DISSERTATION

COMPARISON OF SUICIDAL RISK FACTORS AMONG MEXICAN-AMERICAN AND ANGLO-AMERICAN ADOLESCENTS

Submitted by

Rakhshanda Saleem

Department of Psychology

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WE HEREBY RECOMMEND THAT THE DISSERTATION PREPARED UNDER OUR SUPERVISION BY RAKHSHANDA SALEEM ENTITLED COMPARISON OF SUICIDAL RISK FACTORS AMONG MEXICAN-AMERICAN AND ANGLO-AMERICAN ADOLESCENTS ACCEPTED AS FULFILLING IN PART REQUIREMENTS FOR THE DEGREE OF DOCTORATE OF PHILOSOPHY.

Committee on Graduate Work

Co-Advisor

Co-Advisor

Department Head

ABSTRACT OF DISSERTATION

COMPARISON OF RISK FACTORS IN SUICIDAL BEHAVIOR AMONG MEXICAN-AMERICAN AND ANGLO-AMERICAN ADOLESCENTS

Suicidal behavior among adolescents is a leading cause of death in the United States. Previous research has focused mainly on clinical samples of Anglo-American fatal suicidal behavior, with little research on minorities and few comparative analyses. The purpose of this study was to identify psychosocial risk factors associated with nonfatal suicidal behavior among Mexican-American and Anglo-American adolescents. Psychosocial variables were chosen either based on their previously demonstrated correlation with suicidal behavior or due to being neglected in prior research.

Data were collected from a representative sample of Mexican-American and Anglo-American adolescents at two times four years apart. At Time 1, the sample consisted of 2093 Mexican-American adolescents (1174 males, 919 females) and 1116 Anglo-Americans (568 males, 548 females). At Time 2, there were 1094 Mexican-Americans (559 males, 535 females) and 512 (227 males, 285 females) Anglo-Americans. The sample included adolescents who were dropouts, academically at-risk, and in good standing.

Results indicated that several variables were associated with suicidal ideation; however, they were not good predictors of suicidal attempt. The best predictors of future suicidal ideation for Mexican-

Americans were sexual abuse, anxiety, and gender, whereas gender, depression, anxiety, Hispanic identification, and physical abuse were the best concurrent predictors. For Anglo-Americans, the best future correlates were depression and low Anglo-identity, whereas depression and anxiety were the best concurrent predictors. For males, anxiety was the best future predictor, and self-esteem and depression were the strongest concurrent correlates. Sexual abuse and depression were the best future and concurrent predictors for females. Future predictions based on school status were unreliable due to small sample size. Concurrently, gender, depression, and anxiety were the best correlates of suicidal ideation for at-risk students. For dropouts, depression, anxiety, and physical abuse were the strongest correlates, while for students in good standing, depression and low Hispanic identification were significantly correlated. Results indicate that suicidal adolescents are a heterogeneous group of individuals with complex interactions of risk and protective factors specific to each group. A need for a thorough assessment of multiple areas of psychosocial functioning, including academic, social, and psychiatric functioning to prevent suicidal behavior is indicated.

Rakhshanda Saleem
Psychology Department
Colorado State University
Fort Collins, CO 80523
Spring 2002

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CHAPTER I

Introduction

Suicidal behavior among adolescents is a serious mental health problem with alarmingly increasing statistics. Currently, it is one of the leading causes of death among youth in the United States. According to the Center for Disease Control (CDC) (1998), suicide is the third leading cause of death behind unintentional injury and homicide for young people 15-24 years old. More teenagers and young adults died from suicide than from cancer, heart disease, AIDS, birth defects, stroke, pneumonia, influenza, and chronic lung disease combined in 1997. In addition, the data suggest that the prevalence of suicide attempts and suicidal ideation in the adolescent population may be much higher than the estimated prevalence for adults (Harkavy & Asnis, 1985; Harkavy-Friedman, Asnis, Boeck, & DiFiore, 1987). Also, over the past few decades, there has also been a dramatic increase in the rates of suicidal behavior among the youth (Diekstra, Kienhorst, & DeWilde, 1995). Compared to the fairly constant rate of suicidal behavior in the general population, the rate of suicide in adolescents has increased alarmingly (17% vs. 200%) over the period of 1960 to 1988 (United States Bureau of Census, 1991). While the age-adjusted death rate for suicide for children and adolescents decreased by 12% between 1979 and 1997, the death rate for suicide among 15 to 19 year olds increased by 13% (Guyer, MacDorman, Martin, Peters, & Strobino, 1998). The rates of suicide for 15-

24 year olds have quadrupled from 2.7 per 100,000 in 1950 to 13.1 per 100,000 in 1991 (National Center for Health Statistics, 1993). The problem is magnified considering these statistics do not reflect the accurate number of adolescents engaging in suicidal behaviors, due to the sociocultural implications and consequences of engaging in suicidal behavior. It is estimated that the actual rate may be 50% higher than reported (CDC, 1988). Gender breakdowns show that the rates have more than tripled for males and more than doubled for females since 1952 (National Center for Health Statistics, 1985). The Phi Delta Kappa Task Force on Adolescent Suicide (1988) reported that during the last thirty-five years, there has been an increase among young males of 300%, and among females of 230%. The 1997 Center for Disease Control youth risk behavior survey also identified that females (27.1%) were significantly more likely than males (15.1%) to have considered attempting suicide. The continuing rise in suicidal behavior, along with the fact that suicide is the third leading cause of death among 15-24 year olds in the United States (Cole, 1989; Holinger & Offer, 1989; Husain, 1990), underscores its importance as a serious public health problem and demands the attention of investigators. Exploration of the psychosocial risk factors for suicidal behavior among the youth will assist not only in efforts to intervene effectively and prevent suicidal behavior but also help identify psychological difficulties that are likely to accompany such behavior and impact both the individual and their families.

Non-fatal Suicidal Behavior

Realizing the importance of investigating suicidal behavior among adolescents, researchers have focused on this area and many recent studies have emerged. While several studies have focused on completed suicide among adolescents (Rich, Sherman, & Fowler, 1990; Shaffer, Garland, Gould, Fisher, & Trautman 1988; Shafii, Carrigan, Whittinghill, & Derrick, 1985), little data have been accumulated on nonfatal suicidal behavior. Thus, most of our knowledge on suicidal behavior among adolescents comes from studies focusing on completed suicides. The problems with evaluating risk factors in suicidal behavior among adolescents formulated by using such research include relying on retrospective studies utilizing psychiatric records, second-hand information, and psychological autopsies. Such data are likely to be biased and limited, and it is not possible to verify fully if they provide the real reasons for the suicide.

In order to understand the etiology of adolescent suicidal behavior, the study of nonfatal suicidal behavior is necessary for several reasons. First, along with the rate of completed suicide, the rate of nonfatal suicidal behavior among adolescents in the United States has increased significantly in the last few years. There are an estimated 50 to 150 attempts to every completed suicide (McIntire, Angle, & Schlicht, 1977). Secondly, past nonfatal suicidal behavior is the best predictor of future suicidal behavior (Brent, 1995; Lewinsohn, Rohde, & Seeley, 1993). In other words, individuals who have had suicidal ideation or attempts in the past are at greater risk of later completed suicide. Research indicates that a majority of suicide attempts are

premeditated. Lewinsohn et al. (1993) found that 88% of suicide attempters reported prior suicidal ideation. A recent youth risk behavior surveillance indicated that 20.5% of students nationwide had seriously considered attempting suicide during the 12 months preceding the survey (Center for Disease Control, 1998). Prior history of suicidal behavior has been found in anywhere from 20%-65% of persons who die from it (Cosand, Bourque, & Kraus, 1982; Crumley, 1979). Other research indicates that the prevalence estimate for high school adolescents of lifetime suicidal ideation is between 26% and 50% (Andrews & Lewinsohn, 1992; Harkavy-Friedman et al., 1987; Lewis, Johnson, Cohen, Garcia, & Velvez, 1988; Smith & Crawford, 1986; Velvez & Cohen, 1988) or as high as 60% to 62% according to some community surveys (Weltzer et al., 1996). In one study involving 2,200 15- to 19-year-olds, three out of every hundred had engaged in suicidal behavior in the previous month (Forrest, 1988). Suicidal attempts by adolescents are over 100 times more frequent than completed suicides (US Public Health Service, 1993). Most suicidal behavior is preceded by nonfatal suicidal behavior. By looking into the lives of adolescents who have engaged in nonfatal suicidal behavior, we have the possibility of preventing what is one of the leading causes of death among this age group and which has a strong psychological, social, and financial impact on relatives and the larger community. Early detection and better understanding of the risk factors associated with adolescent nonfatal suicidal behavior may help identify and prevent future nonfatal and fatal suicidal behavior and reduce a major health problem.

Methodological Problems

The problem of fully assessing adolescent suicidal behavior is complicated by the fact that all reports and official statistics on suicidal behavior are believed to conceal and underestimate the rate of suicidal behavior due to methodological difficulties in data collection (Madge & Harvey, 1999; McIntire & Angle, 1971; Spirito, Overholser, & Stark, 1989). To a large extent, what is known of the epidemiology of suicide comes from data collected from emergency rooms or admissions to hospitals (Deykin, Hsieh, Joshi, & McNarmarra, 1986; Goldacre & Hawton, 1985; Wexler, Weissman & Kasl, 1978), following either a fatal or serious suicide attempt. However, the implication of these findings, which are based mostly on data from suicidal behavior in clinical populations, may not be applicable to a larger non-clinical population. Surveys suggest 73% to 88% of adolescent who are suicidal do not seek medical treatment of any kind (Garrison, McKeown, Valois, & Vincent, 1993; Smith & Crawford, 1986; Velvez & Cohen, 1988) for a variety of reasons, thus excluding a majority of suicidal adolescents from being included in the bulk of the data representing suicidal behavior in this age group. These statistics also indicate the serious under-reporting and misrepresentation of suicidal behavior in adolescents; due to the legal and social consequences of engaging in such behavior, a suicide attempt may be reported as an accident to avoid inquiry (Deykin et al., 1986). Thus, trying to understand the epidemiology of suicide from such data is potentially biased, limited, and incomplete, because it excludes those who engaged in nonfatal suicidal behavior and did not seek clinical intervention.

Racial/Ethnic Differences in Suicidal Adolescents

The comparative epidemiological research of differences in suicidal behavior in racial/ethnic groups is in the earliest stages (Center for Disease Control, 1994), providing scarce information about the similarities and differences among various groups. Among ethnic groups in the United States, Anglo-Americans are the largest group of adolescents, making it an important group for research of suicidal behavior. It is also the group with the highest rate of suicidal behavior. Anglo-Americans accounted for 90 percent of the suicides among 15-24 year old in 1997 (Center for Disease Control, 1997). After accidents, it is the second leading cause of death for Anglo-American adolescents. A report on youth suicide in the United States reported suicide rate for Anglo-American male adolescents aged 15-19 years increased 305.4% from 1950 through 1980, while the rate for females increased 66.7% during the same three decades (Center for Disease Control, 1986).

Given the overall scarcity of data on adolescents suicidal behavior in general, it is not surprising that there is an even greater lack of data for ethnic minorities. Minorities have been neglected in research on suicidal behavior among adolescents, as most of the research on suicidal risk factors so far has focused on the Anglo-American population. These findings are generalized without careful examination of the differences that may exist in rates and risk factors for minorities. There is also evidence that minority adolescents are at a high risk for suicidal behaviors, making it important to study Mexican-American adolescents, as they are the second largest and fastest growing minority group. A national school-based representative survey of

11,631 students in grades 9-12 in the United States found that Hispanic and White students reported higher levels of suicidal thoughts and behaviors than Black students (Center for Disease Control, 1991). The suicide rate for 15-19 year old Mexican-Americans was noted to be 25.4 per 100,000 in 1989 (San Antonio Metropolitan Health District, 1990), which is almost twice the national rate in the same time period (13.3 per 100,000). Other studies have also shown a higher rate of suicidal ideation among Mexican-Americans adolescents (Roberts & Chen, 1995; Swanson, Linskey, Quintero-Salinas, Pumariega, & Holzer, 1992). One national survey found that the rate of self-reported suicidal behavior for Latina high school students was the highest of all gender and ethnic groups (Kann et. al, 1995). The Center for Disease Control in 1997 published a study stating, "Overall, Hispanic students (10.7%) were significantly more likely than white students (6.3%) to have attempted suicide" (pg. 9). Another study also suggests the possibility of higher rate of suicide for Latino adolescents than non-Latin White adolescents (Smith, Mercy, & Rosenberg, 1989). There, however, are very few studies that explore the psychosocial risk factors associated with nonfatal suicidal behavior among Mexican-American adolescents in the U.S. By identifying and comparing risk factors for suicidal behavior among Mexican-American and Anglo-American adolescents, future preventative efforts can be developed to fit the specific needs of each group.

Literature Review on Risk Factors for Suicidal Behavior

A review of literature on adolescent suicidal behavior indicates that several risk factors are associated with suicidal behaviors. The findings of the research on

important risk factors for suicidal behavior in the Mexican-American and Anglo-American suicidal adolescents are summarized below.

Psychosocial Variables Related to Suicidal Behavior

Past non-fatal suicidal behavior: Previous history of non-fatal suicidal behavior is found to be not only significant but the strongest risk factor for adolescent suicidal behavior (Brent et al., 1993; Garfinkel, Froesce, & Hood, 1982; Hawton, 1992; Shaffer & Hicks, 1992; Shafii et al., 1985). A majority of adolescents who eventually commit suicide have thought about, threatened, or attempted it in the past (Rich et al., 1990). Adolescents who have thought about or attempted suicide should be seen as being at an elevated risk of repeating such behavior. In one study of high school students, 62% reported having had some suicidal ideation (Smith & Crawford, 1986). The rate for high school students attempting suicide ranged from 8% to 11% in some studies (Garrison, 1989; Harkavey & Asnis, 1985). In addition, some studies acknowledge that these are likely to be underestimates of past suicidal behavior due to these studies being administered in school settings, thereby excluding dropouts, who are likely to be at higher risk of suicidal attempts (Woods et al., 1997). Researchers estimate that the number of suicide attempts may be as high as 50 to 200 times the fatal attempts (Garland & Ziglar, 1993). These high rates are a cause for concern since they not only represent a considerable amount of suffering but imply a high risk for later completed suicide (Meehan, Lamb, Saltzman, & O'Carroll, 1992). In a study of suicidal Mexican-American adolescents, Ng (1996) found that a history of past nonfatal suicidal behavior was a strong risk factor for Mexican-Americans as well.

Robert and Chen (1995) found that Mexican-Americans had rates of ideation twice as high as those of their Anglo counterparts.

