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INDIVIDUAL AND ENVIRONMENTAL PREDICTORS OF SUBSTANCE USE
AMONG AT-RISK ASIAN AND PACIFIC ISLANDER ADOLESCENT FEMALES

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ABSTRACT

This study investigated the hypothesized effects of six individual factors (greater aggression, less conventionality, greater delinquent behavior, greater depression, prior substance use, and self-efficacy deficit) and four environmental factors (greater community risk, lower levels of family bonding, and greater peer and parent substance use) on substance use among at-risk Asian and Pacific Islander (API) female adolescents in Hawaii. Participants consisted of 128 seventh grade API females who attended 'Ilima Intermediate School in Ewa Beach during five semesters between 1996 and 1998. For each cohort, the measures were administered at the beginning of the semester in a classroom setting.

Results of simultaneous multiple and logistic regression analyses indicated that environmental factors have the strongest relationship with all three types of substance use. Greater delinquent behavior, greater parent and peer substance use, and less family bonding were related to higher scores on a global measure of cigarette use. Greater parent and peer substance use were related to higher scores on a global measure of alcohol use. Greater community risk, parent substance use, and alcohol use were related to higher scores on a global measure of marijuana use. Individual items measuring parent (illicit) drug use and peer marijuana use were substituted for the parent and peer substance use composite measures because peer substance use, a consistent predictor of adolescent substance use, was not a significant predictor of marijuana use. Results of the revised regression model indicated that greater parent (illicit) drug use, peer marijuana use, and alcohol use were related to higher scores on a global measure of marijuana use.

Results of this study provide support for the stage model of substance use.

Alcohol use was a significant predictor in the marijuana use model and all subjects who reported marijuana use reported cigarette or alcohol use, with most reporting both cigarette and alcohol use. The findings in this study provide information that may be used in the design and implementation of prevention and treatment programs for at-risk API female adolescents.

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INTRODUCTION

The use of tobacco, alcohol, and other drugs by adolescents is a serious public health problem with numerous consequences in both adolescence and adulthood. The societal consequences of adolescent substance use are wide-ranging, including high cost of health care, mental health service use, family dysfunction, juvenile crime, educational failure, and lower social competence (Donovan, Jessor, & Costa, 1999; Jessor & Jessor, 1977; Kandel, 1980; Newcomb & Bentler, 1988). Thousands of adolescents and adults die from drug overdoses, drug-related violence and accidents, or health consequences due to substance use (Blum, 1987; Newcomb & Bentler, 1988; Robins, 1984).

Some adolescents go beyond experimentation and into regular use and abuse. A number of definitions of substance abuse have been proposed, with the majority agreeing that adolescent substance abuse is the frequent use of alcohol or other substances during adolescence, or the use of alcohol or other substances in a manner that is associated with problems and dysfunctions (Hawkins, Catalano, & Miller, 1992; Kandel, 1980). Regardless of the conceptual differences in the definition of adolescent substance abuse, adolescent substance abuse is correlated with problems later in life, including adult substance abuse, criminal activity, family dysfunction, unemployment, health and mental health impairment (Barnes & Welte, 1986; Kandel, Yamaguchi, & Chen, 1992; Millstein et al., 1992; Newcomb & Bentler, 1988; Shelder & Block, 1990). Most experts agree that the key to reducing the nation's substance abuse problems lies in preventive efforts and early treatment programs aimed at reaching America's youth, particularly youths at risk for substance use (Aas, Klepp, Laberg, & Aaro, 1995; Backer, Rogers, & Sopory, 1992; Hawkins et al., 1992; Jessor & Jessor, 1977; Shelder & Block, 1990). An at-risk

population, defined as adolescents who are at increased risk for delinquent behaviors and substance use, is by definition at higher risk for substance use than the normal adolescent population.

Given the serious consequences resulting from substance use and the fact that origins of substance use typically arise in pre- to early adolescence, considerable effort has been directed towards identifying predictors of substance use in adolescence. For decades, surveys have addressed numerous variables purportedly relevant to the prediction of alcohol, tobacco, and other substance use (Jessor & Jessor, 1977; Johnston, O'Malley, & Bachman, 2001; Kandel & Faust, 1975; Klinge, 2001; Yamaguchi & Kandel, 1984b). Understanding and identifying risk factors that may affect the development of substance use is the first step in ameliorating the problem of substance use in the adolescent population. Recent attention has turned to the role of risk factors in the domains of community, family, school, peer, and individual (Hawkins et al., 1992; Schier, Newcomb, & Skager, 1994). Unique to the risk factor approach is the belief that no single predictor can account for large proportions of variance in substance use (Hawkins et al., 1992; Jessor, 1987; Petraitis, Flay, & Miller, 1995). Rather, the argument is made that the adolescent's vulnerability to use and abuse of various substances is a function of the number of risk factors to which an adolescent is exposed.

The number of risk factors is helpful in identifying adolescents who are at risk for substance use, but the identification of specific risk factors is necessary in order to formulate interventions. Though the number of risk factors to which an adolescent is exposed is a strong predictor of substance use, researchers have also argued that the importance of a risk factor in predicting substance use varies as a function of

demographic characteristics of the adolescent (i.e., gender, ethnicity, and age) (Belcher & Shinitzky, 1998; Bettes, Dusenbury, Kerner, James-Ortiz, & Botvin, 1990; Hawkins et al., 1992; Werch, Dunn, & Woods, 1997).

Increasingly, researchers are interested in investigating substance use in females due to rising substance use among females during the past 30 years. Early studies on gender differences in self-report of substance use indicated that males self-report more substance use than females (Bachman, Johnston, & O'Malley, 1981; Brook, Lukoff, & Whiteman, 1980; Johnston et al., 2001) though this difference has decreased and is now nearly non-existent. Nationally, prevalence of cigarette use among adolescent females is equal to if not greater than use among males (Johnston et al.). In the state of Hawaii, substance use by females has increased to the point that females use some substances as often as or even more frequently than males. In a recent survey of adolescent substance use in Hawaii, females reported higher lifetime prevalence of alcohol and cigarette use than males in early adolescence (Klingle, 2001). With regard to illicit substance use, females reported equal or higher use than males, with the exception of marijuana use (Klingle, 2001).

Several studies have investigated Hispanic, African-American, and Native American populations (Coombs, Paulson, & Richardson, 1991; Johnson & Glassman, 1998; Myers, Newcomb, Richardson, and Alvy, 1997; Rhodes & Jason, 1990; Zimmerman & Maton, 1992); however, few studies have specifically investigated risk for substance use in Asian and Pacific Islander (API) populations (Barnes & Welte, 1986; Newcomb & Bentler, 1986; Hawkins et al., 1992). Typically, studies have included small samples of Asian adolescents and results or discussions did not focus on this population

(Barnes & Welte, 1986; Wallace & Bachman, 1991). API populations need to be investigated because, though ethnicity itself does not appear to be an independent predictor, ethnic groups do vary in terms of which individual and environmental factors are relevant to prediction of substance use (Bettes et al., 1990; Flay et al., 1994; Newcomb & Bentler, 1986; Schukit, 1987; Suwaki & Ohara, 1985). Type of substance used and the amount of substance used vary among the Asian and Pacific Islander populations. For example, the 2000 Hawaii Student Tobacco, Alcohol and Other Drug Use Survey (Klingler, 2001) indicated that Native Hawaiians had substance use rates equal to or higher than Caucasians, while Filipino and Japanese adolescents reported slightly lower use, with Chinese adolescents reporting the lowest prevalence. It is not clear how substance use among different ethnic groups may vary by gender.

With respect to age, a large proportion of the research on risk factors has focused on high school students (Bachman et al., 1981; Hawkins et al., 1992; Johnston et al., 2001; Kandel et al., 1992; Kandel, Kessler, & Margulies, 1978; Rhodes & Jason, 1990), though researchers increasingly have studied middle school children (Belcher & Shinitzky, 1998; Hawthorne, 1996; Henry et al., 1993; Webb, Baer, Getz, & McKelvey, 1996). It is understandable that risk factor research focuses on high school students, as they report higher levels of use than younger children; however, substance use is reported by children as young as sixth grade (Klingler, 2001) and can be reported at an even younger age (Belcher & Shinitzky, 1998). Substance use in children as young as four or five has been studied, typically in longitudinal studies that are completed several years later (Block, Block, & Keyes, 1988; Jessor & Jessor, 1977; Newcomb, Maddahian & Bentler, 1986). Current research suggests that risk factors for substance use among

middle school students may vary slightly from risk factors among high school students (Henry et al.; Webb et al., 1996).

In summary, there is a lack of research on risk factors related to substance use in the Asian and Pacific Islander population and in an early adolescent population. Also, there is a need to focus on substance use among female adolescents because substance use rates among adolescent girls has been increasing over the past thirty years.

In light of these deficiencies, the purpose of this study was to identify predictors of substance use among Asian and Pacific Islander early adolescent females in an at-risk population. In order to clarify the rationale for the study, the following sections will provide a review of relevant literature (see Appendix A for a table of articles reviewed). First, the rationale for the population under investigation will be discussed. Second, the risk approach for prediction of substance use will be discussed. Specifically, the rationale of the approach and its empirical support will be reviewed. Third, studies on individual factors, specifically aggression, conventionality, delinquent behavior, depression, prior substance use, and self-efficacy will be reviewed. Individual factors refer to characteristics of an individual that may be associated with greater substance use risk among adolescents. Fourth, studies on environmental factors that appear to be associated with substance use in the adolescent population will be reviewed, specifically community risk, family bonding, parent substance use, and peer substance use. Environmental factors refer to *interpersonal characteristics of the adolescent's environment* that may be associated with greater substance use risk among adolescents.

Rationale for Population Under Investigation

Gender. There has been increased interest in investigating substance use in females due to rising substance use among females over the past 30 years. Many studies reported that males are more likely to use than females, especially at the highest levels of use (Brook, Lukoff, et al., 1980; Coombs et al., 1991; Kandel, Single, & Kessler, 1976; Piko, 2000); however, the difference in substance use currently is diminishing, with females sometimes using substances more than males (Klingbe, 2001). Females are more likely to abuse prescription drugs and cigarettes than males (Johnston et al., 2001; Klingbe, 2001; Yamaguchi & Kandel, 1984a). Cigarettes are of greater importance among women than men in the sequence of drug involvement (Yamaguchi & Kandel, 1984a). In summary, adolescent females have demonstrated increased substance use over the past generation, in some cases comparable to males.

Ethnicity. Between 1990 and 2000, Asian and Pacific Islander population growth was the highest in the nation, 46 percent, with a concurrent increase in substance use. Specifically, Asian youths' susceptibility to smoking has increased dramatically, by more than 33%, from 1993 to 1996 (California Department of Health Services, 1991). An adolescent's reported use of substances and factors related to substance use appear to vary by ethnicity (Bachman et al., 1981; Hawkins et al., 1992; Ma & Shive, 2000; Newcomb & Bentler, 1986; Newcomb & Bentler, 1991; Werch et al., 1997); however, the difference in substance use between ethnic groups is decreasing.

Substance use varies within the API population, with some subgroups reporting much higher levels of use than others. In a survey of substance use in the state of Hawaii, Native Hawaiian and Filipino children and adolescents reported the highest substance use

among the API population in Hawaii, with Chinese children and adolescents reporting the lowest substance use (Klinge, 2001). Because of the diversity of the API population and corresponding differences in substance use, studies rarely contain API populations with similar rates of substance use. Besides large-scale prevalence studies, there is a dearth of information on substance use in the Asian and Pacific Islander population. Given increasing substance use among the API population, limited knowledge about the role of substance use risk factors in this population, and the lack of research on API populations with *similar and higher rates of substance use*, further investigation is necessary.

Age. There is increasing exposure to risk factors as a child ages and a concurrent increase in substance use during the teenage years (Newcomb, Maddahian, Skager, & Bentler, 1987; Piko, 2000; Yamaguchi & Kandel, 1984a). For example, marijuana use among children younger than 14 years is low, but risk for marijuana use increases thereafter, with the highest risk for initiation at 15 to 17 years (Johnston et al., 2001). Evidence from cross-sectional data suggested that substance use, both legal and illegal, peaks at ages 18-21 and declines thereafter (Kandel, 1980). As mentioned previously, substance use was reported by children as young as sixth grade (Klinge, 2001), and has been reported at an even younger age (Belcher & Shinitzky, 1998). Investigation of risk factors at various periods of adolescence is necessary to identify risk factors relevant at specific ages. Specifically, current research suggests that factors associated with substance use among middle school students may vary slightly from risk factors among high school students (Henry et al., 1993; Webb et al., 1996).

In summary, the API early adolescent female population needs to be studied for several reasons. Female adolescents and API adolescents have demonstrated increasing

substance use. Little literature on the API population exists, particularly regarding API populations such as Hawaiian and Filipino who report higher substance use rates than other API ethnic groups. Adolescence is often the time when substance use originates and knowledge of relevant risk factors for all stages of adolescence is necessary to design age-appropriate interventions.

Risk Factor Approach for Predicting Substance Use

Rationale of approach. A variety of models including social learning theory, cognitive-affective theory (e.g., theory of planned action), commitment and social attachment theory (e.g., social control theory), and integration of these models (e.g., problem-behavior theory), have been used to examine predictors of substance use in adolescents (Hawkins et al., 1992; Johnson & Glassman, 1998; Kandel, 1980; Rhodes & Jason, 1990). Tests of these models, however, have led to conflicting and contradictory results (Newcomb et al., 1986; Petraitis et al., 1995). Typically, one aspect of a model is confirmed while another aspect is disconfirmed. Weaknesses of these models include failure to account for the role of protective factors, vague relationships between constructs in the model and adolescent substance use, and little or no explanation for gender or ethnic differences (Petraitis et al.). Conflicting results have led several researchers to suggest that there are diverse paths to substance use (Hawkins et al., 1992; Nathan & Harris, 1980; Newcomb et al., 1986; Robins, 1984; Weinberg & Glantz, 1999).

Based on the perspective that many pathways could predict substance use, Bry, McKeon, and Pandina (1982) proposed six risk factors that they found useful in understanding levels of general substance use among adolescents (i.e., grades, affiliation with religion, age of first independent use of alcohol, psychological distress, self-esteem,

and perception of parental love). Despite limitations of the Bry et al. study, including composite scoring of substance use (i.e., one global measure of use which included all substances) and lack of an important predictor variable in the hypothesized model (i.e., peer substance use), their findings supported the risk factor approach to predicting substance use. In this approach, precursors of drug and alcohol problems are labeled as risk factors, meaning that a variable must occur before substance abuse and show statistical association with an increased probability of substance abuse. However, the label of risk factor has also been used to describe relationships between variables in cross-sectional studies, in which temporal precedence cannot be established. Interpretation of substance abuse literature is then complicated because most studies do not distinguish between relationships in which temporal precedence exists and relationships in which it does not.

One of the main tenets of the risk factor approach is that no single predictor can account for large proportions of variance in substance use. Another tenet of the risk factor approach is that an adolescent's vulnerability to the use and abuse of various substances is a function of the number of risk factors to which an adolescent is exposed. Identification of specific risk factors relevant to substance use is necessary in order to formulate appropriate interventions. Increasingly, the risk factor model is used in behavioral medicine to describe and address health behaviors and is used successfully to predict smoking, obesity, substance use, and factors related to other adolescent psychopathology such as delinquency, promiscuity, and psychiatric problems (Garnier & Stein, 1998; Kandel, 1982).

Empirical support. Preliminary support for the risk factor model is evident in health behavior research and substance use research. The risk factor approach is often used to understand susceptibility to infectious and other types of diseases (Newcomb et al., 1986). A risk-focused approach to prevention has been successful in reducing risk for heart and lung disease (Bush et al., 1989) and obesity (Caroli & Lagravinese, 2002).

In the area of substance use, studies have demonstrated consistently that exposure to a greater number of risk factors is related to higher levels of general substance use (Bry et al., 1982; Hawkins et al. 1992; Newcomb et al., 1986), confirming a major tenet of the risk factor approach. In addition, there is evidence that predictors of adolescent substance use vary by substance ingested (Ferdinand, Blum, & Verhulst, 2001; Kandel & Faust, 1975; Newcomb et al., 1986), supporting the concept that there are multiple pathways to substance use.

