Linking Childhood Abuse to Suicidal Behavior:
An Examination of the Mediating Variables

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(ABSTRACT)

Previous research has suggested that a strong relationship exists between early childhood abuse and later suicidal behavior. However, the process through which an abused child becomes suicidal in adolescence has not been examined. The present study attempted to identify a pathway in a sample of juvenile delinquents because they have been shown to be at an increased risk for suicide when compared to the general population. It was initially hypothesized that the use of avoidant coping strategies; a self-deprecatory attributional style; poor perceived social support; poor problem-solving appraisal; depression; hopelessness; and low self-esteem would be associated with suicidal ideation, subsequent to childhood abuse. However, this theory could not be examined due to methodological weaknesses encountered in the study. A similar yet more parsimonious theory was then devised, prior to analyses, based on links found in previous research between the variables that could be examined. It was hypothesized that childhood abuse and low social support would be related to later suicidal ideation via poor problem-solving appraisal and psychopathology in the form of depression, hopelessness, and low self-esteem. Different variations of this mediational theory were examined through the use of structural equation models. The sample employed in this study included two hundred adolescents incarcerated at juvenile detention centers in Virginia. All participants voluntarily completed 11 self-report measures which took approximately 1 ½ to 2 hours, while seated in their classroom at the juvenile detention center. The findings from the present study suggest that the relationship between childhood abuse and low social support, and suicidal ideation, is mediated by psychopathology and to a lesser extent, poor problem-solving appraisal.

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During the past three decades, an increasing concern for the psychological welfare of adolescents has developed as a result of a drastic increase in adolescent suicide. Suicide is currently ranked as the third leading cause of death in the Unites States for those between the ages of 15 to 24, following accidents and homicides (Henry, Stephenson, Hanson, & Hargett, 1993, as per U.S. Bureau of Census, 1991). Blumenthal (1990) suggests that these rates are actually two to three times higher because many of the reported accidents and homicides are actually suicides. Further, it has been estimated that for every completed suicide, there are approximately 50 to 150 attempted suicides (McIntire, Angle, Wilkoff, & Schlicht, 1977). Since previous suicide attempts and suicidal ideation have been found to be strong predictors of future suicide attempts, these behaviors constitute a very serious problem (Harris & Lennings, 1993; Lewinsohn, Rohde, & Seeley, 1994; Nordentoft & Rubin, 1993).

Numerous scientists have attempted to gain an understanding of the factors which contribute to suicidal behavior. One variable which has received considerable attention throughout the suicide literature is childhood abuse. The majority of studies conducted in this area thus far have examined the relationship between childhood abuse and suicidal behavior at a molar level, concluding that childhood abuse is a significant predictor of suicidal behavior (Stone, 1993; van der Kolk, Perry, & Herman, 1991). However, studies have not been conducted to examine the process through which an abused individual becomes suicidal. This is surprising in light of the fact that such an understanding would aid in the development of interventions to break the chain linking childhood abuse to suicidal behavior. The current study attempted to causally model this process in an effort to aid in this pursuit. Specifically, this study attempted to determine how childhood abuse (sexual and physical abuse) leads to later suicidal behavior in adolescents, via the mediating influence of avoidant coping strategies, negative attributions assigned to the abusive event, low social support, poor problem-solving appraisal, depression, hopelessness, and low self-esteem. The theoretical basis for this model can best be understood through a review of past studies linking these variables. This review will cut across all ages (adults, 18 and older; adolescents, 13-17; and children, 12 and under) as well as suicidal behaviors (completed suicides, attempts, ideation) to ensure a sound theoretical basis for the proposed model.

Before examining mediating variables between childhood abuse and suicidal behavior, it is first necessary to present empirical evidence linking these two variables. Research has shown that adults who experienced childhood sexual abuse reported significantly more suicide attempts than their non-abused counterparts (Angst, Degonda, & Ernst, 1992; Briere & Runtz, 1986; Ernst, Angst, & Foldenyi, 1993; van der Kolk et al., 1991) as well as more suicidal ideation (Briere & Zaidi, 1989). Further, adolescent attempters were more likely than non-attempters to have a history of sexual abuse (Kienhorst, de Wilde, Diekstra, & Wolters, 1992). In addition, adolescents exhibiting both suicidal ideation and attempts, were frequently found to be sexually abused in childhood (Garnefski, Diekstra, & de Heus, 1992).

Physical abuse has also been linked to suicidal behavior. Physical abuse has been identified as a significant predictor of suicide attempts in adulthood (Brent , Perper, Moritz, Loitus, Schweers, Balach, & Roth, 1994; Lester, 1991; van der Kolk et al., 1991), as well as attempts and ideation

in adolescence (Garnefski et al., 1992), and childhood (Green, 1978; Myers, Burke, & McCauley, 1985).

Mediating variables in the relationship between childhood abuse and psychological maladjustment will now be examined.

When faced with a significant stressor, such as childhood abuse, an individual must employ coping strategies to lessen the psychological pain and ameliorate the situation. Coping strategies reported by childhood abuse victims have been examined in numerous studies. Such strategies include problem-solving, cognitive restructuring, seeking social support, expressing emotions, problem-avoidance, wishful thinking, social-withdrawal, self-criticism (Santello & Leitenberg, 1993), detachment, emphasizing the positive, self-blame, tension reduction, self-isolation (DeLillo, Long, & Russell, 1994), emotional suppression, religious support, and confrontation (Leitenberg, Greenwald, & Cado, 1992). These strategies are often placed into different categories in an effort to create a hierarchical structure of coping, or more generally, "coping styles". Santello and Leitenberg (1993) used perhaps the most comprehensive instrument which divided strategies into "engagement" vs. "disengagement" scales. Engagement strategies include those which are geared directly at managing the abusive person. These include strategies such as problem-solving, seeking social support, expressing emotions, and cognitive restructuring. Disengagement strategies include those that are used to reduce psychological distress through disengagement from the abusive person and environmental transactions. These include strategies such as problem-avoidance, wishful thinking, self-criticism, and social withdrawal.

DeLillo et al. (1994) suggest that coping strategies employed by individuals are often dependent upon the individual's appraisal of the situation. Specifically, the individual appraises the potential for harm and/or loss (i.e. to self, friendships, self-esteem) that results from the stressor, and evaluates the resources or options at his/her disposal to reduce the stress. The individual will then implement a strategy based on these evaluations. It seems logical that exposure to abusive events would influence the selection of avoidant coping strategies. Victims of abuse may fail to employ problem-solving strategies because they may be less likely to believe that they can directly change the abusive situation, especially when the abuse is severe and chronic. In addition, the abuser is often a parent or close relative and thus escape seems impossible. Further, if the child does decide to disclose the abuse, the child risks breaking-up his/her family, that is, if the disclosure is not met with disbelief and scorn which is often the case. In support of this hypothesis, Leitenberg et al., (1992) found that female sexual abuse victims tend to use most frequently emotional suppression and denial (avoidant strategies) to cope with their abuse. Ironically, they report these strategies to be the most helpful, when in essence, research has revealed quite the contrary.

In studies of sexual abuse victims, coping styles as well as individual coping strategies, have been found to influence later psychological adjustment. Specifically, the use of avoidant methods of coping (Leitenberg et al., 1992), wishful thinking, and detachment/distancing (Johnson & Kenkel, 1991) have been shown related to poor psychological adjustment individuals abused in childhood. Further, "disengagement" coping was related to subsequent psychological problems in victims

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abused as young adults (Santello & Leitenberg, 1993).

Research has not yet been conducted to determine whether coping strategies are related to later suicidal behavior in victims of childhood abuse. Coping strategies have been studied in terms of their effect on other types of stressors and suicidal behavior. Coping style has been found to predict suicide risk in young adults (Botsis, Soldatos, Liossi, Kokkevi, & Stefanis, 1994). Specifically, young adults subjected to highly stressful situations who employ an avoidant problem-solving style are more prone to suicidal ideation (Priester & Clum, 1993). Similarly, in child and adolescent populations, attempters employ "wishful thinking" to cope with stressful encounters more frequently than non-attempters (Rotheram-Borus, Trautman, Dopkins, & Shrout, 1990). Further, ideators are less likely to generate active cognitive coping strategies than those that are not suicidal (Asarnow, Carlson, & Gutherie, 1978).

Similar to coping style, attributional style is another variable which has received a great deal of attention in the abuse literature. Attributions can be divided into three dimensions: internal-external, stable-unstable (across time), and global-specific (across situations). A self-deprecatory attributional style is one in which positive events are attributed to external, unstable, and specific causes, whereas negative events are attributed to internal, stable, and global causes (Abramson, Seligman, & Teasdale, 1978).

It seems probable that the experience of abuse, especially that which is more severe and/or chronic, would lead victims to develop an internal, stable, and global attributional style. In regard to the internalization of blame in sexual abuse, Celano (1992) suggests that this process is dependent upon the developmental level of the youth. Preschoolers often view adults as all knowing "authority figures" and as a result may not recognize abuse as a morally reprehensible act. Often, they attribute the abuse to their wrong doing for having broken some rule, or merely accept blame because the abusing adult told them that it was their fault. When children reach latency age, their self-evaluation if often dependent upon their adherence to societal norms. As a result, children at this age experience shame for engaging in an act that society finds abhorrent. Finally, in adolescence, self-awareness and self-evaluation predominate, along with the emergence of sexual awareness and curiosity. Often their judgement is malleable and their self-confidence fragile, thus when abuse occurs, adolescents often believe that they brought the abuse on themselves by virtue of their sexual curiosity. Similar principles may apply to the internalization of blame in physical abuse, although sexual curiosity would not play a part. In regard to the stability of the attribution, it seems logical that children would feel that they lack control over the abusive event, as children are often unable to prevent or escape the abusive situation. Last, due to their lack of understanding of the abusive situation, in combination with the severity and/or chronicity of this stressor, they may view this event as global, expecting to encompass abuse from different adults across situations. In support of this hypothesis, Gold (1986) found that victims of sexual abuse, when compared to non-victims, were more likely to attribute bad events to internal, stable, and global factors.

Building upon this research, it has been suggested that attributional style affects psychological health. According to the learned helplessness model of depression offered by Abramson et al.

(1978), an individual's causal attributions and expectancies mediate one's psychological response to uncontrollable situations. Gold (1986) postulates that abuse can be considered an uncontrollable situation and thus can be explained through this learned helplessness paradigm. She suggests that the symptoms that are observed in victims of childhood abuse may be the result of attributing the abuse to internal, stable, and global factors. In support of this hypothesis, she found that adults who were victims of sexual abuse in childhood, who had an internal, stable, and global attributional style, were more likely to display low levels of self-esteem and non-clinical depression. A self-deprecatory attributional style has also been linked to negative affect in sexually abused children and adolescents (Wolfe, Gentile, & Wolfe, 1989). Further, studies conducted to solely examine the internal-external dimension of attributional style in relation to childhood sexual abuse have found self-blame for the abuse (internal attribution) to be associated with a negative outcome in adulthood (Valentine & Feinauer, 1993; Wyatt & Newcomb, 1990).

As the aforementioned research suggests, attributional style appears to be related to psychological maladjustment in childhood abuse victims. However, research has not yet been conducted to determine whether the attributional style of these victims is related specifically to later suicidal behavior. Such a relationship would be predicted by the revised version of the learned helplessness theory postulated by Abramson, Metalsky, & Alloy (1989). They suggest that a stable and global attributional pattern for negative events, paired with a significant stressor, can be a distal sufficient cause of "hopelessness depression". Hopelessness depression is a subtype of depression which includes hopelessness and suicidal ideation in its symptomatology . Several researchers have provided empirical support for this theory. Priester & Clum (1993) found that attributional style alone and in interaction with a naturalistic stressor (failing grade on an exam) could be used to predict depression, hopelessness, and suicidal ideation. Specifically, they found that individuals who attributed negative events to internal, stable, and global incompetence were more likely to exhibit increased levels of depression, hopelessness, and suicidal ideation. On the other hand, those who exhibited the same attributional style in response to positive events demonstrated lower levels of these three negative characteristics. Similarly, other researchers have found a self-deprecatory attributional style to be linked to depression in suicidal adolescents (Spirito, Williams, Stark, & Hart, 1991; Summerville, Kaslow, Abbate, & Cronan, 1994).

In review, the aforementioned research suggests that victims of childhood abuse employ avoidant coping strategies and assign self-deprecatory attributions to abusive events. These coping strategies and attributions, in turn, mediate the relationship between the abuse and later psychological health. Empirical evidence suggests that victims who employ avoidant coping strategies and assign internal, stable, and global attributions to the abusive event are more likely to suffer from psychological symptomatology. On the other hand, the use of problem-solving strategies and the acceptance of an external, specific, and unstable attribution for the abusive event is associated with a more favorable psychological outcome.

An interesting question is whether coping strategies and attributions are directly related to psychological health or whether their effect is mediated by a third variable. Although researchers have not yet addressed this question, this author believes that social support might serve a

mediational role. Two aspects of social support will be examined: the number of available supports and satisfaction with supports.

Social support affects and is affected by coping strategies and attributions. The coping strategies and the attributions that the individual chooses to employ likely influences the amount of social support that is sought. A victim who employs avoidant coping strategies will be less likely to seek support whereas one who employs problem-solving coping strategies would be more likely to seek support. Victims who adopt internal, stable, and global attributions to negative events may assign self-blame and avoid social contacts; whereas those who assign external, unstable, and specific attributions to these events may blame the perpetrator and seek social support.

Once the victim's attempts at support have been acknowledged, the supportive/unsupportive response that the victim receives may reciprocally affect the victim's original coping strategies and attributions. Unsupportive reactions may discourage the use of problem-solving coping strategies, leading the victim to resort to the use of avoidant strategies and no longer seek support; whereas supportive reactions may reinforce the use of problem-solving coping strategies and lead the victim to seek more support. Likewise, unsupportive reactions could lead individuals holding external, unstable, and specific attributions to switch to a self-deprecatory attributional style neglecting to seek further support; whereas supportive responses could reinforce these attributions leading victims to seek further support.

Dependent upon the end result of these transactions, the amount of social support received may subsequently affect the psychological adjustment of the victim. Those who seek and receive positive support would be less likely to exhibit psychological symptomatology, because social support is often linked to psychological health. However, it is also possible that victims who seek social support will be denied support, and in this case it is possible that psychological symptomatology will still ensue. Research attesting to the relationship between the two aforementioned facets of social support and indices of psychological health follows.

Social support networks may function as a buffer between the abuse related variables and later symptomatology. In a review conducted by Flannery (1990), social support is portrayed as a multidimensional construct and defined as "the comfort, assistance, and/or information one receives through formal or informal contacts with individuals or groups"(p.594). Such social support can be conveyed verbally or non-verbally but must be perceived as helpful. Flannery & Wieman (1989) note that social support has been hypothesized by numerous researchers to have a direct effect on psychological health, as well as to mediate between highly stressful experiences and subsequent psychological adjustment. The direct effect hypothesis, also referred to as the main effect model, is based on the premise that social networks, or the social relationships in which one is engaged, provide an individual with beneficial effects with or without life stress. Psychological well-being is believed to stem from the general feelings of acceptance, security, and stability obtained from predictable social networks. The mediator hypothesis, also referred to as the buffering model, postulates that the detrimental effects of life stress are mitigated under conditions of high support. Psychological health is thought to arise from an enhanced sense of

mastery achieved by successfully coping with life stress and avoiding feelings of helplessness.

Social support has been shown to have buffering effects on the psychological health of individuals exposed to numerous types of stressors such as a stressful work environment (Kumari & Sharma, 1990), cancer treatments (Hockenberry-Eaton, Kemp, & DiLorio, 1994), parenting burn victims (Cella, Perry, Poag, Amand, & Goodwin, 1988), parenting children with neurological disabilities (Virtanen & Moilanen, 1991), and the acquisition of HIV in homosexual men (Rabkin, Williams, Neugebauer, Remien, & Goetz, 1990). Unfortunately, there appears to be a dearth of research investigating the role of social support following psychological trauma, especially childhood abuse. The research that has been conducted in this area has revealed buffer effects between childhood abuse and subsequent psychological adjustment. Specifically, victims of childhood sexual abuse who have adequate social support systems tend to experience more satisfactory sexual relationships (Gold, 1986); have less negative attitudes toward men (Wyatt & Mickey, 1987); and exhibit better psychological adjustment (Zimrin, 1986) in adulthood compared to those with poor social support.

Additional research has also been conducted to examine the effects of social support on other indices of psychological health such as depression, hopelessness, and self-esteem. Although abuse victims have not been the sole population employed in these studies, they may provide results that could be applied to this sub-population, as will be investigated in the current study. Social support has been shown to have both direct and mediating effects on the development of depressive symptoms. Young adults with low perceived levels of social support (Elliot, Herrick, & Witty, 1992; Whatley & Clopton, 1992; Yang & Clum, 1994) and less satisfaction with supports (Pretorius & Diedricks, 1994) tend to report significantly more depressive symptoms than those with higher levels of social support. Further, social support has been shown to moderate the impact of life stress on depression (Flannery & Wienman, 1989).

Hopelessness is another variable which appears to be related to social support. Research suggests that perceived social support is related to hopelessness in young adults (Whatley & Clopton, 1992; Yang & Clum, 1994) and further, that low numbers of supportive persons in a child's life is related to higher levels of hopelessness in children (Kashani, Canfield, Borduin, Soltys, & Reid, 1994). Social support has also been found to moderate the impact of life stress on hopelessness (Flannery & Wienman, 1989).