Gender: There is significant variability in the epidemiological data on the rates of suicidal behavior among adolescents based on gender. The gender differences appear to be greater for adolescents than general population (National Center for Health Statistics, 1993). Several studies indicate that in the United States, rates of fatal suicidal attempts are higher for male adolescents (Meehan et al., 1992; Shaffer & Hicks, 1992), and rates of nonfatal suicidal attempt are two to three times greater for female adolescents compared with male adolescents (Hawton, 1992; Kessler et al., 1994; Lewinsohn, Rohde, & Seeley, 1996). Thus, while a higher number of female adolescents report suicidal behavior compared to male adolescents, more male adolescents die from engaging in suicidal behavior than females (Dubow, Kausch, Blum, & Reed, 1989; Shaffer, Bacon, & Garland, 1987; Trautman & Rotheram, 1988; Withers & Kaplan, 1987). In the United States, the 2:1 female:male ratio for suicidal behavior remains unchanged regardless of other demographic variables such as socioeconomic status, ethnicity, or religion (Berne, 1983; Cole, 1989; Jay, Graham, & Flower, 1989; King, Raskin, Gdowski, Butkus, & Opipari, 1990; Sorenson & Golding, 1988). One study reported that 23.7% of females and 14.8% of males ages 14 to 18 years old had reported suicidal thoughts over their lifetime (Lewinsohn, Rohde, & Seeley,1996). Four of ten females and one of four males who had participated in the National Adolescent Student Health Survey had contemplated suicide; 18% of the females and 11% of the males had engaged in suicidal behavior at

least once (American School Health Association, Association for the Advancement of Health Education, and Society for Public Health Education, Inc., 1989). Although the initial suicide rate was higher for males, the overall gender ratio had decreased over time, suggesting that the female suicide rate had increased at a faster pace than the rate for males. In addition, it is likely that females may have an even higher rate of suicidal behaviors, as research indicates that women's suicidal behavior is susceptible to underreporting because they tend to use methods (e.g., poison) that are more likely to lead to misclassification (Phillips & Ruth, 1993). However, one study by Andrews and Lewinsohn (1992) found that there was no gender difference in the lethality of attempts. Most research on suicidal behavior focuses on the fatal suicidal behavior and thus on male suicidal behavior, leaving the more prevalent nonfatal suicidal behavior by females under-investigated.

It is important to note that gender is a social concept, and the forms of psychological problems that men and women experience, along with other gender specific experiences, are also specific to culture (Unger & Crawford, 1996). As such, the rates and forms of suicidal behavior are likely to be influenced by culture. For example, the higher rate of nonfatal suicidal behavior by female adolescents could be due to a higher acceptability of being a female suicide survivor than a male suicide survivor by the culture. A study by Shaffer, Gould, and Hicks (1994) indicated that during the period between 1986 and 1991, rates of suicidal mortality among female adolescents in all ethnic groups remained stable; however, those for ethnic minority males increased significantly. Research indicates being female as a risk factor for

suicidal behavior among Hispanic adolescents (Trivino, 2000). In a study by Ng (1996), it was found that being the oldest daughter was highly correlated with suicidal behavior among Mexican-American females. Other studies have indicated that because of their traditional gender role, age group, and ethnic-minority group membership, Hispanic adolescent females comprise a group at elevated risk for suicidal behavior (Bluestone & Purdy, 1977; McIntosh & Santos, 1987; Smith, Mercy, & Warren, 1985; Trautman, 1961a, 1961b). The presence of gender differences in the rates and methods of suicidal behavior are likely to be accentuated during the identity formation period of adolescence and, as such, suggest the importance of studying gender as a risk factor.

Race/ethnicity and ethnic identification: The prevailing view in the literature is that suicidal behavior is highly influenced by sociocultural factors (Berman & Carroll, 1984). Like any other behaviors and beliefs, the ones associated with suicide are strongly affected by cultural meanings and interpretations of the culture in which it takes place. Thus, ethnicity, ethnic identification, and cultural factors may play an important role in the assessment of risk factors and development of interventions, especially for adolescents, who are developmentally at a stage marked with identity issues. Some studies suggest that for ethnic minority youth, traditional cultural values and supportive affiliations may be protective, whereas the demands and ambiguities of cultural differences may increase the vulnerability to mental health problems, thus contributing to suicidal behavior (Swanson et al., 1992).

The assessment of the impact of racial and ethnic groups is complicated by several issues, starting with the definitions of race and ethnicity and their use. The terms race and ethnicity are used interchangeably in the literature to refer to people who share a national or cultural background or history, as identified by self or others. In earlier literature and epidemiological studies (Holinger, 1978; Holinger & Offer, 1982), the word "race" was often used to distinguish groups on the basis of physical characteristics, such as studies comparing "Blacks and Whites" of one country or nationality. Ethnicity was defined by McGoldrick, Pearce, and Giordao (1982) as "a sense of commonality transmitted over generations by the family and reinforced by the surrounding community. It is more than race, religion or national and geographic origin" (pg. 1). Given that the literature uses race and ethnicity interchangeably, this has at times clouded issues regarding specific high-risk groups (Heacock, 1990; Smith et al., 1989). The effect of culture/ethnicity and identification with either the dominant or minority culture on one's values, beliefs, and attitudes is significant and should be considered in the examination of factors that impact an individual's thoughts and decisions about suicidal behavior. A given culture's view of suicidality is important in its assessment and intervention. The present study uses a self-identified scale for cultural identification to address this potentially important variable.

Most studies have shown higher rates of suicidal behavior for Whites (Holinger, 1978; Tischler, Mckenry, & Morgan, 1981); other studies focusing on adolescents including larger samples of different ethnic/racial groups have found higher rates for African-Americans and Hispanics (Griffith & Bell, 1989; Husain,

1990). Other studies have indicated that rates for Hispanics are similar to Anglo-Americans. Whites, Puerto Ricans, and Hispanics are considered a high risk group in general compared to African-Americans or other minorities (Berne, 1983; Heacock, 1990; Rich, Warsradt, Nemiroff, Fowler, & Young, 1991). Although many similar factors have emerged, some that are unique to Mexican-American adolescents, such as acculturation, have not been well researched. In one study by Fernandez-Pol (1986), which compared a group of Latin-Americans born in their native country to others of the same descent in the United States, an important finding was that place of birth was not a significant predictor, but alcohol and other substance abuse was a strong predictor. This was interesting, because there also was a positive correlation between adherence to traditional values and alcohol dependence among suicidal patients. This finding, coupled with a positive correlation between an increase in the number of years residing in the area (Bronx, New York) and alcoholism among suicidal patients led to questioning the possible impact of limited acculturation as a psychosocial stressor related to mental illness and substance abuse (Fernandez-Pol, 1986). A survey of Hispanic-Americans found that Mexican-born youth with Spanish language preference were much less likely to use illicit drugs than their U.S. born counterparts with English language preference (National Institute on Drug Abuse, 1987). In a study by Vega, Gil, Warheit, Apospori, and Zimmerman (1993), acculturation and drug use interacted as predictors of suicidal behavior. A common experience of the individuals affected is acculturative stress, which refers to the stress that results from changes the minority individuals undergo when they come in persistent anxiety-

inducing intercultural contact. Pagan, Parilla, and Sanchez (1982) suggested that the increase in the incidence of drug/alcohol abuse and high unemployment result from these social changes and result in overall poor quality of life and problems of adjustment and adaptations. According to Berry (1980), acculturation is also influenced by the nature of the minority population and the degree to which the dominant society accepts or rejects the acculturating group. Williams and Berry (1991) suggested that acculturative stress may result in a particular set of emotions and behaviors, including depression and anxiety, feeling of marginality and alienation, and identity confusion. They also indicated that the ethnic groups with greater proportions of immigrants showed higher reported suicidal behavior.

The increasing rate of suicidal behavior by Mexican-American adolescents perhaps points to the "vulnerability" of this group to such psychosocial stressors. The level of acculturation, socioeconomic status, unemployment, and the like may be some of the specific areas that result from different levels of discrimination against this group, thus increasing the level of vulnerability. Different cultural values coupled with the ethnocentrism of the United States can promote identity confusion in the ethnic minority family. Comas-Diaz and Minrath (1985) reported that feelings of uprootedness, worthlessness, and loneliness are pervasive among the adolescents who experience the pressure of acculturation. Hispanic youth feel pressured to acculturate, enduring conflicts between Hispanic and dominant societal values, and this leads to a high risk of problematic behaviors. Another important consideration regarding ethnic differences is that Mexican-Americans underutilize health care and mental health

services. There are several reasons for this, one being the high rate of uninsured Hispanic Americans. Other factors include language barriers, cultural values regarding mental health services, and provider insensitivity (Ruiz, 1995). The social stigma associated with suicidal behavior within the Mexican-American culture and the negative view of suicide in Catholicism, which is the dominant religion in this ethnic group, are also factors that play into reports of suicidal behavior.

To summarize, the relationship to one's culture is important in the development of one's beliefs about suicide as well as one's sense of belonging. Issues related to prejudice or a sense of being out of place in the majority culture may be an important risk factor in contributing to feeling depressed and adding to risk for Mexican-American adolescents suicidal behavior. At the same time, the close family relations may serve as a protective factor for suicidal risk. Given the limited exploration of this topic, further investigation is warranted and will be included in this study.

Other demographics: Age is an important demographic variable in the assessment of risk for suicidal behavior. There are studies that suggest that suicidal ideation and attempts increase with age, peaking in high school (Garrison, 1989). This is reflected in statistics reported across surveys and studies. Lewinsohn et al. (1996) reported that the incidence of suicidal behavior increased through age 16 and stabilized by age 17-18. One study states suicidal behavior is the third leading cause of death among 15-25 years old (Rosenberg, Smith, Davidson, & Conn, 1987). Other demographics reported as correlated to suicidal behavior include socioeconomic status

and living conditions. Adverse sociodemographic characteristics, including lower annual income, more residential mobility, and lack of formal education, were found to correlate with higher odds of suicidal behavior (Beautrais, Joyce, & Mulder, 1996). Adolescent acting out, aggressive behaviors, and suicidal behaviors were also reported as associated with high-density living (Callan, 1973). Lower socioeconomic status, unemployment, immigration, and problems related to high-density living due to lower socioeconomic status are risk factors correlated with suicidal behavior among Mexican-American adolescents in various studies (Dubow et al., 1989; Pfeffer, 1989; Ramos-Mckay, Comas-Diaz & Rivera, 1988; Rich et al., 1991; Zayas, 1987). A study (Razin et al., 1991) also showed that suicidal behavior is disproportionately high among inner city Hispanic adolescent females.

Poor school performance: There is evidence that adolescents exhibiting suicidal behavior may have experienced significantly more psychosocial stressors (Shafii, Steltz-Lenarsky, Derrick, & Beckner, 1988), but the specific nature of these stressors varies from study to study, such as poor school functioning, learning deficits, and school problems (Litman, 1989; Sanborn, Sanborn, & Cimbolic, 1973). In a study by Razin and colleagues (1991), suicidal Hispanic adolescent females, compared to non-suicidal adolescents, were more frequently (61% versus 20%) one or more grades below age level and more frequently reported a recent decline in school performance. Other studies have also reported lower academic performance to be a risk factor for suicidal behavior among adolescents (Dubow et al., 1989; Lewinsohn et al., 1993). Youths at risk for dropping out of school, like their "out-of-school" counterparts, are

more likely than the general population to experience drug involvement, risky behaviors, family strain, emotional distress, and exposure to violence, and therefore are at an elevated risk for suicide (Center for Disease Control, 1994; Thompson, Moody, & Eggert., 1994). Beautrais et al. (1996) found that a lack of formal education was one of the characteristics of suicidal adolescents. School standing and school difficulties were among major risk factors that were significantly related to suicidal behavior in some studies (Wood et al., 1997). Shaffer et al. (1996) noted that suicidal behavior among adolescents took place after a period of absence from school. Teicher and Jacobs (1966) reported a similar finding for adolescents who had attempted suicide, suggesting that social isolation associated with school-related problems and absence from school may be correlated with suicidal behavior. In addition, school connectedness was seen as a protective factor against risk behaviors, including suicidal behaviors (Resnick et al., 1997). Contrary to these findings, Saleem (1999) found no relationship between school enrollment status and suicidal behavior among Mexican-American adolescents. The reasons for being absent from school were not explored. Thus, it is unclear if school status or isolation from school is a risk factor for suicidal behavior.

Emotional risk factors: The relationship between psychological problems and adolescent suicide has been a recurring theme in the literature. Mental disorders and psychiatric symptoms are common in adolescents with suicidal behavior, and rates of comorbidity of psychiatric disorders and adolescents suicidal behavior up to 90% have been reported (Brent et al., 1988; Marttunen, Aro, Henriksson, & Lonnquist, 1991;

Shaffer et al., 1988; Shafii et al., 1988). However, there is less consensus about the types of psychiatric problems. While some studies have found that affective disorders are the single most prevalent diagnosis among suicidal adolescents, others indicate elevated odds for a range of emotional problems such as substance abuse disorders, anxiety disorders, eating disorders, and antisocial disorders (Andrews & Lewinsohn., 1992; Beautrais et al., 1996; Brent et al., 1993; Shafii et al., 1985). In addition, studies have found psychiatric diagnoses, a risk factor for suicidal behavior, to be higher in minority adolescents. Despite the apparent excess of psychiatric problems among adolescent suicide victims, several studies have shown that the majority were not receiving any support services prior to their deaths (Brent et al., 1988; Rich et al., 1990). Among Mexican-American adolescents, this may be compounded by the under-utilization of mental health services. In a comparison of outpatients with suicidal behavior, Mexican-American respondents kept a smaller percentage of scheduled appointments than did other ethnic groups, and female Mexican-American respondents missed more appointments than males (Callan, 1973).

Depression, among other affective problems, has emerged in a number of studies of psychological variables as the most reliable predictor of suicidal behavior (Boergers, Spirito, & Donaldson, 1998; Cole, 1989; de Wilde, Kienhorst, Diekstra, & Wolters, 1993; Hollis, 1996). Affective disorders are found to be a significant risk factor in the history of individuals exhibiting suicidal behaviors (Andrews & Lewinsohn, 1992; Crumley, 1979; Rich, Motooka, Fowler, & Young, 1989). Depression is also one of the most common diagnoses among suicidal youths.

Kovacs, Goldston, and Gatsonis (1993) found that among adolescents with depressive disorders, 85% experienced significant suicidal ideation and 32% attempted suicide by the time they reached their late teens. Many other studies suggest that depression and hopelessness with negative expectation of the future are present in a large majority of suicidal adolescents engaging in suicidal behaviors (Brent et al., 1986; Brent et al., 1993; Robbins & Alessi, 1985), with one reporting 94% of suicidal adolescents suffering from depression (Marttunen et al., 1991). Another study reported that 35% to 79% of all suicide attempters were diagnosed with depression (Friedman, Corn, Aronoff, Hurt, & Clarkin, 1984). However, it is worth mentioning that affective disorders may be over-represented in this population due to most data being derived from psychiatric admission records and hospitalizations where admission criteria may depend on a diagnosis of clinically significant depression (Friedman et al., 1984; Robbins & Alessi, 1985). Depression and suicidal ideation (Harter, Marold, & Whitesell, 1992), depression and completed suicide (Hoberman & Garfinkel, 1988), and depression and suicidal behavior (Robbins & Alessi, 1985) are some of the ways through which a connection between depression and suicidal ideation or behavior has been established. Depression is generally found as a strong risk factor, although other disorders such as anxiety disorder, substance abuse, and conduct disorders are also associated with suicidal risk factors with increased odds of suicidal behavior when co-existing with depression (Kovacs et al., 1993). The relationship between depressive symptoms, hopelessness, and suicidal ideation, intent, or behavior is examined by several studies. The results of examining the close correlation between depression

and hopelessness in relationship to suicidal behavior in a few studies indicated that among suicidal adolescents, hopelessness and suicidal ideation are not significantly related once depression is statistically controlled (Boergers et al., 1998 ; Cole, 1989; Lewinsohn et al., 1993). Others suggest that hopelessness mediates the relationships between depression and suicidal behavior (Minkoff, Bergman, Beck, & Beck, 1973).