Longitudinal studies have supported many of the hypotheses postulated in cross-sectional studies. These longitudinal studies have shown that many of the factors related to substance use in cross-sectional studies are indeed related to substance use, and in fact precede and predict it (Block et al., 1988; Huba, Wingard, & Bentler, 1980; Kandel, 1980; Pederson, 1991). Evidence from longitudinal studies has shown that stages of substance use progress from substances that are legal for older individuals such as cigarettes, beer, wine and hard liquor to marijuana and other illicit drugs (Kandel & Faust, 1975). Kandel (1978) has offered a “stage theory” to explain why risk factors vary by type of substance used, suggesting that different sets of etiological variables are associated with different stages of substance use development. Her theory has been supported by the results from many longitudinal and other studies (Holmberg, 1985;

Huba et al., 1980; Johnson et al., 2001; Newcomb et al., 1986; Stein, Newcomb, & Bentler, 1987; Yamaguchi & Kandel, 1984a) but does not account for the fact that different sets of predictors have been associated with the same stage of drug behavior development. For example, both Kaplan (1975) and Jessor and Jessor (1977) investigated initiation of marijuana use; Kaplan found lowered self-esteem to be a predictor, but the Jessors did not.

The identification of risk factors has proceeded apace, but the dynamic role of each specific factor is unclear. In a review of risk and protective factors, Hawkins et al. (1992) concluded that, at that time, it was difficult to ascertain which risk factors or combination of risk factors for adolescent substance use are most virulent, which are modifiable, and which are specific to substance use rather than generic contributors to adolescent problem behaviors. Hawkins et al. argued that although current knowledge about risk factors for substance use does not provide a formula for intervention, the literature does point to potential targets for intervention.

The benefits of the risk factor approach for intervention are clear. Interventions aimed at addressing a risk factor can reduce substance use. Interventions that have shown promise are aimed at changing laws and norms favorable to substance use (e.g., increasing the minimum drinking age) or targeting social influences to use drugs (e.g., teaching skills on how to resist offers of alcohol, cigarettes, and other substances) (Hawkins et al., 1992). A specific example of an effective intervention is the public dissemination of information on the medical effects of long-term smoking. After this information was disseminated in the late 1970's, there was a significant drop in cigarette use in cohorts of students in the Monitoring the Future survey in the following years

(O'Malley, Bachman, & Johnston, 1984). Clearly, identification of specific risk factors relevant to substance use in specific populations is necessary for the development of appropriate intervention programs.

A review of the empirical literature on the risk factor model for substance use suggests a set of individual and environmental risk factors that appear to be important in predicting adolescent substance use. These individual and environmental risk factors are described below. Individual factors refer to characteristics of an individual that may be associated with greater risk of adolescent substance use, while environmental factors refer to interpersonal characteristics of the adolescent's environment that may be associated with greater substance use risk among adolescents. Research in the substance use field has produced inconsistent results because of differences in definition of substance use, research design, and population studied, but the majority of the factors described have been deemed important in this field. Selection of these risk factors was based on a combination of factors including consistency of importance of the factor in the literature, amount of variance accounted for (for some variables), and/or to fill a void in the literature (in the case of community risk and depression).

Individual Factors

Aggression. Aggression, specifically overt aggression and conflict with others (Achenbach, 1985), is related to initiation of and increase in substance use. Aggression has been associated with substance use and delinquency in adolescence (Windle, 1991), and if aggression continues from childhood to early adolescence, it is a relatively strong predictor of aggressive behavior in late adolescence as well as alcoholism in late adolescence and adulthood (Loeber, 1988). Aggression was positively correlated with

initiation and higher rates of substance use, particularly alcohol, marijuana and other illicit drugs, in longitudinal studies (Block et al., 1988; Brook, Whiteman, Finch, & Cohen, 1996; Ferdinand et al., 2001) and a cross-sectional study (Windle, 1991). Overall, the results indicate that aggression is related to initiation and increase in substance use.

Conventionality. Conventionality, defined as behaving in a manner that is expected by adults and fits adult expectations (Kandel et al., 1978), is negatively correlated with substance use and problem behaviors associated with substance use in the adolescent population (Brook, Nomura, & Cohen, 1989; Brook, Whiteman, Brook, & Gordon, 1981; Brook, Whiteman, Gordon, & Brook, 1984; Stein et al., 1987). The opposite characteristic of a nonconventional personality, in which an individual does not try to meet adult expectations and may even try to seek experiences outside the norm, has been cited as a precursor to substance use in general (Huba & Bentler, 1984; Jessor & Jessor, 1977; Loeber, 1988; Pederson, 1991), and specifically with regard to alcohol (Cloninger, Sigvardsson, & Bohman, 1988) and marijuana use (Brook, Gordon, & Brook, 1980; Brook et al., 1981; Brook et al., 1984). The relationship between paternal traits and adolescent marijuana use was studied in male (Brook et al., 1981) and female (Brook et al., 1984) college students. Paternal and adolescent traits that were related to marijuana use were similar across gender with one exception; conventionality may serve as a stronger deterrent to marijuana use in the case of girls than in the case of boys. An unconventional outlook serves as a risk factor for substance use by increasing exposure to other risk variables such as delinquent behavior.

Delinquent behavior. The relationship between delinquent behavior and substance use has been studied for years and it is established that delinquent behavior is consistently

related to increased risk for substance use (Farrell, Danish, & Howard, 1992; Hawkins, Jenson, Catalano & Lishner, 1988; Newcomb et al., 1986; Zimmerman & Maton, 1992) and is associated with many of the same risk factors as substance use (Hawkins et al.; Kandel, 1980; Kandel & Logan, 1984; Kellam & Brown, 1982; Loeber, 1988). To differentiate delinquent behavior from aggression, the definition of delinquent behavior used is dishonesty and rule-breaking behavior (Achenbach, 1985). Delinquent behavior and aggression are both viewed as externalizing patterns that are not mutually exclusive. Results of the 1980 National Youth Study showed that nearly 50% of serious juvenile offenders were also multiple, illicit substance users (Loeber, 1988), with delinquent behavior often preceding substance use chronologically in longitudinal studies (Holmberg, 1985; Yamaguchi & Kandel, 1984a). Attitude toward delinquent behavior is also related to substance use. In a study by Akers, Krohn, Lanza-Kaduce, and Radosevich (1979), the individual's belief about whether or not it was acceptable to violate the law explained a large proportion of the variance in alcohol and marijuana use. In sum, delinquent behavior is one of the most consistent predictors of substance use.

Depression. There is a small but documented relationship between adolescent depression and substance use (Jacobs & Ghodse, 1987). Current depression was positively correlated with substance use in a 15-year old male and female New Zealand population; however, previous depressive symptoms at age 11 predicted marijuana, inhalant, and multiple substance use at age 15 in males only (Henry et al., 1993). This result is somewhat inconsistent with other studies, which have demonstrated that depression had a greater effect on substance use in females than males (Block et al., 1988; Luthar, Cushing, & Rounsaville, 1996). One difficulty in assessing depression as a

predictive factor for substance use is that level of depression varies over relatively short periods of time, hence there will be variability over time and lower reliability of the measure (Pedersen, 1991). This area is underresearched, particularly with regard to the female population, and additional investigation is indicated.

Prior substance use. Prior or early onset of substance use is a strong predictor of subsequent substance use (Aas et al., 1995; Barnes & Welte, 1986; Biglan, Duncan, Ary, & Smolkowski, 1995; Holmberg, 1985; Huba et al., 1980; Stein et al., 1987; Yamaguchi & Kandel, 1984b). The earlier the onset of substance use, the greater the likelihood of increased substance use and multiple substance use (Kandel, 1982). Kandel argued that individuals start substance use with less potent substances (cigarettes and beer), then progress to more potent substances (marijuana and other illicit substances). The four stages she identified are: (a) beer or wine, (b) hard liquor or cigarettes, (c) marijuana, and (d) other illicit substances. In their longitudinal study, Yamaguchi and Kandel (1984a) found very few adolescents proceeded to marijuana use without using alcohol, or to other illicit substance use without using marijuana. The different stages of use are hypothesized to have slightly different sets of risk factors (Kandel et al., 1978; Yamaguchi & Kandel, 1984a).

Self-efficacy. Self-efficacy beliefs refer to cognitions about one's ability to effect a particular outcome. Self-efficacy can refer to general life skills ("If I work hard, I will succeed") or to the ability to refuse substances ("If I am offered a substance, I will be able to say no to the offer."). Self-efficacy (general life skills) was negatively related to substance use in an African American population (Farrell et al., 1992) and in a general high school population (Bachman et al., 1981).

In summary, six individual risk factors for substance use in adolescents were identified in a review of the empirical literature. Literature on aggression indicates that it is a significant correlate of substance use. Empirical evidence indicates that a lack of conventionality is a significant risk factor for substance use. Delinquent behavior demonstrates a strong relationship with adolescent substance use. Depression is an underinvestigated mental state that appears to be a risk factor for substance use. Prior substance use is a strong predictor of future substance use, confirming the adage that past behavior is a good predictor of future behavior. Evidence on the psychological construct of self-efficacy indicated that a lack of self-efficacy is correlated with substance use.

Environmental Factors

Community risk. Few studies have investigated the effect of exposure to substance use and violence in the neighborhood on adolescent substance use. Crum, Lillie-Blanton, and Anthony (1996) found that middle-school-age children from disadvantaged neighborhoods were 5.6 times as likely to be offered cocaine, 1.7 times as likely to be offered alcohol, and 1.6 times as likely to be offered tobacco compared to middle school students from relatively advantaged neighborhoods. Areas with high rates of adult crime also have high rates of juvenile crime (Wilson & Herrnstein, 1985) and illegal drug trafficking (Fagan, 1988). High official rates of crime have been identified as predictors of delinquency in juveniles (Wilson, & Herrnstein, 1985), and risk factors for delinquency and substance use are similar (Loeber, 1988). When adolescents are exposed to violence and substance use in the neighborhood, they have sources from which to obtain substances and adult models of substance use. Given the lack of literature in this

area and the obvious potential for increased risk for substance use, community risk should be investigated.

Family bonding. Family relationships characterized by a lack of closeness and parental involvement have been found to be related to substance use initiation (Brook, Lukoff, et al., 1980; Kandel et al., 1978). Lack of encouragement by parents (Rhodes & Jason, 1990) and high levels of parent-child conflict (Brook et al., 1989; Dishion, Patterson, Stoolmiller, & Skinner, 1991) have also been related to substance use. Conversely, positive family relationships in which the child feels a close, attached relationship with the parent appear to discourage initiation of substance use (Brook, Gordon, Whiteman, & Cohen, 1986; Brook, Gordon, et al., 1980; Jessor & Jessor, 1977; Wills, Vacarro, & McNamara, 1992). A series of studies by Brook et al. (1981; 1984; 1986) investigated the impact of parent characteristics on substance use in college age students and found that college age students were less likely to use marijuana when both parent and child described close relationships with each other. Specifically, students who reported close relationships with their father (Brook et al., 1981; Brook et al., 1984), or mother (Brook et al., 1986), reported less substance use than students who reported distant relationships. The above studies indicated that lack of a close relationship with the family is a risk factor for adolescent substance use.

Parent substance use. Parent substance use is consistently related to adolescent substance use (Brook & Brook, 1988; Hawthorne, 1996; Stein et al., 1987). The relationship between parent substance use and adolescent substance use is evident when the parent is using the same substance as the adolescent (Jackson, Henrikson, & Dickinson, 1999; Kandel, 1982) and when a global measure of substance use is utilized

(Brook et al., 1989; Marshall & Chassin, 2000; Myers et al., 1997). Parental and sibling alcoholism (Cloninger et al., 1988; Goodwin, 1985; McGue, Sharma, & Benson, 1996) and illegal substance use (Kilpatrick et al., 2000) increase the risk for alcoholism and illegal substance abuse in children. Similar results have been found with marijuana use (Johnson, Schoutz, & Locke, 1984; Kandel, 1978). Exposure to parent substance use in adolescence, as compared to childhood, was significantly related to substance use in late adolescents in a longitudinal study (Biederman, Faraone, Monuteaux, & Feighner, 2000). In a study by Brook and Brook (1988), results demonstrated that adolescents who used substances regularly interacted with adults who used the same substance and served as sources of supply. Parent modeling, parent substance use, and parent substance use attitudes strongly predicted adolescent initiation and maintenance of substance use (Andrews, Hops, Ary, Tildesley, & Harris, 1993; Kilpatrick et al., 2000).

Peer substance use. One of the most consistent and reproducible findings in substance use research is the relationship between an individual's substance use behavior and the concurrent substance use of his/her friends, either as perceived by the adolescent or as reported by the friends (Akers et al., 1979; Flannery, Vazsonyi, Torquati, & Fridrich, 1994; Hawthorne, 1996; Huba et al., 1980; Kandel, 1985; Windle, 2000). The effect of peer substance use on adolescent substance use is evident when the peer is using the same substance as the adolescent (Barnes & Welte, 1986; Farrell et al., 1992; Marshall & Chassin, 2000; Newcomb & Bentler, 1986). Other studies found that a composite measure of peer substance use (a composite of alcohol use, marijuana use, and other substance use) was a significant risk factor for adolescent substance use, though

these results are typically found when a global measure of adolescent substance use is utilized as well (Brook et al., 1989; Windle, 2000).

Peer factors, which have little effect upon substance use in childhood, apparently become more important between preadolescence and adolescence (Brook & Brook, 1988). An explanation for the changing impact of peer substance use on adolescent substance use between preadolescence and adolescence is that peers become increasingly important socially and provide social reinforcement or punishment for use and provide *normative definitions of use and abstinence* (Akers et al., 1979). The influence of peer smoking on adolescent smoking was evident even when parental cigarette use was taken into account (Biglan et al., 1995). Friends' smoking had both direct influences (access to substances) and indirect influences (modeling) on adolescent initiation of smoking (Biglan et al.). However, a few researchers suggested that children who are predisposed to substance use may seek out others with similar inclinations, in which case affiliation with substance-using peers is a result and not a cause of adolescent substance use (Hawkins et al., 1992).

In summary, four important environmental risk factors for substance use in adolescents were identified in a review of the empirical literature. Community risk (i.e., exposure to substance use and violence) appears to be a risk factor for adolescent substance use but is underresearched. A lack of a strong bond with one's family was a risk factor for substance use. Parent and peer substance use are consistent and strong predictors of adolescent substance use.

The Present Study

The present study sought to identify the importance of individual and environmental risk factors in predicting substance use among Asian and Pacific Islander adolescent females from an at-risk population. Due to the cross-sectional nature of this study, temporal precedence of the predictors cannot be established. Predictors of cigarette use, alcohol use, and marijuana use were examined independently to determine if risk factors varied by substance. The API population was examined because of increasing substance use in the API population and to address a lack of information regarding factors predictive of substance use among API adolescents. Females only were examined because of the growing concern about the rise in substance use among females. Based on a review of the current literature the effects of six individual variables were examined: aggression, conventionality, delinquent behavior, depression, prior substance use (alcohol use as a predictor of marijuana use), and self-efficacy. In addition, the effects of four environmental variables on substance use were examined: community risk, family bonding, parent substance use, and peer substance use. As discussed above, research has suggested the importance of these factors in predicting substance use among ethnic groups other than API. The proposed study tested the following hypotheses:

- 1) Greater aggression, less conventionality, greater delinquent behavior, greater depression, self-efficacy deficit, greater community risk, lower levels of family bonding, and greater peer and parent substance use are related to increased substance use. Based on previous findings, peer substance use was expected to be a significant predictor of all substance use.

2) Prior substance use is related to marijuana use. Based on Kandel's (1978) stage theory of substance use, alcohol use was expected to be a significant predictor of marijuana use.

METHOD

Participants

Participants consisted of a convenience sample of 128 seventh grade female students enrolled at 'Ilima Intermediate School in Ewa Beach, Oahu, during five semesters from 1996 to 1998. New subjects were obtained each semester. Thirty subjects from the original sample of 158 subjects were excluded because their ethnicity was not Asian or Pacific Islander. Self-reported dishonesty and inconsistent patterns of responding were examined; no subjects were eliminated. Participants were adolescent girls who participated in either a substance use prevention intervention program ($n = 62$) or a matched no-treatment comparison group ($n = 66$). Participants in both groups were recruited by referrals from classroom teachers and counselors at either 'Ilima Intermediate or the surrounding feeder elementary schools in Ewa Beach.