Unlike depression and hopelessness, the relationship between social support and self-esteem has not been subject to intensive study. The research that has been conducted to this point has revealed that social support, in the form of peer approval, is a significant predictor of self-esteem trajectories in children and adolescents (Hirsh & Dubois, 1991). Further, social support, offered through a community based suicide prevention program, has been related to reports of increases in self-esteem by adults (de Man & Labreche-Gauthier, 1991).

Similar to self-esteem, the relationship between social support and problem-solving appraisal has received little investigation. Yang & Clum (manuscript under revision) conducted the only

research to date which revealed a significant positive relationship between these two variables. Such results suggest that one's confidence in his/her problem-solving skills is affected by the support one receives from others, especially that which pertains to the individual's problem-solving ability. If an individual consistently receives approval from his/her parents and/or peers regarding the decisions that he/she makes, that individual would be likely to develop confidence in his/her problem-solving skills. Conversely, if an individual's decisions are constantly met with criticism, or feedback is not provided because support systems are not present, an individual would be less likely to develop confidence in his/her problem-solving abilities.

In addition to the aforementioned variables, social support has also been linked directly to suicidal behavior. Research reveals that young adults and adolescents who have fewer social contacts and report less satisfaction with their social support from friends, family members, and others tend to be at greater risk for suicide (D'Attilio, Campbell, Lubold, Jacobsen, & Richard, 1992). Specifically, in terms of the type of suicidal behavior exhibited, it has been shown that the social networks of suicide attempters are impaired compared to non-attempters in adult populations (Hart, Williams, & Davidson, 1988). In adolescent populations, low family support (Lewinsohn, Rohde, & Seeley, 1993; Morano, Cisler, & Lemorond, 1993) and lower perceived social support (Asarnow et al. 1978; Howard-Pitney, LaFramboise, Basil, September, & Johnson, 1992) have been found to be significant predictors of suicide attempts.

Social support has also been linked to suicidal ideation. Adults enrolled in a community based suicide prevention program, which solely provided social support, reported a decrease in suicidal ideation (de Man & Labreche-Gauthier, 1991). In adolescent and child populations, those who felt that they had fewer people that they could rely on in times of need (de Mann & Leduc, 1995) and were less satisfied with their social support systems (de Man & Leduc, 1995; de Mann et al., 1993; Howard-Pitney et al., 1992) tended to experience higher levels of suicidal ideation than those with stronger social support systems.

Social support has also been shown to have a buffering effect between significant stressors and suicidal behavior. Unfortunately, research has not yet been conducted to specifically examine the mediating effects of social support on abuse stress, however its relationship to other stressors have been examined. Social support has been shown to mediate the relationship between stress (as indicated through a self-report measure of life stress) and levels of suicidal ideation in young adults. Specifically, adults with high life stress who have low levels of social support have been found to exhibit higher levels of suicidal ideation (Clum & Febbraro, 1994; Flannery & Wieman, 1989; Yang & Clum, 1994).

Having established the relationship between social support and psychological adjustment, it now seems appropriate to introduce the third stage of the proposed model. It is the belief of the author that social support is not linked directly to suicidal behavior, rather it influences the development of depression, hopelessness, and low self-esteem, both directly and through problem-solving appraisal, which in turn, mediates the onset of suicidal behavior. This hypothesis is based on the premise that these affective and cognitive deficits are commonly exhibited in

abused populations and have been linked to suicidal behavior. Following is a review of the literature which provides support for this hypothesis.

Numerous studies have demonstrated that one of the most common psychological sequelae of childhood abuse is depression. Adults who were victims of childhood sexual abuse have been found to exhibit more depression than their non-abused counterparts (Ernst et al., 1993; Gold, 1986; Roesler & McKenzie, 1994). Similarly, studies conducted with children and adolescents who suffered sexual abuse found that they too exhibit higher levels of depression than non-abused samples (Friedrich, Beilke, & Urquiza, 1987; Mennen & Meadow, 1993, 1994a, 1994b) with only one exception (Elliot & Tarnowski, 1990).

Considerably less research has been conducted to examine the relationship between physical abuse and depression. Studies that have been conducted reveal that adults who were physically abused as children tend to exhibit higher levels of depression than those who did not suffer abuse (Gross & Keller, 1992; Roesler & McKenzie, 1994). Similarly, studies conducted with children who suffered physical abuse reveal that they too exhibit elevated levels of depression when compared to non-abused children (Allen & Tarnowski, 1989; Kazdin, Maser, Colbus, & Bell, 1985; Kinard, 1982).

Depression has also been found to be a strong predictor of suicidal behavior across numerous studies. Specifically, depression has been shown to predict suicidal ideation in adolescents (de Man & Leduc, 1995; de Man et al., 1993; Garnefski et al., 1992; Harris & Lennings, 1993; Howard-Pitney et al., 1992; Kashden, Fremouw, Callahan, & Franzen, 1993; Marciano & Kazdin, 1994; Yang & Clum, 1994); predict future suicide attempts in adolescents (Lewinsohn et al., 1994); and discriminate child and adolescent suicide attempters from non-attempters (Harris & Lennings, 1993; Kempton & Forehand, 1992; Lewinsohn et al., 1993; Marciano & Kazdin, 1994).

Similar to depression, it has been suggested that hopelessness often develops subsequent to childhood abuse. Hopelessness is defined as a state of negative expectancies regarding the future (Beck & Weishaar, 1990). Researchers postulate that abuse shatters two major assumptions about the world: a belief in personal invulnerability and a perception of the world as meaningful and predictable. Abuse often involves a flagrant disregard of the child's wishes, with the child being unable to physically and psychologically defend against the abuser, leaving the child with diminished self-efficacy, or the ability to produce desirable outcomes or avoid those that are undesirable (Berliner & Wheeler, 1988). Abuse can also lead to feelings of powerlessness because the child does not believe that he/she can prevent the victimization. When abusive experiences and feelings of powerlessness are frequent and chronic, the child eventually gives up and experiences hopelessness (Finklehor & Brown, 1985). Briere and Runtz (1993) note that under such circumstances, feelings of hopelessness about the future are likely.

Surprisingly, there has been little research conducted to examine the relationship between childhood sexual abuse and hopelessness. One study that was conducted found sexually abused children to report more hopelessness than non-abused controls but these differences failed to

reach significance (Elliot & Tarnowski, 1990). The authors suggest that the lack of significance could be the result of the small sample size (34), with a subset of these children demonstrating deviant scores on the self-report measures. However, there is empirical evidence which suggests a significant relationship between physical abuse and hopelessness. Two studies have found physically abused children to experience higher levels of hopelessness than their non-abused peers (Allen & Tarnowski, 1989; Kazdin et al., 1985).

In contrast, the relationship between hopelessness and suicidal behavior has been well documented. Numerous studies conducted with adults and adolescents have revealed a significant relationship between hopelessness and suicidal ideation (Beck, Brown, & Steer, 1989; Dixon, Heppner, & Rudd, 1994; Howard-Pitney et al., 1992; Kashden et al., 1993; Ivanoff & Jang, 1991; Salter & Platt, 1990; Steer, Kumar, & Beck, 1993). Other studies have shown that adolescent suicide attempters exhibit significantly higher levels of hopelessness than non-attempters (De Wilde, Kienhorst, Diekstra, & Wolters, 1993; Kienhorst et al., 1992; Morano et al., 1993). Similarly, child attempters and ideators have reported significantly higher levels of hopelessness than non-suicidal children (Marciano & Kazdin, 1994). Only a few studies have failed to find a relationship between hopelessness and suicidal behavior in the form of ideation and attempts in child and adolescent populations (Harris & Lennings, 1993; Kempton & Forehand, 1992).

Self-esteem is another variable which has been linked to childhood abuse. Self-esteem refers to the evaluation one holds of oneself, which can be approving or disapproving in nature. Such an evaluation is dependent upon the degree to which one perceives oneself to be competent, successful, significant, and worthy. Those with high self-esteem exemplify self-respect and competence whereas those with low self-esteem view themselves as inadequate and unworthy (Grayston, De Luca, & Boyes, 1992). Berliner & Wheeler (1987) suggest that victimization diminishes a child's ability to develop self-esteem. This may be the result of the victim's psychological reaction to the abuse, stigmatization of the victim by the abuser and society, and the erroneous conclusions that the victim often draws in attempt to understand the abuse (i.e. I am bad and deserved the abuse)(Briere & Runtz, 1985). Such circumstances would likely lead to lower self-esteem as has been found in past literature.

A strong relationship has been found between victims of childhood sexual abuse and low self-esteem. Specifically, adult survivors of childhood sexual abuse have been shown to exhibit lower levels of self-esteem when compared to their non-abused counterparts (Bagley, 1991; Briere & Runtz, 1986; Roesler & McKenzie, 1994; Testa, Miller, Downs, & Panek, 1992). Similarly, adolescents and children who suffered childhood sexual abuse have also been found to exhibit lower levels of self-esteem when compared to their non-abused peers (Conte & Schuerman, 1987; Grayston et al., 1992; Mennen & Meadow, 1993; Mennen & Meadow, 1994). Only one study failed to find a significant relationship between childhood sexual abuse and self-esteem in children (Elliot & Tarnowski, 1990).

Research examining the relationship between physical abuse and self-esteem has also been conducted. Low levels of self-esteem were found to be prevalent among adults physically abused

as children (Gross & Keller, 1992) as well as adolescents and children who suffered physical abuse (Allen & Tarnowski, 1989; Kazdin et al., 1985; Wodarski, Kurtz, Gaudin, & Howing, 1990).

Numerous studies have also demonstrated a significant relationship between low self-esteem and suicidal behavior. Lower levels of self-esteem have been reported by adult attempters (Angst et al., 1992) and adolescent attempters (De Wilde et al., 1993; Lewinsohn et al., 1994) when compared to non-attempters. Similarly, research conducted with adolescents experiencing suicidal ideation and a history of attempts reported significantly lower levels of self-esteem than non-suicidal peers (Garnefski et al., 1992) and the same was found to be true for child populations (Marciano & Kazdin, 1994). Last, adolescents suffering solely from suicidal ideation have demonstrated significantly lower levels of self-esteem than their peers (Choquet, Kovess, & Poutignat, 1993; de Man & Leduc, 1995; de Man et al., 1993).

Unlike depression, hopelessness, and self-esteem, little research has been conducted to examine the relationship between childhood abuse and problem-solving appraisal. To date, only one study has investigated whether childhood abuse impacts problem-solving appraisal, which is defined as the cognitive assessment of one's ability to solve problems. Yang & Clum (manuscript under revision) found a significant positive correlation between a composite measure of childhood maltreatment (sexual abuse, physical abuse, and neglect, inclusive) and problem-solving appraisal. It seems probable that victims of abuse, especially those who impose self-blame, were abused for an extended period of time, and/or whose disclosure was met with scorn and disbelief, would strongly question their problem-solving abilities as they were unable to prevent and in may cases stop the abuse. As a result, they may believe that escape from their abusive situation is impossible which, in turn, would leave the victim vulnerable to the maladaptive psychological sequelae which often ensue as a result of abuse such as hopelessness, depression, and low self-esteem.

In support of this theory, research has revealed that problem-solving appraisal (Dixon, Heppner, & Anderson, 1991; Rudd, Rajeb, & Dahm, 1994) and problem-solving confidence (Yang & Clum, 1994) are significant predictors of hopelessness in young adults. Similarly, perceived problem-solving ability (Elliot et al., 1992) and problem-solving confidence (Yang & Clum, 1994) have been found to be predictive of depression in young adults. In a similar vein, it seems probable that problem-solving appraisal would also be a strong predictor of self-esteem. Although research has not yet been conducted to examine the latter hypothesis, it seems likely that a perceived inability to solve one's problems could lead one to feel incompetent or unworthy of praise. Researchers have also found problem-solving appraisal to be predictive of suicidal behavior both independently and through its impact on hopelessness. Problem-solving appraisal has been found to predict suicidal ideation in young adults (Clum & Febbraro, 1994; Dixon et al., 1991; Rudd et al., 1994). However, other studies have failed to find this direct relationship. Instead, they revealed a significant indirect effect of problem-solving appraisal through its influence on hopelessness in predicting suicidal ideation in young adults (Dixon et al., 1994).

Researchers have also examined the interaction between problem-solving appraisal and a

significant stressor to suicidal behavior, but the findings have been contradictory. Some studies have suggested that an individual's problem-solving appraisal interacts with stress to predict suicidal behavior. Clum & Febbraro (1994) found a stress x problem solving appraisal interaction in predicting suicidal ideation when using a global measure of life stress (LES). Results revealed that individuals who lack confidence in their problem-solving abilities during periods of high stress are prone to more suicidal ideation . Still, other studies have failed to find a stress x problem-solving appraisal interaction when using the same global measure of stress to predict hopelessness and suicidal ideation in young adults (Priester & Clum, 1993; Dixon et al., 1991). Similarly, research conducted with a naturalistic stressor (a failing grade on an exam) revealed that individuals with a low appraisal of their problem-solving abilities were more vulnerable to stress as evidenced through high levels of depression and hopelessness, but not suicidal ideation (Priester & Clum, 1993).

To this point, this review has addressed less complex univariate and multivariate studies conducted to examine the circumstances surrounding childhood abuse and suicidal behavior. However, several researchers have developed more comprehensive models, combining variables examined in these less complex studies, in an effort to gain a better understanding of these two phenomena. A review of this literature follows.

A few comprehensive models exist to explain the development of psychological symptomatology following childhood abuse. One such model was put forth by Spaccarelli (1994), who proposed a theoretical transactional model to account for the psychological effects of childhood sexual abuse. Childhood sexual abuse is portrayed as a stressor which consists of a series of abusive events, abuse related events, and disclosure related events. A victims poor mental health outcome increases as a function of the total abuse stress across these three categories. The effects of abuse stress are mediated by the formation of negative cognitive appraisals (e.g. self blame) and the use of problematic coping strategies (e.g. wishful thinking, cognitive avoidance, and symbolic control) that function as direct causes of increased symptomatology. These cognitive appraisals and coping strategies are also affected by social support resources (e.g. quality of support and family cohesion). Further, it is hypothesized that the paths linking abuse stress to cognitive appraisals and coping strategies; as well as those connecting cognitive appraisals and coping strategies to psychological symptoms; are reciprocal in nature. In brief, it is hypothesized that the victim's cognitive appraisals and coping responses create a vicious circle in which stressful events lead to maladaptive responses which creates more stress, and eventually serious symptomatology. Wyatt & Newcomb (1990), also put forth a comprehensive model. Using path analysis, they found that long term negative outcomes of childhood sexual abuse could be directly predicted by the circumstances of the abuse (e.g. close relationship to the perpetrator), and that this relationship was mediated by the victims internal attributions (self-blame), extent of disclosure (less disclosure), and an immediate negative response.

Comprehensive models have also been created in an effort to understand suicidal behavior. Harter, Marold, & Whitesell (1992) proposed a model of the psychosocial risk factors and mediators that lead children and adolescents (ages 12-15) to experience suicidal ideation. Path

analytic techniques revealed that the best fitting model included, as potential antecedents, two domain specific self-concepts (appearance, peer likability, and self-concept; scholastic competence and behavioral conduct) and two measures of social support (peer and parental support). These antecedents predicted the depression composite score which was composed of a measure of depressive affect, self-esteem, and hopelessness. This composite score in turn mediated/predicted suicidal ideation.

Rudd (1990) proposed a similar model to predict suicidal ideation in young adults. A path analysis revealed that the relationship between life stress and suicidal ideation was mediated by measures of depression, hopelessness, and perceived social support both from friends and parents.

Abramson et al. (1989) proposed a theoretical causal model to explain the development of "hopelessness depression", a subtype of type of depression which includes suicidal behavior in its symptomatology. It is offered by the authors as a revised version of the 1978 theory of helplessness and depression postulated by Abramson, Seligman and Teasdale. The model begins with the perceived occurrence of negative life events followed by three possible inferences regarding these events. These inferences include stable and global attributions for the events and a high degree of importance attached to the events, inferred negative consequences for the events, and inferred negative characteristic about the self given the events. These inferences, alone and/or in combination with one another, are postulated to contribute to the formation of hopelessness and, in turn, symptoms of hopelessness depression such as suicide and sad affect.

Last, Yang & Clum (manuscript under revision) proposed perhaps the most comprehensive model, linking early negative life events to suicide. They found early negative life events (child maltreatment, family instability, poor general family environment) to impact suicidal behavior both directly, and through cognitive deficits (low self-esteem, locus of control, hopelessness, problem-solving deficits). Based on a series of structural equation analysis, the impact of early negative life events on suicidal behavior was strongest via their impact on cognitive deficits. Further, in a subsequent analysis, they added early social support, current social support, and current life stress into the model, which provided additional support for a mediational model.

Hypotheses

As is evident through this literature review, research supports the contention that childhood abuse is a significant stressor which can lead to subsequent psychopathology in the form of depression, hopelessness, and low-self esteem. Research also reveals that exposure to a significant stressor, as well as the development of psychopathology and problem-solving deficits, often preface suicidal behavior. Further, a strong link has been established between childhood abuse and suicidal behavior. Based on this evidence, its seems logical to link these two lines of research in one comprehensive model.