Gender differences have been found in the prevalence of depression, with females twice as likely to report feeling depressed and hopeless and 60% more likely to often feel they had nothing to look forward to (Adcock, Nagy, & Simpson, 1991). Marttunen et al. (1991) reported the prevalence in their sample to be approximately one half of the boys and two thirds of the girls. However, it is important to note that such gender differences in depression develop in early adolescence and do not exist before this age (Nolen-Hoeksema & Girgus, 1994). Research on ethnic differences in depression and suicidal behavior has resulted in mixed findings; some studies do not support any differences (Garrison, Jackson, Marsteller, McKeown,& Addy, 1990; Kandel & Davies, 1982), others report higher level of depression for minorities (Emslie, Weinberg, Rush, Adams, & Rintelmann, 1990, Robert & Chen, 1995), and some report lower level of depression for minority adolescents (Doerfler, Felner, Rowlison, Raley, & Evans, 1988). Saleem (1999) found that among Mexican-American adolescent females with suicidal ideation showed higher depression than males, however, no such differences were found for suicidal attempt. It is important to note that different measures of depression were used by different studies and the focus may be on different minority groups. To address this, Rotheram-Borus and

Trautman (1988) have cautioned against the use of depression or hopelessness as an indicator of suicidal intent, at least in minority adolescents, after finding that neither depression nor hopelessness was predictive of suicidal intent. Another study found similar results when Caucasian and minority suicidal adolescents were compared on depression and hopelessness as an indicator of suicidal intent and found that for minority adolescents suicidal intent is not mediated by hopelessness as it is for Caucasians adolescents (Enns, Inayatulla, Cox, & Cheyne, 1997).

Alcohol and drugs dependence is a salient characteristic of many suicidal adolescents. It appears to be have a strong correlation to prior suicidal behavior (Woods et al., 1997). Miles (1977) suggested that drug use may be the most important single factor in the suicide rate increase among youth in the United States. This coupled with the increasing rate of substance use among this age group over the last two decades, makes it an important risk factor to examine. The disinhibiting effect of mind-altering substances seems to add to impaired judgement and the expression of suicidal impulses. Although the chronic nature of alcohol or substance abuse by suicidal adolescents has been substantiated by a number of studies, a wide variance in rates is reported, ranging from 28% to 70% (Hoberman & Garfinkel, 1988; Poteet, 1987; Shafii et al., 1985). According to some studies, substance abuse in particular predisposes one to suicidal behavior when associated with depression (Fowler, Rich, & Young, 1986; Garrison et al., 1993; Kovacs et al., 1993). It is also suggested that substance abuse is secondary to an affective disorder: "Substance abuse may be an indicator of adolescents at higher risk, such as those with a particular maladaptive

response to depressive affect" (pg. 592) (Robbins & Alessi, 1985). In addition, social isolation that can result from substance abuse can increase the chances of depressive mood by distancing an adolescent from family or by diminishing his or her opportunities because of school failure, lost jobs, or legal involvement (Deykin & Buka, 1994). Chronic substance abuse also has a biological effect, including depression and central serotonergic depletion, both of which are found to be risk factors (Crumley, 1990). Past history of suicidal behavior was found to be associated with inhalant use among Latin-American boys (Felix-Ortiz, Munoz, & Newcomb, 1994). Furthermore, the rates of Latino drug use were highest compared to those of European-Americans and African-American female adolescents (National Institute on Drug Abuse, 1989). Hoberman and Garfinkel (1988) reported that suicidal adolescents under the age of 19 were more likely to be older males with a current psychiatric disorder or drug or alcohol abuse problem, and who had experienced an acute stressor. In addition to the presence of stressors, it is theorized that substance abuse may be an indication of a breakdown in effective coping skills, general psychopathology, or family disturbance (Spirito, Overholser, & Stark, 1989). Crumley (1990) concluded that a significant association exists between substance abuse and increasing incidence, increasing repetitiveness, increasing seriousness of intention, and increasing lethality of suicidal behavior. He also noted that alcohol abuse seems to be the most frequently associated with increased risk of suicidal behavior. This was contradicted by the findings of Felts, Chenier, and Barnes (1992), who indicated that use of cocaine/crack was more closely associate with a self-

reported incidence of attempted suicide than was use of alcohol, marijuana, or needle drugs. Gender differences are also identified in literature with suicidal males more likely to be alcohol or drug abusers than females (Hoberman & Garfinkel, 1988). Shaffer et al. (1988) reported substance abuse to be associated with 37% of male and 5% of female suicidal behavior.

Severe anxiety alone or comorbid with other emotional problems has been found to be associated with suicidal behavior. A nearly six-fold increase in suicide attempts among anxious adolescents with other comorbid diagnoses has been reported (Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992). Several studies have supported a relationship between severe anxiety symptoms (notably panic attacks) and suicidality (Fawcett, Scheftner, & Fogg, 1990; Weissman, Klerman, Markowitz, Quellette, & Phil; 1989). High levels of comorbidity between anxiety and depression in multiple studies of youth have been documented (Brady & Kendall, 1992). Social phobia, a type of anxiety disorder, is relatively common among adolescents. It is characterized by heightened interpersonal sensitivity, fears of negative evaluation, scrutiny, and embarrassment, and self-depreciating cognition (Turner & Beidel, 1989). In one study, 13% of the suicidal adolescents suffered from social phobia; of these, 11.1% were males and 15.5% were females (Kessler et al., 1994). The presence of anxiety disorder may be caused by low self-esteem and may contribute to depression and suicidal ideation among adolescents. Trait anxiety was found to be higher for repeat and previous suicide attempters in a study by Goldston and Colleagues (1996). However, it is worth noting that some studies have contradicted the presence of

correlation between anxiety and suicidal behavior among adolescents (Cox, Direnfeld, Swinson, & Norton, 1996). A study by Marttunen et al. (1991) reports relatively low rates of anxiety disorder among suicidal adolescents. Beautrais et al. (1996) found that when effects of correlated psychiatric disorders were taken into account for 13-24 year old suicidal adolescents, anxiety was not associated with the risks.

Conduct behavior problems such as antisocial/delinquent, aggressive, violent, and impulsive behaviors and suicidal attempts in adolescents has been strongly linked and documented (Pfeffer, Newcorn, Kaplan, Mizurchi, & Plutchik, 1989). A relationship between antisocial/delinquent behavior and alcohol and substance abuse is also seen in clinical studies as a risk factor for suicidality (Kovacs et al., 1993). However, Garrison et al. (1993) found that aggressive behavior was associated with suicidal behaviors even after controlling for alcohol and illicit drug use. One study indicated that adolescents who attempted suicide displayed aggressive tendencies equivalent to those seen in assaultive individuals (Cairns, Peterson, & Neckerman, 1988). Antisocial behavior is found to be associated with all forms of suicidal behavior (Apter, Bleich, Plutchik, Mendelsohn, & Tyano, 1988). The importance of the role of impulsive violence in suicidal behavior is outlined as contributing to suicidal risk (Pfeffer, 1989; Plutchik &Van Praag, 1990). While many studies find depression and hopelessness to be salient features of suicidal adolescents, a negative correlation was found between affective problems and conduct disorder in suicidal behavior (Brent et al., 1993). Similarly, evidence of low levels of depression and hopelessness in adolescents engaging in impulsive suicidal behavior was found

(Brown, Overholser, Spirito, & Fritz, 1991). Furthermore, several studies reported suicidal adolescents exhibited aggression and conduct problems, with little evidence of affective symptoms (Borst & Noam, 1989; Carlson & Cantwell, 1982). Pfeffer et al. (1989) found consistent results and reported that a large number of adolescents who engaged in suicidal behavior exhibited assaultive/aggressive behavior, independent of depression. Given these contradictory findings, two types of suicidal adolescents were identified in some studies; those who are primarily impulsive and aggressive and those who are primarily depressed or withdrawn and show little, if any, aggressive behavior (Brent et al., 1986; Pfeffer et al., 1989). Thus, the combination of impulsiveness and aggression along with depression can create a high risk for suicidal behavior. Some have made the assumption that suicide can be regarded as an act of inward-directed aggression (Freud, 1917). Because aggressive behavior patterns, along with antisocial patterns, emerge at an early age and are associated with a number of poor outcomes, this category of behaviors potentially has important predictive validity for suicidal behavior. Garrison et al. (1993) reported that aggressive behaviors were elevated across all categories of suicidal behavior in a sample of high school students. This may be due to the fact that suicidal behavior and aggression are manifestations of poor impulse control as suggested by the findings of Cairns et al. (1988). Impulsive behavior is reported to be present in two thirds of suicidal adolescents with little evidence of premeditation and short periods of planning (Brown, Overholser, Spirito, & Fritz, 1991). It is also speculated that exposure to violence at an early age could lead one to learning that violence is a

means of coping with frustration and anger and leading to aggressive and destructive behaviors that could be directed outwards or inwards as in the case of suicidal behaviors (Deykin, 1989). Gender differences are seen in the relationship between antisocial behavior and suicidal behavior indicating it is more likely a characteristic of suicidal males (Holden, 1986) and that male suicidal adolescents are more often described as impulsive than female suicidal adolescents (Marks & Haller, 1977). In another study, antisocial behavior was reported in 45% of the males and 33% of the female adolescents who attempted suicide (Marttunen, Aro, Henriksson, & Lonnquist, 1994).

The study of the impact of sexual abuse on suicidal behavior among adolescents has resulted in contradictory results, with some studies showing a positive correlation between the two while others showing no relationship. There is some evidence that individuals with a history of sexual abuse are at greater risk of becoming depressed and/or suicidal during adolescence and young adulthood. Withers and Kaplan (1987) reported a high rate of sexual abuse, approximately 16%, in this group. Odds of serious suicide attempts were elevated among adolescents with histories of childhood sexual abuse among other adverse childhood experiences (Beautrais et al., 1996). A review of 45 studies by Kendall-Tackett, Williams, and Finkelhor (1993) indicated that while there is no one symptom pattern specific to sexually abused persons, some symptoms may be specific to certain age groups, e.g., suicidality in adolescence. Suicidal adolescents were more likely to report a history of sexual abuse (33%) than depressed (21%) or non-depressed (5%) adolescents who had not

attempted suicide (de Wilde, Kienhorst, Diekstra & Wolters, 1992; Deykins et al., 1985). The effects of childhood sexual abuse were indicated by the risk of repeated suicide attempts being eight times greater for youths with a sexual abuse history (Brown, Jocelyn, Cohen, Johnson, & Smailes, 1999). Other studies have also indicated that a history of sexual abuse results in low self-esteem, feelings of powerlessness, guilt, self-blame, and other symptoms of depression (Beitchman, Zucker, Hood, Dacosta, & Akman, 1991; Briere & Runtz, 1988), which are found associated with suicidal behavior. Other correlates of suicidal behavior such as depression, anxiety, aggression, and low self-esteem also may increase with a history of sexual abuse (Deblinger, McLeers, Atkins, Ralphe, Foa, 1989; Einbender & Friedrich, 1989; Hotte and Rafman, 1992; Leifer, Shapiro, Martone, & Kaseem, 1991; Mannarino, Cohen, & Gregor, 1989). Sansonnet-Hayden, Haley, Marriage, and Fine (1987) found that adolescents reporting sexual abuse were found to exhibit more severe depressive symptoms and a greater number of suicidal attempts. It is also noted that the severity of the outcomes of sexual abuse may differ depending on the gender (Watkins & Bentovim, 1992), the duration of abuse, association with aggression, and a parent perpetrator (Kendall-Tackett et al., 1993). Morrow and Sorell (1989) studied 12-to-18-year-old females who had experienced incest and found that they engaged in a large number of negative behaviors, including running away, truancy, suicide attempts, self-injurious behavior, and illegal activities. Shaunesey, Cohen, Plummer, and Berman (1993) reported that females who were sexually abused had a higher incidence of suicide attempts than females with no

history of sexual abuse. It also reported that females with a high frequency of abuse (i.e., more than 10 events) had engaged in significantly higher suicidal behavior. In addition, it has been found that adolescents treated for chemical dependency and with a history of sexual abuse report more suicidal ideation and more suicide attempts than substance-dependent adolescents without this history (Edwall, Hoffmann, & Harrison, 1989; Harrison, Hoffmann, & Edwall, 1989).

Other studies did not support a correlation between a history of sexual abuse and suicidal behavior (Brand, King, Olson, Ghaziuddin, & Naylor, 1996). Contradictory evidence was presented by some research that negated that adolescents with a history of sexual abuse suffer from severe depression or engage in more suicidal thoughts and attempts (Brand et al., 1996). Brand and colleagues (1996) also found no evidence that adolescents with a history of sexual abuse suffer from more severe depression and/or engage in more suicidal behavior. Cohen, Spirito, Sterling, and Donaldson (1996) reported similar findings with no differences found in suicidal behavior among adolescents who had histories of sexual abuse compared to those who had no such history; however, the study did not examine gender differences.

A history of physical abuse has been demonstrated to be significantly higher among suicidal adolescents in several studies (de Wilde et al., 1992; Shaunessey et al., 1993). Family aggression and exposure to family violence in samples of suicidal children and adolescents is prominent (Hawton, O'Grady, Osborn, & Cole, 1982; Pfeffer, Plutchik, & Mizruchi, 1983; Withers & Kaplan, 1987). Suicidal adolescents were found to be more likely to have been physically abused (among other abuses)

compared to a sample of friends (Shaffi et al., 1985). In addition, low self-esteem has been identified as a characteristic of both abused children and suicidal adolescents. Jacobs (1971) reported that suicidal adolescents were subjected to more severe disciplining techniques than normal controls. Abuse (unspecified) or neglect in the six weeks preceding engaging in suicidal behavior was found in a study by Brent and colleagues (1988). One study by Cavaiola and Schiff (1988) indicated that chemically dependent adolescents with a history of physical and sexual abuse were more likely to engage in suicidal behavior than controls who had not been abused. Gender differences correlated to a history of abuse and suicidal behavior were noted in some studies. Deykin and Buka (1994) found that a history of victimization (including sexual and/or physical abuse) significantly increased the risk of a suicide attempt only for chemically dependent males but was not associated with female suicidal behavior. Bayatpour et al. (1992) found pregnant adolescents with a history of physical or sexual abuse had a higher degree of prior suicidality when compared with non-abused pregnant adolescents. Similar to the sexual abuse literature, contradictory conclusions have been drawn about physical abuse with some studies indicating no differences for suicidal behavior among adolescents with a history of physical or sexual abuse and adolescents with no history of abuse (Cohen et al., 1996). In another study, Beautrais et al. (1996) found that when the correlation of childhood experiences was examined for 13-24 year old suicidal adolescents, physical abuse and parental violence were not noted to be associated with risks of serious suicide attempts.

As noted, low self-esteem as a result of parental abuse has been linked to suicidal behavior. Green (1968), who studied abused youths and self-destructive youth behaviors, reported that he found both groups showed low self-esteem, a self-concept of being bad, and self-hate as a result of the feeling of rejection and abuse. Glasser (1967) concluded that children with suicidal ideation have very low self-esteem. Pfeffer (1986) reported that feelings of poor self-esteem among the young are the cause of self-harming behaviors which in turn could create a suicidal risk.