Participants were part of larger study investigating the efficacy of a substance use prevention program in preventing or reducing substance use among at-risk female adolescents in Hawaii. At-risk females were investigated because, by definition, they are at greater risk for substance use and other psychosocial problems, and also because federal funding for the parent study was obtained to provide a prevention program and evaluation of the prevention program for at-risk adolescent females. Criteria for recruitment of participants included the girls' age (11-15 years) and one or more of the following high-risk characteristics: aggressive behaviors, alcohol or substance use, belonging to negative peer group, feeling depressed, gang involvement, lack of bonding to school, lack of involvement in healthy activities, poor family management skills among parents, poor interpersonal skills, poor problem-solving skills, poor self-esteem,

positive attitudes toward alcohol or drugs, status offender, and victim of abuse. Referral sources were given a checklist of these high-risk characteristics, which was completed for each participant referred.

Table 1 presents demographic characteristics of the sample. The mean age of the sample was 12.04 years ($SD = 0.50$; range = 11 to 14). The majority of the sample was Filipino ($n = 41$; 32.0%), Hawaiian ($n = 43$; 33.6%), or Mixed API Ethnicity ($n = 31$, 24.2%). The average number of risk factors reported by referral sources was 3.55 ($SD = 2.23$; range = 0 to 14).

Procedures

Measures of treatment outcome variables were administered to participants in the treatment group and the matched no-treatment comparison group at three points in time - before the start of the intervention at the beginning of the semester, upon completion of the intervention at the end of the semester, and 6 months after completion of the intervention. The current study was based only on pretest data for all subjects.

Project staff followed written instructions prepared for questionnaire administration. Written instructions included procedures for questionnaire administration, a description of the study, and how to discuss confidentiality and subject's right to discontinue participation. After participants and their parents received a complete description of the study and their rights, written consent was obtained (see Appendix B). Attempts to insure consistency across staff included training prior to questionnaire administration (role-playing), debriefing after questionnaire administration, and supervision by a senior staff for initial administrations (when possible). The length of

Table 1. Characteristics of Sample ($N = 128$)

Characteristics	<i>N</i>	Percentage
Ethnicity		
Chinese	6	4.7
Filipino	41	32.0
Hawaiian/Part Hawaiian	43	33.6
Korean	1	0.8
Samoaan	3	2.3
Other Pacific Islander	1	0.8
Mixed API	31	24.2
Other API	2	1.6
Age		
11	13	10.2
12	98	76.6
13	16	12.5
14	1	0.8
Grade Level		
7 th grade	128	100.0
Risk Factor Referrals ^a		
Aggressive behaviors	26	20.3
Alcohol use	13	10.2
Belong to negative peer group	34	26.6
Drug use	16	12.5
Feeling depressed	53	41.4
Gang involvement	8	6.3
Lack of bonding to school	22	17.2
Lack of involvement in healthy activities	43	33.6
Poor family management skills	30	23.4
Poor interpersonal skills	32	25.0
Poor problem-solving skills	67	52.3
Poor self-esteem	65	50.8
Positive attitudes towards alcohol	17	13.3
Positive attitudes towards drugs	13	10.2
Status offender	5	3.9
Victim of abuse	10	7.8
None of the above	2	1.6

^a Participants may be referred for more than one risk factor, hence the sum of all risk factors will not be one hundred percent.

time participants took to complete the questionnaire ranged from 40 to 50 minutes and the questionnaires were completed in a classroom setting. All participants were given a \$5 MacDonald's coupon each time they completed a pretest, posttest, and 6-month follow-up questionnaire. Approximately one week after questionnaire administration by project staff, an outside evaluator (EMT and Associates, 1994) administered another questionnaire to the sample.

Measure Development

Measures included two sets of questionnaires developed for the larger treatment outcome study. The first set was developed by Kameoka (1995; see Appendix C) and the second set was developed by EMT and Associates (1994; see Appendix D). Kameoka's (1995) questionnaire battery contained measures that assessed outcome variables targeted by the intervention. The Kameoka (1995) questionnaire was composed of established measures that were pilot-tested locally. Several subscales of the National Youth Survey (EMT & Associates, 1994) were included in the Kameoka (1995) questionnaire because the parent study was part of a national cross-site study. The National Youth Survey (EMT & Associates, 1994) was developed by the EMT & Associates Research Group and was developed to assess factors related to substance use. The National Youth Survey is experimental in nature due to the fact that psychometric evaluation of the measure has not been published in a peer-reviewed journal.

For the purposes of the current study, a subgroup of variables was selected from the two questionnaires to assess the hypothesized individual and environmental

predictors of substance use. The majority of the variables selected were from the Kameoka (1995) questionnaire (including two National Youth Survey subscales) and the remaining four subscales selected were exclusive to the National Youth Survey (EMT & Associates, 1994).

Measures used to assess the predictor and criterion variables of this study are described below. Table 2 presents a full list of measures and rating scales for individual and environmental predictor variables and substance use criterion variables. Subscale measures that have been evaluated in peer-reviewed journals and have established reliability and validity appear in their entirety in Appendix C.

Measures of Individual Predictors

Aggression. The aggressive behavior subscale of the Youth Self-Report measure (YSR; Achenbach, 1991b) was used to assess aggressive behavior, specifically overt behavior and conflict with others. The YSR is a self-report version of the Child Behavior Checklist (CBCL; Achenbach, 1991a). The “aggressive behavior” subscale contains 19 items rated on a three-point Likert-type scale ranging from 0 (*not true*) to 2 (*very true or often true*). Example item includes “I have a hot temper.” For a list of specific items and rating format, see Appendix C, page 95. Psychometric properties of the aggressive behavior subscale of the YSR are adequate. Specifically, internal consistency estimate (Cronbach’s alpha) of .86 was reported among matched referred and nonreferred girls age 11 to 18 (Achenbach, 1991b). A one-week test-retest reliability estimate of .79 for aggressive behavior was found among boys and girls age 11 to 18, as well as a seven-month test-retest reliability estimate of .48 among a general

population sample of boys and girls age 11 to 14 (Achenbach, 1991b). Criterion-related validity was evaluated by comparing YSR scores of clinic-referred and non-referred children (Achenbach, 1991b). Significant differences in aggression were found between children referred to mental health services and those not referred for such services, with referred children having significantly higher scores.

Conventionality. The conventional behavioral conduct subscale of the Self-Perception Profile for Adolescents (SPPA; Harter, 1988) was used to assess participants' self-reported level of conventionality. Each item included two statements of opposite meaning (e.g., "Some teenagers usually do the right thing" and "Other teenagers don't do what they know is right"). The participant then chose one of the two statements most applicable to herself and rated the statement on a two-point Likert-type scale ranging from 1 (*really true for me*) to 2 (*sort of true for me*). Items are then recoded on a 1 to 4 scale, with higher scores indicating greater conventionality. Table 2 lists the five subscale items and rating format. The SPPA as a whole is designed to measure judgment of competencies or adequacy and includes a global measure of self-worth. Psychometric properties of the conventional behavioral conduct subscale are adequate. Internal consistency estimate (Cronbach's alpha) of .78 was reported among boys and girls in grades 8 through 11 (Harter, 1988). While evidence for factorial validity of the measure has been reported, no construct validity data has been provided by the author (Harter, 1988).

Delinquent behavior. The "delinquent behavior" subscale of the Youth Self-Report measure (YSR; Achenbach, 1991b) was used to assess delinquent behavior. The

YSR is a self-report version of the Child Behavior Checklist (CBCL; Achenbach, 1991a). The “delinquent behavior” subscale contains 11 items rated on a three-point Likert-type scale ranging from 0 (*not true*) to 2 (*very true or often true*). Example items include “I hang around with kids who get in trouble.” For a list of specific items and rating format, see Appendix C, page 99. For all analyses, the item, “I use alcohol or drugs for non-medical purposes” was removed from the YSR delinquent behavior subscale due to redundancy with the substance use criterion measure.

Psychometric properties of the YSR are adequate. Specifically, internal consistency estimate (Cronbach’s alpha) of .76 was reported among matched referred and nonreferred girls age 11 to 18 (Achenbach, 1991b). A one-week test-retest reliability estimate of .72 for delinquent behavior was found among a general population sample of boys and girls age 11 to 18, as well as a seven-month test-retest reliability estimate of .48 among a general population sample of boys and girls age 11 to 14 (Achenbach, 1991b). Criterion-related validity was evaluated by comparing YSR scores of clinic-referred and non-referred children (Achenbach, 1991b). Significant differences in delinquent behavior were found between children referred to mental health services and those not referred for such services, with referred children having significantly higher scores.

Depression. The Center for Epidemiological Studies Depression Scale (CESD; Radloff, 1977) was used to measure depressive symptomatology. The CESD is a 20-item self-report instrument designed to measure symptoms of depression in the general population. Items were scored on a four-point Likert-type scale ranging from 0 (*rarely*

or none of the time) to 3 (most or all of the time). Examples of items on the scale include “I did not feel like eating; my appetite was poor” and “I felt lonely.” For a list of specific items and rating format, see Appendix C, page 94. Radloff (1977) reported internal consistency estimates (Cronbach’s alpha) of .85 in a general population sample and .90 in a psychiatric sample. Test-retest correlations ranged from .32 (1-year interval) to .67 (4-week interval) in a general population sample. The CESD has strong construct validity, correlating significantly with a number of other depression and mood scales such as the Bradburn Negative Affect (.51) and Langner (.54) scales. CESD scores also discriminated psychiatric inpatients and individuals from the general population (Radloff, 1977).

Prior substance use. Prior substance use, specifically alcohol use, was measured by a global indicator of alcohol use from the National Youth Survey (EMT Associates Inc., 1994). A global indicator of alcohol use was composed by averaging scores on three questions regarding alcohol use. Scores on “ever tried alcohol” (yes/no), monthly prevalence of alcohol use (Likert-type), and frequency of daily use of alcohol (Likert-type) were summed and averaged. For a list of specific items and rating format, see Table 2. Psychometric properties of this scale have not been reported (EMT Associates Inc., 1997), but will be evaluated in this study. Temporal precedence of alcohol use prior to marijuana use cannot be established due to the cross-sectional nature of this study.

Self-efficacy. Self-efficacy was assessed by the self-efficacy subscale of the National Youth Survey (EMT Associates Inc., 1994). The original scale was

reformulated (one item removed and one added) in order to construct a cohesive five-item measure designed to measure belief in one's ability to attain an outcome. An example of a subscale item is, "If you work hard, you will get what you want." Items were scored on a four-point Likert-type scale ranging from 1 (*NO!*) to 4 (*YES!*). For a list of specific items and rating format, see Table 2. Psychometric properties of the original five-item self-efficacy subscale are somewhat adequate. Internal consistency estimate (Cronbach's alpha) of .56 was found for the original self-efficacy subscale among economically disadvantaged youth in a 15-site sample (EMT Associates Inc., 1997). Support for construct validity was based on negative correlations between self-efficacy scores and peer alcohol and drug (AOD) use (-.21) and personal risk behavior scores (-.20), and positive correlations with negative attitudes toward AOD use (.41) among economically disadvantaged youth (EMT Associates Inc., 1997).

Measures of Environmental Predictors

Community risk. The neighborhood risk subscale of the National Youth Survey (EMT Associates Inc., 1994) was used to assess community risk. The neighborhood risk subscale is a five-item subscale designed to measure exposure to substance use and violence in the community. Items were scored on a four-point Likert-type scale ranging from 1 (*never*) to 5 (*almost every day*). An example of an item on the scale includes, "You see people drinking alcohol on the street." For a list of specific items and rating format, see Table 2. Psychometric properties of the neighborhood risk subscale are adequate. An internal consistency estimate (Cronbach's alpha) of .81 for neighborhood risk was found among economically disadvantaged youth in a 15-site sample (EMT

Associates Inc., 1997). Construct validity was demonstrated by negative correlations of neighborhood risk with behavioral self-control (-.29) and school bonding (-.22) in the aforementioned sample (EMT Associates Inc., 1997).

Family bonding. The family bonding subscale of the National Youth Survey (EMT Associates Inc., 1994) was used to assess participants' perception of family bonding. An example of one of the six items on the subscale is, "I enjoy talking with my family." Items were scored on a four-point Likert-type scale ranging from 1 (*NO!*) to 4 (*YES!*). For a list of specific items and rating format, see Table 2. Psychometric properties of the family bonding subscale are fairly adequate. An internal consistency estimate (Cronbach's alpha) of .58 was found among economically disadvantaged youth in a 15-site sample (EMT Associates Inc., 1997). In support of construct validity, high family bonding scores were positively associated with negative attitude toward AOD use (.36) and family interaction (.37) in the aforementioned sample (EMT Associates Inc., 1997).

Parent substance use. Participant's perception of parent substance use was measured by the parent substance use subscale in the National Youth Survey (EMT Associates Inc., 1994). An average score of participants' perception of parent cigarette, alcohol, and drug use was composed. An example of one of the three items on the subscale is, "Have you ever wished that one of your parents would drink less?" Items were scored on a three-point scale ranging from 1 (*My parents don't use substance*) to 3 (*Yes*). For a list of specific items and rating format, see Table 2. The psychometric

properties of this scale have not been reported (EMT Associates Inc., 1997), but will be evaluated in this study.

Peer substance use. Participants' perception of peer substance use was measured by the peer substance use subscale in the National Youth Survey (EMT Associates Inc., 1994). An average score of participants' perception of peer cigarette, alcohol, and marijuana use was composed. An example of one of the three items on the subscale is, "Do you think your best friend uses marijuana sometimes?" Items were scored 1 (*Yes*) or 0 (*No*). For a list of specific items and rating format, see Table 2. An internal consistency estimate (Cronbach's alpha) of .65 was found among economically disadvantaged youth in a 15-site sample (EMT Associates Inc., 1997). High peer substance use scores were negatively associated with prosocial norms (-.22) in the aforementioned sample, providing support for construct validity (EMT Associates Inc., 1997).

Substance Use Criterion Measures

Substance use was measured in two ways. One way involved a global indicator of use, specifically the composite scores of cigarette use, alcohol use, and marijuana use. This global indicator of cigarette use, alcohol use, and marijuana use was measured by the cigarette use, alcohol use, and marijuana use subscales in the National Youth Survey (EMT Associates Inc., 1994). A global indicator of substance use was comprised of an average of three items, computed separately for each substance (EMT Associates Inc., 1997). The three items were: report of ever using a substance during lifetime, monthly prevalence of substance use, and daily prevalence of substance use. For a list of

specific items and rating format, see Table 2. An internal consistency estimate (Cronbach's alpha) of .72 was found for the composite score of substance use (a composite of cigarette, alcohol, and marijuana use) among economically disadvantaged youth in a 15-site sample (EMT Associates Inc., 1997). Internal consistency estimates will be computed for each substance individually. Construct validity information is not provided (EMT Associates Inc., 1997), but will be investigated.

The second way substance use was measured was through asking participants if they had ever tried cigarettes, alcohol, or marijuana in their lifetime, a question that required a dichotomous "yes" or "no" response. Lifetime use of a substance was measured by subject response to questions regarding ever using a substance during their lifetime. Subjects were asked if they had, "ever used cigarettes?", "ever used alcohol?", or "ever used marijuana?" at any time during their life, a question that required a dichotomous "yes" or "no" response.

