronically ideate and/or successfully complete a suicide attempt is higher since there is no one present to stop them or provide help.

Similar to symptoms associated with intoxication, the psychological effects that accompany withdrawal have also been associated with increased risk of suicidal behavior. Many adolescents who are substance dependent experience withdrawal symptoms upon stopping substance use. Withdrawal from drugs such as cocaine and alcohol can induce severe depressive and acute suicidal states (Marzuc & Mann, 1988). It is possible that some of the adolescents in the study were undergoing at least minor withdrawal symptoms which may have contributed to higher levels of suicidal ideation.

In comparison to substance dependence, substance abuse is a less severe problem and thus less likely to be linked to suicidal ideation as suggested by the results of this study. Many of the substance abusing adolescents included in the study reported that they only used alcohol and/or drugs on the weekends in social situations. Over 90% of adolescents indicated that cannabis was the only drug that was used. It is possible that the substance abusers only used alcohol and cannabis as a form of “socialization” or peer acceptance, rather than as a means to help them forget about their problems which may reflect more severe psychopathology. Moreover, given that these adolescents indicated the presence of social networks, they may also be more likely to talk through their conflicts and stressors with others as opposed to keeping them inside, thus decreasing the chance of experiencing suicidal ideation.

In contrast to mood, disruptive behavior, and substance use disorders, there is little

literature available on the link between adolescent suicide and generalized anxiety disorder. The reasons are twofold. First, as previously noted, there is a great deal of inconsistency found in literature examining the relationship between anxiety disorders and suicidality (Beautrais et al., 1996; Brent et al., 1993b; Fergusson & Lynskey, 1995b; Shaffer et al., 1996). This inconsistency in findings may result from the fact that the composition of the anxiety disorder variable examined in suicide research has varied across studies. Most researchers lump a number of different anxiety disorders into one general anxiety disorder variable and then assess for a relationship between this variable and suicidality. For example, Fergusson & Lynskey (1995b) included generalized anxiety disorder, separation anxiety disorder, overanxious anxiety disorder, and social phobia in their “anxiety disorder” variable. Given this heterogeneity, it is unclear as to which type of anxiety disorder, if any, is linked to suicidality. Second, there is little literature available on generalized anxiety disorder in adolescents in general, primarily because generalized anxiety disorder was first introduced as a disorder diagnosed in children and adolescents in the Diagnostic and Statistical Manual of Mental Disorders, fourth ed. (DSM-IV).

The current study suggests that severity of generalized anxiety disorder symptomatology is related to suicidal ideation in high school aged adolescents. Moreover, additional analyses revealed that a diagnosis of generalized anxiety disorder in comorbid combination with a mood disorder was associated with the highest levels of suicidal ideation of all combinations of psychiatric diagnoses, although not significantly different from a mood disorder alone. This finding is unique in the sense that although previous research has also revealed a relationship between the comorbid combination of mood disorders and a composite of anxiety disorders (Brent et al., 1993b), the current study revealed a relationship between mood disorders and generalized anxiety disorder specifically, and suggested that it provided the most lethal combination of diagnoses.

The aforementioned findings seem to reflect that the addition of further internalizing symptoms, such as uncontrollable worry, to mood disorder symptomatology, may overtax the adolescents internal coping resources leading to an increased likelihood of suicidal ideation. Many adolescents experience a ruminative component to their depression such that they continuously think about and focus on actual and/or contrived negative aspects of their being and life circumstances, and eventually acquire feelings of hopelessness, which alone may be enough to trigger suicidal thoughts. When this ruminative component of depression is combined with the chronic worry associated with numerous past, current, and anticipated difficulties, characteristic of generalized anxiety disorder, these adolescents may experience a constant state of distress. Eventually, all of this irrational thinking, rumination, and worry, in combination with the vegetative symptoms associated with internalizing disorders, may leave the adolescent feeling tired, weak, and hopeless, to the point where they do not believe that they can cope with their problems and suicide is sought as an option to end their pain.

In addition to the presence of psychiatric symptomatology, another factor that must be considered when attempting to increase prediction of suicidal ideation is the adolescents standing on various psychosocial variables. All psychosocial variables examined in the current study, including poor family environment, stressful life events, low social support, and poor problem-solving skills were significantly related to suicidal ideation, consistent with previous research (Adams & Adams, 1996; Asarnow et al, 1987; Campbell et al., 1993; de Mann, Labreche-



Gauthier, & Leduc, 1992; Fergusson & Lynskey, 1995b; Howard-Pitney, LaFramboise, Basil, September, & Johnson, 1992; King et al., 1990; Morano et al., 1993; Rudd, 1990; Sadowski & Kelley, 1993; Summerville et al., 1994; Wetzler et al., 1996).

In terms of prediction, social support and general number of negative life events were found to be independently predictive of suicidality, accounting for approximately 29% of the variance in suicidal ideation. Even after controlling for the effects of all diagnostic variables, social support remained significant. Flannery & Wieman (1989) note that social support has been hypothesized by numerous researchers to have a direct and indirect effect on psychological health. Predictable social support networks are believed to promote general feelings of acceptance, security, and stability, as well as buffer individuals from the maladaptive effects of stress. Adolescence is a stressful time due to rapid physiological, psychological, and social change. Those adolescents who do not have supportive friends, teachers, or parents to turn to during periods of distress may be more likely to withdraw and thus less likely to get help from others when needed. Without intervention, their psychological condition may worsen, potentially increasing their risk for suicidal ideation. Additionally, lack of family and friends may limit their desire or motivation to work through their problems and fight for their life. This is particularly noteworthy given that many distressed and/or suicide ideating teens report their family and friends to be among their most powerful reasons to live (McClung & Vaughan, 1996). Thus, it is imperative that an adequate assessment of social support networks be conducted in all teens seeking treatment, especially those who exhibit depressive symptoms.

Family environment was also shown to be significantly related to adolescent suicidal ideation as well as predict suicidal ideation through its interaction with social support after controlling for depressive symptomatology. Adolescents with a poor family environment and low social support were found to experience the highest levels of suicidal ideation, although not significantly different from those with a good family environment and low social support. The importance of family environment to the development of mental health should not be discounted. Family environment is of great importance to adolescent mental health, as it provides the developmental context in which youths undergo mental, physical, and sexual growth; establish a self-image; move toward increasing responsibility; and deal with loss and stress related to shifting family and/or peer relationship patterns (King, Segal, Naylor, & Evans, 1993). When the normal balance of the family environment is disrupted by poor parenting, the adolescent's psychological growth may be thwarted and deficits produced, which, in turn, may predispose the adolescent to onset of psychiatric symptomatology and/or suicidal behavior.

Similar to a negative family environment, the psychological impact of a high number of negative life events and poor problem-solving appraisal can also be devastating. Any negative life event such as interpersonal conflict, parental absence, economic difficulties, academic problems, and legal problems, in isolation, can be very stressful for adolescents. When they occur in multiples and with high frequency, the level of distress experienced may become unbearable, and possibly even trigger the onset of psychiatric symptoms and/or thoughts of suicide. This outcome would be even more probable if adolescents do not believe that they possess the skills necessary to solve problems or exert control over the environment. Such adolescents may then perceive that they are "stuck" in a painful existence and view suicide as the only viable means of escape.