It was hypothesized that 1) childhood abuse would lead to the employment of avoidant coping strategies and a self-deprecatory attributional style; 2) avoidant coping strategies and a self-deprecatory attributional style would lead to low social support, and low social support, in turn, would increase the use of avoidant coping strategies and a self-deprecatory attributional style; 3) social support would mediate the effects of coping strategies and attributions on problem-solving appraisal and psychopathology, such that low social support would lead to the development of psychopathology in the form of depression, hopelessness, and low self-esteem, both directly and through poor-problem solving appraisal; 4) problem solving appraisal would mediate the effects of social support on psychopathology, such that poor problem-solving appraisal would lead to the development of psychopathology; and 5) problem-solving appraisal and psychopathology, in turn, would mediate the development of suicidal ideation, such that poor problem-solving appraisal and high levels of psychopathology would lead to the development of suicidal ideation (see Figure 1 for structural model).

Unfortunately, this model could not be tested due to methodological weaknesses. The reliability of the instrument assessing attributional style was unacceptable. Similarly, the scale used to measure avoidant coping strategies was also very low, and was replete with response sets which would have introduced much measurement error into the model. Thus, it was necessary to revise the proposed model using available data, prior to analyses. Based on links found in previous research, a similar yet more parsimonious model was devised. Modifications included: dropping the variables entitled coping strategies and attributional style from the model; including social support as an exogenous variable as opposed to a mediator in the model; adding direct links between child abuse and the latent variables entitled poor problem-solving, depression, hopelessness, and low self-esteem; and deleting the direct link between problem-solving appraisal and suicidal ideation (See Figure 2 for revised model).

The revised hypotheses included: 1) childhood abuse and low social support would lead to poor problem-solving appraisal; 2) childhood abuse and low social support would lead to psychopathology in the form of depressive symptomatology, hopelessness, and low self-esteem; 3) problem-solving appraisal would mediate the relationship between childhood abuse and low social support, and psychopathology, such that poor problem-solving appraisal would lead to high levels of psychopathology; 4) psychopathology, in turn, would mediate the relationship between childhood abuse and social support, and suicidal ideation, as well as the relationship between

problem-solving appraisal and suicidal ideation, such that high levels of psychopathology would lead to the development of suicidal ideation.

The sample employed in this study included juvenile delinquents incarcerated at juvenile detention centers in Virginia. This population was chosen because juvenile delinquents have been shown to be at an increased risk for suicide when compared to the general population (Harris & Lennings, 1993; Hendren & Blumenthal, 1989). Specifically, rates of suicidal behavior in juvenile incarcerated populations have ranged from 17% (Chiles, Miller, & Cox, 1980) to as high as 61% (Alessi, McManus, Brickman, & Grapentine, 1984). Due to the relatively high frequency of suicidal behavior in this population, an investigation into the correlates of suicidal behavior in these juveniles was warranted.

Method

Participants
Two-hundred and thirteen adolescents (ages 12-17) incarcerated at Juvenile Detention Centers in Virginia were asked to participate in the study. All juveniles in residence at the Juvenile Detention Centers on the days the study was conducted were recruited. Eight of the adolescents declined to participate; 5 simply stated that they did not want to complete the study, and 3 were unable to read. An additional 5 assessment packets were unable to be used due to incomplete data. The final sample included 200 hundred adolescents, 70.5% males and 29.5% females. The participants ranged in age from 12 to 18 years old, with a mean age of 15.7 years. The sample was 65 % Caucasian, 27% African American, and 7% other nationalities (Hispanic, Asian & Pacific, Mulatto, Indian). The grade levels of the participants included 6th (.5%), 7th (4.5%), 8th (11.5%), 9th (28%), 10th (26.5%), 11th (21.5%) , and 12th (4.5%) grades (3.5% did not indicate grade level). Approximately 62% of the sample indicated having been abused (physical and/or sexual), with 58% indicating physical abuse and 24% indicating sexual abuse. Fifty-one percent of the sample indicated that they experienced some suicidal ideation.

Measures
Child Abuse Survey (CAS). This scale was modeled after the Child Maltreatment Survey (CMS) (Yang & Clum, manuscript under revision) which assesses for child maltreatment. The CAS utilizes two of the scales employed in the CMS, one designed to measure sexual abuse and the other physical abuse. Minor modifications were made on these scales (e.g. adding additional choices of perpetrators).

Sexual abuse is considered to have taken place if the perpetrator was more than 5 years older than the victim when the sexual abuse occurred prior to the age of 13, and at least 10 years older when sexual abuse occurred after the age of 13 (Finklehor, 1979). Participants were asked to indicate the nature of the sexual abuse to which they were subject: kissing and hugging in a sexual way; touching parts of body (except for sex organs) in a sexual way; touching sex organs in a sexual way; having sexual intercourse; and having anal intercourse. The frequency was calculated according to the following scale: 0=never; 1=once; 2=twice; 3=three to five times; 4=six to ten

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times; 5=eleven to twenty times; 6=more than twenty times. Further, the nature of the sexual experience was ranked according to the severity of abuse: level 1=kissing and hugging in a sexual way; level 2=touching body parts (other than sex organs) in a sexual way; level 3=touching sex organs in a sexual way; level 4=putting sex organs in the mouth; level 5=sexual intercourse; level 6=anal intercourse. The score on this scale is the product of the frequency with which each event occurred by each level (1-6), summed across each perpetrator.

Physical abuse was recorded if the respondent indicated having received physical blows such as being hit really hard, kicked, punched, stabbed, thrown down, etc. which resulted in physical marks, breaks to the skin, bruises, or injury that warranted medical treatment regardless of whether it was received, which was inflicted by a caretaker. The participants were also asked to indicate their relationship to the perpetrator, the perpetrator's age, and the frequency of the abuse. The frequency of physical abuse was calculated according to the following scale: 0=never; 1=once; 2=twice; 3=three to five times; 4=six to ten times; 5=eleven to twenty times; 6=more than 20 times.   The score on this scale is the frequency with which each event occurred, summed across each perpetrator.

Coping Scale (C-SCALE) (Glyshaw, Cohen, & Towbes, 1989). This is a 30 item version of a coping inventory created by Wills (1986) to measure coping behaviors in adolescents. Each item describes a behavior for coping with problems.   Participants are asked to indicate how often they use each behavior when faced with problems, using a likert type scale ranging from 0 (never) to 5 (usually). The C-SCALE contains 5 subscales: Problem-Solving, Cognitive Coping (Avoidance), Peer Support, Social Entertainment, and Physical Exercise. The subscales have fair to good internal consistency (coefficient alpha=.66-.91) with moderate test-retest reliability over five months (r=.44-.64) in an adolescent population. In the present study, internal consistency coefficients for the total scale and five sub-scales were .87, .83, .64, .77, .62, and .72, respectively. This instrument was not used in the current study because the internal consistency coefficient for the cognitive coping scale was unacceptable.

Abuse Coping Scale (AC-SCALE). This is a brief instrument created by the researcher to assess coping efforts employed to handle an abusive situation. It is modeled after the C-SCALE (Glyshaw, Cohen, & Towbes, 1989) and asks participants to identify the cognitive and behavioral coping strategies they employed in response to an abusive situation. Participants reply to each item by indicating the degree to which they employed each strategy (0=never to 5=usually). Two total scores were to be obtained by summing each item in the Problem-Solving and Avoidance subscales. This scale was not included in the present study because the avoidance subscale of the C-SCALE, upon which its development was based, was not included in the study due to measurement weaknesses. Thus, this scale could not be used in this study as a correlate of the avoidance subscale of the C-scale, for the purpose of determining whether individuals employed similar coping strategies to abusive situations and daily life problems, as was originally intended.

Children's Attributional Styles Questionnaire-Revised (KATSAN-R) (Seligman, Petersen, Kaslow, Tanenbaum, Alloy, & Abramson, 1984). This is a 48 item self-report measure designed to assess attributional style in children and adolescents. Each item consists of a hypothetical event followed by two possible attributions to explain why the event occurred. Participants are directed to choose the alternative that best describes why the event occurred. There are 16 questions which pertain to each of three attributional dimensions: internality, stability, and globality. Half of the situations represent good outcomes and half represent bad outcomes. The KATSAN-R is scored by assigning a 1 point value to all internal, stable, or global responses and a 0 point value to all external, unstable, or specific responses, across good and bad outcomes. Six subscale scores can be obtained: 1) Good-Internal/External; 2) Good-Stable/Unstable; 3)Good-Specific/Global; 4)Bad-Internal/External; 5)Bad-Stable/Unstable; and 6)Bad-Specific/Global. Two composite scores, which provide the best index of the respondent's attributional style, are created by summing scales across the "Good" and "Bad" dimensions. An overall summary score is obtained by subtracting the "Bad" composite score from the "Good" composite score. Lower scores reflect a more self-deprecatory attributional style.

The six subscales of the KATSAN-R have been shown to have only modest reliability (coefficient alpha=.32 to .56) but good test-retest reliability over 6 months (r=.53-.64) in normal children, ages 6-13. The "Good" and "Bad" composite scales have been shown to have moderate internal consistency (coefficient alpha=.50 and .73, respectively), good test-retest reliability over a 6 month period (r=.71- .66, respectively), and demonstrate convergent validity with scores on the Child's Depression Inventory in normal child and adolescent populations (Seligman et al., 1984). In the present study, the internal consistency coefficient for the Negative Composite Scale was unacceptably low, .35, thus this instrument was not used.

Social Support Questionnaire 6 (SSQ-6) (Saranson, Saranson, Shearin, & Pierce, 1987). This is a 6 item self-report measure designed to assess the number and quality of social supports. The SSQ-6 is a shortened version of the Social Support Questionnaire (SSQ) which is a 27 item instrument devised by Saranson, Levine, Basham, and Saranson in 1983. The SSQ-6 asks participants to list up to 9 people whom they feel that they can rely on in given sets of circumstances and how satisfied they are with these social supports. This instrument yields an average "number of supports" score as well as a "satisfaction with supports" score. The SSQ-6 has been shown to correlate significantly with the SSQ, is internally consistent across both the Number and Satisfaction scales (coefficient alpha= .90-.93 for both) with a high test-retest reliability in college students. It has also been used with child and adolescent inner city populations (ages 8-17) yielding internal consistency estimates for the number and quality of support scales (coefficient alpha=.90 and .69, respectively)(Cunningham, 1995). The SSQ-6 was administered in a group format in the present study, and yielded acceptable internal consistency estimates on the Number and Quality scales (.91 and .86, respectively). Only the Number scale was used in the present study because tests of normality revealed that the Satisfaction scale was significantly skewed.

Child's Depression Inventory (CDI) (Kovacs, 1980/81; Kovacs, 1992). This is a 27 item self-report instrument designed to assess for depressive symptoms in children and adolescents between the ages of 7 to 17. The depressive symptoms measured include disturbed mood, hedonic capacity, vegetative functions, self-evaluation, and interpersonal behavior. Each item asks participants to indicate the degree to which they are experiencing a given symptom. Items are scored from 0 (absence of a symptom) to 2 (definite symptom), with possible total scores ranging from 0 to 54. Higher scores reflect more depressive symptomatology (Kovacs, 1992).

This instrument has been shown to have acceptable internally consistency in normal children ages 8-16 (coefficient alpha=.83-.89) with an adequate test-retest reliability of 3 weeks in fifth graders (r=.74-.77) (Smucker, Craighead, Craighead, & Green, 1986). Similar results have been found by Saylor, Finch, Spirito, & Bennett (1984) in normal (Kuder-Richardson=.94; test-retest of 1 week=.38; split half =.61-.63) and psychiatric (Kuder-Richardson=.80; test-retest of 1 week=.59-.87; split half =.57-.74) child and adolescent populations. It has also been shown to have concurrent validity with child measures of self-concept and attributional style. In the present study, the internal consistency estimate was .86 for the total scale.

Hopelessness Scale for Children (HSC) (Kazdin, French, Unis, Esveldt-Dawson, & Sherrick, 1983). This is a 17 item self-report measure designed to assess hopelessness in children and adolescents. Participants are asked to indicate whether each item is true or untrue of them. Scores range from 0-17 with higher scores reflecting higher degrees of hopelessness. This scale was modified slightly for this study. The format was changed from interview to self-administration and a few words were changed to make it more applicable to an adolescent population (e.g. "grown up" changed to "grow older"). This scale has demonstrated acceptable internal consistency in normal (coefficient alpha=.69; Spearman-Brown split-half reliability=.75) and emotionally disturbed (coefficient alpha=.84; Spearman-Brown split-half reliability=.91) adolescents, ages 11 to 18. Test-retest reliability was moderate after 10 weeks (r=.47-.53) in the normal population. This instrument has also demonstrated concurrent validity with measures of depression and attributional style, and differentiated normals from suicide attempters (Spirito, Williams, Stark, & Hart, 1988). Similarly, with psychiatrically disturbed children and adolescents (ages 6-13) this scale has demonstrated internal consistency, moderate test-retest reliability over a 6 week period, concurrent validity with a measure of depression, and divergent validity with measures of self-esteem and social behavior (Kazdin, Rodgers, & Colbus, 1986). In the present study, the internal consistency estimate was .80.

Rosenberg's Self-Esteem Scale (RSE) (Rosenberg, 1979). This is a 10 item instrument designed to provide a global measure of self-esteem. Five items indicate low self-esteem and 5 reflect high self-esteem. Participants are given four possible responses to choose from in response to each item, ranging from strongly agree to strongly disagree. Total scores are obtained by summing the individual items after reverse scoring the negatively worded items. Scores range from 0 to 30 with higher scores indicating lower self-esteem. This scale has been shown to be internally consistent (coefficient of reproducibility=.93) (Rosenberg, 1979) in high school populations, with strong test-retest reliability estimates over a two week period (r=.85) (Silber & Tippett, 1965).

In the present study, the internal consistency estimates was .88.

Problem-Solving Inventory (PSI) (Heppner & Petersen, 1982). This is a 35 item self-report instrument designed to measure subjective appraisal of problem-solving ability. Participants 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 respondent receives a score for each subscale as well as a total composite score. The items are reversed 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"). In the present study, the internal consistency estimates for the Total Scale, Approach/Avoidance Scale, Problem-Solving Confidence Scale, and Personal Control Scale were .82, .76, .72, .57, respectively.

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 present study, the internal consistency estimate was .96.

Scale for Suicidal Behavior (SSB). This is a 19 item scale designed by Yang & Clum (manuscript under revision) to assess for suicidal behavior. It measures four aspects of suicidal behavior 1) non-direct behavioral preparation of suicide attempts; 2) direct behavioral preparation of suicide attempts; 3) behavior efforts to avoid communication of suicidal ideation; and 4) lethality of suicide attempts. Participants are asked to indicate whether they have engaged in any of the suicidal behaviors by replying "Never", "Only once", or "More than once". This measure has high internal consistency (alpha coefficient=0.86) in a college population. The SSB 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"). Further, a few additional negative responses (e.g. I did not have a plan) were offered to create an instrument that is applicable to suicidal and non-suicidal participants. In the present study, the internal consistency estimate was .95. This instrument was not used in this

study because it is designed to assess lifetime suicidal behavior as opposed to current suicidal behavior, as it is not possible to predict past suicidal behavior from current measures of social support, problem-solving deficits, and psychopathology.

Procedure

Permission to conduct the study was obtained from the superintendents at each of three Juvenile Detention Centers in Virginia. The superintendents are permitted to grant this permission under the "in loco parentis clause" in the state of Virginia in accordance with the Code of Federal Regulation (CRF), 46.402. Juvenile advocates were also appointed, as required by the CRF, 46.409, to insure that the rights of the incarcerated populations were not violated. The superintendents and juvenile advocates were required to read and sign consent forms created by the researcher (See Appendix A for superintendent and juvenile advocate consent forms) before the research could ensue.

Once consent was provided by the superintendents and juvenile advocates, the researcher, a research assistant, and a juvenile advocate traveled to each of the detention facilities, on a mutually agreed upon date. The assessment was conducted in a group format, in classrooms at the detention facilities, and took approximately 1 ½ to 2 hours to complete. The group size ranged from 5 to 24 participants, with majority of groups consisting of 8 to 10 participants. Upon entrance into the classroom, the researcher introduced all parties involved and stated that she was conducting a research study with adolescents in various juvenile detention centers in Virginia. The adolescents were told that their participation was entirely voluntary, that all of their responses would remain anonymous, and that they may withdraw from the study at any time without penalty. To ensure that the adolescents did not feel coerced into participating, the assistant superintendent also addressed the adolescents, stating that their participation was entirely voluntary and they would not be penalized for failing to participate. The researcher then distributed an adolescent assent form to each adolescent and read it aloud as they read along. The assent form provided a description of the study and those that agreed to participate were asked to sign it (see Appendix B for assent form). Assent forms were then collected and assessment packets were distributed. The participants were told to take their time, answer the questions honestly, and were encouraged to ask the researcher for help if they did not understand the questions. Half way through the assessment period, a break was permitted and refreshments were offered. If at any point a participant decided to withdraw from the study, his/her assessment packet and assent form was collected and destroyed.

Upon completion of the assessment packet, the participants were thanked for their participation. They were also encouraged to talk to the staff at their respective facilities if they were feeling sad or upset. In the event that a staff member felt that a participant required more extensive psychological care, a clinician would have been called in for assessment and treatment. However, not one participant appeared sad or upset upon completion of the study, thus this intervention was not employed. A brief suicide intervention training was offered to the staff at each facility, to help manage suicidal adolescents they may encounter in the future, but was denied because the staff had already received suicide training. In addition, upon completion of the data analysis, each

facility was provided with a written summary of the research findings, to help them better understand and work with the population at hand. They were also asked to share the findings with the participants if requested.

The data obtained from the first assessment period, which contained approximately 25 participants, was used in a pilot study. This pilot study was conducted to assess for response sets in the data, fatigue effects, and comprehensibility of the questionnaires. Only minor modifications were made based on their responses (e.g. changed a few words on a questionnaire), thus this data was included in the analyses.