Table 2. Measures of Individual Predictors, Environmental Predictors, and Substance Use

Variable	Measure/Item	Rating Scale
<u>Individual</u>		
Aggression	19 items, Aggressive Behavior, Youth Self-Report (See Appendix C, page 95 for full scale)	Average of items is computed. 0 = Not true 1 = Somewhat or sometimes true 2 = Very true or often true
Conventionality	Some teenagers usually do the right thing. OR Other teenagers often don't do what they know is right. Some teenagers often get in trouble for the things they do. OR Other teenagers usually <i>don't</i> do things that get them in trouble. (R) Some teenagers feel really good about the way they act. OR Other teenagers <i>don't</i> feel that good about the way they often act. Some teenagers do things they know they shouldn't do. OR Other teenagers hardly ever do things they know they shouldn't do. (R) Some teenagers usually act the way they know they are supposed to. OR Other teenagers often don't act the way they are supposed to.	Sum of items is computed. One of the two statements is rated on a two-point Likert-type scale ranging from 1 (<i>really true for me</i>) to 2 (<i>sort of true for me</i>). Items are then recoded on a 1 to 4 scale, with higher scores indicating greater conventionality.
Delinquent Behavior	10 items, Delinquent Behavior, Youth Self-Report (See Appendix C, page 99 for full scale)	Sum of items is computed. 0 = Not true 1 = Somewhat or sometimes true 2 = Very true or often true
Depression	20 items, Center for Epidemiological Studies Depression Scale (See Appendix C, page 94 for full scale)	Sum of items is computed. 0 = Rarely or none of the time 1 = Some or a little of the time 2 = Occasionally or a moderate amount of the time 3 = Most or all of the time
Prior Substance Use	See Alcohol Use composite scoring	

Table 2. (Continued) Measures of Individual Predictors, Environmental Predictors, and Substance Use

Variable	Measure/Item	Rating Scale
<u>Environmental</u>		
Self Efficacy	If I can't do a job the first time, I keep trying until I can. I give up on things before completing them. (R) I can do most things I try. If I study hard, I will get better grades. (Added item)	Average of items is computed. 1 = NO! 2 = no 3 = yes 4 = YES!
Community Risk	If you work hard, you will get what you want. <i>Indicate how often these things happen in your neighborhood:</i> You see people drinking alcohol on the street. Someone gets robbed. You see someone using drugs. You see the police arrest someone. You see a fight.	Average of items is computed. 1 = Never 2 = A few times a year 3 = A few times a month 4 = Once or twice a day 5 = Almost every day
Family Bonding	I can tell my parents the way I feel about things. It helps me to talk with adults about alcohol or drugs. I like to do things with my family. It is important to do your part in helping at your home. I enjoy talking with my family. I always like to do my part.	Average of items is computed. 1 = NO! 2 = no 3 = yes 4 = YES!
Parent Substance Use	Have you ever wished that one of your parents would drink less? Have you ever wished that one of your parents would smoke cigarettes less? Have you ever wished that one of your parents would use drugs less?	Average of items is computed. 1 = Parents don't use substance 2 = No 3 = Yes
Peer Substance Use	Do you think your <u>best friend</u> smokes cigarettes or uses chewing tobacco, snuff, or dip sometimes? Do you think your <u>best friend</u> uses alcohol sometimes? Do you think your <u>best friend</u> uses marijuana sometimes?	Average of items is computed. 0 = No 1 = Yes
<u>Substance Use Measure</u>		
Composite Score	Separate scores are computed for each substance: Lifetime Use Monthly Prevalence Daily Prevalence	Scores are summed then averaged.
Cigarette Use	Have you ever smoked a cigarette even just a few puffs, or used chewing tobacco, snuff or dip?	0 = No 1 = Yes

Table 2. (Continued) Measures of Individual Predictors, Environmental Predictors, and Substance Use

Variable	Measure/Item	Rating Scale
Cigarette Use (Cont'd)	On how many days in the LAST MONTH (30 days) did you use smoke cigarettes?	0 = None 1 = One to two days 2 = 3 to 5 days 3 = 6 to 9 days 4 = 10-19 days 5 = 20 to 31 days
	On the days that you smoke cigarettes, how many do you smoke?	0 = I don't smoke 1 = less than 1 cigarette 2 = 1 or 2 cigarettes 3 = 3 to 7 cigarettes 4 = About half a pack of cigarettes 5 = A pack or more
Alcohol Use	Have you ever had a drink of alcohol?	0 = No 1 = Yes
	On how many days in the LAST MONTH (30 days) did you have an alcoholic drink?	0 = None 1 = One to two days 2 = 3 to 5 days 3 = 6 to 9 days 4 = 10-19 days 5 = 20 to 31 days
	On the days you drank alcohol, about how many drinks did you have?	0 = I don't drink alcohol 1 = less than a drink 2 = 1 drink 3 = 2 drinks 4 = 3 drinks 5 = 4 or more drinks
Marijuana Use	Have you ever tried marijuana?	0 = No 1 = Yes
	On how many days in the LAST MONTH (30 days) did you use marijuana?	0 = None 1 = One to two days 2 = 3 to 5 days 3 = 6 to 9 days 4 = 10-19 days 5 = 20 to 31 days
	On the days that you use marijuana, how many times do you use it?	0 = I don't use marijuana 1 = Once a day 2 = Twice a day 3 = Three or more times a day

RESULTS

The findings of this study are presented in four sections. The first section describes *psychometric characteristics of the measures*. The second section describes results of preliminary data analyses conducted to identify outliers and multicollinearity that may influence the results of all subsequent analyses. The third section describes the distribution of substance use in the sample. The fourth section presents the results of simultaneous multiple regression and logistic regression analyses that were conducted to test the hypothesized effects of aggression, conventionality, delinquent behavior, depression, prior substance use (marijuana use model only), self-efficacy, community risk, family bonding, parent substance use, and peer substance use on cigarette, alcohol, and marijuana use.

Psychometric Characteristics of Measures

Reliability. Prior to testing the hypothesized associations among variables, internal consistency estimates were obtained for each variable. Internal consistency estimates (Cronbach's alpha) for all measures were relatively adequate (see Table 3), ranging from a low of .50 for self-efficacy to a high of .84 for marijuana use. The lower internal consistency estimates for conventionality, self-efficacy, parent substance use and peer substance use suggest that the items that formed these composites may not be sufficiently homogeneous.

Construct validity. Bivariate correlations between the individual predictors, environmental predictors, and the substance use subscales were completed to assess divergent and convergent validity for subscales lacking current validity information (see Table 4). Specifically, construct validity for conventionality, parent substance use, and

Table 3. Reliability of Individual Predictors, Environmental Predictors, and Substance Use Measures ($N = 128$)

Subscale	<i>N</i>	<i>M</i>	<i>SD</i>	Cronbach's Alpha
<u>Individual predictor measures</u>				
Aggression	128	8.77	5.63	.83
Conventionality	128	13.18	3.33	.66
Delinquent behavior	128	3.62	2.63	.69
Depression	128	17.69	8.80	.79
Prior substance use (alcohol use)	127	.43	.70	.76
Self-efficacy	124	3.49	.38	.50
<u>Environmental predictor measures</u>				
Community risk	124	2.51	1.02	.79
Family bonding	126	3.10	.57	.76
Parent substance use	126	1.64	.63	.65
Peer substance use	125	.27	.33	.65
<u>Substance Use Criterion Measures</u>				
Cigarette Use	125	.43	.71	.78
Alcohol Use	127	.43	.70	.76
Marijuana Use	125	.14	.43	.84

cigarette, alcohol, and marijuana use was examined. In support of construct validity, conventionality scores were positively associated with self-efficacy (.23) and family bonding (.35), and negatively correlated with delinquent behavior (-.32) in the sample. High parent substance use scores were positively correlated with adolescent cigarette use (.25), alcohol use (.26), and marijuana use (.40) and negatively correlated with conventionality (-.18), providing support for construct validity. High cigarette use scores were positively correlated with delinquent behavior (.45) and alcohol use (.46) and negatively correlated with conventionality (-.33). High alcohol use scores were positively correlated with community risk (.28) and marijuana use (.55) and negatively correlated with conventionality (-.26). High marijuana use scores were positively correlated with delinquent behavior (.33) and alcohol use (.55) and negatively correlated with family bonding (-.22). These correlations provide support for the construct validity of conventionality, parent substance use, and substance use measures.

Preliminary Data Analyses

Homoscedasticity, linearity, normality, and outliers. Residual plots for all regression models were investigated to determine if the predictor and criterion variables met the assumptions of regression (Tabachnik & Fidell, 1993). Based on the residual plots, no problem with linearity or normality was evident. However, the residual plots for the global measure of cigarette, alcohol, and marijuana use displayed heteroscedasticity.

In addition to evaluating residual plots, outliers were identified and their potential effects on the regression analyses were evaluated by computing studentized residuals for each criterion score. Studentized residuals are standardized residuals whose distribution

reflects that of a t-distribution (Pedhazur, 1982). Outliers for all predictor and criterion variables were identified by examining the studentized residuals. Any studentized residual greater than 2.57 was checked for data entering errors, as studentized residuals larger than 2.57 would significantly deviate from the rest of the residual scores at the 99% confidence interval (Welkowitz, Ewan, & Cohen, 1991). No data entering errors were identified. Outliers were identified on the following subscales: depression, family bonding, parent substance use, cigarette use, alcohol use, and marijuana use.

Prior to evaluation of the multiple regressions with and without outliers, variables displaying heteroscedasticity or outliers were evaluated to determine if the variable should be transformed. The outliers on the substance use subscales were in the direction of greater use, and given that this is variability of interest, outliers for these scales were transformed rather than removed. The substance use subscales were transformed to reduce the number of outliers and improve homoscedasticity. A square root transformation was used on cigarette use subscale scores because the cigarette use distribution was moderately positively skewed (Tabachnik & Fidel, 1993). Logarithmic transformations were performed on alcohol use and marijuana use subscale scores because the distributions were substantially positively skewed (Tabachnik & Fidel, 1993). After variable transformations, the residual plots displayed less heteroscedasticity and there were no studentized residuals indicating outliers.

The next step involved conducting multiple regression and logistic regression analyses with and without outliers from the depression and family bonding scales. A comparison of the results of analyses with and without outliers for these scales showed that there were no differences in parameter estimates for the models, with the exception

of the regression model for alcohol use. Results of these analyses led to the elimination of two individuals' scores on the family bonding subscale.

Multicollinearity. Multicollinearity among predictor variables was examined by computing tolerance for each predictor. Tolerance, $1-R_i^2$, is a measure of the extent to which a predictor is related to other predictors in the regression equation (Tabachnik & Fidel, 1993), where R_i^2 represents the squared multiple correlation of an independent variable (i) with the rest of the independent variables (i.e., what a given variable shares with other independent variables) (Pedhazur & Schmelkin, 1991). Tolerance of less than .100 was used to detect multicollinearity based on suggestions from Pedhazur (1982) and Pedhazur & Schmelkin (1991). Investigation of bivariate correlations was also recommended (Tabachnik & Fidel, 1993). The examination of tolerance, together with the examination of bivariate correlations among predictors (see Table 4) indicated that no predictor variable was linearly dependent on the remaining predictor variables.

Distribution of Substance Use in Sample

The distribution of substance use was examined to identify prevalence of and variation in substance use among Asian and Pacific Islander adolescent females comprising the study's sample. The number of participants who indicated having used cigarettes, alcohol, or marijuana at least once in lifetime is shown in Table 5. As shown in this table, 38.3% of the total sample tried cigarettes, 39.8% tried alcohol, and 10.9% tried marijuana. A breakdown of substance use for each of the three substances is also included in Table 5 (see Nested Results). Examination of the nested results shows that approximately 46.1% of the sample reported never trying any substance, and 8.6% of the

Table 4. Intercorrelations of Individual Predictors, Environmental Predictors, and Substance Use Measures (n = 128)

Subscale	Aggr.	Conv	Delinq. Beh.	Depres	Self- Effic	Comm Risk	Fam Bond	Parent SU	Peer SU	Cig Use	Alc Use	Mar Use
<u>Individual predictor measures</u>												
Aggression	1.00											
Conventionality	.42**	1.00										
Delinquent behavior	.53**	-.32*	1.00									
Depression	.50**	-.38**	.28**	1.00								
Self-efficacy	-.21*	.23**	-.32**	-.09	1.00							
<u>Environmental predictor measures</u>												
Community risk (Neighborhood risk)	.09	-.23*	.10	.19*	.00	1.00						
Family bonding	-.25**	.35**	-.32**	-.11	.38**	-.04	1.00					
Parent substance use	.05	-.18*	.11	-.01	-.16	.12	-.13	1.00				
Peer substance use	.37**	-.21*	.43**	.12	-.19*	.31**	-.25**	.11	1.00			
<u>Substance Use Measures</u>												
Cigarette Use	.33**	-.33**	.45**	.18*	-.28**	.28**	-.34**	.25**	.55**	1.00		
Alcohol Use	.28**	-.26**	.26**	.09	-.10	.28**	-.16	.26**	.45**	.46**	1.00	
Marijuana Use	.16	-.23**	.33**	.05	-.17	.31**	-.22*	.40**	.31**	.40**	.55**	1.00

* $p < .05$

** $p < .01$

sample reported trying all three substances. No subject reported marijuana use without the presence of either cigarette or alcohol use.

Only five subjects reported use of any substance other than cigarettes, alcohol, and marijuana. Two subjects reported inhalant use, one subject reported crack/cocaine use, one subject reported using speed or uppers, and one subject reported using downers/tranquilizers and speed or uppers. Given the small number of subjects reporting illicit substance use other than marijuana use and that all subjects who reported other substance use also reported using cigarettes, alcohol, or marijuana, no further analyses will be conducted on these substances.

A global indicator of substance use was comprised of an average of the three substance use items, computed separately for each substance. The three items were: report of ever using a substance (scored zero or one), monthly prevalence (scored 0 to 5), and daily prevalence (scored 0 to 5 for cigarettes and alcohol, 0 to 3 for marijuana) (see Table 6 for frequency of monthly and daily prevalence of cigarette, alcohol, and marijuana use). For global indicators of substance use, the possible range of scores was 0.00 to 3.67 for the global indicator of cigarette and alcohol use, and 0.00 to 3.00 for the global indicator of marijuana use. Mean global score of cigarette use for the entire sample was .43 ($SD = .71$; $N = 127$; range = 0 to 3.00) and 1.08 ($SD = .75$; $n = 50$; range = .33 to 3.00) for subjects reporting cigarette use. Mean score of global alcohol use for the entire sample was .43 ($SD = .70$; $N = 126$; range 0 to 2.67) and 1.01 ($SD = .75$; $n = 54$; range = .33 to 2.67) for subjects reporting alcohol use. Mean score of global marijuana use for the entire sample was .14 ($SD = .43$; $N = 126$; range 0 to 2.33) and 1.07 ($SD = .72$; $n = 16$; range = .33 to 2.33) for subjects reporting marijuana use.

Table 5. Reported Use of Cigarettes, Alcohol, or Marijuana at Least Once in Lifetime, Individual and Nested Results

INDIVIDUAL RESULTS							
		Response					
		Yes		No		Missing	
Ever Used Substance in Lifetime		N	%	N	%	N	%
Used cigarettes at least once		49	38.3	78	60.9	1	0.8
Used alcohol at least once		51	39.8	74	57.8	3	2.3
Used marijuana at least once		14	10.9	112	87.5	2	1.6

NESTED RESULTS							
		Used Marijuana at least once					
		Yes		No		Missing	
Used Cigarettes at least once - YES		N	%	N	%	N	%
Used alcohol - YES		11	8.6	22	17.2	1	0.8
Used alcohol - NO		1	0.8	12	9.4	0	0.0
Used alcohol - Missing		2	1.6	0	0.0	0	0.0
Used Cigarettes at least once - NO							
Used alcohol - YES		0	0.0	17	13.3	0	0.0
Used alcohol - NO		0	0.0	59	46.1	1	0.8
Used alcohol - Missing		0	0.0	1	0.8	0	0.0

Table 6. Monthly and Daily Use of Substances ($N = 128$)

Characteristics	N	Percentage
Monthly Prevalence - Cigarettes		
None	104	81.3
One to two days	13	10.2
3 to 5 days	4	3.1
6 to 9 day,	1	0.8
10-19 days	3	2.3
20 to 31 days	2	1.6
Item missing	1	0.8
Daily Prevalence - Cigarettes		
I don't smoke	93	72.7
Less than one cigarette	12	9.4
1 or 2 cigarettes	16	12.5
3 to 7 cigarettes	6	4.7
About half a pack of cigarettes	0	0.0
A pack or more	0	0.0
Item missing	1	0.8
Monthly Prevalence - Alcohol		
None	105	82.0
One to two days	13	10.2
3 to 5 days	7	5.5
6 to 9 days	0	0.0
10-19 days	0	0.0
20 to 31 days	2	1.6
Item missing	1	0.8
Daily Prevalence - Alcohol		
I don't drink alcohol	94	73.4
Less than a drink	10	7.8
1 drink	12	9.4
2 drinks	4	3.1
3 drinks	2	1.6
4 or more drinks	4	3.1
Item missing	2	1.6
Monthly Prevalence - Marijuana		
None	118	92.2
One to two days	5	3.9
3 to 5 days	1	0.8
6 to 9 days	3	2.3
10-19 days	1	0.8
20 to 31 days	0	0.0
Daily Prevalence - Marijuana		
I don't use marijuana	117	91.4
Once a day	6	4.7
Twice a day	2	1.6
Three or more times a day	2	1.6
Item missing	1	0.8

Prediction of Substance Use

As described in the methods section, cigarette, alcohol, and marijuana use were measured in two ways. One way involved a global indicator of cigarette use, alcohol use, and marijuana use, with each substance measured separately as a composite score. The second way substance use was measured was through asking participants if they had ever tried cigarettes, alcohol, or marijuana in her lifetime, a question that required a dichotomous “yes” or “no” response. Thus, two sets of analyses were conducted to test the hypothesized relationships between predictors and substance use. The first set of analyses involved simultaneous multiple regression analyses to identify predictors that were significantly related to global indicators of substance use. The second set of analyses involved logistic regression analyses that tested the relationship between the predictor variables and use versus non-use of the substance during her lifetime. When comparing the results of these two methods, the question of interest was whether the results of the model-testing would differ depending on how substance use was operationalized. SPSS was used to derive parameter estimates for the multiple regression analyses and odds ratio estimates and confidence intervals for the logistic regression.