When examined in totality, the results of the current study revealed that almost all

diagnostic variables, including severity of major depressive disorder, dysthymia, oppositional defiant disorder, generalized anxiety disorder, alcohol abuse and dependence, and drug dependence, as well as the psychosocial variables of low social support, negative family environment, negative life events, and poor problem-solving appraisal, were found to be related to severity of suicidal ideation. However, only major depressive disorder symptomatology and social support directly predicted suicidal ideation, even after controlling for the effects of psychosocial and diagnostic variables, respectively. Moreover, when the strength of the relationship was compared, severity of major depressive disorder symptomatology was more strongly related to suicidal ideation than social support. These results may reflect that the most proximal variables to suicidal ideation are major depressive disorder symptomatology and low perceived social support. The other diagnostic and psychosocial variables examined may be indirectly related to suicidal ideation via their impact on major depressive disorder symptomatology and perceptions of social support. However, this does not imply that the relationship between these psychosocial and diagnostic variables is linear.

As depicted in Figure 1, mild to moderate levels of stress resulting from a negative family environment, negative life events, and poor problem-solving appraisals may initially antedate and trigger the onset of diagnosable psychiatric disorders and disrupt social support networks. The psychiatric symptomatology and poor perceived support, in turn, may worsen the adolescents perception of family environment and problem-solving appraisal, and increase negative life events, as well as reciprocally exacerbate one another. In this manner, a negative feedback loop is created in which previously moderate levels of psychosocial stressors and psychiatric symptoms are exacerbated to more severe levels, eventually culminating in severe mood symptoms and perceptions of social isolation. The phenomenology of these severe mood symptoms, paired with the belief that there is no one to live for and no one that can help, may leave the adolescent feeling so hopeless and destitute that suicide is viewed as a viable solution to end his/her pain. However, it is important to note that this model is only theoretical in nature and requires empirical validation.

The results of this study have direct implications for suicide research and clinical practice. In terms of research, the current study suggests that optimal prediction of suicidality may be obtained through the utilization of psychiatric severity ratings in suicide research when examining the impact of mood, disruptive behavior, and substance use disorders. Thus, it is recommended that a full diagnostic interview be conducted which includes severity ratings, such as that offered by the K-SADS-E (Orvaschel, 1995). The results of this study also suggest that psychiatric diagnosis is not the only variable that should be routinely assessed for in research, given that psychosocial variables such as social support have been shown to add to the prediction of suicidality beyond that offered by diagnostic variables alone and correlate with suicidal ideation. Moreover, since diagnostic variables were measured via severity ratings and some psychosocial variables were not (family environment and negative life events), the importance of these psychosocial variables may have been minimized relative to diagnostic variables in the current study. Thus, it is recommended that future suicide research include examinations of both diagnostic and psychosocial variables, and possibly even examine sequencing and potential interactions between these two sets of variables. Such efforts will likely further increase prediction and understanding of suicidal ideation, and entail the use of longitudinal research with

multiple assessments, and non-recursive structural models, for optimal results.

In terms of clinical practice, the results of this study suggest that, at minimum, an assessment of severity of depressive symptomatology, excessive worry, and social support networks be routinely conducted in any child/adolescent presenting for treatment. If a child or adolescent expresses moderate to severe difficulties in all three of these areas, it should be viewed as a warning sign for high suicide risk and an intervention should be immediately employed. For optimal results, therapy should also address each of the aforementioned areas. The end result could be the continued existence of a number of troubled youths.

Before concluding, it should be noted that there are many limitations to the current study. First, the generalizability of these findings are limited due to participant characteristics. The sample included high school students from three schools in rural Virginia. Thus, the results may not be generalizable to adolescent outpatient, inpatient, or urban high school populations. Second, the sample was comprised of older adolescents (ages 14-18), thus, it should be noted that the same results may not apply to prepubescent children or younger adolescents. Third, the sample size was relatively small for the number of variables under investigation, thus the magnitude of the relationship between the variables examined may have been attenuated. Fourth, the study did not include parental reports of adolescent psychopathology or behavior. Given that research has suggested adolescents to be more accurate reporters of their internalizing symptoms and their parents to be more accurate reporters of their externalizing symptoms (Orvaschel, 1995), adolescents may have underreported disruptive behavior and substance use. Fifth, generalized anxiety disorder was the only anxiety disorder examined in the current study. Other anxiety disorders experienced by adolescents should also be included in future research to obtain a more comprehensive understanding of the link between diagnostic variables and suicidal ideation in adolescents.

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Table 1  
Diagnostic reliability, frequency, and percentage of sample meeting diagnostic criteria  
(N = 73)

Diagnosis	K <sup>a</sup>	Frequency	Percentage <sup>b</sup>
Depressive Disorders			
Major Depressive	.92	29	40%
Dysthymia	.65	5	7%
Disruptive Behavior Disorders			
Oppositional Defiant	1.0	31	42%
Conduct	1.0	10	14%
Anxiety Disorders			
Generalized Anxiety	1.0	14	19%
Substance Use Disorders			
Alcohol Abuse	1.0	17	23%
Alcohol Dependence	1.0	6	8%
Drug Abuse	1.0	25	34%
Drug Dependence	1.0	14	19%

<sup>a</sup> Kappa values are based on a subsample of 25 participants.

<sup>b</sup> Percentage reflects the percentage of individuals meeting diagnostic criteria for the specific Axis I diagnosis. All percentages are rounded up to reflect the largest whole number percentage.

Table 2

Correlations between psychiatric diagnosis, symptom frequency, and symptom severity, and total score on the MSSSI, with means and standard deviations for frequency and severity of symptoms

Diagnostic Variables	MSSI	Mean	SD	Diagnostic Variables	MSSI	Mean	SD
<b>Major Depressive Disorder</b>				<b>Alcohol Abuse</b>			
Diagnosis	.49**			Diagnosis	.04		
Frequency	.57**	3.82	(3.31)	Frequency	.09	0.36	(0.77)
Severity	.68**	16.01	(7.26)	Severity	.24*	4.48	(1.13)
<b>Dysthymia</b>				<b>Alcohol Dependence</b>			
Diagnosis	.13			Diagnosis	.24*		
Frequency	.57**	2.12	(2.14)	Frequency	.24*	0.90	(1.57)
Severity	.67**	10.74	(4.29)	Severity	.32**	8.52	(3.31)
<b>Oppositional Defiant Disorder</b>				<b>Drug Abuse</b>			
Diagnosis	.09			Diagnosis	.10		
Frequency	.21	2.93	(2.28)	Frequency	.15	0.64	(1.06)
Severity	.34**	13.07	(4.71)	Severity	.16	5.26	(2.29)
<b>Conduct Disorder</b>				<b>Drug Dependence</b>			
Diagnosis	.06			Diagnosis	.21		
Frequency	-.05	1.33	(1.92)	Frequency	.22	1.11	(2.20)
Severity	-.07	16.89	(3.28)	Severity	.30**	9.19	(4.74)
<b>Generalized Anxiety Disorder</b>							
Diagnosis	.53**						
Frequency	.48**	1.47	(0.94)				
Severity	.55**	5.77	(2.16)				

Note.