Data Analyses

A series of structural equation analyses using the software program referred to as AMOS (Analysis of Moment Structures; Arbuckle, 1995) were employed to examine the hypothesized links among childhood abuse, social support, problem solving appraisal, depression, hopelessness, low-self esteem, and suicidal ideation. AMOS employs a combination of factor analysis on manifest indicators and multiple regression on latent construct scores. It provides covariances and reliabilities of the measurement scales employed. It also calculates an observed covariation matrix to solve for unknown structural parameters, referred to as path coefficients, in functional equations. The program then compares the observed covariance matrix to the matrix generated from the estimated structural parameters (implied covariance matrix). If the implied covariance matrix does not significantly differ from the observed covariance matrix, then it is concluded that the proposed model provides a good "fit" of the data (Keith, 1996).

AMOS computes a series of statistics to estimate the "goodness of fit" of the models, including but not limited to the: Chi-Square, Goodness of Fit Index (GFI), Comparative Fit Index (CFI), Parsimony Goodness of Fit Index (PGFI), and Root Mean Square Error of Approximation (RMSEA). Chi-square provides an estimate of the overall fit of the model, and can be used with the degrees of freedom (df) to determine the probability that the model provides a "good" fit. A small chi-square in relation to df, with a probability $(p. > .05)$ suggests that the implied covariance matrix does not significantly differ from the observed covariance matrix, and that the model provides a good fit of the data. However, it should be noted that the Chi-Square statistic is affected by sample size, such that small deviations between the implied and observed covariance matrices in large samples can result in a significant chi-square, and badly misspecified models may produce insignificant chi-squares in small samples. The GFI, analogous to R^2 in regression analysis, provides an estimate of the percentage of total variance and covariance accounted for by the model. The CFI compares the proposed model to a null model (assumes measured variables are unrelated) and provides an estimate of improvement of fit over the null model. Both the GFI and CFI are also affected by sample size, but to a much lesser extent than the Chi-Square statistic. Values closer to 1.0 suggest a better fit for both indices, with values greater than .9 suggesting an adequate fit. The PGFI partials out the influence of model complexity to reward more parsimonious models, as more complex models always provide a better fit of the data than simple models. It does this by adjusting the GFI by the degrees of freedom. Values approaching 1.0 are desired. Last, the RMSEA provides an estimate of the approximate fit of the model, as opposed

to an estimate of a <u>perfect</u> fit, which is assumed to be provided by the Chi-Square statistic. Values below .05 suggest a good fit of the data in relation to the degrees of freedom (Keith, 1996).

When examining the path coefficients in structural equation modeling, they can be interpreted as standardized regression weights, and are similar to effect sizes in experimental research. A change of 1 standard deviation in a presumed cause results in some percentage of 1 standard deviation change in a presumed effect. Keith (1996) suggests that paths below .05 are meaningless, paths above .05 are small but meaningful influences, paths above .10 to .15 are moderate influences, and paths above .25 may be considered large influences.

In addition to obtaining direct effects from path coefficients, it is also possible to obtain indirect and total effects of predictor variables on criterion variables. Indirect effects are calculated by multiplying paths (and if there is more than one indirect route, summing the products). Total effects are calculated by summing the direct and indirect effects. All three effects are important when evaluating models (Keith, 1996).

Results

<u>Evaluation of data</u>
Prior to analyses, the data were inspected for missing values and departures from normality. Missing values on questionnaires which were approximately 90% complete, were replaced with the mean, and those that were less than 90% complete were deleted. Attempts were also made to transform variables with a skew and kurtosis greater than 1 or less than -1 to produce normality. This was achieved by converting the cumulative percent of each value to a Z-score and using the Z-score in subsequent analyses. The physical and sexual abuse scales of the CAS were transformed to produce values closer to normality, but normality could not be achieved. Attempts were also made to transform the MSSI, but transformations did not improve estimates of normality. The means and standard deviations of each full scale prior to being transformed are presented in Table 1.

<u>One-way anovas</u>
A series of one way anovas were conducted to examine group differences between the demographic and predictor variables included in the study, and suicidal ideation. Three classifications of suicidality were created by subdividing full scale scores received on the MSSI. Individuals receiving a score of 0 were classified as the non-suicidal group (N=98), those with scores of 1-7 were classified as the mildly suicidal group (N=47), those with scores of 8 and greater were classified into the moderate/severely suicidal group (N=55). A cutoff score of 8 was chosen to indicate moderate to severely suicidal adolescents based on the work of Beck, Kovacs, & Weissman (1979).

When examining the demographic variables in relation to suicidal ideation, there were no significant differences bewteen the non-suicidal, mildly suicidal, and moderately/severely suicidal groups in gender, age, race, or grade level. However, there were significant differences between levels of suicidal ideation when examining the predictor variables included in the study. As can be seen in Table 2, there was significantly more physical abuse reported in the mildly suicidal vs. the non-suicidal group, and more sexual abuse reported in the moderate to severely suicidal group than the non-suicidal group. Surprisingly, there were no significant group differences in social support between groups, however, as social support increased, suicidality appeared to decrease. In terms of problem-solving appraisal, the non-suicidal group indicated significantly better problem solving skills than the severely suicidal group. Similarly, those in the severely suicidal group indicated significantly more depressive symptomatology than those individuals in the non-suicidal or mildly suicidal group, and those in the mildly suicidal group indicated more depression than those in the non-suicidal group. When examining hopelessness, those in the severely suicidal group reported significantly more hopelessness than those in the non-suicidal and mildly suicidal groups. Finally, it was also found that those in the severely suicidal group indicated significantly lower self-esteem than those in the non-suicidal or mildly suicidal group, and those in the mildly suicidal group indicated lower self-esteem than those in the non-suicidal group.

Factor analyses
A series of factor analysis were conducted to examine the factor structures of the assessment instruments and extract factors to be used as manifest indicators for each of the endogenous latent variables. Principal component analysis with varimax rotation was used for all factor analyses. Factors with eigenvalues less than 1 and/or which accounted for less than 5% of the variance were excluded from interpretation. One factor solutions were also excluded, and items with loadings on more than one factor were included only in the interpretation of the factor with the highest loading. The criterion value for item inclusion was a loading $\geq$ .40 (See Appendix D for tables of factor loadings for each instrument).

PSI.
The PSI has been shown to produce three factors in adult populations (Heppner & Petersen, 1982), but it has not been examined in an adolescent population. Thus, a factor analysis was conducted for the purpose of examining the factor structure in this population, and if found to be different, extracting the new factors to be included in the analyses. Three factors were specified and extracted; however, the items loaded differently on these three factors than has been previously found. The new factors which emerged included those assessing approach style, avoidance style, and problem-solving confidence, accounting for 37.5 % of the variance. The internal consistency estimates for each of these factors were .82, .67, and .77, respectively. All three factors were included in further analyses.

CDI.
A factor analysis of the CDI was conducted as a means to extract factors to be used as manifest indicators for the latent variable entitled depression. Four factors were extracted with internal consistency estimates of .77, .67, .65, and .53, accounting for 40.7% of the variance. Only the first three factors, accounting for 35.7% of the variance, were included in further analyses.

HSC.
A factor analysis of the HSC was conducted as a means to extract factors to be used as manifest indicators for the latent variable entitled hopelessness. Five factors were extracted with internal consistency estimates of .69, .72, .57, .34, and .31, accounting for 55% of the variance. Only the first three factors, accounting for 42.5% of the variance, were included in further analyses.

RSE.
A factor analysis of the RSE was conducted as a means to extract factors to be used as manifest indicators for the latent variable entitled self-esteem. The most parsimonious solution included two factors with internal consistency estimates of .82 and .79, accounting for 58.6% of the variance. Both factors were included in further analyses. The first factor was divided into two scales, each with an equivalent number of items, in an effort to increase the number of manifest indicators. The second factor comprised a single indicator.

MSSI.
A factor analysis of the MSSI was conducted as a means to extract factors to be used as manifest indicators for the latent variable entitled suicidal ideation. Two factors were extracted with internal consistency estimates of .96 and .90, accounting for 69.8% of the variance. Only the first factor was included in subsequent analyses, accounting for 63.9% of the variance, because the second factor was significantly skewed. The first factor was then divided into three scales with an equivalent number of items, in an effort to increase the number of manifest indicators.

The correlation matrix of variables after transformation and factor analyses is presented in Table 3.

Structural equation analyses
As was previously noted, the original hypothesized model could not be tested due to methodological weaknesses (see Figure 1 for original model), and a revised model was created. Modifications from the original model to the revised model included: dropping the variables entitled coping strategies and attributional style from the model; including social support as an exogenous variable as opposed to a mediator in the model; adding direct links between child abuse and the latent variables entitled poor problem-solving, depression, hopelessness, and low self-esteem; and deleting the direct link between problem-solving appraisal and suicidal ideation (See Figure 2 for revised model). Unfortunately, this revised model was also untestable due to severe multicollinearity bewteen the latent variables entitled depression, hopelessness, and self-esteem, with correlations ranging from .75-.87. Thus, to resolve the multicollinearity problem, this model was revised. The new model combined depression, hopelessness, and low self-esteem

into one latent variable entitled psychopathology. The full scale scores of the CDI, HSC, and RSE were used as the manifest indicators of this new composite measure of psychopathology. Also, the direct link bewteen poor problem-solving and suicidal ideation was reintroduced to the model. These changes produced the first testable model. The correlation matrix of the manifest indicators for this model is presented in Table 4.

The first testable model analyzed with AMOS, which will be referred to as Model 1, is presented in Figure 3. The AMOS goodness-of-fit indices indicated that the data fit Model 1 very well. The chi-square was non-significant $X^2(70, N=200) = 72.73$, $\underline{p}=.388$, the CFI=.998, the GFI=.950, the AGFI=.925, the PGFI=.634, and the RMSEA=.014, all of which suggest an adequate fit of the model to the data. However, an examination of standardized path coefficients presented in Figure 3 revealed that the path estimates provided may be inaccurate. The path coefficient linking poor problem-solving to suicidal ideation was negative whereas the correlations between these two variables revealed a positive relationship. Closer examination revealed that psychopathology and problem-solving were moderately correlated, and moreover, psychopathology was a much stronger predictor of suicidal ideation than poor problem-solving appraisal. These conditions, in interaction with the positioning of these two variables in the model (poor problem-solving predicted psychopathology and both variables predicted suicidal ideation), produced a situation in which psychopathology accounted for so much of the variance in suicidal ideation, that it pulled variance from the relationship between poor problem-solving and suicidal ideation, thus resulting in a negative path coefficient.

To provide evidence for the hypothesis that psychopathology was a much stronger direct predictor of suicidal ideation than poor problem-solving, two additional models were tested, one in which poor problem-solving was the only mediator in the relationship between childhood abuse and low social-support, and suicidal ideation, and one in which psychopathology was the only mediator. The results of the mediation model examining poor problem-solving, which will be referred to as Model 2, is presented in Figure 4. The goodness-of-fit indices suggested an adequate fit of the data: the Chi Square was non-significant $X^2(41, N=200) = 43.52$, $\underline{p}=.365$; the CFI was .998; the GFI was .963; the AGFI was .940; the PGFI was .598; and the RMSEA was .018. However, the variables included in this model only accounted for 8% of the variance in suicidal ideation. Moreover, one path in the model was non-significant, the path between childhood abuse and poor problem-solving, suggesting that childhood abuse does not have a direct effect on problem-solving appraisal.

The mediational model examining the effects of psychopathology on suicidal ideation, which will be referred to as Model 3, is presented in Figure 5. The goodness-of-fit indices suggest a better fit than Model 2: the Chi Square was non-significant $X^2(41, N=200) = 35.75$, $\underline{p}=.703$; the CFI was 1.000; the GFI was .969; the AGFI was .949; the PGFI was .602; and the RMSEA was .000. The variables included in this model accounted for 49% of the variance in suicidal ideation. All paths in the model were significant. Moreover, the direct path between psychopathology and suicidal ideation in this model (.70) was much stronger than the direct path bewteen poor problem-solving and suicidal ideation (.29) in Model 2.

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An additional model was designed to determine whether the links between childhood abuse and low social support, and psychopathology, remained significant when direct paths to suicidal ideation were added. This model, which will be referred to as Model 4, is presented in Figure 6. The Chi Square was non-significant, $X^2(39, N=200) = 33.43$, $\underline{p}=.721$; and the CFI was 1.00; the GFI was .971; the AGFI was .950; the PGFI was .574; and the RMSEA=.000 suggesting a good fit to the data. This model accounted for 50% of the variance in suicidal ideation. All indirect paths through psychopathology were significant but both of the added direct paths were insignificant (See Table 5 for direct, indirect, and total effects). Results suggested that neither childhood abuse nor social support were directly linked to suicidal ideation, rather they are indirectly linked via psychopathology. In addition, because Model 3 is nested in Model 4, they were compared with a X^2 difference test to determine whether Model 4 provided a significantly better fit of the data than Model 3. The X^2 difference test yielded an insignificant difference, $X^2(2, N=200) =2.31$ p>.05 thus indicating that the direct paths from childhood abuse and low social support, to suicidal ideation, do not significantly improve the fit of the model.

Three additional models were also generated and evaluated, and will be referred to as Models 5, 6, and 7. Model 5 was designed to test whether problem-solving acts as a mediator between child abuse and low social support, and psychopathology. In Model 5, poor problem-solving was placed as a mediator between childhood abuse and low social support, and psychopathology, and the direct link between poor-problem solving and suicidal ideation was dropped (See Figure 7) in comparison to Model 3. The AMOS goodness-of-fit indices indicated that the data fit Model 5. The Chi Square was non-significant, $X^2(73, N=200) = 87.83$, $\underline{p}=.114$; and the CFI was .990; the GFI was .942; the AGFI was .916; the PGFI was .655; and the RMSEA=.032. The model accounted for 47% of the variance in suicidal ideation. All paths were significant except for the path linking childhood abuse to poor problem-solving appraisal.

In Model 6, direct paths from child abuse and low social support, to psychopathology, were added (See Figure 8) as previous models suggested a strong relationship between child abuse and low social support, and psychopathology. Thus, it is likely that adding direct links bewteen these variables would improve the fit of the data to the model and thus increase understanding of the development of suicidal ideation. The AMOS goodness-of-fit indices suggested that the data provided a slightly better fit to Model 6 than Model 5. The Chi Square was non-significant, $X^2(71, N=200) = 77.97$, $\underline{p}=.267$; and the CFI was .995; the GFI was .947; the AGFI was .921; the PGFI was .64; and the RMSEA=.022. The model accounted for 47% of the variance in suicidal ideation. The paths linking childhood abuse to poor problem-solving and psychopathology were insignificant, as the variance was partitioned between the two variables. However, the paths linking low social support to poor problem-solving and psychopathology remained significant. The paths linking poor problem-solving to psychopathology, and psychopathology to suicidal ideation, also remained significant. In addition, because Model 5 is nested in Model 6, they were compared with a X^2 difference test. The X^2 difference test yielded a significant difference, $X^2(2, N=200) =9.87$ p<.05 thus, indicating that adding the direct paths from childhood abuse and low social support, to psychopathology does significantly improve the fit of the model.

In Model 7, direct paths from child abuse and low social support, to suicidal ideation were added (See Figure 9). Although the hypothesis that childhood abuse and low social support are indirectly related to suicidal ideation was already tested in Model 4, this model was designed to determine whether the same relationship would be found when poor problem-solving was included in the model, and also whether adding direct paths would improve the fit of the model to the data. The AMOS goodness-of-fit indices suggested that the data also fit Model 7. The Chi Square was non-significant, X^2(71, N=200) = 75.849, $\underline{p}$=.267; and the CFI was .995; the GFI was .948; the AGFI was .922; the PGFI was .623; and the RMSEA=.022. Model 7 accounted for 48% of the variance in suicidal ideation. The significance of the paths presented in Model 6 did not change. The direct paths linking child abuse and low social support to suicidal ideation were insignificant, providing further evidence that child abuse and low social support do not directly affect suicidal ideation. In addition, because Model 6 is nested in Model 7, they were compared with a X^2 difference test. The X^2 difference test yielded an insignificant difference, X^2(2, N=200) =2.12 p>.05 thus indicating that adding the direct paths from childhood abuse and low social support, to suicidal ideation do not significantly improve the fit of the model. Since parsimony is valued, Model 6 is accepted as the superior model.

In Table 6, standardized coefficient estimates of the total effects of all the predictor variable on the criterion variables are presented for Model 6. The total effects for each predictor variable on each criterion variable were in the expected direction. Child abuse positively affected poor problem-solving appraisal (.13), psychopathology (.25), and suicidal ideation (.17). Low social support negatively affected poor problem-solving appraisal (-.32), psychopathology (-.35), and suicidal ideation (-.24). Poor problem-solving appraisal positively affected psychopathology (.45) and suicidal ideation (.45). Finally, psychopathology was positively predictive of suicidal ideation (.69).

The values of the direct, indirect, and total effects of all predictor variables on suicidal ideation are presented in Table 7. Child abuse had a greater impact on suicidal ideation via psychopathology (.13) than through poor problem-solving appraisal (.04). Low social support also had its greatest effect via psychopathology (-.14) than through poor problem-solving appraisal (-.10). The indirect effect of poor problem-solving on suicidal ideation was comparatively large (.31) but the strongest link appeared to be that between psychopathology and suicidal ideation (.69).