Anger and hostility have been found to be correlated with suicidal behavior among adolescents (Myers, McCauley, Calderson, & Treder, 1991). Suicidal adolescents are likely to experience increased levels of internalized and externalized anger and reduced impulse control (Lehnert, Overholser, & Spirito, 1994). In a study by Goldston and colleagues (1996), the level of anger exhibited by the previous attempters was higher than reported by any of the other groups of adolescents. Also, suicidal adolescents described themselves as more angry than the non-suicidal youths. This was confirmed by Cohen-Sandler, Berman, & King (1982) who reported that internalized and outwardly expressed rage characterized suicidal adolescents. Spirito and colleagues reported (1989) that both anger and depression are commonly found in adolescent suicide attempters. Experiencing intense anger immediately before engaging in suicidal behavior was reported by suicidal adolescents (Hawton et al., 1982; Withers & Kaplan,1987). Boergers and colleagues (1998) reported their findings were consistent with others indicating adolescent suicide attempters have elevated levels of anger (Lehnert et al., 1994), and that higher levels of anger are

linked to more serious suicide attempts (Gispert, Wheeler, Marsh, & Davis, 1985). In some adolescents, anger or irritability may be a symptom of a depressive disorder, while the anger exhibited by other adolescents may be indicative of oppositionality or conduct problems. Impulsivity has also been closely linked with anger and suicidal behavior (Apter, Bleich, Plutchik, Mendelsohn, & Tyano, 1988). It is important to note that individuals cope with anger in different manners--some suicidal adolescents display intense verbal outburst, some engage in physical aggression, and others deny and repress their anger (Gispert, Davis, March, & Wheeler. 1985). Despite the differences in the origin and expression of anger, several studies suggests that anger is related to an increase in suicidal behavior among this age group. Differences were noted between suicidal adolescents less than 15 years old and older adolescents, with younger suicidal adolescents being more impulsive and more angry than older adolescents (Hoberman & Garfinkel, 1988). However, no gender differences were found in impulsive suicidal behavior; boys were not more likely than girls to make impulsive attempts (Lewinsohn et al., 1993). Feliz-Ortiz et al. (1994) found that for Latin-American youth there is a correlation between anger and hostility and drug use, which is a risk factor in itself for suicidal behavior.

In addition to the presence of isolated psychiatric disorders, as noted earlier, comorbidity of symptoms of psychiatric disorders has also been found by some researchers as correlated with an increase in risk for suicidal behavior among adolescents. For example, Wagner, Cole and Schwartzman (1996) reported that adolescents with a history of suicidal behavior reported a higher level of depression,

along with either alcohol abuse or conduct problems than adolescents with only one of those disorders. Also, comorbidity of depressive symptoms with substance abuse has been found in a study by Lewinsohn, Rohde, and Seeley (1995) among adolescents with higher rate of suicidal behavior.

Family problems and conflicts leading to impaired relationships among family members seem to be prominent in the histories of adolescents with suicidal behavior (Cohen-Sandler et al., 1982; de Wilde et al., 1992; Spirito et al., 1989). Overt conflict in family appeared to be a major area that differentiated suicidal adolescents from other psychiatric comparison groups (Spirito et al., 1989). Richman (1979) and Pfeffer (1986) reported that suicidal adolescents tend to have negative views of their families. Severe conflict in family relationships and a lack of open communication among family members were found in the home environment of suicidal adolescents. Pfeffer (1989) also suggested that loss of support due to family change and stress related to parental psychopathology are associated with adolescent suicide. Conflicts between parents and adolescents engaging in suicidal behavior, perceived low family support, impaired family functioning due to domestic violence, parental death, separation, or divorce, and angry and aggressive interactions were some of the family factors found in the families of suicidal adolescents (Cohen-Sandler et al.,1982; Friedrich, Reams, & Jacobs, 1982; Meneese & Yutrzenka, 1990; & Pfeffer, 1989). Wagner (1997) also highlighted several important family risk factors in a recent review of child and adolescent suicide, including losses or separations, poor family relationships, and family psychopathology. Many studies have concurred that when

compared with other psychiatrically ill adolescents, suicidal adolescents have significantly more family problems, including family conflict (de Wilde et al., 1992), family instability and chaos (Adam, Lohrenz, Harper, & Streiner, 1982; de Jong, 1992), and exposure to family violence (Hawton et al., 1982). Correlation is seen between unhappy family circumstances, low parental care, and poor parental relationship and elevated odds of adolescent suicidal behavior (Beautrais et al., 1996). Studies have also shown that parental loss through death, divorce, separation, or abandonment is higher among suicidal adolescents (Hawton et al., 1982; Walker,1980); however, no significant differences were found between suicidal adolescents and non-suicidal adolescents when compared on the frequency of parental loss (Kahn,1987; Kosky, Silburn, & Zubrick, 1986). Withers and Kaplan (1987) also reported that disproportionate numbers of suicidal adolescents are not living in stable "intact" homes with two parents. Family history of suicide and/or depression is another risk factor that has been identified in previous studies (Overholser, Hemstreet, Spirito, & Vyse, 1989; Shaffer et al., 1988). Family connectedness was identified to be a protective factor for adolescents against risk behaviors, including suicidal behavior, in some studies (Resnick et al., 1997). The cohesiveness of a family provides effective coping against feelings of loneliness, depression, and other risk factors for suicidal behavior. In one study, family functioning was one of the two variables that differentiated depressed adolescents from suicidal adolescents (Kienhorst, de Wilde, Diekstra, & Wolters, 1992).

Gender in conjunction with family problems appears to be predictive of suicidal behavior. In a study of suicidal behavior by Deykin, Alpert, and McNamara (1985), it was found that females were most likely to report at least one parent with psychological problems and victimization through physical and sexual abuse by a family member. Lewinsohn et al. (1993) also found that frequency and intensity of conflicts with parents constitutes a greater vulnerability for the young women. King and colleagues (1990) found that girls from a predominantly poor, inner-city area who had engaged in suicidal behavior reported problems in relationships with their parents and had less active and affectionate relationships with their mothers. Razin and colleagues (1991) found that suicidal female adolescents saw themselves as caretakers in their families of origin. It was also found that nearly half of the adolescents with suicidal behavior used terms such as "bad girl" and being "the black sheep of the family" for themselves and this negative self-image and low self-esteem seem to be correlated with suicidal behavior.

Seventy-five percent of the suicidal subjects were oldest daughters living at home in a study of suicidal behavior in Hispanic adolescents by Razin and colleagues (1991). Also, regarding the family's influence on Mexican-American adolescents, literature reviews reveal that even though there is a broad range of Mexican-American family structures and systems that are influenced by a variety of socioeconomic and acculturation factors, there are some consistent generalizations. These include an extended family system, a paternal hierarchical structure, valuing the good of the family over the good of the individual, and a high degree of cohesiveness and

cooperation (Guiao & Esparza, 1995). These cultural attributes have been known to be protective; however, there has been research indicating that within certain groups of Hispanic populations, the changes caused by the North American social structure and attitudes confront families with a confusion of roles and contradictions in expectations and life goals (Garcia, 1968). Erosion of family customs and relations which occurs due to living in the United States also leads to a reduction in domestic harmony. Sanchez, Parrilla, and Pagan (1985) reported that when stressors are experienced by the family, they are manifested as symptoms by "one of the most vulnerable members of the family system--the adolescent"(Pg. 274) in the form of the suicidal behavior. It remains unclear as to what makes the adolescents in Hispanic or Latin families the most vulnerable member of the family. Perhaps, the difference exists due to the acculturation level between the generations creating family conflicts.

In summary, a comprehensive review of literature on suicidal behavior among Anglo-American and Mexican-American adolescents indicates the presence of a variety of risk factors, suggesting that adolescents exhibiting suicidal behavior are a heterogeneous group with complicated etiology for suicidal behavior. The frequently emerging risk factors ranged from psychiatric problems such as depression, anger, anxiety, drug and alcohol abuse, conduct disorder, to factors such as gender, history of previous nonfatal suicidal behavior, life stresses, lower socioeconomic status, poor coping skills, and family issues (Asarnow, Carlson, & Guthrie, 1987; Brent et al., 1993; Cohen-Sandler et al., 1982; Cole, 1989; Farberow, 1989; Garrison, Jackson, Addy, McKeown, & Waller, 1991; Meneese & Yutrzentka, 1990; Paykel, 1989; Peck,

1987; Rubenstein, Heeren, Housman, Rubin, & Stechler, 1989; Rudd, 1990; Spirito et al., 1989; Vega et al., 1993). Inconsistent research results have emerged in studies of relationship of sexual and physical abuse, ethnicity, and school performance status with suicidal risk factors for this age group (Brand et al., 1996; Griffith & Bell, 1989; Saleem, 1999; Withers & Kaplan, 1987). Research also indicates that these risk factors may be moderated by the presence of protective factors; the risk factors need to be stronger than the protective factors to produce suicidality (Guiao & Esparza, 1995). In other words, while a mental disorder diagnosis is often linked, it is not enough to establish the risk of suicidal behavior; other factors such as age, gender, family history, and culture are important to be further evaluated as important risk factors. Literature also indicates that despite the high association of past non-fatal suicidal behavior to future suicidal behaviors, as noted earlier, much of the research has been limited to investigating fatal suicidal behavior. The significance of non-fatal suicidal behavior as a risk factor for future attempts and the importance of first-hand knowledge from these adolescents underscores the importance of further understanding and thus being able to applying the knowledge towards preventative measures against future suicidal behavior.

In addition, the literature review of Mexican-American youth suicidal behavior indicated that the general lack of research on minorities is reflected in very few studies found for this ethnic group (Guiao & Esparza, 1995; Swanson et al., 1992). Some studies included Hispanic or Latino youth as samples (Copeland, 1989; Heacock, 1990; Lester & Anderson, 1992; Queralt, 1993; Trautman, Rotheram-Borus, Dopkins,

& Lewin, 1991; Vega et al., 1993; Zayas, 1987), but the generalization of these findings to Mexican-American teens is not warranted since "Hispanic and Latin" are broad terms that can apply to any Spanish speaking population (Guiao, & Esparza, 1995). In addition, there are inconsistencies in the reported rates of suicidal behavior found by the studies that have included Mexican-American adolescents, with some studies indicating a higher suicidal rate for Mexican-American adolescents (Hope & Martin, 1986; San Antonio Metropolitan Health District, 1990), and others reporting a lower rate (Smith, Mercy, & Warren, 1985). These studies, however, did not report on risk factors correlated with suicidal behavior among Mexican-American adolescents. A few studies of risk factors of suicidal behavior for Mexican-Americans reported inconsistent results, with some stating that the same risk factors exist for suicidal behavior in Mexican-Americans as Anglo-Americans, while others presenting different factors (Guiao & Esperaza, 1995). Given that Mexican-Americans adolescents are the largest and fastest growing minority group, and hence the fastest growing potentially at-risk population for suicidal behavior, such a dearth of studies and the inconsistencies in results indicate that further careful investigation is merited.

Another problem brought to light from the literature is one of the methodological constraints that limit research of suicidality in adolescents, especially Mexican-American adolescents. For example, sampling is limited, there are problems and difficulty of defining ethnicity, and most research is conducted in English only. It also helped determine that dropouts have been left out because of the fact that most

surveys are completed by in-school students and, therefore, do not include high school dropouts (Chavez, Deffenbacher, & Wayman, 1996). This has led to a biased representation of this age group in general, and in particular in the case of Mexican-American adolescents due to their higher drop out rate (McMillen, Kaufman, & Whitener, 1994; Rumberger, 1991).

Thus, a need for further exploration of suicidal risk factors with large, non-clinical samples of Mexican-American and Anglo-American adolescents evaluating variables that have been correlated along with the ones with inconsistent findings is indicated. Also, issues related to ethnic identification and acculturation cannot be ignored in the beginning comparative studies.

Purpose of the present study

This study explores the relationship between potential risk factors and suicidal thoughts and behaviors in adolescents based on a large non-clinical sample of Mexican-American and Anglo-American adolescents from a longitudinal data set. As evidenced by the literature, there is a dearth of research on risk factors associated with suicidal behavior of Mexican-American adolescent. This is addressed by this study by identifying risk factors associated with this ethnic group. Also, given the early stages of comparative studies between ethnic groups, this study provides a much-needed evaluation of similarities and differences in the relationship between risk factors and suicidal thoughts and behavior between Mexican-American and Anglo-American adolescents. Information specific to each group is likely to assist in developing programs that are specific to each and can assist in developing culturally responsive

clinical and prevention strategies towards the reduction of suicidal behavior in adolescents of these ethnic groups.

Risk factors evaluated in this study were chosen based on previously found relationships with suicidal behavior. In addition, some less frequently researched factors, along with variables that have resulted in inconsistent findings, were included. Risk factors included gender, past nonfatal suicidal behavior, emotional problems including depression, anger, and anxiety, alcohol and drug abuse, and delinquency, along with some less frequently researched factors such as ethnic identification, age, self-esteem, school performance problems, and family caring. Evaluation of factors with inconsistent findings such as physical and sexual abuse are also included. Given the complicated nature of suicidal behavior, inclusion of previously established risk factors along with the new ones is likely to provide a fuller picture of factors involved.

Finding alternative methods to using hospital and clinical settings to gather data on suicidal behavior may provide more accurate and unbiased reporting of the extent and nature of such behavior. This study will address the problem faced by the dearth of non-clinical data on suicidal risk factors among adolescents by using a large non-clinical adolescent sample from the community that is more representative of this age group. This was achieved by collecting data from in-school as well as dropout students, making it a representative sample. Also, including in-school and dropouts provides the opportunity to evaluate school standing as a potential risk factor for suicidal behavior, which will contribute to clarifying the inconsistent few findings on this issue.

Even though age is indicated by studies as a risk factor for suicidal behavior, no study has focused on the potential differences among older adolescents and younger adolescents and potential differences in risk factors to suicidal behavior. In addition to being able to explore age differences, data collected at Time 1 and 2 helps ascertain if Time 1 data could predict the presence of Time 2 suicidal behavior. In other words, the goal is to find out if the presence of certain psychosocial variables is predictive of future suicidal behavior. It is also not clear if the risk factors for younger adolescents can be applied to older adolescents and whether they are stable over time. These issues are addressed by this study due to the use of data from the same adolescents over time, thus providing an opportunity to explore the possibility of predictability of suicidal ideation and behavior based on the presence of certain psychosocial variables. If so, this could be extremely important in the development of assessment tools and preventative programs that can target such adolescents before they engage in life-threatening behaviors. On the other hand, absence of such predictability can be informative as well and help us understand more the crisis and situational nature of suicidal behavior to develop more crisis oriented assessment and prevention skills.

Finally, given the existing need to learn more about individuals' own perceptions of factors influencing their lives and to assess their relationship to suicidal behaviors without the fear of legal or societal consequences, a confidential self-report survey was used, which is likely to generate more accurate responses. For the purposes of this study, suicidal behavior was assessed by asking about thoughts and

behaviors that indicate a desire to end one's life. A separate evaluation of suicidal thoughts from attempts will provide more specific data that are lacking.

CHAPTER II

Method

Participants

Participants included Mexican-American and Anglo-American adolescents from two communities in the southwestern United States. Data were derived from two points (Time 1 and Time 2) in a longitudinal study. At Time 1, participants consisted of 3209 adolescents, ranging from age 11 to 21 (M = 16.58, SD = 1.18). The ethnic breakdown was 2093 Mexican-American adolescents participants (1174 males, 919 females) ranging from age 11 to 21 (M = 16.49, SD = 1.22) and 1116 Anglo-American adolescents participants (568 males, 548 females) ranging from age 13 to 21 (M = 16.72, SD = 1.10). The mean age for Mexican-American females was 16.48 (SD = 1.23) and 16.50 for males (SD = 1.22). The mean age for Anglo-American females was 16.58 (SD = 1.06) and 16.85 for Males (SD = 1.13) (Table 1). At Time 2, participants consisted of 1606 adolescents ranging from age 16 to 26 (M = 20.68, SD = 1.6). The ethnic breakdown was 1094 Mexican-American adolescents participants (559 males, 535 females) ranging from age 16 to 26 (M = 20.71, SD = 1.64) and 512 Anglo-American adolescents participants (227 males, 285 females) ranging from age 17 to 26 (M = 20.62, SD = 1.52). The mean age for Mexican-American females was 20.59 (SD =1.64) and 20.82 for males (SD = 1.63). The mean age for Anglo-American females was 20.45 (SD = 1.52) and 20.83 for Males (SD =

1.50) (Table 2). The sample was categorized into three subgroups; high school dropouts, academically at-risk students who were still in school, and students in good academic standing in school. Dropouts were adolescents who were reported absent from school for 30 days as reported by the school and were not enrolled in any other school. At-risk adolescents were still in school but had grades putting them at risk for dropping out, and students in good academic standing were a matched sample. Dropouts were matched in ethnicity, gender, age, grade and GPA to the at-risk group, and both groups were matched along the same criteria, except for GPA, with the in good academic standing group. Table 1 and Table 2 present the sample sizes for Mexican-American and Anglo-Americans at Time 1 and Time 2 by gender and school status.