MSSI = Modified scale for suicide ideation

\*p<.05.

\*\*p<.01.

Table 3  
Correlations among psychosocial predictors and suicidality

	SOCSS				FES-R				PSI	MSSI	
	NLE	SOC	PAR	TEA	PEER	FES	COH	CON			EXP
NLE	—										
SOC	-.21	—									
PAR	-.24*	.75**	—								
TEA	-.16	.64**	.25*	—							
PEER	.03	.45**	.11	-.16	—						
FES	-.31**	.62**	.73**	.34**	.05	—					
COH	-.31**	.57**	.68**	.35**	-.02	.86**	—				
CON	.28*	-.57**	-.63**	-.24**	-.18	-.85**	-.61**	—			
EXP	-.13	.33**	.41**	.22	-.05	.69**	.41**	.38**	—		
PSI	.18	-.24*	-.21	-.22	-.00	-.32**	-.28*	.29*	-.20	—	
MSSI	.31**	-.50**	-.35**	-.38**	-.18	-.31**	-.32*	.27*	-.14	.29*	—
Mean	5.71	34.15	12.36	9.66	12.14	15.77	5.84	3.71	4.64	31.14	5.06
SD	3.53	4.65	2.56	2.69	2.25	5.85	2.65	2.58	1.99	8.56	8.45

Note. NLE-Negative Life Events Scale, SOS=Social Support-Total Scale, PAR= Social Support - Parent Scale, TEA=Social Support-Teacher Scale, PEER=Social Support-Peer Scale, FES= Family Environment-Total Relationship Scale, COH=Family Environment-Cohesion Scale, CON=Family Environment-Conflict Scale, EXP=Family Environment-Expressiveness Scale, PSI=Problem-Solving Inventory Confidence Scale, MSSI=Modified Scale for Suicide Ideation  
 \*p<.05.

\*\*p<.01.

Table 4  
Intercorrelations among all predictor and criterion measures used in analyses

	MDD	DYS	GAD	ODD	CD	AAB	ADE	DAB	DDE	NLE	SOS	FES
MDD	—											
DYS	.88**	—										
GAD	.79**	.73**	—									
ODD	.47**	.46**	.57**	—								
CD	.06	.02	.12	.43**	—							
AAB	.25*	.20	.25*	.46**	.45**	—						
ADE	.35**	.25*	.32**	.48**	.46**	.83**	—					
DAB	.18	.14	.18	.29*	.47**	.47**	.42**	—				
DDE	.34**	.28*	.31**	.48**	.51**	.68**	.73**	.67**	—			
NLE	.37**	.38**	.34**	.43**	.37**	.33**	.48**	.33**	.44**	—		
SOS	-.49*	-.46**	-.43**	-.51**	-.16	-.24*	-.24*	-.26*	-.28*	-.21	—	
FES	-.45**	-.44**	-.38**	-.43**	-.17	-.32**	-.30**	-.32**	-.41**	-.31**	.62**	—
PSI	.35**	.26*	.36**	.26*	-.19	-.04	-.00	-.04	.03	.18	-.24*	-.32**
MSSI	.68**	.66**	.55**	.34**	-.07	.24*	.32**	.16	.30**	.31**	-.50**	-.31**
	PSI	MSSI										
PSI	—											
MSSI	.29*	—										

Note.

Diagnostic Variables (severity scores):MDD=Major Depressive Disorder, DYS=Dysthymia, ODD=Oppositional Defiant Disorder, CD=Conduct Disorder, GAD=Generalized Anxiety Disorder, AAB=Alcohol Abuse, ADE=Alcohol Dependence, DAB=Drug Abuse, DDE=Drug Dependence; Psychosocial Variables: NLE=Negative Life Events Scale, SOS=Social Support Total Scale, FES=Family Environment Total Relationship Scale, PSI=Problem Solving Confidence Scale; MSSI=Modified Scale for Suicide Ideation

\*p<.05.

\*\*p<.01.

Table 5

Results of stepwise and hierarchical regression for prediction of suicidal ideation from diagnostic variables

Predictor variable	Partial R <sup>2</sup> at each step	F score	df	p value
(1) Stepwise: all diagnostic variables				
MDD	.467	62.22	1,71	<.001
Total R <sup>2</sup>	.467			
(2) Hierarchical: controlling for all psychosocial variables				
Step 1				
NLE, SOS, FES, PSI	.320	8.01	4,68	<.001
Step 2				
MDD	.203	14.71	1,67	<.001
Total R <sup>2</sup>	.523			

Note. Diagnostic Variables (severity scores):MDD=Major Depressive Disorder, DYS=Dysthymia, GAD=Generalized Anxiety Disorder, ODD=Oppositional Defiant Disorder, AAB=Alcohol Abuse, ADE=Alcohol Dependence, DDE=Drug Dependence; Psychosocial Variables: NLE=Negative Life Events Scale, SOS=Social Support Total Scale, FES=Family Environment Total Relationship Scale, PSI=Problem Solving Confidence Scale

Table 6  
Results of stepwise and hierarchical regression for prediction of suicidal ideation from psychosocial variables

Predictor variable	Partial R <sup>2</sup> at each step	F score	df	p value
(1) Stepwise: all psychosocial variables				
SOS	.247	23.34	1,71	<.001
NLE	.045	14.43	1,70	<.001
Total R <sup>2</sup>	.292			
(2) Hierarchical: controlling for all diagnostic variables				
Step 1				
MDD, DYS, GAD	.498	9.20	7,65	<.001
GAD, ODD, AAB				
ADE, DDE				
Step 2				
SOS	.040	9.30	1,64	<.001
Total R <sup>2</sup>	.538			

Note. Diagnostic Variables (severity scores):MDD=Major Depressive Disorder, DYS=Dysthymia, GAD=Generalized Anxiety Disorder, ODD=Oppositional Defiant Disorder, AAB=Alcohol Abuse, ADE=Alcohol Dependence, DDE=Drug Dependence; Psychosocial Variables: NLE=Negative Life Events Scale, SOS=Social Support Total Scale, FES=Family Environment Total Relationship Scale, PSI=Problem Solving Confidence Scale

Table 7

Results of stepwise and hierarchical regressions for prediction of suicidal ideation from interactions of psychosocial variables

Predictor variable	Partial R <sup>2</sup> at each step	F score	df	p value
(1) Hierarchical: interactions of psychosocial variables				
Step 1				
NLE, SOS, FES, PSI	.320	8.01	4,68	<.001
Step 2				
FESxSOS	.082	9.02	1,67	<.001
Total R <sup>2</sup>	.402			
(2) Hierarchical: interactions psychosocial variables controlling for diagnostic variables				
Step 1				
MDD, DYS, GAD, ODD, AAB, ADE, DDE	.498	9.20	7,65	<.001
Step 2				
NLE, SOS, FES, PSI	.072	7.36	4,61	<.001
Total R <sup>2</sup>	.570			
(3) Hierarchical: interactions psychosocial variables controlling for MDD				
Step 1				
MDD	.467	62.22	1,71	<.001