Discussion

Previous research has suggested that a strong relationship exists between early childhood abuse and later suicidal behavior. However, the process through which an abused child becomes suicidal in adolescence has not been examined. The present study attempted to identify this possible pathway in a sample of juvenile delinquents because they have been shown to be at an increased risk for suicide when compared to the general population (Harris & Lennings, 1993; Hendren & Blumenthal, 1989). It was initially hypothesized that the use of avoidant coping strategies; an internal, stable, and global attributional style; poor perceived social support; poor problem-solving

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appraisal, depressive symptomatology; hopelessness; and low self-esteem would be associated with suicidal ideation subsequent to childhood abuse. However, this theory could not be examined due to methodological weaknesses encountered in the study. A similar yet more parsimonious theory was then devised, prior to analyses, based on links found in previous research between the variables that could be examined. It was hypothesized that childhood abuse and low social support would be related to later suicidal ideation via poor problem-solving appraisal and psychopathology in the form of depression, hopelessness, and low self-esteem. Different variations of this mediational theory were examined through the use of structural equation models. The findings from the present study suggest that the relationship between childhood abuse and low social support, and suicidal ideation, is mediated by psychopathology and to a lesser extent, poor problem-solving appraisal.

Childhood abuse and suicidal ideation
Consistent with the authors hypothesis, childhood abuse was not found to be directly related to suicidal ideation.   Rather, childhood abuse was found to be indirectly related to suicidal ideation through poor problem-solving and psychopathology in the form of depression, hopelessness, and low self-esteem. Although the path between child abuse and poor-problem solving was insignificant, contrary to the authors' hypothesis as well as previous research (Yang & Clum, manuscript under revision), poor problem-solving appraisal was still integral to this model as it helped to explain the variance in psychopathology. A significant relationship may not have been found between child abuse and poor-problem appraisal because perceptions of problem-solving skills, as measured in this study, were not specific to abusive situations. It is possible that the problem solving skills one uses to deal with an abusive situation may be specific to the abusive situation and may not generalize to all types of problems. For example, a child who is repeatedly abused by a parent may have no choice but to employ an avoidant solution as it is perceived as an incident over which there is not any direct control. However, that same child may apply active problem-focused solutions to other problems in their life that are perceived as less chronic and more manageable.

In contrast, the direct path between childhood abuse and psychopathology was significant, when exclusively examining psychopathology as a mediator in this relationship. These results are consistent with the authors' hypothesis as well as those found in previous research. Childhood abuse has been found to be related to depressive symptomatology in sexually abused (Friedrich, Beilke, & Urquiza, 1987; Mennen & Meadow, 1993, 1994a, 1994b) and physically abused (Allen & Tarnowski, 1989; Kazdin, Maser, Colbus & Bell; Kinard, 1982) children and adolescents. Childhood abuse has also been found to influence the development of hopelessness in physically abused children (Allen & Tarnowski, 1989; Kazdin et al., 1985) although the same results have not yet been found in sexually abused samples (Elliot & Tarnowski, 1990). Similarly, childhood sexual abuse (Conte & Schuerman, 1987; Grayston et al., 1992; Mennen & Meadow, 1993; Mennen & Meadow, 1994) and physical abuse (Allen & Tarnowski, 1989; Kazdin et al., 1985; Wodarski et al., 1990), have been found to relate to lower levels of self-esteem in child and adolescent samples.

Overall, results of this study suggest that childhood abuse significantly influences the development of depressive symptomatology, hopelessness, and low self-esteem in adolescents which, in turn, leads to suicidal ideation. When problem-solving appraisal is interjected into this relationship, the relationship between child abuse and psychopathology does diminish slightly suggesting that problem-solving appraisal may account for only a small portion of the relationship between childhood abuse and psychopathology.

Low social support and suicidal ideation
The current study also attempted to identify the pathway between low social support and suicidal ideation. In accordance with the authors hypothesis, there was not a direct relationship between low social support and suicidal ideation. Rather, low social support was indirectly related to suicidal ideation via poor problem-solving appraisal and psychopathology.

The direct path between low social support and poor-problem solving appraisal was significant, and is consistent with previous research which has revealed lower levels of social support to be related to less confidence in one's problem-solving skills (Yang & Clum, manuscript under revision). Thus, it appears that one's appraisal of his/her problem-solving skills is affected by the support that one receives from others, especially when faced with problem situations. In the current study, those individuals who indicated a greater number of supports exhibited positive problem-solving appraisals whereas those with a lower number of supports indicated more negative appraisals. This relationship may suggest that those with more supports receive more help and perhaps feedback from others regarding how to best work through their problems, which results in more positive outcomes, and thus more positive appraisals. However, those with fewer supports do not receive the same instruction and feedback when faced with problems, thus leading to poorer outcomes and negative appraisals.

Similarly, the direct path between low social support and psychopathology in the form of depression, hopelessness and low self-esteem, was also significant and is consistent with previous research. Research has revealed that young adults with lower perceived levels of social support report significantly more depressive symptomatology than those with higher levels of support (Elliot, Herrick, & Witty, 1992; Whatlet & Clopton, 1992; Yang & Clum, 1994). Similarly, low perceived social support has also been found to be related to higher levels of hopelessness in young adults (Whatley & Clopton, 1992; Yang & Clum, 1994) and children (Kashani, Canfield, Borduin, Soltys, & Reid, 1994). Moreover, research has also found that social support, in the form of peer approval, has been related to self-esteem trajectories in children and adolescents (Hirsh & Dubois, 1991). Thus, it appears that social support does have a direct effect on one's psychological health. As suggested by Flannery & Weiman (1989), good social support networks provide individuals with feelings of acceptance, security, and stability which likely serves as a buffer in the face of stressful circumstances. Thus, it appears that individuals who have significant others to help them work through problem situations, and believe that they will still be accepted despite unfavorable outcomes, are much less likely to experience the maladaptive psychological consequences such as depression, hopelessness, and low-self esteem, which are often associated with high levels of stress.

Problem-solving appraisal and suicidal ideation
The direct path between poor problem-solving appraisal and suicidal ideation was significant, which is consistent with previous research which found poor problem-solving appraisal to predict suicidal ideation in young adults (Clum & Febrarro, 1994; Dixon et al., 1991; Rudd et al., 1994). Thus, it appears that one's perception of his/her ability to successfully problem solve directly influences the development of suicidal ideation.

However, the results also suggest that poor problem-solving appraisal is indirectly related to suicidal ideation via psychopathology. An examination of the direct vs. indirect effects between these two variables revealed that problem-solving appraisal contributes more to the understanding of the development of suicidal ideation when it is indirectly related to suicidal ideation via psychopathology, rather than a direct predictor of suicidal ideation. Similar results were noted by Dixon et al. (1994) who found problem-solving appraisal to predict suicidal ideation in young adults indirectly through hopelessness (Dixon et al., 1994). Thus, it appears that a perceived inability to solve one's problems may lead one to develop depressive symptomatology, to experience feelings of hopelessness about the future, and to question one's competence and self-worth, which, in turn, leads to the development of suicidal ideation.

As was initially hypothesized, the direct path from poor problem-solving appraisal to psychopathology was significant, which is consistent with the results of previous research. Problem-solving ability (Elliot et al., 1992) and problem-solving confidence (Yang & Clum, 1994) have been found to be predictive of depression in young adults. Similarly, problem-solving appraisal (Dixon, Heppner, & Anderson, 1991; Rudd, Rajeb, & Dahm, 1994) and problem-solving confidence (Yang & Clum, 1994) have been found to be significant predictors of hopelessness in young adults. Research has not yet been conducted to determine whether problem solving appraisal is related to self-esteem, however, the current results suggest a strong relationship between these two variables.

Consistent with the authors hypothesis as well as previous research, psychopathology was also found to be directly related to suicidal ideation. Specifically, previous research has found depression (de Mann & Leduc, 1995; de Mann et al., 1993; Garnefski et al., 1992; Harris & Lennings, 1993; Howard-Pitney, 1992; Kashden et al., 1993; Marciano & Kazdin, 1994; Yang & Clum, 1994), hopelessness (Beck et al. 1989; Dixon et al., 1994; Howard-Pitney et al., 1992; Kashden et al., 1993; Ivanoff & Jang, 1991; Marciano & Kazdin, 1994; Salter & Platt, 1990; Steer et al., 1993), and low self-esteem (Choquet et al., 1993; de Mann & Leduc, 1995; de Mann et al., 1993; Garnefski et al., 1992; Marciano & Kazdin, 1994) to be significant predictors of suicidal ideation in children, adolescents, and young adults.

In conclusion, the purpose of the current study was to identify the process through which an abused child becomes suicidal in adolescence. Variables which were identified as predictors and/or mediators in this relationship included low social support, poor problem-solving appraisal, depression, hopelessness, and low self-esteem. These variables were included in competing models in an attempt to identify the strongest pathway from child abuse to suicidal ideation.

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Results revealed that all variables contributed to the understanding of the development of suicidal ideation. Specifically, results suggested that childhood abuse and low social support, influence the development of psychopathology in the form of depression, hopelessness, and low self-esteem, both directly and indirectly through problem-solving appraisal, which in turn, leads to the development of suicidal ideation.

The results of this study offer much to the scientific community. Knowledge of the process through which an abused child becomes suicidal increases the understanding of the development of suicidal ideation in abused populations. This information can then be used to not only to identify adolescents at high risk for suicide, but also to help devise interventions to break the chain between childhood abuse and suicide. Future research should be aimed identifying additional variables which may serve as mediators in the relationship between childhood abuse and suicidal ideation, and examining them in structural equation models. Such variables might include attributional style and coping skills which could not be assessed in the current study due to methodological weaknesses. Moreover, such models should be tested with non-incarcerated populations to increase the generalizability of the findings, and thus serve a larger proportion of the adolescent population.

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 only juvenile delinquents from three facilities in southwestern Virginia. Thus, these results may not be generalizable to non-incarcerated populations or even to incarcerated populations from other areas of the United States. Second, because only slightly more that half of the participants indicated abuse and/or suicidal ideation, the data utilized for these two variables were significantly skewed. This could have lead to inaccurate estimates of the magnitude of the relationship between variables included in the models. Third, the sample size was relatively small for a study utilizing structural equation modeling for analyses. Fourth, this study included all self-report measures. Due to the population characteristics, it is likely that some participants may not have provided honest responses to all questions. Moreover, the exclusive use of self-report measures may have increased the magnitude of the relationship between variables, due to common method variance.

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Table 1
Means and Standard Deviations of Variables Measured

Variable	n	M	SD
CAS1 (physical abuse)	200	4.25	5.75
CAS3 (sexual abuse)	200	4.46	10.20
SQSSCR	200	25.02	5.71
SQNSCR	200	21.77	12.65
PSI	200	73.27	20.39
CDI	200	14.13	7.57
HSC	200	5.32	3.80
RSE	200	10.92	6.56
MSSI	200	7.62	12.40
SSB	200	6.16	8.98

Table 2
<u>One-way anovas of physical abuse, sexual abuse, social support, depression, hopelessness, and</u>
<u>low self-esteem between non-suicidal, mildly suicidal, and moderately/severely suicidal groups.</u>

Variables	Non-suicidal	Mildly suicidal	Mod./Sev. Suicidal	F ratio	F prob.
Physical abuse	00.22(00.59)[a]	00.52(00.82)[a]	00.45(00.69)	04.07	.02
Sexual abuse	00.79(00.27)[a]	00.92(00.47)	00.95(00.42)[a]	03.70	.03
Social Support	23.61(14.04)	20.77(12.63)	19.35(09.29)	02.22	.11
Problem-solving	67.89(20.56)[a]	75.43(18.09)	81.03(19.38)[a]	08.21	.00
Depression	10.59(06.32)[ab]	13.94(05.84)[ac]	20.60(06.71)[bc]	44.23	.00
Hopelessness	03.77(03.18)[a]	05.13(03.17)[b]	08.24(03.67)[ab]	32.10	.00
Self-esteem	07.78(05.46)[ab]	11.72(5.29)[ac]	15.84(06.19)[bc]	36.71	.00

<u>Note.</u>
Standard deviations in parenthesis and df between=2, df within=197, df total=199 for all tests.
[a, b, c] indicate a significant difference between groups using Scheffe Multiple Range Test with significance level of .05.

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Table 3
Correlations of variables used as manifest indicators in Model 2

Variables	1	2	3	4	5	6	7	8	9	10
1) CAS1	1.00									
2) CAS3	.37***	1.00								
3) SN1	.02	.01	1.00							
4) SN2	.09	.02	.70***	1.00						
5) SN3	-.01	-.06	.74***	.72***	1.00					
6) PS1	.11	.15*	-.17*	-.15*	-.15*	1.00				
7) PS2	.07	.04	-.18*	-.24***	-.22***	.53***	1.00			
8) PS3	-.08	.01	-.23**	-.21**	-.17	.27***	.41***	1.00		
9) CD1	.11	.11	-.20**	-.28***	-.26***	.23***	.30***	.22**	1.00	
10)CD2	.05	.03	-.23***	-.27***	-.23***	.13	.26***	.29***	.54***	1.00
11)CD3	.11	.11	-.13	-.17*	-.13	.09	.23***	.27***	.41***	.53***
12)HS1	.05	.10	-.14	-.21**	-.13	.21**	.27***	.26***	.51***	.44***
13)HS2	.02	.15*	-.13	-.18*	-.18*	.26***	.27***	.34***	.50***	.44***
14)HS3	.10	.13	-.14*	-.22**	-.12	.19**	.19**	.28***	.40***	.38***
15)RS1	.11	.11	-.14	-.22**	-.17*	.32***	.42***	.30***	.55***	.48***

Note. *$p \leq .05$; **$p \leq .01$; ***$p \leq .001$

Variables	1	2	3	4	5	6	7	8	9	10
16)RS2	.11	.10	-.24***	-.24***	-.21**	.18**	.35***	.28***	.48***	.56***
17)RS3	.13	.09	-.18*	-.28***	-.18*	.23***	.37***	.26***	.57***	.53***
18)MS1	.13	.13	-.13	-.14*	-.14	.20**	.17*	.20**	.53***	.48***
19)MS2	.12	.17*	-.15*	-.16*	-.18*	.19**	.19**	.18**	.59***	.47***
20)MS3	.17	.16*	-.13	-.12	-.14	.18*	.15*	.20**	.54***	.44***

Variables	11	12	13	14	15	16	17	18	19	20
11)CD3	1.00									
12)HS1	.28***	1.00								
13)HS2	.27***	.58***	1.00							
14)HS3	.29***	.49***	.51***	1.00						
15)RS1	.38***	.45***	.46***	.47***	1.00					
16)RS2	.40***	.32***	.42***	.35***	.66***	1.00				
17)RS3	.39***	.45***	.51***	.49***	.68***	.54***	1.00			
18)MS1	.40***	.38***	.49***	.32***	.40***	.42***	.47***	1.00		
19)MS2	.36***	.42***	.50***	.34***	.44***	.44***	.50***	.88***	1.00	
20)MS3	.35***	.440***	.50***	.34***	.39***	.41***	.43***	.82***	.88***	1.00

Note. *$p \leq .05$; **$p \leq .01$; ***$p \leq .001$

Table 4
Correlations of variables used an manifest indicators in Model 3

Variables	1	2	3	4	5	6	7	8	9	10
1) CAS1	1.00									
2) CAS3	.37***	1.00								
3) SN1	.02	.01	1.00							
4) SN2	.09	.02	.70***	1.00						
5) SN3	-.01	-.06	.74***	.72***	1.00					
6) PS1	.11	.15*	-.17*	-.15*	-.15*	1.00				
7) PS2	.07	.04	-.18*	-.24***	-.22***	.53***	1.00			
8) PS3	-.08	.01	-.23**	-.21**	-.17	.27***	.41***	1.00		
9) CDI	.13	.10	-.27***	-.33***	-.30***	.20**	.37***	.33***	1.00	
10)HSC	.03	.12	-.17*	-.23***	-.17**	.25***	.28***	.30***	.58***	1.00
11)RSE	.14*	.11	-.20**	-.29***	-.21**	.28***	.43***	.32***	.69***	.59***
12)MS1	.13	.13	-.13	-.14*	-.14	.20**	.17*	.20**	.58***	.45***
13)MS2	.12	.17*	-.15*	-.16*	-.18*	.19**	.19**	.18**	.58***	.50***
14)MS3	.17	.16*	-.13	-.12	-.14	.18*	.15*	.20**	.54***	.48***

Note. *$p \leq .05$; **$p \leq .01$; ***$p \leq .001$

Variables	11	12	13	14
11) RSE	1.00			
12) MS1	.50***	1.00		
13) MS2	.53***	.88***	1.00	
14) MS3	.47***	.82***	.88***	1.00

Note. *$p \leq .05$; **$p \leq .01$; ***$p \leq .001$

Table 5
Table of direct, indirect, and total effects to suicidal ideation in Model 4

Variable	Direct	Indirect	Total
Child Abuse	.08	.16	.24
Low Social Support	-.07	-.26	-.33
Psychopathology	.71	-----	.71

Table 6

Table of total effects of predictor variables on criterion variables in Model 6

Criterion Variables	Child Abuse	Social Support	Problem Solving	Psycho pathology	Suicidal ideation
Child Abuse	-----	-----	.13	.25	.17
Low Social Support	-----	-----	-.32	-.35	-.24
Poor Problem-Solving	-----	-----	-----	.45	.45
Psychopathology	-----	-----	-----	-----	.69

Table 7

Table of direct, indirect, and total effects to suicidal ideation in Model 6

Variable	Direct	Indirect	Total
Child Abuse	------	.17[a]	.17
Low Social Support	------	-.25[b]	-.25
Poor Problem-Solving	------	.31	.31
Psychopathology	.69	-----	.69

Note.