Prediction of global indicator of substance use. A series of simultaneous multiple-regression analyses were conducted by using a global indicator of cigarette, alcohol, and marijuana use as the criterion variable. Aggression, conventionality, delinquent behavior, depression, prior substance use (alcohol use; included in marijuana use model only), self-efficacy, community risk, family bonding, parent substance use, and peer substance use were the predictor variables.

With respect to cigarette use, results of the simultaneous multiple regression analysis showed that the hypothesized predictors were significantly related to the global indicator of cigarette use, $R^2 = .53$, $F(9, 112) = 14.14$, $p < .001$. The findings indicated that delinquent behavior, decreased family bonding, parent substance use, and peer substance use were significant predictors of increased cigarette use (see Table 7).

With respect to alcohol use, results of the simultaneous multiple regression analysis showed that the hypothesized predictors were significantly related to the global indicator of alcohol use, $R^2 = .36$, $F(9, 109) = 6.812$, $p < .001$. The findings indicated that parent substance use and peer substance use were significant predictors of increased alcohol use (see Table 8).

With respect to marijuana use, results of the simultaneous multiple regression analysis showed that the hypothesized predictors were significantly related to the global indicator of marijuana use, $R^2 = .45$, $F(10, 110) = 8.890$, $p < .001$. The findings indicated that alcohol use, community risk, and parent substance use were significant predictors of increased marijuana use (see Table 9). Contrary to most research on adolescent substance use, peer substance use was not a significant predictor.

Peer substance use, in composite form, was not a significant predictor of marijuana use. Because the composite of peer substance use had relatively low internal consistency, a one-item measure of peer marijuana use (substance-specific) was tested in the model, replacing the peer substance use composite measure. The results of the simultaneous multiple regression analysis for marijuana use showed that the hypothesized predictors were significantly related to the global indicator of marijuana use, $R^2 = .45$, $F(10, 110) = 9.144$, $p < .001$. The findings indicated that alcohol use and parent

Table 7. Results of Simultaneous Multiple Regression for Global Indicator of Cigarette Use ($N = 122$)

Variable	<i>B</i>	<i>SE B</i>	β	Part Corr
Aggression	0.002	0.008	0.023	0.016
Conventionality	-0.013	0.013	-0.083	-0.067
Delinquent Behavior	0.041	0.017	0.203*	0.154
Depression	0.001	0.005	0.003	0.003
Self-efficacy	-0.091	0.101	-0.065	-0.058
Community Risk	0.030	0.037	0.058	0.053
Family Bonding	-0.144	0.072	-0.150*	-0.130
Parent Substance Use	0.135	0.057	0.160*	0.155
Peer Substance Use	0.682	0.129	0.411**	0.341

* $p < .05$

** $p < .01$

Table 8. Results of Simultaneous Multiple Regression for Global Indicator of Alcohol Use ($N = 119$)

Variable	<i>B</i>	<i>SE B</i>	β	Part Corr
Aggression	0.005	0.003	0.200	0.147
Conventionality	-0.001	0.004	-0.035	-0.028
Delinquent Behavior	0.007	0.007	0.101	0.076
Depression	-0.001	0.002	-0.092	-0.077
Self-efficacy	0.037	0.037	0.087	0.076
Community Risk	0.014	0.013	0.090	0.082
Family Bonding	-0.033	0.026	-0.115	-0.099
Parent Substance Use	0.063	0.020	0.248**	0.239
Peer Substance Use	0.143	0.046	0.282**	0.238

** $p < .01$

substance use were significant predictors of marijuana use (see Table 10). Again, peer marijuana use was not a significant predictor.

Throughout the substance use literature, peer substance use (composite or substance-specific) has been found to be a significant predictor of adolescent substance use. Despite use of a substance-specific measure of peer marijuana use rather than a composite measure of peer substance use, peer marijuana use was not a significant predictor. Because of the relatively low internal consistency of the parent substance use scale and evidence that parent illicit drug use is a better predictor of adolescent marijuana use than a composite of parent use of cigarettes, alcohol, and drugs, a one-item measure of parent's use of illicit drugs was tested, replacing the composite measure of parent substance use in the model. The results of the simultaneous multiple regression analysis for marijuana use showed that the hypothesized predictors were significantly related to the global indicator of marijuana use, $R^2 = .63$, $F(10, 108) = 18.337$, $p < .001$. The findings indicated that alcohol use, parent drug use, and peer marijuana use were significant predictors of increased marijuana use (see Table 11).

Prediction of ever tried substance in lifetime. Logistic regression analyses were conducted to test the hypothesized relationships between predictor variables and whether or not the participants ever tried a substance during her lifetime. Subjects were asked if they had "ever used cigarettes," "ever used alcohol," and "ever used marijuana," at any time during her lifetime and separate logistic regressions were run for each substance. Logistic regression analyses yield odds ratios that indicate the odds of an event occurring (e.g., the odds of a respondent having used a substance in the past) given information provided by the predictor variables. An odds ratio above 1.0 indicates a positive

Table 9. Results of Simultaneous Multiple Regression for Global Indicator of Marijuana Use ($N = 121$)

Variable	<i>B</i>	<i>SE B</i>	β	Part Corr
Aggression	-0.002	0.002	-0.103	-0.074
Conventionality	-0.001	0.003	-0.008	-0.007
Delinquent Behavior	0.006	0.004	0.150	0.112
Depression	-0.001	0.001	-0.046	-0.038
Self-efficacy	-0.013	0.024	-0.047	-0.041
Community Risk	0.018	0.009	0.166*	0.149
Family Bonding	-0.016	0.016	-0.079	-0.068
Parent Substance Use	0.046	0.013	0.261**	0.247
Peer Substance Use	0.005	0.031	0.014	0.012
Alcohol Use	0.260	0.056	0.398**	0.330

* $p < .05$

** $p < .01$

Table 10. Results of Simultaneous Multiple Regression for Global Indicator of Marijuana Use – Peer Substance-specific Use ($N = 121$)

Variable	<i>B</i>	<i>SE B</i>	β	Part Corr
Aggression	-0.002	0.002	-0.109	-0.080
Conventionality	-0.001	0.003	-0.012	-0.010
Delinquent Behavior	0.006	0.004	0.142	0.109
Depression	-0.001	0.001	-0.044	-0.036
Self-efficacy	-0.016	0.024	-0.056	-0.048
Community Risk	0.016	0.008	0.149	0.135
Family Bonding	-0.014	0.016	-0.071	-0.061
Parent Substance Use	0.046	0.013	0.266**	0.251
Peer Marijuana Use	0.027	0.022	0.093	0.084
Alcohol Use	0.248	0.054	0.379**	0.321

** $p < .01$

Table 11. Results of Simultaneous Multiple Regression for Global Indicator of Marijuana Use – Parent and Peer Substance-specific Use ($N = 119$)

Variable	<i>B</i>	<i>SE B</i>	β	Part Corr
Aggression	-0.002	0.002	-0.114	-0.084
Conventionality	-0.001	0.002	-0.039	-0.031
Delinquent Behavior	0.001	0.004	0.028	0.021
Depression	0.001	0.001	0.021	0.017
Self-efficacy	-0.010	0.020	-0.036	-0.031
Community Risk	0.009	0.007	0.083	0.074
Family Bonding	-0.014	0.014	-0.074	-0.064
Parent Illicit Drug Use	0.090	0.013	0.475**	0.399
Peer Marijuana Use	0.083	0.026	0.207**	0.189
Alcohol Use	0.185	0.047	0.280**	0.232

** $p < .01$

association between the predictor and criterion variables and an odds ratio between 0.0 and 1.0 indicates an inverse association (Tabachnick & Fidel, 1993). In logistic regression analysis, the term “OR” refers to odds ratio and “CI” refers to confidence interval. Since an odds ratio is a point estimate of the population value, confidence intervals provide the range of possible values that odds ratios can take, assuming a normal distribution, with 95 to 99 percent confidence (SAS Institute Inc., 1995). In this study, 95% confidence intervals were reported.

Results of the logistic regression analysis for “Have you ever used cigarettes?” showed that the regression model significantly predicted cigarette use versus non-use, $-2 \text{ Log } L = 75.78, \chi^2 (9, N = 121) = 85.88, p < .001$. Delinquent behavior and peer substance use were found to significantly increase the odds of participants reporting ever used cigarettes during lifetime (see Table 12).

Results of the logistic regression analysis for “Have you ever had alcohol?” showed that the regression model significantly predicted alcohol use versus non-use, -2

Log L = 126.99, χ^2 (9, $N = 119$) = 33.50, $p < .001$. Peer substance use was found to significantly increase the odds of participants reporting ever used alcohol during lifetime (see Table 13).

Results of the logistic regression analysis for "Have you ever tried marijuana?" showed that the regression model significantly predicted marijuana use versus non-use, -2 Log L = 25.07, χ^2 (10, $N = 119$) = 57.03, $p < .001$. Parent substance use, peer substance use, and alcohol use by individual was found to significantly increase the odds of participants reporting ever used marijuana during lifetime (see Table 14).

Table 12. Results of Logistic Regression Analysis for Variables Predicting Ever Smoked Cigarettes During Lifetime ($N = 121$)

Variable	Ever Smoked a Cigarette	
	OR	95% CI
Aggression	1.00	0.88-1.14
Conventionality	0.85	0.68-1.06
Delinquent Behavior	1.67	1.15-2.43**
Depression	1.01	0.93-1.09
Self-efficacy	0.95	0.17-5.43
Community Risk	1.23	0.66-2.29
Family Bonding	0.33	0.09-1.23
Parent Substance Use	2.38	0.83-6.82
Peer Substance Use	95.23	9.38-967.29**

** $p < .01$

Table 13. Results of Logistic Regression Analysis for Variables Predicting Ever Used Alcohol During Lifetime ($N = 119$)

Variable	Ever Used Alcohol	
	OR	95% CI
Aggression	1.06	0.96-1.17
Conventionality	0.96	0.82-1.12
Delinquent Behavior	1.20	0.93-1.54
Depression	0.97	0.92-1.03
Self-efficacy	1.57	0.39-6.26
Community Risk	1.21	0.77-1.90
Family Bonding	0.58	0.24-1.39
Parent Substance Use	1.79	0.87-3.70
Peer Substance Use	5.74	1.21-27.18*

* $p < .05$

Table 14. Results of Logistic Regression Analysis for Variables Predicting Ever Tried Marijuana During Lifetime ($N = 119$)

Variable	Ever Tried Marijuana	
	OR	95% CI
Aggression	0.60	0.35-1.02
Conventionality	0.71	0.44-1.14
Delinquent Behavior	1.48	0.93-2.34
Depression	1.13	0.95-1.34
Self-efficacy	0.75	0.02-24.46
Community Risk	4.38	0.89-21.62
Family Bonding	0.12	0.01-1.42
Parent Substance Use	8.90	1.15-68.88*
Peer Substance Use	8986.03	4.46-18116.9*
Alcohol Use	35416.08	2.93-42770.0*

* $p < .05$

DISCUSSION

The primary purpose of this study was to investigate hypothesized effects of six individual factors (aggression, conventionality, delinquent behavior, depression, prior substance use, and self-efficacy) and four environmental factors (community risk, family bonding, parent substance use, and peer substance use) on substance use among at-risk Asian and Pacific Islander female adolescents. Risk factors were identified based on a review of the empirical literature on substance use among adolescents. Separate prediction models for cigarette use, alcohol use, and marijuana use were tested because previous literature suggested that risk factors vary by substance ingested (Ferdinand et al., 2001; Kandel & Faust, 1975; Newcomb et al., 1986). The central hypothesis of this study was that greater aggression, less conventionality, greater delinquent behavior, greater depression, self-efficacy deficit, greater community risk, lower levels of family bonding, and greater peer and parent substance use would be related to increased substance use. Also, greater alcohol use was expected to be a significant predictor of greater marijuana use. The following section discusses the significance of the findings in relation to the current body of research on substance use risk factors among adolescent females. Subsequent sections focus on limitations of the present study, implications of the findings for future research, and conclusions.

Prediction of Substance Use

Although studies on risk for substance use have differed substantially in research designs used, populations studied, and how substance use is operationalized (Hawkins et al., 1992), the results of this study focusing on API adolescent females were found to be consistent with previous research findings documenting the importance of individual and

environmental risk factors for adolescent substance use, though specific hypotheses were only partially supported. Individual and environmental predictors were used to predict both a global measure of substance use and whether an individual reported ever using cigarettes, alcohol, or marijuana during her lifetime. Rates of ever used cigarettes, alcohol, or marijuana in their lifetime were consistent with previous research (Johnston et al., 2001; Klinge, 2001). Also consistent with previous findings (Kandel & Logan, 1984; Hawkins et al., 1992; Johnston et al., 2001), alcohol and cigarettes were the most tried substances, while marijuana was by far the least tried substance.

Prediction of global indicator of substance use. Results showed that the hypothesized model significantly predicted a global indicator of substance use for each of the three substances investigated (cigarette use, alcohol use, marijuana use) among at-risk API adolescent females. However, not all of the hypothesized predictors significantly contributed to the prediction of cigarette, alcohol, and marijuana use. Consistent with previous findings, predictors of adolescent substance use varied by substance ingested (Ferdinand, et al., 2001; Kandel & Faust, 1975; Newcomb et al., 1986), confirming the concept that there are multiple pathways to substance use.

For cigarette use, greater delinquent behavior, less family bonding, greater parent substance use, and greater peer substance use were related to higher scores on a global indicator of cigarette use. It appears that immediate environmental influences have the strongest effect on use of cigarettes among API adolescent females, though delinquent behavior also has a significant impact. These results are consistent with research on risk for cigarette use that indicate that parent and peer substance use (Flay et al., 1994; Hawkins et al., 1992), as well as delinquent behavior (Bachman et al., 1981; Ferdinand et

al., 2001; Zimmerman & Maton, 1992) are significant predictors of cigarette use. Family bonding (Myers et al., 1997; Wills et al., 1992) is described as a significant risk factor in some of the literature, but is not noted as frequently as parent and peer substance use and delinquent behavior (Brook et al., 1981). The strong influence of family in API culture (Hong, 2001) and with female adolescents (Marshall & Chassin, 2000) could be partially related to the significance of family bonding as a predictor of cigarette use with this sample.

Greater parent and peer substance use were related to higher scores on a global indicator of alcohol use. Again, environmental influences, specifically direct exposure to alcohol from peers and parents, and perhaps availability of alcohol from contacts in the environment, have the strongest effect on an API adolescent female's use of alcohol. These results are consistent with literature on risk factors for alcohol use, which indicated that peer and parent influence play a major role in adolescent alcohol use (Brook & Brook, 1988; Jackson et al., 1999; Marshall & Chassin, 2000; Stein et al., 1987). The results should be interpreted with caution because the regression model for alcohol use accounted for only 36% of the variance.