Step 2				
NLE, SOS, FES, PSI	.056	14.71	4,67	<.001
Step 3				
FESxSOS	.030	13.65	1,66	<.001
Total R <sup>2</sup>	.554			

Note. Diagnostic Variables (severity scores):MDD=Major Depressive Disorder, DYS=Dysthymia, GAD=Generalized Anxiety Disorder, ODD=Oppositional Defiant Disorder, AAB=Alcohol Abuse, ADE=Alcohol Dependence, DDE=Drug Dependence; Psychosocial Variables: NLE=Negative Life Events Scale, SOS=Social Support Total Scale, FES=Family Environment Total Relationship Scale, PSI=Problem Solving Confidence Scale

Table 8  
Levels of suicidal ideation for comparisons of adolescents high and low on family environment and social support measures

Prediction of MSSSI severity		
Social Support (SOS) x Family Environment (FES)		
	Social Support	
	Low	High
Family Environment		
Low	8.07 <sup>a</sup>	1.23 <sup>b</sup>
High	7.80	2.52 <sup>b</sup>

Note. <sup>a,b</sup>= different letters reflect a mean difference at p<.05.

Table 9  
Differences in mean MSSSI scores across all diagnostic categories

	MOOD	GAD	DBD	SUD
Pure	8.00 (9.21) n=6	*	1.57 <sup>b</sup> (2.94) n=7	3.50 <sup>b</sup> (5.81) n=8
MOOD		18.25 <sup>a</sup> 2.33 <sup>b</sup> (13.07)(2.52) n=4	4.00 (5.66) n=3	n=2
GAD			*	*
DBD				2.29 <sup>b</sup> (3.59) n=7
MOOD,GAD			10.60 (9.45) n=5	*
MOOD,DBD				4.86 <sup>b</sup> (10.24)

	n=7
MOOD,GAD, DBD	18.00 <sup>a</sup> (14.76)
	n=4

---

Note. MOOD=mood disorders (major depressive disorder and dysthymia), GAD=generalized anxiety disorder, DBD=disruptive behavior disorders (oppositional defiant disorder and conduct disorder), SUD=substance use disorders (alcohol abuse, alcohol dependence, drug abuse, drug dependence)

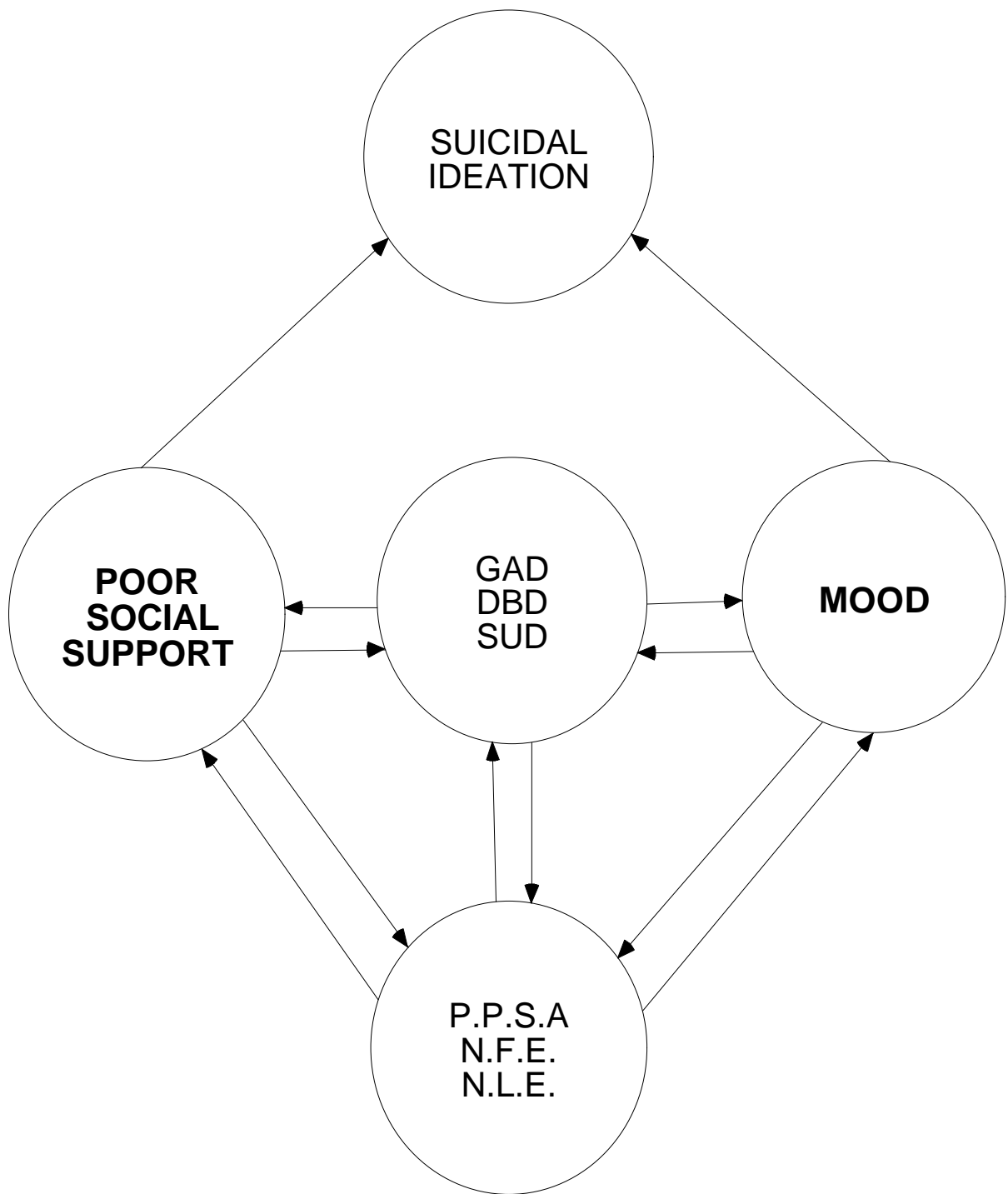
<sup>a,b</sup>= different letters reflect a mean difference at  $p<.05$ .

\* = no information is available due to insufficient sample size for categories (n=0 or 1)

#### Figure Captions

Figure 1. Proposed theoretical mediational model for adolescent suicidal ideation





Appendix A

Date \_\_\_\_\_

Dear Parent/Guardian,

I am writing to obtain your consent for your child to participate in my doctoral research study aimed at promoting adolescent mental health and improving the counseling program at your child’s school. If you provide your consent, your child will be one of one hundred teenagers to participate in this valuable research project while at school. Your child’s responses will be combined with all other teenagers responses and his/her identity will not be revealed.