TABLE 1
Sample Size at Time 1

Enrollment Status	Mexican-American			Anglo-American		
	Male	Female	Total	Male	Female	Total
At-Risk	392	297	689	162	162	324
Dropout	438	333	771	231	206	437
Good Standing	344	289	633	175	180	355
Total	1174	919	2093	568	548	1116

TABLE 2
Sample Size at Time 2

Enrollment Status	Mexican-American			Anglo-American		
	Male	Female	Total	Male	Female	Total
At-Risk	179	178	357	60	77	137
Dropout	193	169	362	87	95	182
Good Standing	187	188	375	80	113	193
Total	559	535	1094	227	285	512

The distribution of suicidal thought and attempt responses across groups at Time 1 and Time 2 is shown in Tables 3, 4, 5, and 6. At Time 1, the sample consisted of 338 Mexican-American and 310 Anglo-American adolescents, of whom 112 (33%) Mexican-American and 93 (30%) Anglo-Americans reported thinking about suicide in the previous year, whereas 226 (67%) Mexican-Americans and 217 (70%) Anglo-Americans did not report any thoughts of suicide in the last year. Of the Mexican-American sample, 39 (26%) males and 73 (39%) females reported suicidal ideation with 112 (74%) males and 114 (61%) females not reporting any suicidal ideation. Of the Anglo-American sample, 36 (23%) males and 57 (37%) females reported suicidal ideation and 118 (77%) males with 99 (63%) females not reporting any suicidal ideation (Table 3). The difference in total sample size and the sample sizes of those who answered the suicidal questions (thoughts or attempts) is due to a significant number of adolescents not answering the questions about adolescents suicidal thoughts and attempt. This is attributed to the questions about suicide being optional to answer for the age group under 18 that applied to Time 1.

At Time 2, the sample consisted of 1094 Mexican-Americans and 512 Anglo-Americans. Of these, 242 (22%) Mexican-Americans and 116 (23%) Anglo-Americans reported suicidal ideation, whereas 852 (78%) Mexican-Americans and 396 (77%) Anglo-Americans did not report any suicidal ideation in the last year. Of the Mexican-American sample, 138 (25%) males and 104 (19%) females reported suicidal ideation with 421 (75%) males and 431 (81%) females reporting no suicidal ideation. Of the Anglo-American sample, 50 (22%) males and 66 (23%) females

reported suicidal ideation and 177 (78%) males and 219 (77%) females reported no suicidal ideation (Table 4). A higher response rate for suicide questions at Time 2 compared to Time 1 is attributed to the difference in age group (over 18 at Time 2) and the specific questions not being under the "optional" category that existed for Time 1.

In the case of suicidal attempts, at Time 1, the sample consisted of 338 Mexican-Americans and 309 Anglo-Americans, of whom 51 (15%) Mexican-Americans and 23 (7%) Anglo-Americans reported suicidal attempt, whereas 287 (85%) Mexican-Americans and 286 (93%) Anglo-Americans reported no suicidal attempt in the previous year. Of the Mexican-American sample, 16 (11%) Mexican-American males and 35 (19%) females reported actually attempting suicide in the previous year, whereas 136 (89%) males and 151(81%) females reported no suicidal attempts in the previous year. Of the Anglo-American adolescents, 9 (6%) males and 14 (9%) females reported attempts of suicide in the previous year, whereas 143 (94%) males and 143 (91%) females did not report any attempts of suicide in the previous year (Table 5). At Time 2, the sample consisted of 1094 Mexican-Americans and 512 Anglo-Americans, of whom 99 (9%) Mexican-Americans and 37 (7%) Anglo-Americans reported attempts of suicide, whereas 995 (91%) Mexican-Americans and 475 (93%) Anglo-Americans did not report attempts of suicide in the previous year. Of the Mexican-Americans 53 (9%) males and 46 (9%) females reported attempts of suicide with 506 (91%) males and 489 (91%) females reporting no attempts of suicide. Of the Anglo-Americans, 13 (6%) males and 24 (8%) females reported attempts of

suicide with 214 (94%) males and 261 (92%) females reported no attempts of suicide in the previous year (Table 6).

The sample was divided into three groups of adolescents based on their academic status. In the case of suicidal ideation, at Time 1, the sample consisted of 244 dropouts, 199 at-risk students and 205 students in good standing. Of these, 86 (35%) dropouts, 62 (31%) at-risk students and 57 (28%) students in good standing reported suicidal thoughts, whereas 158 (65%) dropouts, 137 (69%) at-risk students and 148 (72%) students in good standing reported no suicidal thoughts in the previous year. At Time 2, the sample consisted of 549 dropouts, 500 at-risk students and 569 students in good standing. Of these, 151 (28%) dropouts, 96 (19%) at-risk students and 113 (20%) students in good standing reported suicidal ideation, whereas 389 (73%) dropouts, 404 (81%) at-risk students and 456 (80%) students in good standing did not report any suicidal ideation in the previous year.

In the case of suicidal attempts, at Time 1, the sample consisted of 245 dropouts, 199 at-risk students and 203 students in good standing. Of these, 35 (14%) dropouts, 23 (12%) at-risk students and 16 (8%) students in good standing reported suicidal attempt, whereas 210 (86%) dropouts, 176 (88%) at-risk students and 187 (92%) students in good standing reported no suicidal attempt in the previous year. At Time 2, the sample consisted of 546 dropouts, 495 at-risk students and 569 students in good standing. Of these, 56 (10%) dropouts, 42 (9%) at-risk students and 38 (7%) students in good standing reported attempts of suicide, whereas 490 (90%) dropouts,

453 (92%) at-risk students and 531 (93%) students in good standing did not report attempts of suicide in the previous year.

TABLE 3

Suicidal Ideation at Time 1

Thought	Mexican-American			Anglo-American		
	Male	Female	Total	Male	Female	Total
Yes	39	73	112	36	57	93
No	112	114	226	118	99	217
Total	151	187	338	154	156	310

TABLE 4

Suicidal Ideation at Time 2

Thought	Mexican-American			Anglo-American		
	Male	Female	Total	Male	Female	Total
Yes	138	104	242	50	66	116
No	421	431	852	177	219	396
Total	559	535	1094	227	285	512

TABLE 5

Suicidal Attempt at Time 1

Attempted	Mexican-American			Anglo-American		
	Male	Female	Total	Male	Female	Total
Yes	16	35	51	9	14	23
No	136	151	287	143	143	286
Total	152	186	338	152	157	309

TABLE 6

Suicidal Attempt at Time 2

Attempted	Mexican-American			Anglo-American		
	Male	Female	Total	Male	Female	Total
Yes	53	46	99	13	24	37
No	506	489	995	214	261	475
Total	559	535	1094	227	285	512

Instruments

A detailed questionnaire battery of psychosocial measures was administered. The original instrument was a 70 page survey. The survey took approximately one and a half hours to complete, and all questions were in English accommodating for low reading comprehension level. The respondents were fluent in English. In addition, the interviewers were bilingual.

The survey used an instrument, the Clinical Drug Assessment Scale (Oetting, Beauvais, Edwards, & Waters, 1984), from the American Drug and Alcohol Survey (ADAS) (Oetting & Beauvais, 1984). This instrument is used to assess current and past month involvement in drugs and alcohol. The reliabilities for substance use scales range from .74 to .92 for Mexican-American youth and .78 to .96 for Anglo-American youth (Oetting & Beauvais, 1990). The Prevention Planning Survey (PPS), another instrument in the survey, included items related to emotional distress such as anger, anxiety, depression, delinquency, self-esteem, school-related attitudes and behaviors, and family caring. Psychosocial characteristics of the respondents were measured by sub-scales formed from these items. The PPS scales were developed to ensure construct validity (Oetting & Beauvais., 1984). Items were written to assess each construct that was defined. Cluster analyses were conducted on large samples for reliability and examination of group differences. Items were revised, added or dropped based on the results to increase internal consistency and reduce group differences. Then the same process was repeated with the new items until satisfactory patterns of internal consistency, ethnic group equivalence, and scale structure stabilized (Oetting & Beauvais, 1984).

Demographic Information. Information about age and gender was obtained by questions on the survey, whereas information about ethnicity, grades, and academic status were obtained from school records.

Suicidal ideation and suicidal behavior. Two questions were used to assess suicidal ideation and behavior: "In the last 12 months have you thought about suicide?" and "In the last 12 months have you attempted suicide?" Items were rated on a four-point Likert scale (1 = not at all, 2 = not much, 3 = some, 4 = a lot). Students were judged as thinking about or attempting suicide if they marked 2 or more on each of these questions, respectively.

Depression. An assessment of depression was obtained by using a 7-item scale with items tapping negative mood state, e.g., " I have crying spells," or "I feel low." Items were rated on a four-point Likert-type scale ("not at all = 1, not much = 2, some = 3, and a lot = 4"). Alpha reliability for depression scale has ranged from .89 to .94 (Oetting & Beauvais, 1984) and were .92 for Mexican-Americans and .94 for Anglo-Americans. It was .92 in the current study. The depression scale and other emotional measures inter-correlated as follows; depression correlates negatively with self-esteem (rs = -.26 to -.40) and positively with anxiety (rs = .54 to .55) and anger (rs = .37 and .38) (Oetting, Swaim, Edwards, & Beauvais, 1989; Swaim, Oetting, & Beauvais, 1989). The validity of this scale was examined in a study by Oetting and others (1994), showing females reporting higher scores on the depression scale, a finding consistent with past gender differences reported in depression. In addition, Swaim and colleagues (1989) found that drug use was predicted by depression for

women but not men. Another study found similar results; a positive relationship between depression and substance use was found for women only (Oetting, Dinges, & Beauvais, In Press).

Anxiety. This was a 4-item scale with Cronbach alpha reliability $\alpha = .63$ for Mexican-Americans and .64 for Anglo-Americans, the reliability was .40 in this study. The items included on this scale included items such as "I am anxious," "I get tense and jumpy," and "I worry." Items were rated on a four-point Likert-type scale ("not at all = 1, not much = 2, some = 3, and a lot = 4"). Anxiety has been found to be positively correlated with depression ($rs = .55$) and anger ($rs = .39$) (Oetting et al., 1989). Anxiety is also found to be significantly correlated with drug use ($rs = .10$) (Swaim et al., 1989).

Anger. This scale consisted of six items (e.g., "I am quick tempered" or "I am hotheaded"). Items were rated on a four-point Likert-type scale ("not at all = 1, not much = 2, some = 3, and a lot = 4"). Alpha reliabilities in previous studies have ranged from .84 to .89. (Oetting, Beauvais, Edewards, & Waters, 1984, Swaim et al., 1989) with .87 for Mexican-Americans and .88 for Anglo-Americans. The Cronbach alpha reliability was .86 in this study. Several studies have established the validity of this scale. Deffenbacher and Swaim (1999) found in a study with Mexican-American and Anglo-American adolescents that scores on the anger scale were strongly related to self-reports of three forms of aggressive anger expression ($rs = .52$ to .60). In addition, evidence of discriminant validity was provided by the anger scale being more highly correlated with aggressive anger expression than were scales measuring

anxiety (rs = .16 to .39) and depression (rs = .28 to .46). A relationship between anger and substance abuse is also seen in research (Oetting, Deffenbacher, & Donnermeyer,1998; Oetting et al., 1989; Swaim et al., 1989), and the anger scale was the strongest predictor of adolescent substance abuse (Oetting et al., 1989; Swaim et al., 1989) compared to other emotional and psychological variables. Deffenbacher (1992) reported an established relationship between anger and other emotional distress variables, including depression and anxiety. A positive correlation was found between the Anger scale and measure of depression and anxiety (rs = .38 and .51); moreover, a negligible relationship between the anger scale and self-esteem scale was found (r = .07) (Swaim et al., 1989).

Self-esteem. The 11 items on this scale measured the extent to which one's image of self was positive (e.g., " I am proud of myself"). The items were measured on a 4-point Likert-type scale (1= no, 2 = not much, 3 = some, and 4 = a lot). Previous research has indicated internal consistency reliability for this scale ranging from .80 to .89 (Oetting et al., 1989; Swaim et al., 1989) with the current study alpha being .77. Also, it was indicated in research that females report lower levels of self-esteem than males (Overholser, 1993) and validity of this scale was evidenced by lower scores found on the self-esteem scale among females than males (Oetting, Edwards, Kelly, & Beauvais, 1997). Low identification with culture is correlated to low self-esteem (Oetting & Beauvais, 1990). Self-esteem scale has also yielded a negative relationship with depression (rs = -.40), anxiety (rs = -.23), and blame-alienation (rs = -.35) (Oetting et al., 1989). Similar findings were reported by Swaim

and others (1989) in a study of adolescent alcohol use with no significant correlation found between the two (rs = .04)

Alcohol and other drug abuse. The Clinical Drug Assessment Scale (CDAS) used to derive the American Drug and Alcohol Survey™(1990) was used to assess drug use in this survey. A thorough assessment of the use, patterns, and frequency of drugs and alcohol use is obtained from this survey. Revisions of the scale over the last two decades have shown reliability and validity in its measures of substance use among several different ethnic groups (Oetting & Beauvais, 1990, Oetting, Beauvais, Edwards, & Waters, 1984; Oetting, Beauvais & Edwards, 1985). 10 items for assessing alcohol and 11 for other drugs were used, with the reliability ranging from .80 to .90. The drugs included in this survey are under the subscales of alcohol, marijuana, cocaine, heroin, LSD, PCP, barbiturates, and stimulants labeled as "other drugs." The participants were asked about their use of a variety of substances using questions that assess current use of different drugs: (a) questions about the frequency of use... "How many times have you used ___in the last month?" (ratings of 0, 1-2 times, 3-9 times, 10-19 times, 20-49 times, 50 or more times); (b) questions about the intensity of use... "In using are you ...?" (ratings of nonuser, very light user, light user, moderate user, heavy user, very heavy user); and (c) questions about the method/style of use... "How have you used marijuana ?" (options of "I did not use it," "just take a few puffs," "smoke a joint or two," eat it in something," "use a "bong" or other equipment, " "use sensimilla or hashish," "stay high nearly all the time"). Based on the responses, respondents are classified into one of the nine exclusive drug use

categories on the grouping scale. The drug use grouping scale includes negligible or no use, light alcohol use, drug experimentation, light marijuana use, occasional drug use, heavy alcohol use, heavy marijuana use, stimulant use, and multi-drug use. Additionally, substance-specific scales assess use levels of alcohol, marijuana, inhalants, LSD, cocaine, and stimulants. Several techniques such as intercorrelations among the scales, age group norming, scale discrimination using clustering techniques, and correlations with variables predictive of drug use have been used to demonstrate validity and reliability for the drug grouping scale and the substance-specific scales (Oetting & Beauvais, 1990; Oetting, Edwards, & Beauvais, 1985).