Greater community risk (exposure to violence and substance use in the community), greater parent substance use (composite score), and greater alcohol use were related to higher scores on a global indicator of marijuana use. As with the other models and consistent with substance use literature, environmental exposure to substance use appears to be a significant predictor of marijuana use among API adolescent females. Of the three significant risk factors for marijuana use noted in the initial analysis of predictors of a global indicator of marijuana use, parent substance use is the risk factor

noted most frequently in the literature (Andrews et al., 1993; Biederman et al., 2000; Hawkins et al., 1992; Huba et al., 1980). Community risk has not been investigated in the literature, but has been suggested by researchers as a possible risk factor (Brook et al., 1989; Crum et al., 1996; Hawkins et al.), which was confirmed in this study. The significance of community risk in predicting only marijuana use is similar to Crum et al. (1996) findings that showed a strong relationship between living in disadvantaged neighborhoods and cocaine use, with relatively weak relationships between living in a disadvantaged neighborhood and cigarette or alcohol use. The role of individual factors in predicting marijuana use is important as well. As suggested in the literature (Holmberg, 1985; Kandel, 1978; Newcomb et al., 1986), alcohol use was a significant predictor of marijuana use. This finding provides some support for the stage model of substance use (Kandel, 1978). This support is merely suggestive because temporal precedence of alcohol use before marijuana use could not be established due to the cross-sectional nature of this study.

Peer substance use is notably missing as a significant predictor in the marijuana use model. This result is inconsistent with most of the literature regarding adolescent substance use indicating that peer substance use is a consistent predictor of adolescent substance use (Barnes & Welte, 1986; Flannery et al., 1994; Hawkins et al., 1992; Kandel et al., 1978; Windle, 2000). The lack of significance of peer substance use in the marijuana use model could be due to the composite nature of the peer substance use subscale in this study, which includes peer cigarette and alcohol use. The relatively low internal consistency (.65) of the peer substance use composite measure and of the parent substance use composite measure suggest that the parent and peer substance use scales

are not homogenous. When the literature on marijuana use and parent and peer substance use is further examined, substance-specific measures of peer and parent substance use (i.e., peer marijuana use and parent drug use) are related to adolescent substance use (Brook, Lukoff, et al., 1980; Hawkins et al., 1992).

When substance-specific measures of parent and peer substance use were substituted for global substance use measures in the marijuana use regression model, peer marijuana use and parent illicit drug use were found to be significant predictors of adolescent marijuana use among at-risk API adolescent females. Specifically, peer marijuana use, in conjunction with parent's use of illicit drugs, was found to be a significant predictor of marijuana use. These results suggest that only marijuana use by peers is predictive of adolescent marijuana use, when accompanied by only illicit drug use by parents. If peers serve as a norm of substance use, then this result is expected because *relatively few peers are using marijuana at this age. It is unclear as to whether peer substance use is an antecedent or consequence of adolescent substance use.* Some researchers have suggested that adolescents who are using substances seek peers who are using substances, rather than start using substances because they are exposed to the substances by their peers (Belcher & Shinitzky, 1998).

Although the significance of specific risk factors differed for cigarette, alcohol, and marijuana use, environmental influences appear to be the best predictors of API adolescent female substance use for all three substances studied. Specifically, parent and peer substance use appear to be the most consistent predictors of substance use. Parents or peers may serve as a source of illicit substances or as models of substance use. Other aspects of parent and peer relationships, such as neglect by parents and peer conflict,

might influence adolescent substance use as well. The original hypothesis that peer substance use would be a significant predictor of adolescent cigarette, alcohol, and marijuana use was confirmed, though peer substance use was substance-specific (in conjunction with parent illicit drug use) in the marijuana use multiple regression model. This result indicates that marijuana use by early adolescent API females is related to marijuana use by peers in the environment and not to use of cigarettes or alcohol. The only significant predictor shared by cigarette, alcohol, and marijuana use models was parent substance use. Several researchers reported that parental influence on substance use remains consistent throughout childhood and adolescence, while peer influence is relatively unimportant in childhood and increases in adolescence (Coombs et al., 1991). The results of this study suggest that peer influence begins to occur by early adolescence.

A difference between predictors of cigarette use and those for alcohol or marijuana use was that greater delinquent behavior and less family bonding were significant predictors for greater cigarette use only. Additionally, greater alcohol use and community risk (in the initial marijuana use model) were significant predictors of greater marijuana use only. In the revised marijuana use model (using substance-specific measures of parent and peer substance use) alcohol use, parent illicit drug use, and peer marijuana use were significant predictors of marijuana use only.

The differences in predictors across substances could be due to differing social acceptability of substances, availability and accessibility of substances, and/or the stage model of substance use. There are differences in the social acceptability of cigarette, alcohol, and marijuana use (Ensminger, Brown, & Kellam, 1982). Cigarette use in early adolescence may be discouraged, but alcohol and marijuana use in adolescence are

considered more negative behaviors than cigarette use. It is easier for adolescents to obtain access to cigarettes, both inside and outside of the home, than to obtain access to alcohol or marijuana (Hong, 2001). Given the relative social acceptability of cigarette use and easier access to cigarettes, direct environmental factors such as peer and parent substance use are less likely to be the sole predictors of substance use. For API adolescent females in this study, other environmental social factors such as family bonding and delinquent behavior also had a relationship with cigarette use. Though there is general social acceptance of alcohol use, use of alcohol by early adolescents is strongly discouraged, particularly in the school environment. By serving as models of substance use and as sources from which to obtain substances, peer and parent substance use may make the greatest impact on whether an adolescent uses alcohol. As described in the stage model of substance use, alcohol use is a predictor of marijuana use, which the results from this study confirm.

Several variables were not supported as risk factors for substance use among at-risk API adolescent females. Aggression was not supported as a risk factor for substance use. The measurement overlap of aggression with delinquent behavior may have led to this result, though this is unlikely due to the lack of multicollinearity between the aggression and delinquent behavior measures. Depression was not a significant predictor of cigarette, alcohol, or marijuana use in this sample. The results may be due to the cross-sectional design of this study. Aggression in early to mid adolescence has been supported as a predictor of substance use in late adolescence and adulthood in longitudinal studies (Block et al., 1988; Ferdinand et al., 2001). Longitudinal studies supporting depression as a predictor of substance use found that depression in early adolescence (11-13 years) was

predictive of substance use in later adolescence (15-18 years). The participants in this study are in early adolescence, and substance use may not appear for three to five years. Conventionality and self-efficacy were also not supported as risk factors for substance use. The relatively low internal consistency estimates for both scales, self-efficacy in particular, suggest that the scales may not be sufficiently homogeneous. More reliable measures of conventionality and self-efficacy, which would introduce less measurement error into the study, might have been significant predictors of substance use.

The lack of significance of these risk factors could be due to measurement problems, lack of longitudinal data, or the possibility that these are not significant risk factors for substance use with this at-risk female adolescent API population. As described above, there may be problems with the measurement of aggression and self-efficacy. Aggression and delinquent behavior are significantly correlated ($r = .53, p < .01$), but the tolerance level in the analyses did not indicate multicollinearity. Measures of conventionality and self-efficacy may not be sufficiently homogeneous scales. If these measurement problems were addressed, it would reduce the sources of error and increase the likelihood that the predictors of interest were being reliably measured. Due to the cross-sectional design of the study, long-term effects of the predictors cannot be evaluated. A longitudinal investigation might reveal that aggression, conventionality, depression, and/or self-efficacy are significant predictors of substance use at a later time. Another explanation for the results is that the aforementioned variables are significant predictors of adolescent substance use in the general population, but are not predictors of substance use in an at-risk API female adolescent population. In order to develop the most appropriate substance use intervention for an at-risk API adolescent female

population, longitudinal studies targeting this population and improved measures of the variables are needed.

Prediction of ever tried substance in lifetime. The aforementioned predictors were also used in a logistic regression analyses to predict self-report of using a substance at least once in their lifetime. Results showed that the model significantly predicted use of a cigarette, alcohol, and marijuana use at least once in the adolescent's lifetime. Consistent with previous findings and with results from the simultaneous multiple regression analyses, predictors of API adolescent female substance use varied by substance ingested (Ferdinand et al., 2001; Kandel & Faust, 1975; Newcomb et al., 1986). For cigarette use, greater delinquent behavior and peer substance use were related to adolescent report of using cigarettes at least once in their lifetime. It appears that immediate environmental influences have the strongest effect on an adolescent's trying cigarettes at least once. For alcohol use, greater peer substance use was related to adolescent self-report of drinking alcohol at least once in their lifetime. Direct exposure to alcohol from peers had the strongest effect on an adolescent's trying alcohol. For marijuana use, greater parent substance use, peer substance use, and alcohol use were related to self-report of trying marijuana at least once during their lifetime. Again, direct exposure to substance use, including substance use by the individual, appears to have the strongest effect on adolescent's trying marijuana. These results indicate that prevention programs with an at-risk API adolescent female population should focus on addressing the environment of the adolescent, particularly peer substance use.

Comparison of predictors of global and dichotomous substance use measures.

When results of the simultaneous multiple regression and logistic regression analyses for

each substance were compared, the simultaneous multiple regression analyses for cigarettes and alcohol contained at least one additional significant factor. For cigarette use, delinquent behavior and peer substance use were significant predictors in both analyses. However, family bonding and parent substance use were significant predictors of cigarette use in the multiple regression analyses only. For alcohol use, peer substance use was a significant predictor in both analyses. Parent substance use was a significant predictor in the multiple regression analyses only. For marijuana use, parent substance use and alcohol use were significant predictors in both analyses. Community risk (in the initial marijuana use model which contained a composite measure of peer substance use) was a significant predictor of marijuana use in the multiple regression analyses only. Peer substance use was a significant predictor of both global and dichotomous measures of marijuana use, though a substance-specific measure of peer marijuana use was necessary for significant results in the regression analysis. Overall, the logistic regression models did not provide additional information beyond the results of the simultaneous multiple regression models. An explanation for this result is that a dichotomous measure of substance use (i.e., ever used substance in lifetime) does not take into account that individuals who try a substance initially vary greatly in how they use substances in the future. An individual may try a substance and never use the substance again, or the individual may use the substance on a daily basis. A continuous measure of substance use allows for investigation of variation in substance use.

Limitations of the Study

This study has several limitations. First, the data were collected by using self-report measures. Any time self-report is gathered on sensitive topics, the question of

accuracy of responses can be raised. Responses may be flawed due to dishonesty, faulty memory, respondent reading level, or fears of disclosing illegal activity. Steps were taken to address these concerns. To address the possibility of dishonesty, questionnaires were evaluated for inconsistent or patterned responding and self-reported dishonesty. Pilot testing was conducted to ensure that the questionnaires were at the appropriate reading level. Attempts were made to ensure confidentiality of responses by reassuring the participants that no negative consequences would result from revealing illegal activities. With regard to concerns about accuracy of self-report, the accuracy of self-reported substance use is adequate when it has been empirically investigated (Johnson & Mott, 2001; Stacy, Widaman, Hays, & DiMatteo, 1985). However, all potential sources of error due to self-report cannot be eliminated.

Second, the data were cross-sectional and correlational in nature. In order to examine causal relationships and the etiological process that leads to substance use, longitudinal data are required. Although the study conceptualizes certain variables as predictors and others as criterion, it is not clear the predictors temporally precede the criterion in the "real world." In order to establish causality, temporal precedence needs to be established. However, several predictors in this study, including prior substance use, and parent and peer substance use, were investigated previously in longitudinal studies and were found to be predictive of substance use, even when investigated by different researchers and during times that had different norms for drug use (e.g., the increasing marijuana use between 1970 and 2000). The consistency of results suggests parent and peer substance use are stable predictors and are viable targets for preventive work in at-

risk API adolescent female populations. Longitudinal research specifically targeting this API population is required to provide evidence to support this hypothesis.

Third, there are limitations in generalizability of the results. The present study investigated the predictors of substance use in a sample of the at-risk Asian and Pacific Islander adolescent female population in the state of Hawaii. This population is unique in several ways. *The multicultural nature of the population of Hawaii (including the API population)* is unique from API populations in other areas. As a result, caution should be taken when generalizing findings to API populations in other states. Because the sample consisted of primarily Native Hawaiian and Filipino adolescents, it would be inappropriate to generalize the results to other Asian or Pacific Island populations, until empirically tested. All adolescent females in this sample were considered “at-risk” for substance abuse and resided in a low SES neighborhood; hence, results should not be generalized to adolescent females not “at-risk”. Developmental and gender differences in substance use in the API population are important to consider (Schier et al., 1994); consequently these results are limited to early adolescent API females only.

Fourth, a few subscales had relatively low reliability estimates. The relatively low internal consistency estimates of conventionality, self-efficacy, parent substance use and peer substance use suggest that these composite scores may not be sufficiently homogeneous. Parent and peer global substance use measures included three items inquiring about specific substances. The relatively low reliability of parent and peer global substance use measures might be due to (actual or perceived) lack of multiple substances use by parents and peers of respondents. However, despite the relatively low reliability estimates of parent and peer substance use measures, both predictors were

significant in most of the simultaneous multiple regression models of substance use. This result suggests that the relationship between parent and peer substance use and API adolescent female substance use is robust because the relatively low reliability estimates of these measures attenuate the results and make statistical significance less likely. To address the initial lack of significance of peer substance use in the marijuana use model and the relatively low reliability estimates for parent and peer substance use, parent and peer substance use measures were replaced with one-items measures in the marijuana use regression model. One-item measures, however, are not stable, though the results of the regression were significant.

Finally, although it is quite possible that the risk factors studied contributed to increased substance use, it is possible that other unmeasured factors may account for increased substance use. A thorough review of the empirical literature was performed to ensure that the model was well-specified and that relevant predictors were included in the model. In the API community, there are many factors to consider when evaluating risk factors for substance use including cultural characteristics, acculturation factors, culturally unique stressors, and utilization of services. There is the possibility that a variable that has not yet been investigated (i.e., cultural values) could be a significant predictor of substance use in the API adolescent female population.

Despite these limitations, this study offers preliminary and useful information about risk factors related to substance use in the at-risk API female adolescent population. As discussed in an earlier section, these findings generated a greater understanding of factors associated with increased cigarette, alcohol, and marijuana use

and may be used to assist in the prevention and treatment of substance use problems among at-risk Asian and Pacific Islander adolescent females living in Hawaii.

Implications

Applicability of risk factor model to API adolescent population. The results of this study provide further support for the risk factor model of substance use. Because of increasing substance use among female and API adolescents, the current study investigated at-risk API adolescent females only. The risk factors examined in this study accounted for a significant portion of the variance in cigarette, alcohol, and marijuana use. The sample consisted primarily of Native Hawaiian and Filipino female adolescents, who are API ethnic groups that report higher levels of substance use than other API ethnic groups (Hong, 2001; Klingle, 2001). The results of this study suggest that the rates of and the risk factors for substance use in this at-risk API female adolescent population are similar to the general adolescent population. There is a need to investigate the applicability of this model across specific API populations and between genders to determine if this model is generalizable across populations. The sample in this study was too small to investigate ethnic group differences in substance use, but future research should investigate the possibility of differences between API ethnic groups. In order to develop interventions that are culture and gender appropriate, research is needed regarding how substance use by different ethnic groups might vary by gender.

Parent and peer substance use. Parent and peer substance use were the most consistent predictors of substance use, of both global indicators of substance use and reports of trying a substance at least once in a subject's lifetime in this sample of adolescent API females. This result is consistent with empirical literature on adolescent

substance use in the general population. Although parent and peer substance use were not significantly related to all criterion variables, they were related to most of them. A prevention or intervention program that included elements that indirectly or directly addressed parent and peer substance use would be likely to impact cigarette, alcohol, or marijuana use. In view of the strong association between substance use and parent and peer substance use, the following questions need to be addressed in order to develop the most effective intervention programs. What are the components of parent and peer substance use that lead to adolescent substance use? Specifically, research should investigate the extent to which parents and peers serve as models and/or as sources of the substance. Another question to be addressed is whether peer substance use is a cause or result of adolescent substance use. If peer substance use is a result of adolescent substance use, then peer substance use would be a poor target for an intervention or prevention program. For example, programs that teach adolescents how to refuse substances from substance-using peers might not be effective if children seek substance-using peers because they want to obtain substances.