This study is being conducted by specially trained graduate students from Virginia Tech under the supervision of the school psychologists and licensed clinical psychologists from Virginia Tech. It has been approved by the Montgomery County School Board, as well as the Human Subjects Committee and the Institutional Review Board of Virginia Tech.

I am sending this information to you via certified mail to insure that you receive it. Please read the attached consent form. If you agree to allow your child to participate please keep the consent form for your records and **do not return it to the examiner**. By not returning this form, you will be providing your consent for your child to participate. However, if you do **not** want your child to participate in this study, then tear off the bottom portion of this form and return it with the consent form at the address below within one week of receiving this letter. A stamp is enclosed. Please keep the stamp for your own personal use if you don’t use it to return this form.

Thank you for your time and consideration. Should you have any questions, please contact me or any of the school psychologists at the numbers listed on the back of the consent form.

Sincerely,

Christianne L. Esposito, M.S.  
Graduate Student  
Psychology Department of Virginia Tech

-----  
**REMEMBER, YOU DO NOT HAVE TO RETURN THIS FORM. ONLY DO SO IF YOU DO NOT WANT YOUR CHILD TO PARTICIPATE IN THE STUDY.**

**No**, I do not want my child \_\_\_\_\_ to participate in your study.

My reason for **not** allowing my child to participate is \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
Parent/Guardian Signature

\_\_\_\_\_  
Date

This form can be returned to: Christianne Esposito  
Graduate Research Study

P.O. Box 10871  
Blacksburg, VA 24062  
INFORMED CONSENT FORM FOR GUARDIAN

Purpose Of This Study and Procedure

The purpose of this study is to assess feelings and stressors experienced by teenagers. There will be 100 teenagers who will complete this study. If you and your child provide consent, your child will be given a diagnostic interview and 6 questionnaires which should take 1-1 ½ hours to complete. Your child will be asked about stressful life events, social support systems, problem-solving skills, sad feelings which may have led to thoughts or attempts to hurt him/herself, and problems which may have led to academic or social impairment. Your child's participation is entirely *voluntary* and he/she may *stop answering the questions at any time*.

The study will be conducted in the following manner. Your child will be read a description of the study contained on a consent form and will be asked to sign it if he/she agrees to participate in the study. If your child provides consent, he/she will complete the assessment with the examiner while seated in a private room at school.

Risks and Discomforts

This assessment should not cause your child any discomfort. If any questions do stir up sad feelings, your child will be encouraged to talk to you or the school psychologist. You will be provided with information on adolescent mental health along with referral numbers to call if you feel that your child needs help. Your child will also be given a card with referral numbers.

Benefits

Your child will be given the chance to participate in a study that could help many young people who have had difficult lives. By answering these questions, your child is helping doctors to better understand problems experienced by teenagers and create treatments which could save their lives. However, I cannot guarantee that this research will be successful in this pursuit.

Confidentiality and Freedom to Withdraw

The results of this research may be published for scientists to read but your child's name will not be included in the study. Your child's name will not be included on any of the material used in the study and assent/consent forms will be stored separately. The examiner will assign your child a subject number which only the examiner will be able to match to your child's responses. However, his/her answers may be shared with the school psychologist if your child's responses indicate that he/she needs help. Your child's answers will also be shared directly with you if the examiner felt that your child might try to hurt him/herself or someone else. Your child's interview will be audiotaped and may be reviewed only for accuracy by another examiner involved in the study, who will not know your child's name. No one else will be allowed to listen to the tape and it will be erased immediately after it is reviewed. Your child's consent forms, assessments, and audiotape will be locked up in the examiner's office to which only the examiner has access.

Your child's participation in this study is entirely voluntary. He/she will not receive any compensation for participating. Your child may withdraw from the study at any time. If he/she decides not to finish, his/her questionnaires will be discarded.

Approval Of Research

This research project has been approved, as required, by the Institutional Review Board For Research Involving Human Subjects at Virginia Tech, by the Department of Psychology at Virginia Tech, and by the Montgomery County Public School Board.

Consent and Permission for Minor Participation

I have read and understand the Informed Consent and conditions of this project. I understand that my child will complete an assessment and that he/she may withdraw from this study at any time. I have had all my questions answered. I give my voluntary consent for my child to participate in this project by keeping this

form and not returning it to the researcher.

Should I have any questions about this research or its conduct, I may contact:

Investigator:

Christianne Esposito, M.S.      Phone: 231-6914

Faculty Advisor:

George A. Clum, Ph.D.      Phone: 231-5701

Chair, Human Subjects Committee

David W. Harrison, Ph.D.      Phone: 231-4422

Chair, IRB Research Division:

H.T. Hurd, M.S.      Phone: 231-5281

Virginia Tech Psychology Department Main Office Telephone Number: 231-6581

School Psychologists:

Bonita Gude, Ed.D.      Phone: 268-2256

Karen Wadovsky, Ed.S. Phone: 381-6521

Charlie Gregory, M.A. Phone: 951-5757

Mary Whiley, M.A.      Phone: 381-6156



## Appendix B

### ADOLESCENTS' ASSENT FORM

#### Purpose Of This Study and Procedure

The purpose of this study is to assess your thoughts and feelings in a number of areas. There will be 100 teenagers who will complete this study. You are encouraged to discuss any questions that you may have about the study with the examiner or the school psychologists.

This assessment consists of an interview and 6 questionnaires which should take 1-1 ½ hours to complete. During the interview, you will be asked questions about any sad feelings you may be experiencing and any problems you may have had which led to difficulties with your parents, school, or the law. The questionnaires will ask you about stressful life events, your family, your friends, how you solve problems, and whether you have ever thought about or tried to hurt yourself. Your participation is entirely *voluntary* and you may *stop answering the questions at any time* if you don't want to continue.

The study will be conducted in the following manner. After this form has been read to you, you will be asked to sign it if you agree to participate in the study. If you do sign it, you will complete the assessment with the examiner, while seated in a private room at school.

#### Risks and Discomforts

This assessment should not cause you any discomfort. In the event that questions stir up sad feelings, you are encouraged to talk to the school psychologist or your parents. If they cannot help you, they will contact a doctor who can. You will also be given a card with numbers to call if you need help.

#### Benefits

You will be given the chance to participate in a study that could help many young people who have had difficult lives. By answering these questions, you may be helping doctors to create treatments for these young people which could save their lives. However, there is no guarantee that this research will be successful in this pursuit.

#### Confidentiality and Freedom to Withdraw

Many of the results from this research may be published for scientists to read but your name will not be included in the study. Your name will not be included on any of the assessment materials used in the study. You will be given a number which only the examiner will be able to match with your name. However, your answers will be shared with the school psychologist if it was felt that you could use their help. Your answers would only be shared with your parents if the examiner thought you might try to seriously hurt yourself or someone else. Your interview will be audiotaped and may be reviewed by another examiner involved in the study, who will not know your name, to make sure that the interview was done correctly. No one else will listen to the tape and it will be erased immediately after it is reviewed. Your consent forms, assessments, and audiotape will be locked up in the examiner's office to which only the examiner has access.