Ratings were different depending on each drug and were reliable (Oetting & Beauvais, 1983). A 1-36 scale score was used with 1 indicating no use and 36 indicating polydrug dependence. Scale scores were used to identify "cut scores" which were combined to derive three classifications of current drug involvement--Low/no drug involvement, moderate drug involvement, and heavy drug involvement (Oetting & Beauvais, 1983). The "low/no drug involvement" category described youth who are not currently using any drugs and have not been drunk within the last 30 days. The "moderate drug involvement" group includes youth not meeting the criteria for heavy drug involvement but who have used drugs within the last month or have been intoxicated on alcohol at least once monthly. The "heavy drug involvement" group is much more involved in a substance use lifestyle in which drugs are an important part of most social interactions with peers and they use multiple drugs on a weekly basis. In a study by Oetting and Beauvais (1990), high

identification with Hispanic culture seemed to be an important factor related to lower drug use. The results of other studies about this relationship of drug use and cultural identification have been equivocal.

Conduct problems (Delinquent/risk taking behavior). This scale used five items for an assessment of history of theft, violence, lying, cheating, and problems. Questions included: " In the last 12 months how often have you ....carried weapons, ...spent a night in the jail?" Frequency was measured on the following scale, "not at all, once, twice, 3-4 times, 5 or more times). The Cronbach alpha reliability has ranged from .82 to .87. In the current study, the alpha reliability was .77. A strong positive relationship between delinquent behaviors and dropouts has been found; and youth who are doing well in school tend to have low rates of delinquent behavior, whereas those who are doing poorly in school are more likely to engage in delinquent behaviors of all types than are other students (Chavez, Oetting, & Swaim, 1994). Substantive relationship between deviant behavior and drug use has been shown in research (Oetting et al., 1994).

Family Care/relations. Assessment of family relations was obtained by using a two-item scale including the following items; "Does your family care about you?" and "How much do you care about your family?" Responses were measured on a four-point Likert scale with choices such as "a lot "some," "not much" to "not at all." The Cronbach alpha reliability for family caring in previous studies has ranged from .77 to .89 when similar versions of this scale have been used (Oetting et al., 1984; Oetting et al., 1994; Swaim et al., 1996) and was .93 in this study. Family caring scores are

found to be negatively correlated with drug use ($r = -.17$) (Oetting & Beauvais, 1987). Other studies have found similar findings of lower family caring scores for adolescents involved in drugs (Oetting et al., 1984). Swaim, Bates, and Chavez (1998) reported a relationship between school adjustment and family strength among Anglo-American females.

Sexual Abuse History: The history of sexual abuse was measured by three items asking the respondent if they had been forced to have sex with someone against their will, had been forced to touch someone sexually or had been touched by someone sexually against their will. Responses were measured on a five-point Likert scale ranging from "not at all" to "5 or more times." This scale has not been used in previous studies thus information on validity and reliability from the past studies is not available. The Cronbach reliability for this study was not obtained due to the low number of items not being significant enough to contribute to a meaningful reliability measure.

Physical Abuse History: The history of physical abuse was measured by eight items asking the respondent if they were injured or hit by a parent, teacher, or another relative. Responses were measured on a five-point Likert scale ranging from "not at all" to "5 times or more." This scale had not been used in any previous study thus information on validity and reliability from past studies in not available.

Cultural identification/Acculturation. Oetting and Beauvais's (1991) Orthogonal Cultural Identification scale was used. Identification with Mexican-American culture was measured in the present study by using a 6-item scale ($\alpha = .94$)

and another set of 6 items was used to measure identification with European-American culture (α =.93). Each item is evaluated on a four-point-Likert Scale ranging from "a lot" to "not at all." Self-identification and parental identification as Anglo-Americans or Mexican-Americans was measured (e.g, How do (you/your father/your mother) see (yourself/himself/herself)? Two items assessed acculturative status (e.g., Is your family a success in the (Mexican-American or Anglo-American) way of life?). Participation in culture-based activities and rituals (e.g., holiday parties, religious activities, special meals etc.) was measured by using two items. In addition, level of association with a cultural group i.e., affiliative pattern, was assessed (e.g., "Do you live by or follow the Mexican-American way of life?"). These items have demonstrated an internal reliability ranging from the Cronbach alpha coefficient of .80 to .88 (Chavez, & Swaim, 1992; Oetting & Beauvais, 1987). Oetting and Beauvais (1990) found that family caring and school adjustment are highly related to cultural identification. In addition, they found that the higher the level of cultural identification, the greater the self-esteem. Oetting and Beauvais (1990) also reported that "correlations between Anglo identification and Hispanic identification scores and other items that should relate to either Anglo or to Hispanic identification show reasonably high correlations with items that should be linked to the appropriate culture, and only small correlations with items related to other cultures. The results provide evidence for both concurrent and discriminant validity of both the Anglo and Hispanic cultural identification measures" (pg. 391).

Procedure

Recruitment: The data for this study were collected by the Tri-Ethnic Center for Prevention Research at Colorado State University for a longitudinal study. Data analyzed in this study are from two Southwestern United States communities. The sample consisted of population from a mid-sized community of 90,000 and an urban community of 350,0000. Due to the high density of Mexican-Americans who reside in the Southwest, collecting data from the two communities led to a fairly representative sample of Mexican-American adolescents from different sized communities, in addition to the representative sample of Anglo-American adolescents. Respondents were identified as single heritage Mexican-Americans or Anglo-American only if the school records indicated that both parents self-identify as "all or mostly" Mexican-American or Anglo-American, respectively. Respondents were identified as mixed heritage if they indicated that one parent is "all or mostly" Mexican or Anglo, respectively.

The initial data were collected between 1989 and 1996. Follow-up (Time 2) data collection was between 1994-2001. The sample consisted of three groups: dropouts, at-risk students, and students in good academic standing. Dropouts in this study were defined as students in grades 7-12 who had not attended school for at least 30 days (Morrow, 1986) and had not enrolled in another school or contacted administration. A random sample of dropouts was drawn monthly from all available dropouts. Dropouts were identified from school records or contact with teachers and administrators. Students for the at-risk group were drawn from the same school as the

dropout and were matched as closely as possible on ethnicity, gender, year in school, GPA, and age. At-risk students thus were still in school but in poor academic standing. A random selection from a group of students who matched the dropouts in school, grade, gender ethnicity and age was used to select the adolescents in good academic standing.

Consent and Survey Completion: Local professionals who were fluent in Spanish and English contacted youth and their parents. The project was described, and potential respondents were asked if they wished to be involved. Participants over 18 with expressed interest in the project completed consent forms. If they were under 18, parents were contacted, and after full explanation of the project, written parental consent was obtained by sending the consent form home with the student and bringing back the signed form to school. The participants were informed that the participation was voluntary and their responses were confidential. In addition, students still in school received $10 for completion of survey, and dropouts and students out of school received $20 with the additional $10 being for the greater travel and difficulty in arranging for the survey.

Professionals administered the surveys and provided instructions about the completion of the survey after informed consent for students was obtained. Students completed the survey in a private room at school during school hours. The survey administrators provided surveys with instructions to the students and answered any questions students had. However, survey administrators did not see the participants' responses. Dropouts completed the survey in either the same room at school or at

another public building such as the library. When the survey was completed, the sheet with names and identifying information was separated and placed in an envelope that was sealed. The participant put the survey in a separate large envelope and sealed it. Based on the participant's choice, the survey was mailed to the research office either by the survey administrator or by the participant to assure confidentiality.

Time 2 data collection started after four years of initial assessment. An attempt to contact participants through the address given at the first assessment was made. If unsuccessful, parents, relatives, and good friends indicated by the participants at the time of informed consent at the time of the initial assessment were contacted. If no contact could be established after contacting previously identified individuals, public records including phone books, motor vehicle records, etc., were used to locate a current address for the contact. Upon contact, the individual was asked for consent, and a procedure similar to the initial one was followed.

60% of the sample from Time 1 completed surveys at Time 2. Forty reliability and consistency checks were administered on the surveys to remove surveys that were incomplete, randomly marked or exaggerated by endorsing a fake item (Oetting & Beauvais, 1990). 2.7% of the surveys were removed as a result of these checks.

Statistical Analyses

Statistical measures of χ^2, logistic regression and correlation were used to analyze the data. The primary analysis is designed to predict the probability of the occurrence of suicidal ideation or attempt (i.e., dependent variable) as a function of the psychosocial risk factors (i.e., independent variables). The psychosocial factors

included as independent variables include depression, anger, delinquency, substance abuse, ethnic identification, family caring, sexual abuse, physical abuse, anxiety, and self-esteem.

First, the full sample at Time 1 was collapsed across ethnic categories, school status, and gender to try to determine if suicidal behavior correlates with Time 2 suicidal behavior. For this purpose, a simple correlation and regression analysis was conducted to see if suicidal behavior in individuals at Time 1 is predictive of suicidal behavior at Time 2.

Secondly, the psychosocial variables at Time 1 were used to see if they correlate with suicidal behavior at Time 2. Again, correlation and regression analysis was conducted. The goal was to see if any psychosocial variables predict ideation and attempt at Time 2, and if they did, what was the best array of predictors. This has implications for both theory and prevention.

Thirdly, Time 2 psychosocial variables were be used to predict Time 2 ideation and attempt. This was a concurrent, cross sectional prediction study. Initially, correlations of each psychosocial variable on ideation and attempt status were conducted, and then followed by regression for the best combination of variables that contribute to suicidal behavior.

Finally, all analyses were conducted separately for Mexican-Americans and Anglo-Americans participants across gender to determine differences and/or similarities that exist across groups and genders.

CHAPTER III

Results

An Overview of the Analyses

To examine relationships between psychosocial variables and suicidal behavior (i.e., ideation and attempt), the statistical techniques of χ^2, correlation, and logistic regression were conducted. Data were collected at two separate times, an initial Time 1 and then a four-year follow-up Time 2, and relationships between these sets of data were explored. First, associations between Time 1 suicidal behavior and Time 2 suicidal behavior were explored by χ^2. Second, to determine the predictability of suicidal behavior from potential risk factors, relationships between Time 1 psychosocial variables and suicidal behavior at Time 2 were correlated. Finally, an analysis of concurrent relationships between psychosocial variables and suicidality at Time 2 was conducted to identify current factors that are likely to be associated with suicidal behavior. Separate analyses for each racial/ethnic group and gender as well as combined group analyses were performed. For these, correlation and forward stepwise logistic regression analyses were used.

Forward stepwise logistic regression determines the variables that best predicted suicidality by exploring the effects of each predictor variable on suicidal behavior while controlling for the other variables. This method takes all independent

variables and adds them to the analysis based on their level of contribution to the overall picture. The results are reported as the odds ratio, which is the factor by which the risk changes per unit change in the independent variable. In addition, percentages of the accuracy of the model are used, i.e., in this study, the "percent positive" indicates the percentage of those who had suicidal thoughts and were correctly predicted by the model. Similarly, "percent negative" reports the percentage of those who had not engage in suicidal ideation and were correctly predicted by the model. Psychosocial variables entered into the logistic regressions included gender, academic status, depression, anxiety, anger, self-esteem, alcohol and drug abuse, delinquency, family caring, physical and sexual abuse history, and identification with Hispanic and/or Anglo culture. Wald criteria for selection was used to predict the likelihood of the dichotomous dependent variable (i.e., the history of nonfatal suicidal ideation and behavior). Several variables that were included in the full model were not selected if they did not meet the Wald criteria at $p < .05$. It should be noted that while an alpha of $p < .05$ was selected for inclusion in the final model, the forward stepwise procedure starts with all variables and removes variables that do not meet the Wald criteria. Consequently, it is possible for a parameter to be retained that has a $p > .05$ if the p value of the Wald statistics is $< .05$.

Correlation results indicated several risk factors were correlated with suicidal behavior at statistically significant levels. However, due to the effect of large sample sizes, factors that appeared statistically significant but only contributed less than 1% of the variance (i.e., $r < .10$) were not considered meaningful predictors. A

significance value of $p < .05$ and a correlation value of $r \geq .10$ were used as the criteria for including a risk factor as significantly predictive. However, all variables with their respective statistical significance were reported in the tables. It should also be noted that due to variable sample sizes, certain values with lower correlations may be significant while higher correlations are not significant.

Relationships Between Time 1 and Time 2 Suicidal Behavior

First, an overall analysis was conducted by using χ^2 by collapsing ethnic, gender, and school status to determine the relationship between Time 1 suicidal ideation and attempt and Time 2 suicidal ideation and attempt. The goal was to see if individuals who either ideate or attempt suicide at Time 1 were likely to exhibit suicidal ideation or attempt four years later. A relationship was found between Time 1 ideation and Time 2 attempt, $\chi^2 (1, N = 295) = 7.95$, $p < .01$, and Time 1 ideation and Time 2 ideation, $\chi^2 (1, N = 295) = 26.04$, $p < .01$. Time 1 attempt was significantly related to Time 2 ideation, $\chi^2 (1, N = 295) = 17.36$, $p < .01$, but not Time 2 attempt, $\chi^2 (1, N = 295) = 2.64$. Thus, both Time 1 ideation and attempt correlated with Time 2 ideation; however, Time 2 attempt is predicted only by Time 1 ideation and not by attempt. Time 2 ideation was correlated with Time 2 attempt, $\chi^2 (1, N = 295) = 470.83$, $p < .01$.

Relationship Between Time 1 Psychosocial Variables and Time 2 Suicidal Behavior

Correlations between Time 1 psychosocial variables and Time 2 suicidal ideation are reported in Table 7. Results indicated a number of variables were related to suicidal ideation; however, the size of the correlations was moderate at best.

Overall, risk factors that were significantly correlated (based on the inclusion criteria) were depression, anxiety, and sexual abuse. In addition, family caring was negatively correlated to suicidal ideation; i.e., a lack of family caring was related to increases in suicidal ideation. For Mexican-American adolescents, the significant risk factors were depression, sexual abuse, and family caring. Depression, anxiety, drug use, and delinquency were important predictors for Anglo-Americans. For both males and females, depression and anxiety were significant risk factors. Additional risk factors for males included physical abuse, while for females anger, self-esteem, drug use, low family caring, and sexual abuse were correlates of suicidal ideation. Analysis of academic status indicated that anger, depression, anxiety, and sexual abuse were correlated with suicidal behavior for the at-risk group. For those who dropped out, depression, anxiety, drug use, family caring, and physical abuse were significant predictors. For students in good standing, low self-esteem and depression appeared correlated with suicidal ideation. Overall, depression was a consistent risk factor across all groups.

Table 8 reports correlations between Time 1 psychosocial variables and Time 2 suicidal attempt. For the group as a whole, sexual abuse was a predictor. For Mexican-Americans, sexual abuse remained a significantly correlated factor. Drug use was a predictor for Anglo-Americans. While no variable was found to be significant for males, sexual abuse and depression were correlates for females. Among the at-risk students, sexual abuse and depression were significant predictors.

No significant correlations were found for dropout adolescents. For the students in good standing, delinquency was a significant factor, but inversely so.

The previous analyses looked at relationships of psychosocial variables and suicidal behavior bivariately. To determine the best combination of predictors of suicidal behavior, forward stepwise logistic regressions were conducted. Logistic regression of psychosocial predictors of Time 2 ideation from Time 1 psychosocial variables yielded results similar to the correlation analyses. The variables included in the final step, i.e., the best combination of predictors, are presented in Table 9. For the group as a whole, depression, male gender, low Anglo identification, and sexual abuse at Time 1 were the most significant predictors (i.e., had the most predictive odds) of ideation at Time 2. In other words, individuals who were depressed, sexually abused, males, and had low Anglo identification at Time 1 had the strongest likelihood of suicidal ideation at Time 2. For Mexican-American adolescents, the strongest predictors were sexual abuse, anxiety, and male gender. Depression and low Anglo identification were the strongest predictors for Anglo-Americans. Depression, low Anglo identification, and physical abuse were the strongest predictors for males. Depression and sexual abuse were the best predictors for females. The sample size was too small for making statistically meaningful predictions based on academic standing.