Further examination of whether peers need to be using the same illicit substances as adolescents in order for peer substance use to be a significant risk factor should be conducted. In this study, peer marijuana use was a significant predictor of adolescent marijuana use, but a global indicator of peer substance use was not a significant predictor. In the literature on adolescent marijuana use, both global indicators of peer substance use (Windle, 2000) and substance-specific peer marijuana use (Kandel et al., 1978) are predictors of adolescent marijuana use. Perhaps at-risk API adolescent females are relatively unique in having peer marijuana use, not a global predictor of peer substance

use, predict adolescent marijuana use. As a result, an intervention program for marijuana use for the at-risk API adolescent female population might focus on marijuana-specific topics.

Variation in risk factors by substance. Risk factors for cigarette, alcohol, and marijuana use varied in this study. Variation in risk factors by substance used among API adolescent females provides further confirmation that there are multiple pathways to substance use (Newcomb et al., 1986). Variation in risk factors by substances is well-documented, but the causes of this variation remain unclear (Kandel, 1978; Kandel & Logan, 1984; Petraitis, Flay, & Miller, 1995). Further research on how risk factors vary for each substance (cigarettes, alcohol, and marijuana) within diverse populations is needed in order to develop appropriate interventions. How ethnic groups differ in variation of risk factors by substance used would be useful in understanding development of substance use in various ethnic groups and in developing culturally appropriate interventions. Additional investigation of how cigarette, alcohol, and marijuana risk factors among different ethnic groups may vary by gender or age would also inform interventions. To investigate variation of risk factors by substance, future research should investigate substances individually and preferably use a continuous measure of individual substances rather than a dichotomous measure. A dichotomous measure of substance use (i.e., ever used substance in lifetime) does not take into account variation in substance use after initial intake of a substance. Future use of a substance could range from never to every day. A continuous measure of substance use allows for investigation of variation within each substance used.

Variation in risk factors by substance has ramifications for development of intervention programs. If risk factors for substances vary, substance-specific prevention and treatment programs should be developed. Delinquent behavior was a significant predictor of cigarette use only among the at-risk API adolescent females in this study. A prevention program designed specifically for cigarette use might include a section on delinquent behavior, while a prevention program for marijuana use might not. However, the difference in risk factors for cigarette, alcohol, and marijuana use may not vary enough to justify separate intervention programs for this population. If risk factors vary slightly, than a single program that addresses the various risk factors could be developed. In this study, for example, adolescent marijuana use was related to peer marijuana use, not peer substance use in general. An intervention for marijuana use that addressed overall peer substance use might be ineffective with the sample in this study. Identification of variation in risk factors by substance in an API population would inform the development of effective interventions by providing intervention targets that are most likely to lead to a decrease in or avoidance of substance use.

Conclusion

This study examined the relationship between individual and environmental risk factors for substance use and cigarette, alcohol, and marijuana use among at-risk Asian and Pacific Islander adolescent females. Consistent with previous findings regarding adolescent substance use, the importance of risk factors varied by substance used. Environmental influences appeared to be the best predictors of adolescent substance use for all three substances studied. Specifically, both parent and peer substance use were the most consistent predictors of cigarette, alcohol, and marijuana use among at-risk API

adolescent females. Thus, prevention programs that focus on a single risk factor are likely to meet with failure. These results also suggest that parent and peer substance use are important areas for intervention. Further information about how parent and peer substance use impacts adolescent substance use in Asian and Pacific Islander populations would be useful for designing and implementing prevention programs for adolescent substance use. The question of what risk factors for substance use are relevant for which community is an important one and has a place in the overall discussion on how to design *interventions for adolescent substance use*. As the rates of substance use increase, particularly among females and Asian and Pacific Islander adolescents, the need for identification of risk factors for substance use becomes imperative.

APPENDIX A

Literature review of risk factors associated with adolescent substance abuse

Risk Factors	Study	Type ^a	Subjects	Findings	
Individual factors					
1. Academic Achievement/ School Failure	Bachman, Johnston, & O'Malley, 1981	C	Appr. 73,400 high school seniors	Self-reported grades correlated negatively with all substance use.	
	Block, Block, & Keyes, 1988	L 11yr	105 children, from age 3 to 14	Drug use in boys was related to IQ decline from 11 to age 18.	
	Brook, Whiteman, Brook & Gordon, 1981	C	246 Caucasian male college students	Marijuana use was related to lower school achievement.	
	Hawthorne, 1996	C	3019 11-12 yo Australians	Low literacy was significantly related to alcohol use in males.	
	Holmberg, 1985	L 8yr	1,047 Swedish 9 th grade students; f/u 8 years later	School dropout and placement in special education classes was positively correlated to substance use.	
	2. Aggression and Persistent Behavior Problems	Barnes & Welte, 1986	C	27,335 7 th to 12 th grade students in NY	Early aggressive or antisocial behavior persisting into early adolescence predicted later adolescent aggressiveness, drug abuse, and/or alcohol problems.
		Block et al., 1988	L 11yr	105 children, from age 3 to 14	Lack of behavioral control was positively correlated with use of marijuana and harder drugs during teenage years.
		Brook et al., 1981	C	246 Caucasian male college students	Marijuana use was related to greater tolerance of deviance, less responsibility, and more rebelliousness and sensation-seeking in males.
		Brook, Whiteman, Gordon, & Brook, 1984	C	403 Caucasian female college students	Marijuana use was related to greater tolerance of deviance, more rebelliousness, and sensation-seeking in females.
		Brook, Whiteman, Finch, & Cohen, 1996	L 20yr	350 families with 5 to 10 yo children; followed for 20 years	Childhood aggression had an adverse effect on young adult drug use and female deviant behavior.
Burke, Loeber, & Lahey, 2001	L at age 15	177 7 to 12 yo adolescent males; f/u at age 15	ADHD was not significantly related with tobacco use without the presence of conduct disorder.		
Cloninger, Sigvardsson, & Bohman, 1988	L 16yr	431 Swedish children at age 11 and 27	High novelty-seeking and low harm avoidance were most strongly predictive of early onset alcohol abuse.		

Risk Factors	Study	Type ^a	Subjects	Findings
Aggression and Persistent Behavior Problems (cont'd)	Gittelman, Mannuzza, Shenker, & Bonagura, 1985	L at age 16	101 6 to 12 yo male adolescents; f/u at age 16	Hyperactivity and attention-deficit disorders increased risk for delinquency, and to some extent, substance use, when combined with conduct problems, including aggression.
	Pedersen, 1991	L 20 mth	553 16-18 yo; f/u 20 months later	Disinhibition was a strong predictor of drug use.
	Windle, 1991	C	297 adolescents (m=15.7 yo)	Number of adolescent difficult temperament factors was associated with increase in percentage of substance users.
3. Attitude Toward Substance Use	McDermott, Clark-Alexander, Westoff, & Eaton, 1999	C	813 5 th grade students, 66% Caucasian	Inactive drinkers (children who had not had a drink in the past 30 days) were less likely to view drinking as OK in any circumstances than active drinkers.
4. Conventionality	Webb, Baer, Getz, & McKelvey, 1996	L 2yr	119 5 th grade students, 90% Caucasian; f/u 2 yr later.	Children who expressed intention to drink at 5 th grade were more likely to use alcohol at 7 th grade.
	Brook, Gordon, & Brook, 1980	C	36 Caucasian adolescent females	Marijuana users demonstrated greater nonconventionality and nonconformity than non-users.
	Huba, Wingard, & Bentler, 1980	L 1yr	1634 7 th , 8 th , or 9 th grade students from LA; f/u 1 year later	Rebellious personality was related to substance use.
5. Delinquent Behavior	Barnes & Welte, 1986	C	27,335 7 th to 12 th grade students in NY	Early aggressive or antisocial behavior persisting into early adolescence predicted later adolescent aggressiveness, drug abuse, and/or alcohol problems.
	Ferdinand, Blum, & Verhulst, 2001	L 8yr	787 Dutch 10-14 yo; f/u 8 years later	Strong correlation between CBCL thought problems and delinquent behavior subscales and all forms of substance use.
	Gittelman et al., 1985	L at age 16	101 6 to 12 yo male adolescents; f/u at age 16	Hyperactivity and attention-deficit disorders increase risk for delinquency, and to some extent, substance use, when combined with conduct problems, including aggression.
	Newcomb, Maddahian, & Bentler, 1986	C & L 4yr	994 10 th , 11 th , 12 th grade adolescents; f/u 4 years later	Strong correlation between deviant behavior and all forms of substance use.

Risk Factors	Study	Type ^a	Subjects	Findings
Delinquent Behavior (cont'd)	Zimmerman & Maton, 1992	C	218 African-American male adolescents ($m=17$ yo)	Strong correlation between delinquent behavior and all forms of substance use.
6. Depression	Flannery, Vazsonyi, Torquati, & Fridich, 1994	C	1170 6 th and 7 th grade students, 76% Caucasian, 24% Hispanic	Depression was not significantly related to substance use.
	Henry et al., 1993	L 4yr	1037 11 yo New Zealand adolescents, f/u at age 15	Depressive symptoms at age 15 were positively correlated with substance use. Depressive symptoms at age 11 predicted marijuana, glue and multiple drug use at age 15 in males, but not females.
	Jacob & Ghodes, 1987	C	47 adolescent males at a delinquency center ($m=14.8$ yo)	Adolescent solvent abusers were significantly more depressed than non-abusers.
	Luthar, Cushing, & Rounsaville, 1996	C	211 adults ($m = 28.4$ yo) seeking treatment for opiate addiction	Opiate use was related to depression in females.
	Pedersen, 1991	L 20 mth	553 16-18 yo; f/u 20 months later	The structural stability of mental health was low; as a result it was a poor predictor of future drug use.
7. Prior substance use	Aas, Klepp, Laberg, & Aaro, 1995	C	7 th and 9 th grade students in Norway	Report of prior drinking was the strongest predictor of current alcohol use.
	Barnes & Welte, 1986	C	27,335 7 th to 12 th grade student in NY	Self-report of becoming drunk at an early age predicted heavy drinking.
	Biglan, Duncan, Ary, & Smolkowski, 1995	L 12 and 18 mth	608 14-17 yo, 91% Caucasian; f/u 12 and 18 months later	Best single predictor of adolescent smoking was smoking status six months prior.
	Holmberg, 1985	L 8yr	1,047 Swedish 9 th grade students; f/u 8 years later	Prior substance use was related to current substance use.
	Huba et al., 1980	L 1yr	1634 7 th , 8 th , or 9 th grade students; f/u 1 year later	Previous substance use was significantly related to current substance use.

Risk Factors	Study	Type ^a	Subjects	Findings
Prior Substance Use (cont'd)	Stein, Newcomb, & Bentler, 1987	L 8yr	654 junior high students; f/u 8 years later	Early substance use was a predictor of later substance use and disruptive substance use behavior.
	Yamaguchi & Kandel, 1984b	L 9yr	1,325 10 th and 11 th grade students; follow-up 9 years later	Current use of alcohol and cigarettes had a strong effect on the initiation of marijuana use among men and women.
8. Religious Commitment	Bachman et al., 1981	C	Appr. 73,400 high school seniors	Students with strong religious commitment were least likely to be involved with either licit or illicit drugs.
	Brook et al., 1981	C	246 Caucasian male college students	Marijuana use was associated with non-religiosity among males.
	Brook et al., 1984	C	403 Caucasian female college students	Marijuana use was associated with non-religiosity among females.
9. Self-efficacy	Aas et al., 1995	C	7 th and 9 th grade students in Norway	Lack of refusal self-efficacy was a significant predictor of drinking.
	Farrell, Danish, & Howard, 1992	C	1352 7 th grade African-American adolescents	Self-efficacy was negatively related to substance use in an African American population.
10. Self-esteem	Rees & Wilborn, 1983	C	26 inpatient 13 to 19 yo drug-abusing adolescents and 26 matched controls	Self-esteem level, combined with perception of parent behavior, and parent's ability to predict child perception, differentiated between drug-abusing and non-drug abusing adolescents.
Environmental				
11. Exposure to Violence and Substance use in the Community	Crum, Lillie-Blanton, and Anthony, 1996	C	1416 6 th grade children	Children in more disadvantaged neighborhoods were more likely to be exposed to cocaine.
12. Family Bonding	Brook, Gordon, et al., 1980	C	36 Caucasian female adolescents	Conventional adolescents with strong mutual attachments to fathers were at lower drug states.
	Brook, Gordon, Whiteman, & Cohen, 1986	C	356 13 to 18 yo Caucasian adolescents and their mothers	Conventional adolescents with strong mutual attachments to mothers were at lower drug states.
	Brook et al., 1981	C	246 Caucasian male college students	Males who reported close relationships with their fathers were less likely to use marijuana.

Risk Factors	Study	Type ^a	Subjects	Findings
Family Bonding (cont'd)	Kandel, Kessler, & Margulies, 1978	C	5423 high school students	Lack of maternal involvement was related to drug initiation.
	Marshall & Chassin, 2000	C	246 10-15 yo children of alcoholics and 208 matched controls	Parental support served as a protective factor against adolescent female alcohol use, but exacerbated peer effects on adolescent male alcohol use.
	Piko, 2000	C	1,039 15-19 yo students	Family support was not a significant predictor of substance use.
	Rhodes & Jason, 1990	L 8 mth	153 high school freshman, 84% African- American; f/u 8 months later	Weak sibling and parental relationships, a lack of perceived support and encouragement, and a high degree of family problems were related to higher levels of usage.
13. Parent Conflict	Wills, Vaccaro, & McNamara, 1992	C	1,289 6 th , 7 th , & 8 th grade students, 51% Hispanic	Supportive relationship with parents was inversely related to substance use.
	Biglan et al., 1995	L 12 and 18 mth	608 14-17 yo, 91% Caucasian; f/u 12 and 18 months later	Family conflict had an indirect effect on adolescent substance use through decreased family involvement.
	Brook, Nomura, & Cohen, 1989	L 2yr	528 9-18 yo and their mothers; f/u 2 years later	Family conflict was significantly related to adolescent substance use.
14. Parent and Peer Attitude Toward Substance Use	Dishion, Patterson, Stoolmiller, & Skinner, 1991	L 2 yr	206 10 yo males and their families; f/u 2 years later	High levels of parent-child conflict contributed to deviant behavior, including substance use.
	Andrews, Hops, Ary, Tildesley, & Harris, 1993	L 2yr	645 11-15 yo and their parents; f/u 2 years later	Parent substance use, modeling, and substance use attitudes were significant predictors of adolescent initiation and maintenance of adolescent substance use.
	Jackson, Henrikson, & Dickinson, 1999	C	488 5 th grade children	Parental monitoring of alcohol use by children, family norms regarding alcohol use by children, and parental ability to enforce behavioral rules were significant predictors of alcohol use, after the child's age, sex single parent status, prior use of alcohol and exposure to parent modeling were accounted for.

Risk Factors	Study	Type ^a	Subjects	Findings
Parent and Peer Attitude Toward Substance Use (cont'd)	McDermott, 1984	C	106 drug-using and 96 non-drug-using 13-20 yo	Adolescents who perceived their parents as having permissive views about drug use by youths were significantly more likely to use drugs than those who perceived their parents as holding non-permissive views, even when the effect of substance use was held constant.
	Webb et al., 1996	L 2yr	119 5 th grade students, follow-up 2 years later	Peer and parental attitudes toward substance use in 5 th grade directly affected individual's attitude toward substance use, but did not have a direct effect on substance use in 7 th grade.
15. Parent and Sibling Substance Use	Andrews et al., 1993	L 2yr	645 11-15 yo and their parents; f/u 2 years later	Parent substance use, modeling, and substance use attitudes were significant predictors of adolescent initiation and maintenance of substance use.
	Biederman, Faraone, Monuteaux, & Feighner, 2000	L 4yr	140 ADHD and 120 control 6 to 17 yo, also contacted siblings and parents; f/u 4 years later	Independent of parental lifetime substance use disorder (SUD) history, ADHD status, and SES, parental SUD predicted SUD in the offspring. Exposure to parental SUD in adolescence (versus 6-12 yo) was significantly related to SUD in the adolescent.
	Brook & Brook, 1988	L 2yr	510 9 to 18 yo and their mothers; f/u 2 years later	Alcohol use in parents was positive related to alcohol use in their adolescent offspring.
	Coombs, Paulson, & Richardson, 1991	C	446 9-17 yo, Caucasian and Hispanic	Parental influence on adolescent substance use was greater than that of peers. The influence of peers is stronger on substance users than non-substance users.
	Huba et al., 1980	L 1yr	1634 7 th , 8 th , or 9 th grade students from LA; f/u 1 year later	Analyses demonstrated that adolescent who used substances regularly interacted with adults who use the same substance and serve as sources of supply.
	Kilpatrick et al., 2000	C	3,907 12 to 17 yo	Familial alcohol problems were related to increased risk of adolescent alcohol and hard drug abuse/dependence, but not marijuana problem use. Familial drug use was related to increased risk of marijuana and hard drug abuse/dependence but not alcohol abuse/dependence.