[a] Indirect effect via poor problem-solving = .04 and via psychopathology = .13.

[b] Indirect effect via poor problem solving = -.10 and via psychopathology = -.15.

Figure Captions

Figure 1. Proposed model with latent variables illustrated.

Figure 2. Revised proposed model with latent and manifest variables illustrated.

Figure 3. Model 1.

Figure 4. Model 2.

Figure 5. Model 3.

Figure 6. Model 4.

Figure 7. Model 5.

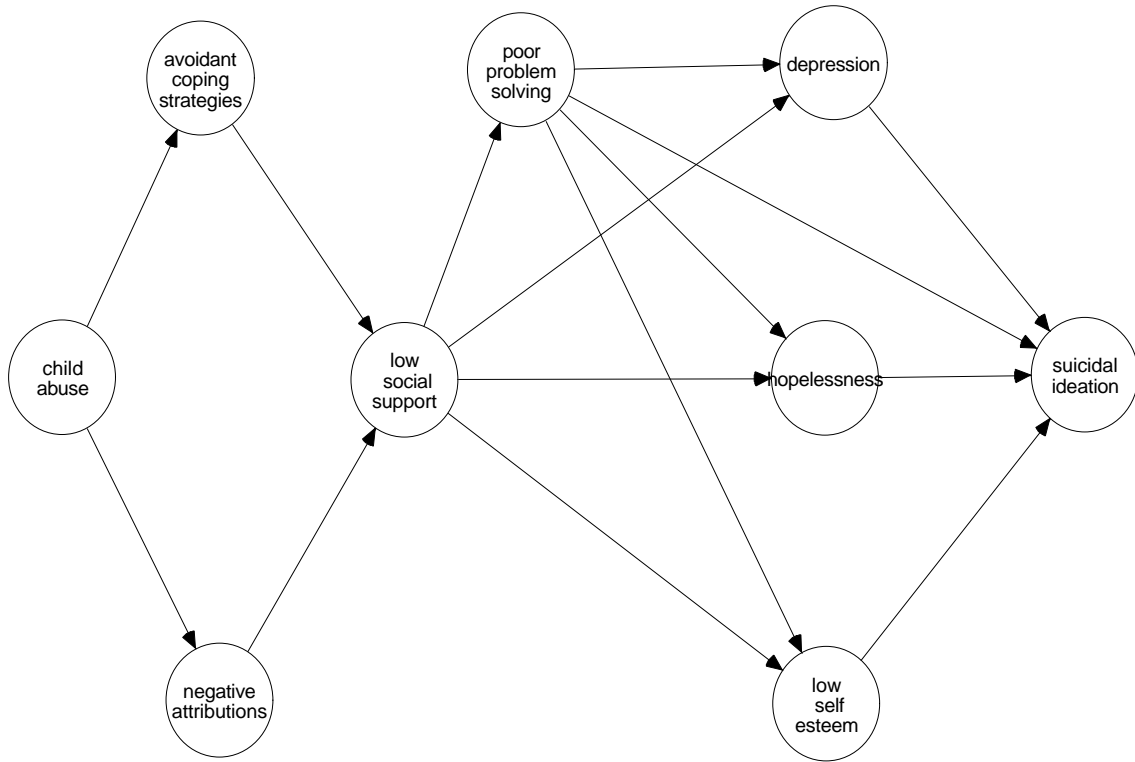Figure 8. Model 6.

Figure 9. Model 7.

Figure 1. Proposed model with latent variable illustrated.
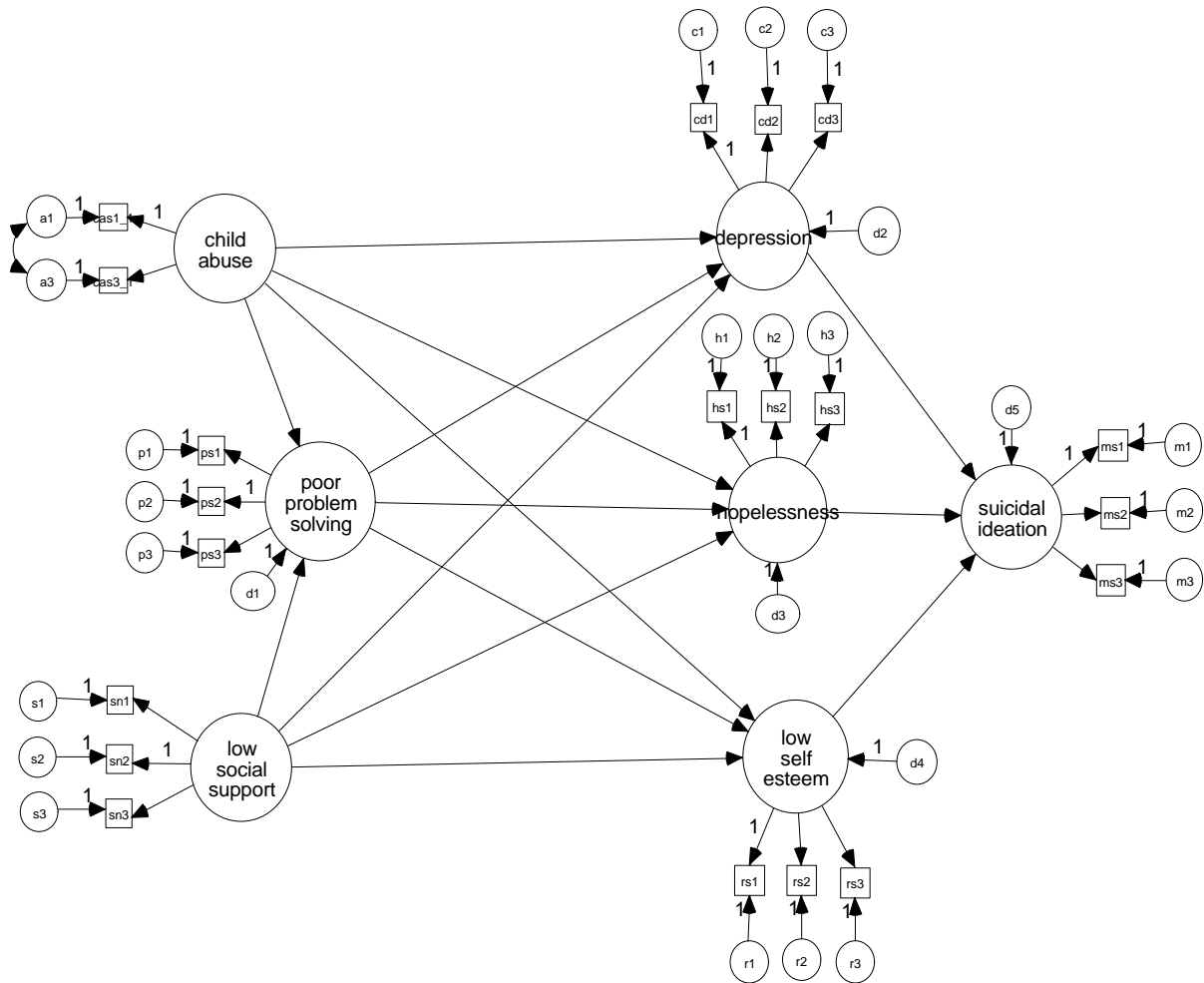
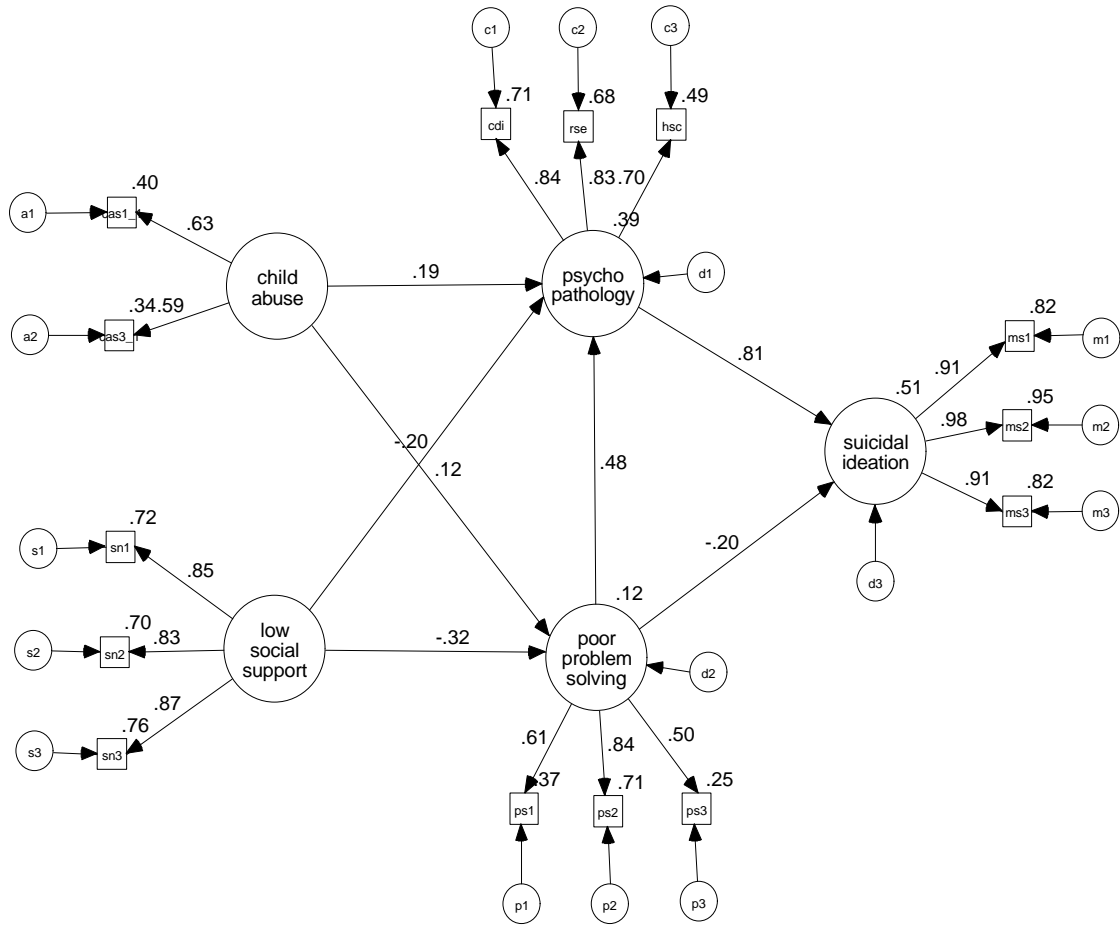Figure 2. Revised proposed model with latent and manifest variables illustrated.
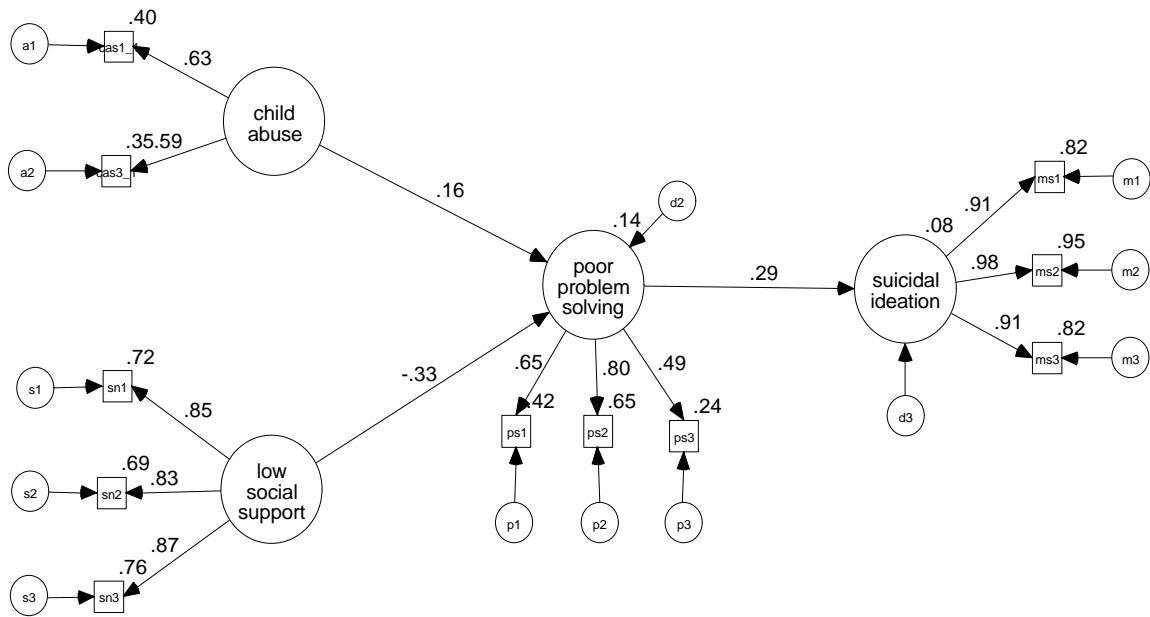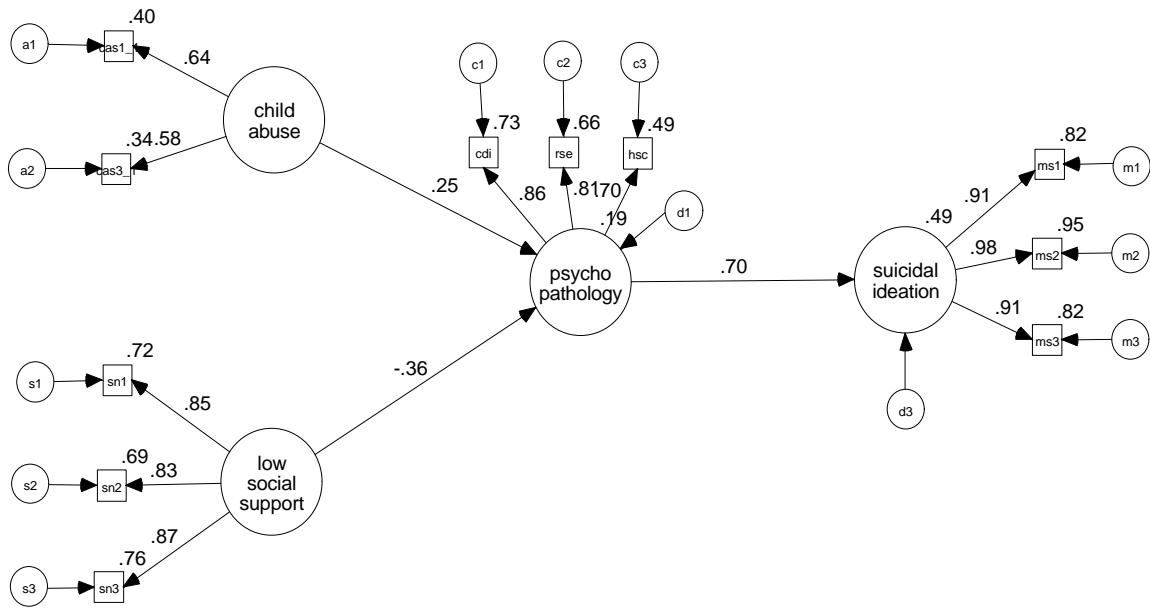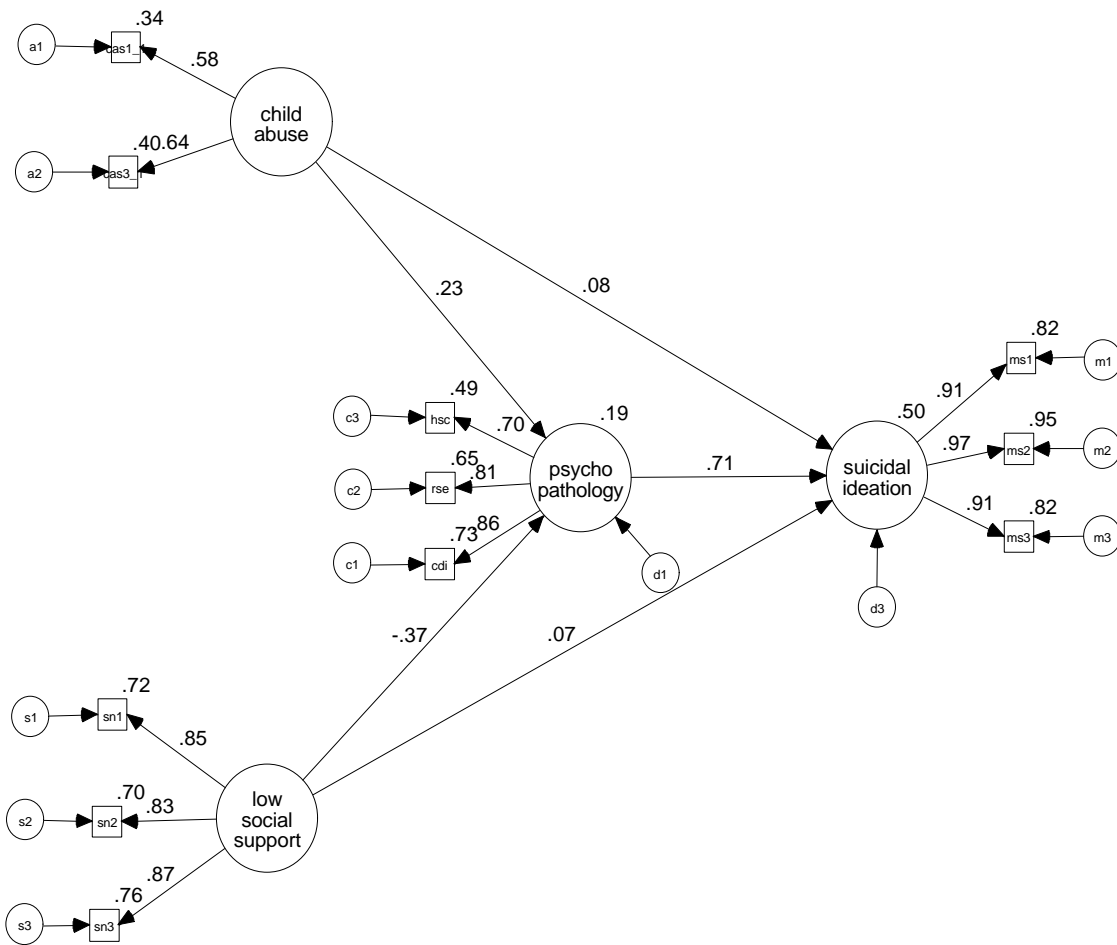
50