Table 10 presents logistic regression results for Time 2 attempt from Time 1 psychosocial variables. Results indicated that overall, sexual abuse and depression were the strongest predictors; however, the regression model was not a good predictor

of suicidal attempt due to very small sample sizes in some cell groups. Among the Mexican-American adolescents, male gender, sexual abuse, and anxiety were significant predictors. That is, individuals who were depressed, sexually abused and anxious at Time 1 had the strongest likelihood of suicidal attempt at Time 2; however, again the model was not a good predictor. For Anglo-Americans, the strongest predictors were drug use and self-esteem, with the model again not being a good predictor of suicidal attempt for this group. While the model was not a good predictor, anxiety was a significant predictor for males and depression and sexual abuse were significant predictors for females. Predictions based school status did not yield statistically meaningful results due to extremely small sample sizes. Overall, while the results suggest these variables as better predictors over time, the reliability is very low due to small sample sizes and Time 2 attempt could not be accurately predicted from Time 1 psychosocial variables.

Relationships Between Time 2 Psychosocial Variables and Time 2 Suicidal Behavior

In order to determine the relationship between current suicidal behavior and psychosocial risk factors, correlations between Time 2 psychosocial variables and Time 2 suicidal ideation were conducted (Table 11). Results indicated a number of variables as correlated to suicidal ideation. Anger, depression, anxiety, and delinquency were significantly correlated for all groups across gender, ethnicity, and school status. Additional significant factors for the group as a whole were drug use, physical abuse and sexual abuse. For Mexican-American adolescents, drug use, physical and sexual abuse, and low Hispanic identification were the additional

significant correlates. For Anglo-Americans, drug use, sexual abuse, high Hispanic identification, and low Anglo identification were also significant. For males, physical abuse and for females, self-esteem, low family caring, Hispanic identification, physical and sexual abuse were predictors of suicidal ideation. For at-risk students, self-esteem and physical and sexual abuse were correlated. For those who dropped out of school, drug use, physical and sexual abuse were significant factors. Sexual abuse was a significant correlate for students in good standing.

Table 12 reports correlations between psychosocial variables and suicidal attempt at Time 2. For the total sample, the correlations were too small to be meaningful. For Mexican-Americans, depression, physical abuse, and low Hispanic identification were the largest correlates, and for Anglo-Americans, low Anglo identification and high Hispanic identification were the strongest correlates. Males showed highest correlation with anger, anxiety, and depression. For females, depression, anger, anxiety, drug use, and sexual abuse were correlated with suicidal attempt. For at-risk students, anger, depression, anxiety, and physical abuse were correlates. For those who dropped out, anger, depression, drug use, and sexual abuse were positive predictors. For students in good standing, depression, anxiety, and low Anglo identification were contributors.

Table 13 reports results for logistic regression for Time 2 psychosocial variables predicting Time 2 ideation. For the total group, Time 2 ideation was predicted by physical abuse, male, depression, anxiety, and low Hispanic identification, i.e., individuals who were physically abused, male gender, who suffered

from depression, anxiety, and had low Hispanic identification had the strongest likelihood of suicidal ideation. For Mexican-Americans, male gender, depression, physical abuse, anxiety, and low Hispanic identification were the largest contributors to predicting suicidal ideation. For Anglo-Americans, depression and anxiety were the main contributors to the prediction of suicidal ideation. For males, self-esteem, depression, and anxiety were correlated, while for females, the variables were depression and sexual abuse. At-risk students were likely to have suicidal ideation if they were males, depressed, and anxious. For dropouts, depression, anxiety, and physical abuse were the best predictors of suicidal ideation. For those in good standing, depression and low Hispanic identification were predictors of suicidal ideation.

Table 14 shows results for logistic regression for Time 2 psychosocial variables predicting Time 2 attempt. Overall, it should be noted that the model was a poor predictor of suicidal attempt for the group as a whole as well as across gender, ethnicity, and school status. For the whole group, depression and anxiety were included in the equation. For Mexican-American adolescents, sexual abuse, depression, anxiety, low self-esteem, and low Hispanic identification were the predictors; i.e., individuals who were sexually abused, depressed, and anxious, had low self-esteem and Hispanic identification had the strongest likelihood of suicidal attempt at Time 2. For Anglo-Americans, the strongest predictors were anxiety, high Hispanic identification, and low Anglo identification. For males, anxiety was the strongest predictor while for females, the strongest variables were anger and anxiety.

For at-risk students, anxiety was a predictor of suicidal attempt, while for dropouts, anger and sexual abuse were the most significant factors. Students in good standing were likely to attempt if they were depressed and had high Anglo identification. While the model did not predict suicidal attempt well, anxiety appeared to be a significant factor for the whole group as well as for Anglo-Americans and Mexican-Americans, across gender, and for the at-risk group.

TABLE 7

Time 1 Variables to Time 2 Ideation: Correlations

Measure	Ethnicity		Gender		Status			Total
	Mexican-American	Anglo-American	Male	Female	At-Risk	Drop-Out	Good	
Anger	.09**	.08*	.07	.11**	.13**	.07	.03	.09**
Self-Esteem	-.04	-.03	.02	-.14**	.00	-.05	-.10*	-.04
Depression	.15**	.16**	.15**	.22**	.20**	.15**	.10*	.14**
Anxiety	.07*	.13**	.12**	.14**	.12*	.13**	.08	.10**
Drug Use	-.08*	-.14**	-.06	-.12**	.00	-.14**	-.08	-.08**
Delinquency	.04	.14**	.09*	.08	.10*	.08	.01	.07**
Family Caring	-.11**	-.08	-.06	-.13**	-.09*	-.13**	-.06	-.11**
Hispanic Identity	.02	.04	.02	.05	.04	.01	.07	.04
Anglo Identity	-.01	.04	-.03	-.02	-.09	.05	.00	-.01
Physical Abuse	-.10	.05	.37**	.05	.10	.21*	-.03	.11
Sexual Abuse	.22**	.09	.09	.27**	.27*	.17	.17	.17**

TABLE 8

Time 1 Variables to Time 2 Attempt: Correlations

Measure	Ethnicity		Gender		Status			Total
	Mexican-American	Anglo-American	Male	Female	At-Risk	Drop-Out	Good	
Anger	.03	.03	.01	.10*	.10	.03	.00	.03
Self-Esteem	.01	.02	.05	-.09*	-.01	.00	-.03	.02
Depression	.06	.01	.06	.11**	.15**	.06	-.02	.03
Anxiety	.03	.04	.05	.06	.07	.06	.05	.05
Drug Use	-.03	-.10*	.02	-.08	-.02	-.08	.03	-.04
Delinquency	-.02	.08*	.04	.02	.06	.03	-.10*	.01
Family Caring	-.07	-.01	-.04	-.07	-.08	-.03	-.05	-.07**
Hispanic Identity	-.01	.03	-.04	-.03	.02	-.02	-.02	.00
Anglo Identity	-.05	.03	.00	.00	-.06	.05	-.02	-.02
Physical Abuse	-.06	.08	.11	-.03	.03	.03	-.08	.01
Sexual Abuse	.17*	.03	-.07	.19*	.32**	.13	.04	.13*

* $p<.05$ ** $p<.01$

Note: For drug use, more negative value indicates less drug use (see methods for details). For Hispanic and Anglo Identification, negative values indicate higher identification.

TABLE 9

Time 1 Variables to Time 2 Ideation: Regression

Group	Predictive Variable(s)	Odds Ratio	% Correct Prediction	
			Positive	Negative
Mexican-American	Sexual Abuse	3.63	73	95
	Anxiety	1.83		
	Gender	.01		
Anglo-American	Depression	1.89	57	100
	Anglo Identity	1.64		
Male	Depression	1.54	73	94
	Anglo Identity	1.26		
	Physical Abuse	2.79		
Female	Depression	1.24	37	97
	Sexual Abuse	1.69		
Total	Depression	1.30	50	95
	Gender	.21		
	Anglo Identity	1.11		
	Sexual Abuse	1.66		

TABLE 10

Time 1 Variables to Time 2 Attempt: Regression

Group	Predictive Variable(s)	Odds Ratio	% Correct Prediction	
			Positive	Negative
Mexican-American	Gender	.66	33	96
	Sexual Abuse	1.59		
	Anxiety	2.94		
Anglo-American	Drug Use	.89	50	98
	Self Esteem	.65		
Male	Anxiety	1.30	0	98
Female	Depression	1.26	33	99
	Sexual Abuse	1.64		
Total	Sexual Abuse	1.21	20	99
	Depression	1.41		

TABLE 11

Time 2 Variables to Time 2 Ideation: Correlations

Measure	Ethnicity		Gender		Status			Total
	Mexican-American	Anglo-American	Male	Female	At-Risk	Drop-Out	Good	
Anger	.20**	.20**	.25**	.27**	.19**	.24**	.22**	.19**
Self-Esteem	-.06	-.06	-.03	-.15**	-.12*	-.02	-.05	-.05
Depression	.31**	.39**	.37**	.41**	.43**	.36**	.35**	.34**
Anxiety	.24**	.28**	.26**	.25**	.27**	.13**	.21**	.24**
Drug Use	-.11**	-.11**	-.03	-.15**	-.09	-.12**	-.04	-.11**
Delinquency	.13**	.13**	.15**	.14**	.13**	.15**	.15**	.13**
Family Caring	-.05	-.04	-.04	-.14**	-.07	-.06	-.03	-.04
Hispanic Identity	.21**	-.10*	.09*	.10*	.08	.01	.09*	.07**
Anglo Identity	-.05	.19**	.013	-.02	-.01	-.04	.08	.01
Physical Abuse	.18**	.05	.12**	.20**	.20**	.22**	.07	.16**
Sexual Abuse	.13**	.11**	.06	.19**	.15**	.13**	.11**	.14**

TABLE 12

Time 2 Variables to Time 2 Attempt: Correlations

Measure	Ethnicity		Gender		Status			Total
	Mexican-American	Anglo-American	Male	Female	At-Risk	Drop-Out	Good	
Anger	.08*	.05	.11*	.18**	.12**	.12**	.09*	.07**
Self-Esteem	.00	.07	.05	-.09*	-.05	.02	.02	.02
Depression	.12**	.05	.11**	.22**	.20**	.12**	.14**	.08**
Anxiety	.10**	.08*	.15**	.15**	.16**	.06	.13**	.09**
Drug Use	-.04	-.08*	.00	-.14**	-.08	-.10*	-.01	-.06*
Delinquency	.04	.02	.06	.07	.08	.08	.02	.03
Family Caring	.02	.05	.01	-.05	.00	.00	.02	.03
Hispanic Identity	.23**	-.23**	-.02	.03	.05	-.07	.02	.01
Anglo Identity	.00	.24**	.04	.06	-.01	-.03	.12**	.02
Physical Abuse	.11**	.00	.04	.06	.19**	.04	.02	.09**
Sexual Abuse	.07*	.03	-.01	.12**	.06	.10*	.01	.06*

*p <.05 ** p<.01

Note: For drug use, more negative value indicates less drug use (see methods for details). For Hispanic & Anglo Identification, negative values indicate higher identification.

TABLE 13

Time 2 Variables to Time 2 Ideation: Regression

Group	Predictive Variable(s)	Odds Ratio	% Correct Prediction	
			Positive	Negative
Mexican-American	Gender	.54	31	94
	Depression	1.16		
	Anxiety	1.09		
	Hispanic Identity	1.10		
	Physical Abuse	1.21		
Anglo-American	Depression	1.19	35	94
	Anxiety	1.09		
Male	Self-Esteem	1.06	39	94
	Depression	1.20		
	Anxiety	1.09		
Female	Depression	1.20	28	95
	Sexual Abuse	1.15		
At-Risk	Gender	.42	33	95
	Depression	1.18		
	Anxiety	1.14		
Dropout	Depression	1.12	37	93
	Anxiety	1.15		
	Physical Abuse	1.19		
Good Standing	Depression	1.22	25	94
	Hispanic Identity	1.06		
Total	Physical Abuse	1.17	31	95
	Gender	.61		
	Depression	1.17		
	Anxiety	1.09		
	Hispanic Identity	1.03		

TABLE 14

Time 2 Variables to Time 2 Attempt: Regression

Group	Predictive Variable(s)	Odds Ratio	% Correct Prediction	
			Positive	Negative
Mexican-American	Sexual Abuse	1.20	2	100
	Depression	1.11		
	Anxiety	1.10		
	Hispanic Identity	1.15		
	Self Esteem	1.09		
Anglo-American	Anxiety	1.15	15	100
	Hispanic Identity	.89		
	Anglo Identity	1.14		
Male	Anxiety	1.12	0	100
Female	Anger	1.14	3	100
	Anxiety	1.14		
At-Risk	Anxiety	1.19	0	100
Dropout	Anger	1.14	9	100
	Sexual Abuse	1.21		
Good Standing	Depression	1.09	0	100
	Anglo Identity	1.09		
Total	Depression	1.07	0	100
	Anxiety	1.08		

CHAPTER IV

Discussion

Before discussing the findings, a review of the strengths and limitations of the study is presented. Among the strengths of this study, one is the use of a large community sample including the dropouts, thus addressing the problems associated with data limited to clinical or institutionalized samples or only in-school samples. This results in a more representative sample and findings can be generalized. In addition, the inclusion of dropouts in this study is a significant improvement that is highly relevant to this age group and especially to Mexican-Americans, due to their high dropout rates. Given the need for comparative epidemiologic studies of differences in ethnic and racial groups, this study provides important findings on two large ethnic groups. This study's large Mexican-American sample offers an opportunity to compare risk factors for suicidal behavior in an under-researched population. The longitudinal aspect of the study provides a rare opportunity to explore the predictability of suicidal behavior over time, thus allowing for improvements in clinical assessment and intervention aimed at reducing the incidences of suicidal behavior.

A limitation of this study is the reliance on the self-report for data collection. The problems associated with subjective interpretations and self-serving biases in reporting are to be considered. In addition, the scales do not determine if indicators of psychological distress are clinically diagnosable.

Full Group

The purpose of this study was to determine the concurrent and predictive relationship between various psychosocial risk factors and suicidal behavior among Mexican-American and Anglo-American adolescents. Overall, several psychosocial variables appeared as risk factors that were associated with suicidal ideation; in contrast, while there were suggestions of some relationships between certain psychosocial variables and suicidal attempt, the phenomenon of suicidal attempt was not predicted well by the psychosocial variables in this study. This finding lends itself to various interpretations. First, it suggests a possibility that the risk factors that contribute to suicidal ideation do not necessarily contribute equally to the phenomenon of suicidal attempt. This leads to the conclusion that this study may not include the differential variables that contribute to suicidal attempt and suggests a need for future research to determine the specific factors that contribute significantly to suicidal attempt. It is also possible that while similar risk factors may contribute to suicidal attempt, the presence of protective factors that were not measured by this study mitigates the negative effects of the risk factors. Another possibility is that the intensity of risk factors may distinguish between ideation and attempt; however, the intensity was not measured in the present study. Secondly, for Time 1 to Time 2 relationships, the idiosyncratic characteristics of the sample may have contributed to these results; for example, a smaller sample size due to attrition, or the possibility that only a small fraction of those who later engaged in suicidal behavior actually completed all of the risk-factor assessment items at the initial data collection, resulting

in a skewed data set and potentially unreliable findings. Due to the insignificance and unreliability of findings for suicidal attempt, the discussion focuses primarily on the relationship between psychosocial variables and suicidal ideation.