Taking part in this study is entirely voluntary. You may withdraw from the study at any time if you feel uncomfortable and do not want to continue. Just let the examiner know that you do not want to finish and your work will be discarded.

#### Approval Of Research

This research project has been approved, as required, by the Institutional Review Board For Research Involving Human Subjects at Virginia Tech, by the Department of Psychology, and by the Montgomery County School Board.

#### Participant's Responsibilities and Minor Participation Consent

I have read and understand the Informed Consent and conditions of this project. My responsibilities include completing an interview and questionnaires to the best of my ability. I understand that I may withdraw from this study at any time without penalty. I have had all my questions answered. I give my

voluntary consent for participation in this project.

\_\_\_\_\_  
Signature of Minor

Date

### Appendix C

Dear Parent/Guardian,

I am writing to thank you for allowing your child to participate in my research study. I have enclosed the material on adolescent mental health, as promised, which I am sending to the parents of all adolescents who participated. These are good references for all parents to have.

Should you feel that your child ever requires any psychological services, you can contact any one of the following agencies for help. Each facility has professionals specially trained to work with children/adolescents and their families.

RAFT & ACCESS Crisis Services  
\* 24 hour hotline and referral center

Phone: 961-8400

Psychological Services Center of Virginia Tech

Phone: 231-6914

Counseling Associates

Phone: 552-2402

Family & Psychological Services

Phone: 961-2380

Sincerely,

Christianne L. Esposito, M.S.  
Graduate Student  
Psychology Department of Virginia Tech

## **BEING PREPARED: KNOW WHEN TO SEEK HELP FOR YOUR CHILD**

Parents are usually the first to recognize that their child has a problem. Parents' growing concerns, and observations of outside resources, such as teachers and family, combine to form a process of coming to the realization that a child can benefit from treatment. Parents may also consult with child and adolescent psychologists or psychiatrists, or other professionals, about ways to help their child at home.

Following are a few signs which may indicate that a psychological evaluation is needed:

- Marked change in school performance
- Abuse of alcohol and/or drugs
- Inability to cope with problems and daily activity
- Marked changes in sleeping and/or eating habits
- Many complaints of physical ailments
- Aggressive or non-aggressive consistent violation of rights of others; opposition of authority, truancy, thefts, or vandalism
- Intense fear of becoming obese with no relationship to actual body weight
- Depression shown by sustained, prolonged negative mood and attitude, often accompanied by poor appetite, difficulty sleeping, or thoughts of death.
- Frequent outbursts of anger

Of these problems that teenagers experience, depression is one of the most common. The behavior of depressed teenagers may differ from that of depressed adults. Thus, it is advisable for parents to be aware of signs of depression in their teenagers. These include...

- Frequent sadness, tearfulness, crying
- Hopelessness
- Decreased interest in activities; or inability to enjoy previously favorite activities
- Persistent boredom; low energy
- Social isolation, poor communication
- Low self-esteem and guilt
- Extreme sensitivity to rejection or failure
- Increased irritability, anger, or hostility
- Difficulty with relationships
- Frequent complaints of physical illness such as headaches and stomachaches
- Frequent absences from school or poor school performance
- Poor concentration
- A major change in eating and/or sleeping patterns
- Talk of or efforts to run away from home
- Thoughts or expressions of suicide or self-destructive behavior such as

- Verbal hints “I won’t be a problem much longer”, “Nothing matters”, “It’s no use”, “I won’t see you again”
- Putting his/her affairs in order such as giving away favorite possessions, cleaning his/her room, throwing away important belongings
- Becoming suddenly cheerful after a period of depression

Adolescents who are depressed may say they want to be dead or talk about suicide. Depressed adolescents are at risk for committing suicide thus suicidal statements should always be taken seriously. Depressed adolescents may also abuse alcohol or other drugs to make them feel better. But it is also important to note that not all depressed adolescents always seem sad. Adolescents who cause trouble at home may be depressed and not even know it.

If your adolescent shows any of these signs, it is important to get help. Early diagnosis will increase the chance of successful treatment.

*Reference: American Academy of Child and Adolescent Psychiatry, 3615 West Wisconsin Avenue, N.W., Washington, D.C. 20016-3007.*

**CURRICULUM VITA**  
**Christianne L. Esposito, M.S.**

**PROFESSIONAL ADDRESS**

Department of Behavioral Medicine and Psychiatry  
West Virginia University School of Medicine  
930 Chestnut Ridge Road  
Morgantown, WV 26505-2854  
Telephone: (304)293-2411 / Fax: (304)293-8724

**HOME ADDRESS**

101 Lakeside Drive  
Morgantown, WV 26508  
Telephone: (304)292-8745  
E-mail: cesposito@hsc.wvu.edu

**BACKGROUND INFORMATION**

Date of Birth: May 27, 1972  
Place of Birth: Greenwich, CT

**EDUCATION**

- 7/99- present    West Virginia University School of Medicine (APA Accredited)  
Morgantown, West Virginia  
Predoctoral Intern in Clinical Psychology, Child Track
- 12/97-5/99    Virginia Polytechnic Institute and State University (APA Accredited)  
Blacksburg, Virginia  
Major: Clinical Psychology, Child Track (GPA=4.00)  
Degree: Doctorate of Philosophy expected May 2000
- 8/95-12/97    Virginia Polytechnic Institute and State University (APA Accredited)  
Blacksburg, Virginia  
Major: Clinical Psychology, Child Track (GPA=3.88)  
Degree: Masters of Science
- 8/90-5/94    Lafayette College  
Easton, Pennsylvania  
Major 1: Psychology (GPA 3.96) / Major 2: English (GPA 3.73) / Class Rank: Top 5%  
Degree: Bachelor of Arts

## **ACADEMIC AWARDS AND HONORS**

### **Graduate Honors**

- Phi Kappa Phi National Honor Society
- 1999 Travel Grant Recipient, The Graduate School, Virginia Tech
- 1998 Dissertation Research Grant Recipient, The Graduate School, Virginia Tech
- 1996 Master's Thesis Research Grant Recipient, The Graduate School, Virginia Tech
- 1996 Travel Grant Recipient, The Graduate School, Virginia Tech

### **Undergraduate Honors**

- Graduated SUMMA CUM LAUDE with Honors in Psychology from Lafayette College
- Dean's list all four years at Lafayette College (1990-1994)
- Phi Beta Kappa National Honor Society
- Psi Chi National Honor Society in Psychology
- Elected President of Lafayette College Chapter of Psi Chi
- Awarded an Annual Student Research Prize given jointly by the Association for Women in Psychology and Division 35 of the American Psychological Association for Honors Thesis
- Awarded the 1994 Herbert Rogers Psychology Prize for Excellence in Psychology
- Awarded the 1994 Gilbert Prize for Excellence in English

## **CLINICAL EXPERIENCE**

Predoctoral Child Psychology Intern: July 1999 - present

Department of Behavioral Medicine and Psychiatry, West Virginia University School of Medicine, Morgantown, WV (APA Accredited)

Supervisors: Dr. Andrew Bradlyn, Ph.D., Dr. Carole Harris, Ph.D., Dr. Jennifer Haut, Ph.D., Dr. Alfred Kasprowicz, Ph.D., Dr. Kevin Larkin, Ph.D., and Dr. Tandy McClung, Ed.D.