Figure 3. Model 1.
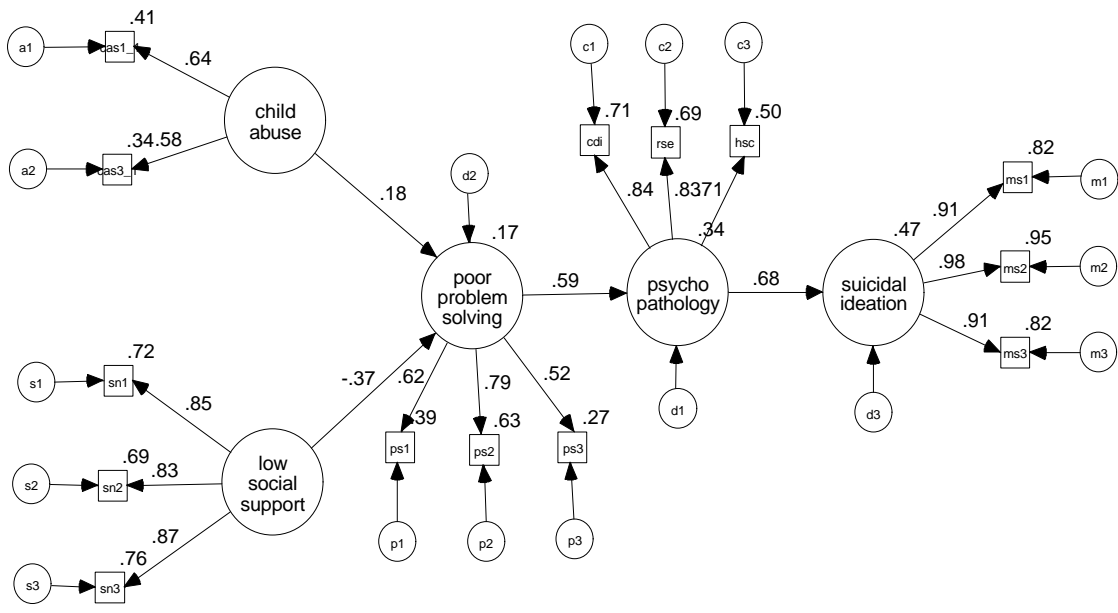
Figure 4. Model 2.

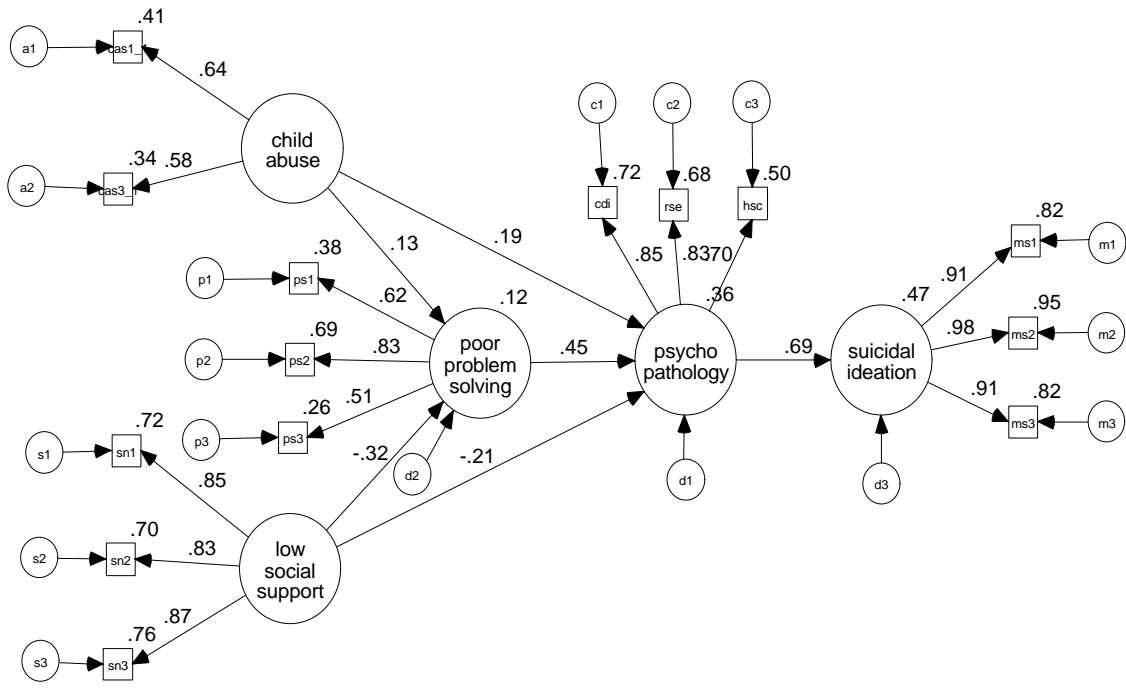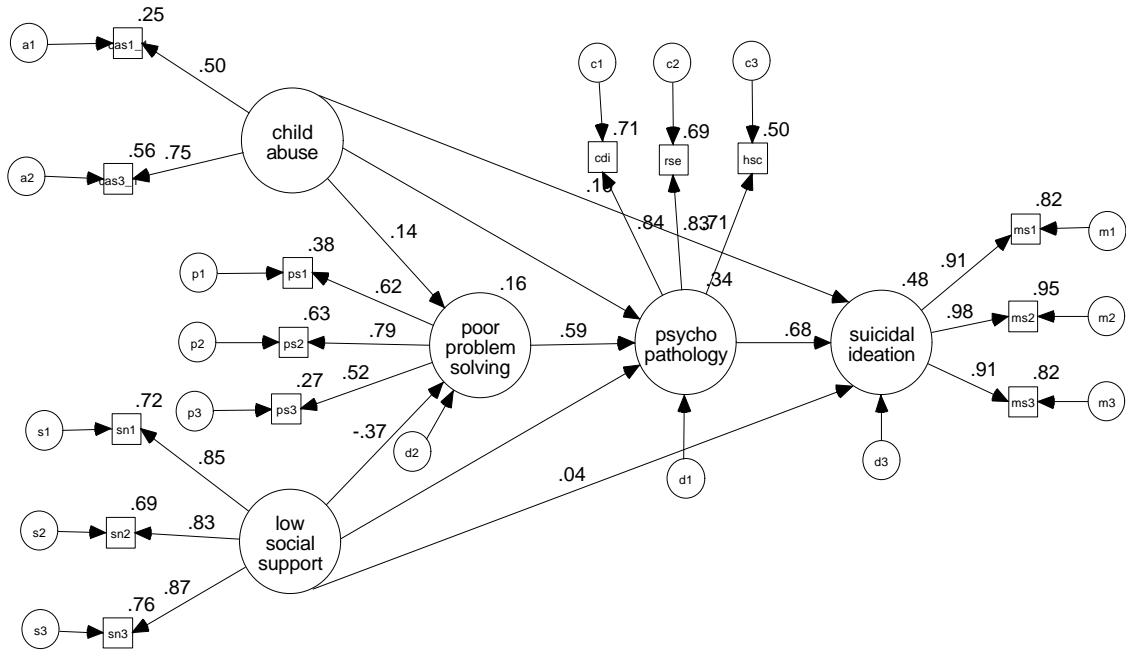Figure 5. Model 3.

Figure 6. Model 4.

Figure 7. Model 5.

Figure 8. Model 6.

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Figure 9. Model 7.

INFORMED CONSENT FORM FOR GUARDIAN ALLOCATED UNDER THE
"IN LOCO PARENTIS CLAUSE"

I would like to invite the incarcerated youths at your facility to participate in a research study. You are encouraged to discuss any questions you may have about the study with the investigators.

Purpose Of This Study

The purpose of this study is to assess the current psychological functioning and related early life experiences of youths. There will be approximately 100 teenagers who will complete this study.

Procedures

The youths will be administered 10 questionnaires which will take approximately 1 ½-2 hours to complete. Their names will not be placed on any of the questionnaires so that their responses will remain anonymous. The first questionnaire will ask a series of questions about physical and sexual experiences they may have had at different ages. The subsequent questionnaires will ask them questions about how they handle difficult situations, how they solve problems, how they view the future, how they feel about themselves, how adequate they believe their social supports to be, and whether they have ever thought about or tried to hurt themselves. These questionnaires will be completed while the youths are seated in their classrooms at the Juvenile Detention Center. Breaks will be offered as needed.

Risks and Discomforts

It may be difficult for the youths to recall negative early life experiences. Some of their memories may lead to sadness. The youths will be encouraged to talk to the staff at their facility about their feelings. If the staff cannot help, they will call in a clinician who will be able to provide assessment and appropriate services. They will also be given a RAFT brochure so that they have access to a number to call if they need help after they leave the detention facility.

Benefits

Sometimes thinking or writing about painful experiences helps individuals to get over them faster. This study may help these youths work through some of their feelings, although I cannot guarantee that this will occur. It will also give them a chance to participate in a study that could help many young people who have undergone traumatic experiences. By completing the assessment, they are aiding scientists in the development of treatment for these youths. These treatments could ultimately save their lives. In addition, it will provide juvenile detention facilities with first hand knowledge of the psychological functioning of the populations with which they work. This information will take the form of a summary describing the psychological state of the participants at an aggregate level. This will aid in the management of these youths and help prevent crisis situations. I will send you a summary of the research findings upon completion of the project. You are encouraged to share these results with the youths at your facility.

Confidentiality and Anonymity

The results of this research may be published for scientists to read. However, no one will be told that these youths participated. All assent forms will be kept under double lock and key in the office of the superintendent. Thus, the youths participation will only be known to the superintendent.   Further, the packets will not be able to be matched to the assent forms so that no

one will know individual results. In addition, the investigators will not look at the questionnaires until two weeks after they have been administered.

Freedom To Withdraw

Taking part in this study is entirely voluntary. The youths may withdraw from the study at any time without penalty. If they do decide to withdraw, their packets will be collected and they will be asked to sit quietly and work on schoolwork until the assessment period is over.

Approval Of Research

This research project has been approved, as required, by the Institutional Review Board For Research Involving Human Subjects at Virginia Polytechnic Institute and State University, by the Department of Psychology.

Consent

I have read and understand the content and purpose of this study. I understand that the youths at this institution will complete 10 questionnaires. They may stop answering questions at any time and withdraw from the study without penalty.   I am aware that the information collected will be combined with that of all other youths for the purposes of data analysis, and that their names will not be identified in any presentation of the data.

Permission for Minor Participation

I have read the explanation about this study and have been given the opportunity to discuss it and ask questions. I hereby grant permission for the youths incarcerated at this facility to take part in this study.

_____   _____

          Signature of Superintendent   Date

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

Investigator:
Christy Esposito   Phone: 231-6914

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

Chair, Human Subjects Committee:
Robert J. Harvey, Ph.D.   Phone: 231-7030

Chair, IRB Research Division:
Tom Hurd, M.S.   Phone: 231-5281

Psychology Department Main Office Telephone Number: 231-6581

CONSENT FORM FOR JUVENILE ADVOCATE

I would like to invite the incarcerated youths at this detention facility to participate in a research study. You are encouraged to discuss any questions you may have about the study with the investigators.

Purpose Of This Study

The purpose of this study is to assess the current psychological functioning and related early life experiences of youths. There will be approximately 100 teenagers who will complete this study.

Procedures

The youths will be administered 10 questionnaires which will take approximately 1 ½-2 hours to complete. Their names will not be placed on any of the questionnaires so that their responses will remain anonymous. The first questionnaire will ask a series of questions about physical and sexual experiences they may have had at different ages. The subsequent questionnaires will ask them questions about how they handle difficult situations, how they solve problems, how they view the future, how they feel about themselves, how adequate they believe their social supports to be, and whether they have ever thought about or tried to hurt themselves. These questionnaires will be completed while the youths are seated in their classrooms at the Juvenile Detention Center. Breaks will be offered as needed.

Risks and Discomforts

It may be difficult for the youths to recall negative early life experiences. Some of their memories may lead to sadness. The youths will be encouraged to talk to the staff at their facility about their feelings. If the staff cannot help, they will call in a clinician who will be able to provide assessment and appropriate services. They will also be given a RAFT brochure so that they have access to a number to call if they need help after they leave the detention facility.

Benefits

Sometimes thinking or writing about painful experiences helps individuals to get over them faster. This study may help these youths work through some of their feelings, although I cannot guarantee that this will occur. It will also give them a chance to participate in a study that could help many young people who have undergone traumatic experiences. By completing the assessment, they are aiding scientists in the development of treatment for these youths. These treatments could ultimately save their lives. In addition, it will provide juvenile detention facilities with first hand knowledge of the psychological functioning of the populations with which they work. This information will take the form of a summary describing the psychological state of the participants at an aggregate level. This will aid in the management of these youths and help prevent crisis situations. I will send you a summary of the research findings upon completion of the project. You are encouraged to share these results with the youths at the facility.

Confidentiality and Anonymity

The results of this research may be published for scientists to read. However, no one will be told that these youths participated. All assent forms will be kept under double lock and key in the office of the superintendent. Thus, the youths participation will only be known to the superintendent. Further, the packets will not be able to be matched to the assent forms so that no one will know individual results. In addition, the investigators will not look at the questionnaires until two weeks after they have been administered.

Freedom To Withdraw

Taking part in this study is entirely voluntary. The youths may withdraw from the study at any time without penalty. If they do decide to withdraw, their packets will be collected and they will be asked to sit quietly and work on schoolwork until the assessment period is over.

Approval Of Research

This research project has been approved, as required, by the Institutional Review Board For Research Involving Human Subjects at Virginia Polytechnic Institute and State University, by the Department of Psychology.

Consent

I have read and understand the content and purpose of this study. I understand that the youths at this institution will complete 10 questionnaires. They may stop answering questions at any time and withdraw from the study without penalty. I am aware that the information collected will be combined with that of all other youths for the purposes of data analysis, and that their names will not be identified in any presentation of the data.

Permission for Minor Participation

I have read the explanation about this study and have been given the opportunity to discuss it and ask questions. I hereby grant permission for the youths incarcerated at this facility to take part in this study.

_____   _____

          Signature of Advocate   Date

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

Investigator:
Christy Esposito   Phone: 231-6914

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

Chair, Human Subjects Committee:
Robert J. Harvey, Ph.D.   Phone: 231-7030

Chair, IRB Research Division:
Tom Hurd, M.S.   Phone: 231-5281

Psychology Department Main Office Telephone Number: 231-6581

Appendix B

ADOLESCENTS' ASSENT FORM

I would like to invite you to participate in a research study. You are encouraged to discuss any questions that you may have about the study with the principal investigator or the staff at this facility.

Purpose Of This Study

The purpose of this study is to assess your thoughts and feelings in different areas, as well as related early life experiences. There will be approximately 100 teenagers who will complete this study.

Procedures

This assessment consist of 10 questionnaires and should last about 1 ½-2 hours. Your name will not be placed on any of the questionnaires so that all of your answers will remain anonymous (no one will know which answers are yours). The first questionnaire will ask you personal questions about physical and sexual experiences you may have had at different ages, some of which may be difficult to recall. The others will ask you questions about how you handle difficult situations, how you solve problems, how you view the future, how you feel about yourself, and whether you have ever thought about or tried to hurt yourself. You will also be asked questions about any people in your life who you go to for help or support. Your participation is entirely <u>voluntary</u> and you may <u>stop answering the questions at any time</u> if you feel uncomfortable and do not 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 be given the packet of questionnaires and will be asked to complete them while you are seated in your classroom at the Juvenile Detention Center. If you read very well you will be asked to complete them on your own but if you do not read well, the questionnaires will be read to you. You will be seated back to back so that no one else can see your answers. You will be given breaks as needed. If at any point you do not want to continue answering the questions, you can return your packet to the researcher and sit quietly doing other schoolwork until the study is finished. At the end of this period, your packets will be collected by the researcher.

Risks and Discomforts

It may be difficult for you to remember some early life experiences. Some of your memories may make you sad for a short period of time. To help you feel better, you are encouraged to talk to the staff at your facility about your feelings. If they cannot help you, they will call in a specially trained person who can help. You will also be given a number to call if you need help after you leave the detention center.

Benefits

Sometimes thinking or writing about bad experiences helps you to get over them faster. This study may help you work through some of these feelings, although I cannot guarantee this will occur. It will also give you a chance to participate in a study that could help many young people who have had difficult lives. By answering these questions, you are helping doctors to create treatments for these young people. These treatments could save their lives. If you would like to

know the results of the study, please contact the staff at the detention center.