Results indicated that suicidal ideation was a predictor of future suicidal ideation and attempt. In addition, a relationship between current suicidal ideation and non-fatal attempt was also found. Similar results have been found in previous studies of elevated risk for suicidal behavior (ideation or attempt) for adolescents with a history of prior non-fatal suicidal behavior (Brent et al., 1993; Garfinkel, Froesce, & Hood, 1982; Hawton, 1992; Shaffer & Hicks, 1992; Shafii et al., 1985). The relationship between past suicidal attempt to future suicidal attempt was not confirmed by the present study. Again, this could be due to the poor predictability of suicidal attempt by this model. The implications of these findings are twofold. First, it is essential to consider the higher risk for adolescents with prior history of suicidal ideation. The second is the importance of continued efforts towards improved understanding and intervention for risk factors contributing to suicidal ideation.

A stronger relationship between a greater number of risk factors and suicidal behavior was seen in contemporaneous analysis compared to future predictive analysis. This could suggest that suicidal behavior is more likely to be influenced by current mental health issues; therefore, interventions based on current symptomatology may be more effective than long-term prevention-focused interventions. However, two notable exceptions are important for future research and have clinical implications. Both family caring and a history of sexual and physical

abuse showed a lower correlation with current suicidal behavior than with future suicidal behavior. Thus, for individuals who lack family support or have a history of sexual or physical abuse, a preventative approach may be needed.

Consistent with previous findings, depression was the most uniformly significant risk factor for suicidal ideation. A positive relationship between depression and suicidal behavior has been found in previous studies (Andrews & Lewinsohn, 1992; Cole, 1989; Harter et al., 1992; Hoberman & Garfinkel, 1988; Robbins & Alessi, 1985). However, the finding of a relationship between depression and suicidal behavior in two ethnic groups and its concurrent as well as longitudinal relationship to suicidal behavior permits a broader application. While depression as a predictor of suicidal behavior is not a new finding, the relationship found here with future ideation is less documented. Another new finding, although minimal statistically, was the relationship between ethnic identification and suicidal ideation. The relationship between ethnic identity and suicide is an area neglected in previous research. Identity is highly relevant for the adolescent population struggling with identity formation issues in general, and for minority adolescents in particular, due to identity issues within their minority culture as well as the majority culture.

Many psychosocial variables were significantly associated with nonfatal suicidal behavior. This points to a suggestion by Lewinsohn et al. (1993) that past suicide attempt in adolescents is an event that occurs in the context of other signs of psychopathology, many of which are likely to be present at the time of assessment. In this study, some of these factors appeared to be depression, anxiety, male gender, low

family caring, and sexual abuse history, which were positively correlated for both concurrent and future prediction, though in many cases the effect is small. Physical abuse, anger, drug use, and delinquency were significant for concurrent suicidal ideation. Previous literature provides support for several of these risk factors for suicidal behavior (Allgulander & Lavori, 1991; Cohen-Sandler et al., 1982; Kovacs et al., 1993; Schneier et al., 1992; Shaffer, 1974; Shafii et al., 1985; Spirito et al., 1989). Low Hispanic identification was a concurrent and low Anglo identification was a future predictor. Exploration of ethnic identification as a risk factor has not been examined in previous studies and is consequently missing from assessments and interventions related to mental health issues. In addition, the interaction between ethnic identification and the frequently emerging risk factors as correlates of suicidal behavior has been under-investigated.

Ethnicity

Exploring similarities and differences between Mexican-American and Anglo-American adolescents identified a number of risk factors specific to each group as well as some similarities. For both Mexican-Americans and Anglo-Americans, depression, anger, anxiety, sexual abuse, drug use, and current delinquency were related to suicidal ideation. However, it should be noted that in most cases the effects were small to modest.

Among the predictors for future suicidal behavior, family caring, and sexual abuse were significant for Mexican-Americans. Low family caring may be more of a risk factor for Mexican-Americans due to the differences between Anglo-American

and Mexican-American family structures and their roles in the lives of adolescents. These differences have been explored by previous research, highlighting "family honor" and "familism" in Hispanic families (Zayas, 1978) along with extended family systems as values that have the potential to mitigate suicidal behavior. However, even with this mitigating factor, the incidence of suicidal behavior was higher among Mexican-American adolescents, indicating the possibility of higher psychosocial stress for this group. It has been noted in previous research that acculturative stress may result in depression, anxiety, feeling of marginality and alienation, and identity confusion (William & Berry, 1991); this stress is also likely to contribute to family disharmony. Also, the differences within the Mexican-American families should be considered. This finding emphasizes the importance of sensitivity to cultural differences. The application of Anglo-American social and cultural norms to Mexican-American or other minority populations is likely to be unhelpful at best and possibly detrimental to their self-concept and mental health. Other differences include the finding that physical abuse was a significant factor for concurrent ideation for Mexican-Americans but not for Anglo-Americans. For Anglo-Americans, future suicidal behavior was correlated with drug use and delinquency, but neither was significant for Mexican-Americans. A relationship between antisocial/delinquent behavior and alcohol and substance abuse has been seen in clinical studies as a risk factor for suicidality (Kovacs et al., 1993). It is important to note that while the risk factors for Anglo-Americans are consistent with literature review, some risk factors for Mexican-Americans, such as family caring and Hispanic identification, have not

been extensively reported in literature. This could be due to the dearth of research on Mexican-American adolescent suicidal behavior, and the failure of prior research to focus on factors that may be specific to Mexican-American culture. This underscores the need to design research that is specific to ethnic groups to provide more relevant assessment tools.

Another important finding from a multicultural perspective was that Hispanic and Anglo identification were significant but statistically limited factors; for Mexican-Americans, low Hispanic identification was related to higher suicidal ideation, while for Anglo-Americans, higher Hispanic identification and lower Anglo-American identity correlated with increased suicidal ideation. Thus, identification with one's own ethnicity appears to be a protective factor for both ethnicities, and identification with minority culture may be a risk factor for Anglo-Americans. This evidence that cultural identification may have a direct relationship to suicidal behavior also indicates that it is likely to affect other factors, such as the higher levels of depression in minority adolescents (Emslie et al., 1990; Schoenbach, Kaplan, Grimson, & Wagner, 1982). This is consistent with studies that suggest that for ethnic minority youth, traditional cultural values and supportive affiliations may be protective, whereas the demands and ambiguities of acculturation may increase the vulnerability to mental health problems, thus contributing to suicidal behavior (Swanson et al., 1992). However, the findings for Anglo-Americans of the protective effect of Anglo identification and especially the finding of the negative effect of minority-culture identification raise a number of intriguing questions about ethnicity. In the case of the

Anglo-Americans who strongly identified with Hispanic culture, their higher rates of suicidal behavior may be due to the fact that they are identifying with a culture that is not valued by the majority culture, perhaps exposing them to similar stressors as experienced by members of the minority group as well as rejection by their own ethnic group. In any case, the implications of ethnicity and ethnic identification for self-concept, suicide and mental health and merit further and more detailed investigations

Gender

An analysis of the differences and similarities between the two genders identified a number of risk factors that only appeared for each group as well as some common to both. The common predictors for future suicidality were depression and anxiety. In addition to these, for concurrent correlations, anger, delinquency, and physical abuse were also risk factors suggested for both groups. For both future prediction and concurrent risk, self-esteem, drug use, family caring, and sexual abuse were found as risk factors for females. In addition, low Hispanic identification was an additional concurrent risk factor for females, indicating the likelihood of social context being more important for women. Overall, for males, low Anglo identification was of future predictive value. These finding are substantiated by previous research (Watkins & Bentovim, 1992) showing that the relationship of a history of sexual abuse to suicidal ideation is higher for females; this could be related to the higher incidence of sexual abuse for women. Physical abuse history and higher suicidal ideation was found by several studies (de Wilde et al., 1992; Shaunessey et al., 1993) and was confirmed by this study. Also, both sexual abuse and physical

abuse appear to be stronger risk factors for future behavior for than for current behavior, indicating the long-term effects of a history of abuse. This suggests a need for continued support for victims of abuse. The gender difference of family caring as a risk factor for females and not for males is consistent with similar findings from Saleem (1999). It is also consistent with findings that reduced psychosocial support from family and friends and increased intensity and frequency of conflict with parents seem to produce a greater vulnerability for females than males (Andrews & Lewinsohn, 1992; Lewinsohn et al., 1993).

A surprising finding was that drug use was a risk factor for females, but not for males. This finding deserves further attention, as it is inconsistent with the commonly accepted idea of male's higher use of drugs as a coping mechanism and as associated with suicidal behavior. Also, previously suicidal males have been found to be more likely alcohol or drug abusers than females (Hoberman & Garfinkel, 1988). This inconsistency could be due to changes in gender roles, or one could argue that given the low use of drugs by females, it makes those who use drugs likely to be more distressed or deviant. Due to more traditional gender and cultural roles, for Mexican-Americans, female drug use is likely to be more stigmatized, which may result in feelings of shame or guilt and poor self-concept among abusers. The comparison of females between the two ethnic groups is not available due to sample size limitations, but this may be a contributing factor. It has been found that emotional distress increases the frequency of drug and alcohol use (Felix-Ortiz et al., 1994), and the decrease in inhibition that occurs with the use of drugs and alcohol increases the

likelihood of suicidal behavior (Garrison et al., 1993). The relationship between self-esteem and suicidal ideation for males, in combination with the relationship with physical abuse and suicidal ideation, can be understood from a study by Shaffi et al. (1985), which indicated that low self-esteem has been identified as a characteristic of both abused children and suicidal adolescents. A finding that was contradictory to past studies was the suicidal risk associated with being male. Past studies have generally shown 2:1 female: male ratio for suicidal ideation across ethnicity in the United States (Berne, 1983; Cole, 1989; Jay et al.,1989; King et al., 1990; Sorenson & Golding, 1988). This may be related to gender role changes over time. Prior studies have indicated that since gender is a social construct, the psychological problems are gender and culture specific (Unger & Crawford, 1996), and as such they are likely to change with social changes. Given that gender roles are undergoing a continuous change, the expression of suicidality may be becoming more acceptable for men. It also appears that the significantly higher number of females reporting suicidal behavior at Time 1 compared to males reduces dramatically by Time 2. This may suggest a greater impact of age and related gender socialization on females. In addition, suicidal risk increased for Hispanic males over time; which may indicate continued psychosocial risk factors and gender role expectation for Hispanic males as they reach adulthood may play a role increasing risk.

Academic Status

Several risk factors that appeared significant for all three school status groups, i.e., anger, depression, anxiety, delinquency, and sexual abuse, are previously

discussed as important risk factors in adolescent suicidal behavior. This finding indicates that some factors impact all adolescents equally, regardless of school status. Some differences were noted, however (e.g., for concurrent behavior, drug use was only significant for dropouts; self-esteem and male gender were only significant for the at-risk group). Physical abuse was significant for both the dropouts and at-risk groups. Low Hispanic identity was a risk factor only for the group in good standing. For future predictions, anger and sexual abuse were significant only for the at-risk group, for the dropout group, family caring and physical abuse were uniquely significant, and for the group in good standing, low self-esteem was a risk factor. Of the three groups, only dropouts did not show a reduced incidence of suicidal behavior in Time 2; this could be due to increased psychosocial stressors that remain unmitigated, or alternatively due to increased awareness of and exposure to negative consequences such as social alienation resulting from their academic status, as suggested by social identity theory (Merton, 1938). These differences in findings between different academic status groups requires further investigation to address the specific needs within each of these group. Even though some differences were noted between school status, no clear pattern emerged. However, it should be noted that the sample size for these groups was small, thus providing an argument for a need to further investigate risk factors associated with school status.

Future Implications and Application

Based on the findings from this study, along with previously acquired knowledge of suicidal behavior in this age group, there are several clinical implications and areas that warrant thorough future investigation. Given the diversity within groups, suicidality in adolescents appears to be a complex issue with evidence of complex interactions among risk factors and protective factors. These findings have implications for clinical practice, such as the need for a thorough assessment of multiple areas of psychosocial functioning, including academic, social, and psychiatric functioning. Further research is needed to determine factors that may mitigate the effects of risk factors. Identification of such preventative factors may assist in identifying the differential factors that lead some individuals with similar psychosocial distress profiles to engage in suicidal attempt while their counterparts do not. Due to the difficulty in reducing many of the risk factors associated with suicidal behavior, strengthening protective factors within individuals and communities may help prevent suicidality. Results indicated several significant risk factors for suicidal ideation; however, these were not enough to result in suicide attempts. A careful examination of additional factors that might contribute to driving these individuals with suicidal ideation to attempt is crucial. Given the lack of ability to predict attempt accurately by this study, it is important to reevaluate the assessment model including the specific risk factors.

Relative to prevention and treatment efforts, these findings indicate the need for thorough and careful assessment of depression, as it is consistently significantly

related to suicidal behavior in this study as well as previous research. Early detection and treatment of several emotional problems is highly recommended for prevention of future suicidal behavior. In addition, future research consideration should include a multifaceted assessment of the psychosocial functioning and analysis of factors specific to each ethnic group. Given the higher significance of family caring for Mexican-Americans and females, a case for involving the families in assessment, treatment, and prevention is evident. Given the tendency of minorities to under-utilize mental health facilities, community-oriented treatment and education sensitive to the issues of Mexican-Americans is needed to address these risk factors. Future research and treatment should be sensitive to the differences that exist between Mexican-American and Anglo-American adolescents and other minorities in general. Ethnicity and the impact of ethnic identification on one's self-perception and coping mechanisms is an area that has not been studied; its importance is emphasized by the emergence of ethnic identification as a risk factor in this study. Sexual orientation and its social consequences and their effect on identity formation, mental health, and suicidal behavior, particularly in light of the reports of increased suicidal risk for sexual minority youth (Russell & Joyner, 2001), is another critical area for future investigation. The process of gender socialization and its interaction with risk factors that lead males to higher suicidal behavior needs careful studying.

A complexity of factors influences suicidal behavior, particularly factors differentiating attempt from ideation. Although several variables have been identified in this study and previous research as risk factors associated with suicidal behavior of

adolescents, a comprehensive understanding remains elusive. Exploring factors that were not included in this study and that may be more predictive of suicidal behavior is needed in future research. For example, assessing hopelessness vs. depression has been indicated as an important factor for adult suicidal attempt (Beck, Steer, Kovacs, & Garrison, 1985) and may apply to adolescent suicidal attempt. Other psychosocial variables may be either be related or interact with the factors that appear as important in this study and need to be investigated. These include factors such as ethnic identification and its role as a potential risk or protective factor, i.e., as a stressor or a resource (Ensel & Lin, 1991). Family caring appeared to be related to suicidal behavior, particularly among Mexican-Americans; however, this is an area of scarce research in general, and in particular regarding the Mexican-American family and cultural context, and could benefit from future research. In addition, several factors that may impact family caring may be significant, such as family dysfunctionality and family history of suicidal behavior and need to be explicitly researched in future. The dearth of comparative ethnic and longitudinal research makes replication of the results of the current study necessary for corroboration for conclusive evidence. Given the early stages of information regarding the impact of school functioning on suicidal behavior, further exploration of this area is needed. Finally, the dearth of comparative ethnic and longitudinal research makes replication of the results of the current study necessary for corroboration of findings.

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