Internship experience emphasizes work with child and adolescent clinical populations. By the end of internship, will have completed a year long rotation in child and adolescent outpatient service, a 6 month rotation in adolescent inpatient service, a 6 month rotation in child neuropsychology service, and a 6 month rotation in adult outpatient service. Over the course of internship, responsibilities include: providing cognitive-behavioral individual and family therapy to children, adolescents, and adults; co-facilitating adolescent inpatient Rational Emotive Therapy group, adolescent inpatient Suicide Prevention group, child outpatient Obsessive Compulsive Disorder group, child outpatient Cognitive Behavioral Therapy group, adolescent outpatient Cognitive Behavioral Therapy group, adult inpatient Orientation group, adult inpatient Stress Management group, adult outpatient Eating Disorder group, and adult outpatient Anxiety Disorder group; and conducting intake assessments with children, adolescents, and adults, as well as neuropsychological assessments with children and adolescents. In addition, also required to provide consultation services to adolescent and adult inpatient units; attend weekly seminars and meetings; and participate in weekly clinical case conferences, research seminars, and grand rounds. Receive daily individual and weekly group supervision.

Graduate Clinician and Supervisor: August 1998 - May 1999

Psychological Services Center and Child Study Center, Virginia Tech, Blacksburg, VA  
Supervisors: Dr. Richard Eisler, Ph.D., and Dr. Angela Scarpa, Ph.D.

Attended weekly practicum, provided supervision to less advanced graduate students, and conducted therapy with children, adolescents, and adults. In addition, served as a liaison between the Montgomery County Public School System and Virginia Tech, to enable graduate students on the practicum team to conduct group therapy with adolescents labeled as Seriously Emotionally Disturbed in a local high school. Weekly group and individual supervision was provided on therapy cases and supervision of cases.

Psychology Extern: August 1997 - June 1998  
Montgomery County Public School System, Christiansburg, VA  
Supervisor: Dr. Bonita Sims Gude, Ed.D.

Conducted psychoeducational assessments; provided individual, group, and family counseling services to children and adolescents labeled as Seriously Emotionally Disturbed; provided consultation to teachers, school administrators, and relevant agencies (e.g., social services, juvenile court); participated in IEP meetings and parent/teacher conferences; and attended the state sponsored Family Assessment and Planning Team meetings on an as needed basis to request state funding for special services for children, adolescents, and their families.

Graduate Assessment Clinician: August 1996 - May 1998  
Child Study Center, Virginia Tech, Blacksburg, VA  
Supervisor: Dr. Thomas Ollendick, Ph.D.

Conducted full diagnostic and psychoeducational assessments of children and adolescents, scored and interpreted data, wrote reports, made treatment recommendations, provided feedback to families, and attended weekly case conference and group supervision meetings.

Summer Graduate Clinician : May 1997 - August 1997  
Psychological Services Center and Child Study Center, Virginia Tech, Blacksburg, VA  
Supervisor: Dr. Thomas Ollendick, Ph.D.

Attended weekly practicum meetings and conducted therapy with children, adolescents, adults, and families. Received individual and group supervision on a weekly basis.

Graduate Clinician : August 1996 - May 1997  
Psychological Services Center and Child Study Center, Virginia Tech, Blacksburg, VA  
Supervisor: Dr. Russell Jones, Ph.D.

Attended bi-weekly practicum meetings and conducted therapy with children, adolescents, adults, and families. Received individual and group supervision on a weekly basis.

Graduate Clinician : August 1995 - May 1996

Psychological Services Center and Child Study Center, Virginia Tech, Blacksburg, VA  
Supervisors: Dr. George Clum, Ph.D. and Dr. Russell Jones, Ph.D.

Attended bi-weekly practicum meetings and conducted therapy with children, adults, and families.  
Received individual and group supervision on a weekly basis.

Youth Counselor: June of 1994 - August of 1995 / May of 1996 - August of 1996

Kids In Crisis Center, Greenwich, CT

Supervisors: Cindy Carraway-Wilson, M.S., Denise Qualey, M.S.W., and Diane Redden, M.A.

Conducted intake assessments of children, adolescents, and families; created and implemented treatment plans; held individual, group, and family counseling sessions; and participated in weekly case reviews. Received weekly individual supervision and obtained certifications in Passive Physical Restraint & Crisis Intervention, Child Abuse Identification, Advanced Residential Child Care, and Basic Medicine.

Summer Intern: June 1993 - August 1993

Cornell Medical Center (Westchester Division), White Plains, NY

Volunteered on a Personality Disorder Unit which provided long term care to patients. Provided individual counseling, attended group counseling sessions, and participated in case conferences. Received relevant training and supervision from nurses and psychologists working on the unit.

Telephone Counselor: October 1989 - May 1991

Hotline, Inc., Greenwich, CT

After receiving relevant training, counseled a wide range of callers and provided referrals.

## **PROFESSIONAL/TEACHING EXPERIENCE**

Guest Reviewer: Served as a guest reviewer for the Journal of Clinical Child Psychology, edited by Dr. Thomas Ollendick, Ph.D. and the Journal of Gender, Culture, and Health, edited by Dr. Richard Eisler, Ph.D.

Graduate Instructor: August 1998 - May 1999

Virginia Tech, Blacksburg, VA

Supervisor: Dr. George Clum, Ph.D.

Taught three sections of a 3 credit undergraduate Abnormal Psychology course (50-75 students per class). Responsibilities included preparing and providing lectures, creating and grading exams and papers, and holding weekly office hours.

Supplemental Instruction Leader: January 1998 - May 1998

Office of Academic Enrichment, Virginia Tech, Blacksburg, VA

Departmental Supervisor: Dr. Jack Finney, Ph.D.

Supplemental instruction is an academic assistance program for undergraduates that increases student performance and retention. Responsibilities included attending undergraduate class sessions, taking notes, reading all assigned material, and conducting three hours of review sessions each week for undergraduates in need of remediation.



Graduate Teaching Assistant: August 1995 - May 1996  
Virginia Tech, Blacksburg, VA  
Supervisor: Dr. Becky Columbus, Ph.D.

Taught two undergraduate Intro. to Psychology labs, created and graded exams and essays.

Writing Associate: September 1993 - May 1994  
Lafayette College, Easton, PA  
Supervisor: Dr. Howard Gallup, Ph.D.

Assistant for Design & Analysis Psychology Course - corrected student research projects, attended seminars, conferred with department head, and served hours at a drop-in service.

Teaching Assistant: September 1992 - May 1994  
Lafayette College, Easton, PA  
Supervisor: Dr. Bob Allen, Ph.D.

Assistant for Experimental Psychology Course - assisted students with laboratory work.