<u>Confidentiality and Anonymity</u>

Many of the results from this research may be published for scientists to read. However, no one will know that you participated in the study. Your participation will be known only to the investigators and the staff at this facility. The consent forms with your names on them will be locked up in the office of the superintendent. And again, your consent forms cannot be matched with your questionnaires, and you will not put your name on your questionnaires, so no one will know which answers are yours. Further, the investigators will not even look at the questionnaires until two weeks after you have completed them.

<u>Freedom To Withdraw</u>

Taking part in this study is entirely voluntary. You will not be punished or get into any trouble with the staff at this facility for not participating. It is only <u>your</u> choice. Also, you may withdraw from the study at any time if you feel uncomfortable and do not want to continue. Just raise your hand and let the researcher know that you do not want to finish the questionnaires. The researcher will collect your packet and ask you to sit quietly and do other schoolwork until the study is finished.

<u>Approval Of Research</u>

This research project has been approved, as required, by the Institutional Review Board For Research Involving Human Subjects at Virginia Polytechnic Institute and State University, by the Department of Psychology.

<u>Participant's Responsibilities</u>

I have read and understand the content and purpose of this study. I consent to participate in this study which includes completing 10 questionnaires to the best of my ability. I understand that I may stop answering questions and withdraw from this study at any time. I understand that the information collected will be combined with information from other teenagers for the purpose of data analysis, and I will not be identified by name in any presentation of the results. I also understand that no one other than the investigators and the staff at this facility will know that I participated in this study.

<u>Minor Participation Consent</u>

I have read the explanation about the study and have been given the opportunity to ask questions. I hereby agree to voluntarily participate in the research project described above and under the conditions described above.

Signature of Minor	Date

PSI

	Factors		
	1	2	3
6. After I have tried to solve a problem one way, I take the time to think about and compare what happened to what I thought should have happened.	.06	.68	.11
7. When I have a problem, I think up as many ways to handle it as I can, until I can't come up with any more ideas	.06	.61	.14
8. When faced with a problem, I think about how it makes me feel, to help me understand what is going on in the problem situation	.00	.68	.11
16. When faced with a problem, I stop and think about it before deciding what to do next	.19	.62	.26
18. When making a decision, I think about all of the different things that could happen and compare them	.10	.68	.10
20. I try to think about what will happen if I make a plan and carry it out	.06	.49	.35
28. I have a plan that I use to compare different choices and make decisions	.01	.62	.11
31. When I am faced with a problem, one of the first things I do is think about the situation and all of the things which may be creating it	.12	.50	.32
1. When an answer to a problem is wrong, I do not try to figure out why it didn't work	.64	.15	.11
2. When I am faced with a difficult problem, I do not try to create a strategy to collect information so I can understand exactly what the problem is	.61	.23	.16
3. When my first tries at solving a problem do not work, I become worried that I do not have the ability to handle the situation	.63	-.10	.30
4. After I have solved a problem, I do not think about what went right or what went wrong	.57	.26	-.02
11. Many problems I face are too difficult for me to solve	.50	.07	.39
13. When faced with a problem, I usually do the first thing that I can think of to solve it	.44	.12	-.32
14. Sometimes I do not stop and take time to deal with my problems, but just try to move on	.58	.25	.04
15. When deciding on an idea or possible solution to a problem, I do not take the time to think about the chances of each choice being successful	.57	.24	.01
21. When I try to make up solutions to a problem, I do not come up with many different choices	.63	-.02	.05
26. I make quick decisions and feel bad about them later	.47	-.16	.09
30. When faced with a problem, I do not usually think about what things around me may be causing the problem	-.50	-.6	.05
32. Sometimes I get so upset about a problem that I can't come up with ways to solve it	.43	-.23	.04
34. When faced with a problem, I often don't know if I can handle the situation	-.48	.25	-.14

	Factors		
	1	2	3
10. I am able to solve most problems even though the answer is not easy to figure out	.06	.18	.44
19. When I make plans to solve a problem, I am almost sure that I can make them work	.15	.27	.52
23. If I try hard enough, I believe that I can solve most problems that I am faced with	.09	.08	.74
24. When faced with a new situation, I believe that I can handle problems that may come up	.08	.24	.68
27. I believe that I am able to solve new and difficult problems	.05	.18	.67
35. When I realize that I have a problem, one of the first things I do is try to find out exactly what the problem is	.07	.25	.49
5. I am usually able to think up different ways to solve a problem which work well	.23	.39	.44
11. Many problems I face are too difficult for me to solve	.50	.07	.39

	Factors			
	1	2	3	4
2. ___ Nothing will ever work out for me	.57	.20	.17	-.03
___ I am not sure if things will work out for me				
___ Things will work out for me O.K.				
3. ___ I do most things O.K.	.64	.48	.05	.05
___ I do many things wrong				
___ I do everything wrong				
5. ___ I am bad all the time	.54	.02	-.12	.29
___ I am bad many times				
___ I am bad once in a while				
7. ___ I hate myself	.72	.19	.09	.06
___ I do not like myself				
___ I like myself				
8. ___ All bad things are my fault	.54	.14	.13	.22
___ Many bad things are my fault				
___ Bad things are not usually my fault				
9. ___ I do not think about killing myself	.53	.09	.31	.15
___ I think about killing myself but I would not do it				
___ I want to kill myself				
11. ___ Things bother me all the time	.49	.09	.48	-.05
___ Things bother me many times				
___ Things bother me once in a while				
26. ___ I usually do what I am told	.53	-.06	-.17	.35
___ I do not do what I am told most times				
___ I never do what I am told				
1. ___ I am sad once in a while	.39	.46	.33	-.09
___ I am sad many times				
___ I am sad all the time				
4. ___ I have fun in many things	.24	.61	.18	-.02
___ I have fun in some things				
___ Nothing is fun at all				
12. ___ I like being with people	-.06	.56	-.04	.21
___ I do not like being with people many times				
___ I do not want to be with people at all				
14. ___ I look O.K.	.29	.46	.26	.13
___ There are some bad things about my looks				
___ I look ugly				

	Factors			
	1	2	3	4
22.___ I have plenty of friends	-.00	.53	.22	.06
___ I have some friends but I wish I had more				
___ I do not have any friends				
25.___ Nobody really loves me	.30	.50	.03	.23
___ I am not sure if anybody loves me				
___ I am sure that somebody loves me				
10.___ I feel like crying everyday	.26	.15	.69	-.05
___ I feel like crying many days				
___ I feel like crying once in a while				
13.___ I cannot make up my mind about things	.25	.21	.40	.00
___ It is hard to make up my mind about things				
___ I make up my mind about things easily				
16.___ I have trouble sleeping every night	.11	.02	.56	.34
___ I have trouble sleeping many nights				
___ I sleep pretty well				
18.___ Most days I do not feel like eating	-.00	.32	.44	.13
___ Many days I do not feel like eating				
___ I eat pretty well				
19.___ I do not worry about aches and pains	-.17	.00	.56	.07
___ I worry about aches and pains many times				
___ I worry about aches and pains all the time				
20.___ I do not feel alone	.16	.44	.50	.12
___ I feel alone many times				
___ I feel alone all the time				
15.___ I have to push myself all the time to do my schoolwork	.28	-.27	.19	.51
___ I have to push myself many times to do my schoolwork				
___ Doing schoolwork is not a big problem				
17.___ I am tired once in a while	.02	.21	.15	.45
___ I am tired many days				
___ I am tired all the time				
21.___ I never have fun at school	.08	.06	.08	.53
___ I have fun at school only once in a while				
___ I have fun at school many times				
23.___ My school work is alright	.09	.21	.11	.59
___ My schoolwork is not as good as before				
___ I do very badly in subjects I used to be good in				
27.___ I get along with people	.24	.34	-.18	.51
___ I get into fights many times				
___ I get into fights all the time				

	Factors				
	1	2	3	4	5
6. Some day, I will be good at doing the things that I really care about.	-.42	.50	.27	-.06	.25
9. All I can see ahead of me are bad things, not good things.	.60	.26	.23	.10	.11
10. I don't think I will get what I really want.	.52	.16	.43	.06	.16
12. Things just won't work out the way I want them to.	.53	.24	.06	.02	.12
17. There's no use in really trying to get something I want because I probably won't get it.	.65	.13	.38	-.23	-.15
2. I might as well give up because I can't make things better for myself.	.25	.82	.12	-.05	.08
3. When things are going badly, I know that they won't be as bad all of the time.	.15	.78	.08	.02	-.04
13. I never get what I want, so it's dumb to want anything.	.33	.44	.38	-.22	.09
16. I will have more good times than bad times.	.24	.46	.33	.07	.05
5. I have enough time to finish the things I really want to do.	-.00	.14	.63	.08	-.09
7. I will get more of the good things in life than most other teenagers.	-.16	.42	.42	.40	-.02
8. I don't have good luck and there's no reason to think I will when I get older.	.36	.19	.60	.06	.14
15. Tomorrow seems unclear and confusing to me.	.19	.03	.68	-.03	.04
4. I can imagine what my life will be like when I'm an adult.	.05	-.02	.08	.73	-.07
11. When I get older, I think I will be happier than I am now.	.50	-.13	-.02	.53	.20
1. I want to grow older because I think things will get better.	-.12	.17	-.04	.48	.62
14. I don't think I will have any real fun when I get older.	.34	.03	.05	-.12	.74

RSE

	Factors	
	1	2
1. On the whole, I am satisfied with myself	.63	.42
3. I have a number of good qualities	.74	.21
4. I am able to do things as well as most other people	.81	.00
7. I feel that I am a person of worth	.71	.29
10. I take a positive attitude toward myself	.67	.34
2. At times I think I am no good at all	.50	.55
5.I feel I do not have much to be proud of	.40	.61
6. I certainly feel useless at times	.26	.74
8. I wish I could have more respect for myself	.00	.80
9. All in all, I am inclined to think that I am a failure	.53	.56

MSSI

	Factors	
	1	2
1. Over the past two weeks, have you wanted to die? If so, how much did you want to die?	.80	.36
2. Over the past two weeks, have you wanted to live? If so, how much did you want to live?	.73	.34
3. Over the past two weeks, if you thought about killing yourself, how much did you want to do it?	.83	.39
4. Over the past two weeks, have you wanted to die by not taking care of your health, eating or drinking too much (or eating too little), or risking your life by doing unsafe things (not looking before crossing a street)?	.77	.35
5. Over the past two weeks, when you had thoughts about killing yourself, how long did these thoughts last?	.74	.15
6. Over the past two weeks, how often have these thoughts about killing yourself come?	.75	.42
7. Over the past two weeks, how strong or clear have these thoughts been?	.73	.47
9. Over the past two weeks, when you thought about your reasons for living or dying, which of the two were stronger?	.77	.32
10. Over the past two weeks, have you been thinking of a way to kill yourself?	.68	.54
12. Over the past two weeks, have you felt like you were brave enough to kill yourself?	.63	.53
13. Over the past two weeks, did you feel like you could kill yourself? Would you really have ended your life?	.57	.45
14.Over the past two weeks, how sure were you that killing yourself is something you might do some time, if left on your own?	.69	.48
15. Over the past two weeks, have you been talking about death more than .45 usual, or even making jokes about it?	.	64
8. Over the past two weeks, could you think of anything that would stop you from killing yourself?	.36	.68
11. Over the past two weeks, have you thought about how much work or time it would take to kill yourself in the way you have chosen? Did you think you would be able to do it that way in the near future?	.58	.69
16. Over the past two weeks, have you written about killing yourself or dying (maybe in poems or your diary)?	.30	.79
17. Over the last two weeks, have you thought about leaving a note or writing a letter to someone about killing yourself?	.27	.82
18. Over the past two weeks, have you done anything to get ready to kill yourself (like getting pills, guns, or other things)?	.33	.79

Author Notes

There are many people who deserve thanks for their guidance and support throughout the duration of this project. I would firstly like to thank my advisor George A. Clum, Ph.D., for his exceptional feedback, support, and enthusiasm. He always made himself available to me and gently guided me through the completion of this project. I would also like to thank my other committee members, Russell T. Jones, Ph.D., and Jack W. Finney, Ph.D., for their encouragement, support, and helpful suggestions.

I would also like to express my appreciation to R.J. Harvey, Ph.D., Neil Hauenstein, Ph.D., Eileen Anderson Ed.D., and Kusum Singh, Ph.D. for assisting me with the complicated statistical analyses.

In addition, special thanks goes to my research assistant, Craig Hooker. Getting up at 8:00AM every Saturday morning, for a three month duration, to spend time at a juvenile detention center was not an easy task. His efforts are truly appreciated.

I would also like to thank Carla Terry, Elizabeth Colvin, Kim Avis, and Trina Doran, the juvenile advocates who accompanied me to the detention centers, as well as the staff at the detention facilities. This project would not have been possible without their help and support.

Finally, I would like to thank my mother, father, and sister, for their undying support, love, and encouragement.

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EDUCATION:

Virginia Polytechnic Institute and State University
Blacksburg, VA 24060
Major: Clinical Psychology
Cumulative GPA: 3.87
Degree: M.S., October 1997 and Ph.D., expected May 2000

Lafayette College
Easton, Pennsylvania
Major 1: Psychology, GPA 3.96 / Major 2: English, GPA 3.73
Cumulative GPA: 3.80, Class Rank: 17/498, Graduated SUMMA CUM LAUDE
Degree: B.A., May 1994

CLINICAL EXPERIENCE:

8/96- present   Child Study Center Graduate Clinician: Virginia Tech, Blacksburg, VA
Under the supervision of Dr. Thomas H. Ollendick, conduct full psychological
and psychoeducational assessment of children and adolescents, write reports,
provide feedback and recommendations for additional services and treatment.

6/94 - 8/95 & Youth Counselor: Kids In Crisis Center, Greenwich, CT
Summer '96   Conducted intake assessments of children and families, created and implemented
treatment plans; held individual, group, and family counseling sessions; and
participated in weekly case reviews. Received relevant training and weekly
supervision. Certified in Passive Physical Restraint & Crisis Intervention, Child
Abuse and Identification, Advanced Residential Child Care, and Basic Medicine.

Summer '93   Intern: Cornell Medical Center (Westchester Division), White Plains, NY -
Personality Disorder Unit - Long Term Care
Conducted individual counseling; attended group counseling sessions; and
participated in case conferences. Received relevant training and supervision.

1989 - 1991   <u>Telephone Counselor:</u> Hotline, Inc., Greenwich, CT

RESEARCH EXPERIENCE:

1/95- 10/97   <u>Master's Thesis:</u> Virginia Tech, Blacksburg, VA
                Under the supervision of Dr. George Clum, Ph.D., completed master's thesis
                entitled "Linking Childhood Abuse To Suicidal Behavior: An Examination of the
                Mediating Variables".

9/94 - 8/95   <u>Research Assistant:</u> Cornell Medical Center (Westchester Division), White
                Plains, NY
                Under the supervision of Dr. Cynthia Pfeffer, MD, located and recruited former
                patients on the child psychiatric unit, administered psychological instruments, and
                contacted and monitored progress of assigned caseload.

1/93-12/93   <u>Honors Thesis:</u> Lafayette College, Easton, PA
                Under the supervision of Dr. Susan Basow, Ph.D., proposed and conducted an
                original study, data input and analysis using SPSS-x, write-up, and oral defense.

9/92 - 12/94   <u>Freshman Orientation Project:</u> Lafayette College, Easton, PA
                Analyzed data from freshman orientation surveys, prepared write-up, and
                presented results to Deans of College.

1/92 - 5/92   <u>Independent Research Project:</u> Lafayette College, Easton, PA
                Under the supervision of Dr. Howard Gallup, Ph.D., proposed and conducted an
                original study, data input and analysis using SAS, and write-up.

PRESENTATIONS AND PUBLICATIONS

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

Esposito, C. & Basow, S. (August, 1995). Predicting attitudes toward abortion: Does knowledge
        matter? Poster presented at: <u>The 1995 American Psychological Association Annual
        Convention</u>, New York, NY. Received an Annual Student Research Prize given jointly
        by the Association for Women in Psychology and Division 35 of the American
        Psychological Association.

Esposito, C. (1994). Variable predictors of college students attitudes toward abortion. Paper
        presented at <u>The National Conference of Undergraduate Research of '94</u>, Kalamazoo, MI
        and <u>The Lehigh Valley Undergraduate Psychology Conference of '94</u>, Bethlehem, PA.

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

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

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

TEACHING EXPERIENCE

8/95 - 5/96   <u>Graduate Teaching Assistant:</u> Virginia Tech, Blacksburg, VA
Taught two undergraduate Introduction to Psychology labs, created and graded exams and essays.

9/93 - 5/94   <u>Writing Associate:</u> Lafayette College, Easton, PA
Assistant for Design & Analysis Psychology Course - corrected student research projects, attended staff seminars, conferred with department head, served hours at a drop-in service.

9/92- 5/94   <u>Teaching Assistant:</u> Lafayette College, Easton, PA
Assistant for Experimental Psychology Course - assisted students with laboratory work.

PROFESSIONAL AFFILIATIONS
American Psychological Association
Association for the Advancement of Behavior Therapy

HONORS AND AWARDS
Phi Beta Kappa National Honor Society
Psi Chi National Honor Society in Psychology
Graduated with Honors in Psychology, Lafayette College, Easton, PA
1994 Herbert W. Rogers Psychology Prize for Excellence in Psychology, Lafayette College, Easton, PA
1994 Gilbert Prize for Excellence in English, Lafayette College, Easton, PA
Delta Gamma National Sorority Member