## **RESEARCH EXPERIENCE**

Dissertation: April 2000  
Virginia Tech, Blacksburg, VA  
Title: *An Examination Of the Relative Contributions of Diagnostic and Psychosocial Factors In the Prediction Of Adolescent Suicidal Ideation.*  
Committee: Dr. George Clum, Ph.D. (Chair), Dr. Thomas Ollendick, Ph.D., Dr. Jack Finney, Ph.D.,  
Dr. Russell Jones, Ph.D., and Dr. Angela Scarpa, Ph.D.

Entailed creation and a written/oral proposal of this original study, administration of diagnostic interviews and a psychosocial assessment battery to 73 high school students, training and supervision of three undergraduates to reliability code interviews and enter data into SPSS, data analysis, write-up, and written/oral defense.

Preliminary Examination: September 1998  
Virginia Tech, Blacksburg, VA  
Title: *Diagnostic and Psychosocial Factors Related To Suicidality In Adolescents: An Examination Of Their Differential Validity*  
Committee: Dr. George Clum, Ph.D. (Chair), Dr. Thomas Ollendick, Ph.D., Dr. Jack Finney, Ph.D.,  
Dr. Russell Jones, Ph.D., and Dr. Angela Scarpa, Ph.D.

The preliminary examination is a 50 page theoretical paper which merges two bodies of literature in a meaningful way that has not been previously examined. Responsibilities included creation and written/oral proposal of this original paper, extensive literature review, write-up, and written/oral defense. The paper was written within 10 weeks of the proposal and faculty were only permitted to assist with the conceptualization of the paper.

Master's Thesis: October 1997

Virginia Tech, Blacksburg, VA

Title: *Linking Childhood Abuse To Suicidal Behavior: An Examination of the Mediating Variables.*

Committee: Dr. George Clum, Ph.D.(Chair), Dr. Jack Finney, Ph.D., and Dr. Russell Jones, Ph.D.

Entailed creation and written/oral proposal of this original study, data collection for over 200 incarcerated juvenile delinquents, data input and analysis using SPSS and the AMOS structural equation modeling package, write-up, and written/oral defense.

Research Assistant: September 1994 - August 1995

Cornell Medical Center (Westchester Division), White Plains, NY

Supervisor: Dr. Cynthia Pfeffer, M.D.

Located and recruited former patients on the child psychiatric inpatient unit, administered psychological instruments, and contacted and monitored progress of assigned caseload. Data was to be examined in a longitudinal study examining child/adolescent suicidal behavior.

Honors Thesis: December 1993

Lafayette College, Easton, PA

Title: *College Students Attitudes Toward Abortion: The Role Of Knowledge and Demographic Variables.*

Chair: Dr. Susan Basow, Ph.D.

Entailed creation and written/oral proposal of this original study, data collection for over 400 college students, data input and analysis using SPSS, write-up, and written/oral defense.

Freshman Orientation Project: December 1993

Lafayette College, Easton, PA

Supervisor: Dr. Andrew Vinchur, Ph.D.

Analyzed data from freshman surveys, completed write-up, and presented results to Deans of the college.

Independent Research Project: May 1992

Lafayette College, Easton, PA

Title: *College Students Attitudes Toward Sexual Harassment*

Supervisor: Dr. Howard Gallup, Ph.D.

Proposed and conducted this original study, conducted data input and analysis using SAS, and completed write-up.

## **ACCEPTED AND PENDING PUBLICATIONS**

Clum, G.A., Esposito, C., Hirai, M., & Nelson, W. (in press). The relative contribution of diagnostic and psychosocial variables to severity of suicidal ideation. *Journal of Psychopathology and Behavioral Assessment*.

Esposito, C. & Clum, G.A. (2000). Social support and problem-solving as moderators of the relationship between childhood abuse and suicidality: Applications to a delinquent population.

Manuscript revised and resubmitted for publication.

Esposito, C. & Clum, G.A. (1999). Specificity of depressive symptoms and suicidality in a juvenile delinquent population. Journal of Psychopathology and Behavioral Assessment, 21, 171-182.

Esposito, C. & Basow, S. (1995). College students' attitudes toward abortion: The role of knowledge and demographic variables. Journal of Applied Social Psychology, 25, 1996-2017.

## **MANUSCRIPTS IN PREPARATION**

Esposito, C. & Clum, G.A. (2000). Diagnostic and psychosocial variables related to suicidality in adolescents: An integrative model. Manuscript in preparation.

Esposito, C., Clum, G.A., & Williams, C. (2000). Linking childhood abuse and low social support to suicidality: An examination of the mediating variables. Manuscript in preparation.

McClung, T., Esposito, C., & Sullivan, C. (2000). Inpatients' perceptions of a suicide prevention protocol on an acute adolescent psychiatric inpatient unit. Manuscript in preparation.

## **CONFERENCE PRESENTATIONS AND POSTERS**

Esposito, C. & Clum, G. A. (1999). Specificity of depressive symptoms and suicidality in a juvenile delinquent population. Poster presented at the Southeastern Psychological Association 45th Annual Meeting, Savannah, GA.

Esposito, C. & Clum, G.A. (1999). Social support and problem-solving as moderators of the relationship between childhood abuse and suicidality: Applications to a delinquent population. Paper presented as part of a symposium entitled "Recent Advances In Models Of Suicide Prediction" at the Southeastern Psychological Association 45th Annual Meeting, Savannah, GA.

Clum, G.A., Nelson, W., & Esposito, C. (1999). The relative importance of diagnostic and psychosocial factors in predicting suicidality. Paper presented as part of a symposium entitled "Recent Advances In Models Of Suicide Prediction" at the Southeastern Psychological Association 45th Annual Meeting, Savannah, GA.

Esposito, C. & Clum, G. A. (1997). Linking childhood abuse to suicidal behavior: An examination of the mediating variables. Poster presented at The Association for the Advancement of Behavior Therapy 31st Annual Convention, Miami Beach, FL.

Esposito, C. & Clum, G.A. (1997). Linking childhood abuse to suicidal behavior: An examination of the mediating variables. Paper presented at The Seventh Annual Virginia Beach Conference: Children and Adolescents with Emotional and Behavioral Disorders, Richmond, VA.

Esposito, C. & Basow, S. (August, 1995). Predicting attitudes toward abortion: Does knowledge matter? Poster presented at: The 1995 American Psychological Association Annual Convention, New York, NY.

Esposito, C. (1994). Variable predictors of college students attitudes toward abortion. Paper presented at The National Conference of Undergraduate Research of '94, Kalamazoo, MI.

Esposito, C. (1994). Variable predictors of college students attitudes toward abortion. Paper presented at The Lehigh Valley Undergraduate Psychology Conference of '94, Bethlehem, PA.

Esposito, C. & Adlersberg, Z. (1992). Attitudes toward abortion at Lafayette College. Paper presented at The Lehigh Valley Undergraduate Psychology Conference, Bethlehem, PA.

## **PROFESSIONAL AFFILIATIONS AND ORGANIZATIONS**

- American Psychological Association, Student Member
- Division 12 of the American Psychological Association, Student Member
- Association for the Advancement of Behavior Therapy, Student Member
- Southeastern Psychological Association, Student Member

*References Available Upon Request*