Risk Factors	Study	Type ^a	Subjects	Findings
Parent and Sibling Substance Use (cont'd)	McGue, Sharma, & Benson, 1996	C	653 12 to 18 yo adolescents in U.S. adoptive families	Parent problem drinking was significantly related to adolescent alcohol involvement in the birth offspring sample, but not in the adoptive sample. Adolescent alcohol use was affected <i>minimally</i> by the environmental consequences of parent problem drinking and family functioning, but substantially affected by sibling environmental effects.
	Myers, Newcomb, Richardson, & Alvy, 1997	C	455 African-American inner-city parent child dyads (child <i>m</i> =6 yo)	Parental substance use, psychiatric history, and history of violence and abuse were positively related to adolescent substance use.
16. Peer Substance Use	Stein et al., 1987	L 8yr	654 junior high students; f/u 8 years later	Perceived adult drug use was a prominent predictor of adolescent drug use, particularly alcohol use.
	Windle, 2000	C	975 high school sophomores and juniors	Adolescent substance use was more strongly related to sibling and peer substance use than to parent alcohol use.
	Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979	C	3065 7 th through 12 th grade students in 3 Midwestern states	Peer impact accounted for highest proportion of variance with regard to substance use. Friends provide social reinforcement for or punishment for abstinence or use and provided normative definitions for abstinence and use.
	Barnes & Welte, 1986	C	27,335 7 th to 12 th grade student in NY	Number of friends who get drunk weekly was associated with heavy drinking.
	Biglan et al., 1995	L 12 and 18 mth	608 14-17 yo, 91% Caucasian; f/u 12 and 18 months later	Association with peers who smoke accounted for a significant amount of the variance in adolescent smoking.
	Brook, Lukoff, & Whiteman, 1980	L 3yr	284 13 to 17 yo, Caucasian, African-American, & West Indian Black; f/u 3 years later	Personality and family composite factors, but not peer marijuana use, were related to marijuana use.
	Brook et al., 1989	L 2yr	528 9-18 yo and their mothers; f/u 2 years later	Greater drug involvement was highly correlated with having friends who used legal and illegal drugs.

Risk Factors	Study	Type ^a	Subjects	Findings
Peer Substance Use (cont'd)	Coombs et al., 1991	C	446 7-17 yo, Caucasian and Hispanic	Level of marijuana use by youths' friends was the most reliable predictor for all substances measured.
	Hawthorne, 1996	C	3019 11-12 yo Australians	Best predictors of use (males and females) were friend's substance use, parent substance use, and low literacy.
	Flay et al., 1994	C	6695 7 th grade students	Friends' smoking had both direct and indirect influences on adolescent initiation of smoking.
	Flannery et al., 1994	C	1170 6 th and 7 th grade students, 76% Caucasian, 24% Hispanic	Peer substance use was the best predictor of adolescent substance use.
	Huba et al., 1980	L 1yr	1634 7 th , 8 th , or 9 th grade students from LA; f/u 1 year later	Analyses demonstrated that adolescents who used substances regularly interacted with peers who used the same substance and served as sources of supply.
	Marshall & Chassin, 2000	C	246 10-15 yo children of alcoholics and 208 matched controls	Parental support served as a protective factor against alcohol use for girls, but exacerbated peer effects on boys' alcohol use.
	Newcomb & Bentler, 1986	C	1634 7 th , 8 th , and 9 th grade students from LA	Higher concordance was noted between self-use of substances and peer use than self-use of substances and adult use.
	Newcomb et al., 1986	C & L 4yr	994 10 th , 11 th , 12 th grade adolescents; f/u 4 years later	Peer use was the risk factor with the highest correlation with substance use.
	Stein et al., 1987	L 8yr	654 junior high students; f/u 8 years later	Peer drug use influenced later cannabis and hard drug use.
	Windle, 2000	C	975 high school sophomores and juniors	Sibling and peer substance use were more strongly related to adolescent substance use than parental alcohol use.
17. Socio-economic Status	Bachman et al., 1981	C	Appr. 73.400 high school seniors	A slight correlation between parent's education level and marijuana use was noted.
Gender, Ethnicity, and Age				
18. Gender	Bachman et al., 1981	C	Appr. 73.400 high school seniors	Females exceed males in use of cigarettes; males exceed females in use of alcohol and marijuana.

Risk Factors	Study	Type ^a	Subjects	Findings
Gender (cont'd)	Brook, Lukoff, et al., 1980	L 3yr	284 13 to 17 yo, Caucasian, African-American, & West Indian Black; f/u 3 years later	More males than females initiated substance use between the time of first contact and follow-up three years later.
	Ensminger, Brown, & Kellam, 1982	L 10yr	705 1 st grade students, assessed 10 years later	Multiple differences between genders were evident in substance use and predictors of substance use.
	Flay et al., 1994	C	6695 7 th grade students	Parental approval of smoking played a significant mediating role for females, but not males.
	Gottfredson & Koper, 1996	C	981 6 th to 10 th grade students, 68% African-American, 32% Caucasian, 42% male	Some group differences were found between genders in the composition of variables that predict substance, but this was primarily due to low substance use in African-American females.
	Henry et al., 1993	L 4yr	1037 11 yo New Zealand adolescents, f/u at age 15	Depressive symptoms at age 11 predicted marijuana/glue and multiple drug use at age 15 in males, but not females.
	Jessor, 1987	L 12yr	432 junior high students; f/u 12 years later	Proposed variables accounted for 36% of variance in frequency for drunkenness in male drinkers, 18% of variance in females.
	Johnson & Glassman, 1998	C	523 Puerto Rican and 490 Irish-american adults	Gender was a strong predictor of alcohol use, while ethnicity was correlated with frequency of alcohol use.
	Marshall & Chassin, 2000	C	246 10-15 yo children of alcoholics and 208 matched controls	Parental support served as a protective factor against alcohol use for girls, but exacerbated peer effects on boys' alcohol use.
	McDermott et al., 1999	C	813 5 th grade students, 66% Caucasian	No difference was found in comparable proportions of males and females classified as active drinkers (drank in past 30 days). More males than females had "ever tried" alcohol.
	Piko, 2000	C	1,039 15-19 yo adolescents	Age (older) and gender (male) were the strongest predictors of substance use.
19. Ethnicity	Bachman et al., 1981	C	Appr. 73,400 high school seniors	More Caucasians than African-Americans reported use of alcohol.

Risk Factors	Study	Type ^a	Subjects	Findings
Ethnicity (cont'd)	Barnes & Welte, 1986	C	27,335 7 th to 12 th grade student in NY	Caucasian and Native American students reported higher rates of drinking than Hispanic, West Indian and Asian students.
	Bettes, Dusenbury, James-Ortiz, & Botvin, 1990	C	2125 7 th grade students (Caucasian, Hispanic, Dominican, African-American)	Dominicans reported the highest alcohol use, followed by Caucasians, Hispanic, and African-Americans. No difference between ethnic groups on tobacco use was evident. Different variables predicted use in Hispanic and Caucasian youth.
	Coombs et al., 1991	C	446 7-17 yo, Caucasian and Hispanic	Hispanic youth reported greater respect of parents than Caucasian youth.
	Farrell et al., 1992	C	1352 7 th grade African-American adolescents	Number of risk factors was correlated with substance use.
	Flannery et al., 1994	C	1170 6 th and 7 th grade students, 76% Caucasian, 24% Hispanic	Differences in predictive factors were noted between Hispanic and Caucasian adolescents.
	Flay et al., 1994	C	6695 7 th grade students	The relationship of friends' smoking to other variables varied by ethnicity (Caucasian, African-American, Hispanic, and Other). Hispanic children had a significant statistical path relationship between friend's smoking and negative outcome expectations, and Caucasian children had a significant path between friend's smoking and refusal self-efficacy.
	Gottfredson & Koper, 1996	C	981 6 th to 10 th grade students, 68% African-American, 32% Caucasian, 42% male	Some differences between ethnic groups were found in the composition of variables that predict substance, but this was primarily due to low substance use in African-American females.
	Johnson & Glassman, 1998	C	523 Puerto Rican and 490 Irish-American adults	Male gender was a strong predictor of alcohol use, while Caucasian ethnicity was correlated with greater frequency of use.

Risk Factors	Study	Type ^a	Subjects	Findings
Ethnicity (cont'd)	Kilpatrick et al., 2000	C	3,907 12 to 17 yo	When effects of other demographics, victimization history, and familial substance abuse were controlled, Caucasians were three to nine times more likely to meet criteria for substance use than African-Americans. Hispanics and Native American risk did not differ from Caucasian risk for substance use.
	Ma & Shive, 2000	C	18,269 adults 18 and older	Caucasians reported highest rate of substance use among all ethnicities.
	Myers et al., 1997	C	455 African-American inner-city parent child dyads (child <i>m</i> =6yo)	Investigated African-American families only. Results were consistent with studies on non-African-American populations.
	Newcomb & Bentler, 1986	C	1634 7 th , 8 th , and 9 th grade students	Asian and African-American students reported the least self-use of substances, while Caucasian students reported the most. Caucasian students reported the most peer models using substances, and African-American students reported the most adult models using substances.
	Newcomb et al., 1986	C & L 4yr	994 10 th , 11 th , 12 th grade adolescents; f/u 4 years later	No ethnic group differences were evident in number of risk factors predictive of substance use.
	Wallace & Bachman, 1991	C	77,500 high school seniors	A number of sizeable differences between ethnic groups in substance use were largely or at least partly a result of lifestyle and background factors. In some cases, SU in an ethnic group would be even lower than whites if they were as likely to have a background variable (e.g., live in a two-parent household).
	Werch, Dunn, & Woods, 1997	C	246 13 to 29 yo females attending public health clinics	Caucasian females were more likely to have engaged in lifetime alcohol and cigarette use than African-American females.

Risk Factors	Study	Type ^a	Subjects	Findings
20. Age	Biederman et al., 2000	L 4yr	140 ADHD and 120 control 6 to 17 yo adolescents, also contacted siblings and parents; f/u 4 years later	Independent of parental lifetime substance use disorder (SUD) history, ADHD status, and SES, parental SUD predicted SUD in the offspring. Exposure to parental SUD in adolescence (versus 6-12 yo) was significantly related to SUD in the adolescent.
	Brook & Brook, 1988	L 2yr	510 9 to 18 yo and their mothers; f/u 2 years later	In preadolescence, personality factors appeared to serve as mediators for family and peer factors in relation to alcohol use, whereas, in adolescence, peer and personality factors served as mediators for family factors.
	Kandel & Logan, 1984	L 9yr	1,325 10 th and 11 th grade students; follow-up study on NY adolescents	Major risk for initiation to cigarette, alcohol, and marijuana use was completed, for most part, by age 21.
	Kandel, Yamaguchi, & Chen, 1992	L 20yr	1,160 10 th and 11 th grade students; f/u 20 years later	Age of onset and frequency of use at lower stage of substance use were strong predictors of further substance use progression.
	Newcomb, Maddahian, Skager, & Bentler, 1987	C	2,926 7 th , 9 th , & 11 th grade students	Risk for substance use and exposure to risk factors increased with age.
	O'Malley, Bachman, & Johnston, 1984	C	18 to 24 yo; comparison of different cohorts over time	Curvilinear trend of heavy drinking and cocaine use between 18 and 21 yo. No increase in monthly cigarette use with age.
	Piko, 2000	C	1,039 15-19 yo	Age (older) and gender (male) were the strongest predictors of substance use.
	Schier, Newcomb, & Skager, 1994 Yamaguchi & Kandel, 1984a	C L 9yr	6,282 junior and senior high students 1,325 10 th and 11 th grade students; follow-up 9 years later	Importance of risk factors for substance use varied by age. Lower age of onset of substance use increases the likelihood of further substance use.

^a C = Cross-sectional, L = Longitudinal

Note. yo = years old, f/u = follow-up

APPENDIX B

Consent Forms

TX-97/98

AGREEMENT TO PARTICIPATE IN
THE LEI 'ILIMA: HEALTHY CONNECTIONS FOR FEMALE ADOLESCENTS
PROJECT

Principal Investigator:
Sandra Lacar
Executive Director
Coalition For A Drug-Free Hawaii
Honolulu, HI 96817
Phone: 545-3228

The federal Center for Substance Abuse Prevention is funding this project to help us develop a program to prevent and reduce alcohol, tobacco, and other drug use among Hawaii's adolescent females. This project is called the Lei 'Ilima: Healthy Connections For Female Adolescents Project. We are testing the program to see how well it works for Hawaii's female adolescents and to see how we can make it better. This adolescent program is offered to your child at no cost.

As part of this program, your child will be attending a half-credit elective class at Ilima Intermediate School. The class will meet four times a week for the duration of the semester. In separate sessions, your child will be learning about communication skills, skills for coping with emotions, and basic life skills (e.g., peer resistance skills) for developing a healthy, happy lifestyle. Your child will also learn to identify issues and prevention strategies important in the development of healthy lifestyles.

As part of this program, your child will be asked to complete various questionnaires twice during the semester. The questionnaires will contain questions about your child's: attitudes and behaviors; alcohol, tobacco, and other drug use; your parenting style; feelings; self-perception; and peer relations. We will also be asking your child's school teacher to rate your child's behaviors in school. In addition to the teacher ratings, we will also be obtaining school attendance data and all additional school reports that are relevant. Your child's completion of these questionnaires will help us find out how well this program helps your child and you. Your child will receive a \$5 coupon for each completion of the questionnaires.

All information from the questionnaires will be kept completely confidential and will be used for research purposes only. All information will be filed separately under a code number and will not be associated with your child's name or address. Your child does not have to complete the questionnaires. However, to receive the coupon, your child must complete the questionnaires.

It is possible that answering some of the questions in the questionnaires will make your child feel uncomfortable because some of the questions are personal. If your child finds that completing the questionnaires is upsetting to her and you both want to share your concerns with us, please call Lei 'Ilima's project coordinator, Marcie Herring (phone: 689-0267).

If you agree to allow your child to participate in this project, your child is free to withdraw from the program at any time without penalty or prejudice.

TX-97/98

Consent Form

AGREEMENT TO PARTICIPATE IN THE LEI 'ILIMA: HEALTHY CONNECTIONS
FOR FEMALE ADOLESCENTS PROJECT

I certify that I and my child have been told the purpose of this project, its procedures, and the expected length of involvement. I certify that I have read and that I understand the foregoing, and that I have been given satisfactory answers to my inquiries concerning project procedures and other matters and that I have been advised that I am free to withdraw my consent and to discontinue participation in the project or activity at any time without prejudice.

I herewith consent to the participation of my minor child or minor ward in this project with the understanding that such consent does not waive any of my legal rights, nor does it release the principal investigator or the institution or any employee or agent thereof from liability for negligence.

Parent/Guardian's Name

Parent/Guardian's Signature

Date

Minor Participant's Name

Minor Participant's Signature

Date

(If you cannot obtain satisfactory answers to your questions or have comments or complaints about your treatment in this study, contact: Committee on Human Studies, University of Hawaii, 2540 Maile Way, Honolulu, Hawaii 96822. Phone: (808) 956-8658).

cc: Signed copy to parent(guardian)/subject

Consent Form

AGREEMENT TO PARTICIPATE IN

LEI 'ILIMA: HEALTHY CONNECTIONS FOR FEMALE ADOLESCENTS
PROJECT

Principal Investigator:
Sandra Lacar
Executive Director
Coalition For A Drug-Free Hawaii
Honolulu, HI 96817
Phone: 545-3228

The federal Center for Substance Abuse Prevention is funding a project called the Lei 'Ilima: Healthy Connections For Female Adolescents Project. The purpose of the project is to develop a program to prevent alcohol, tobacco, and other drug use among female adolescents in Hawaii. As part of this project the Coalition For a Drug-Free Hawaii is conducting a survey to learn about Hawaii's adolescent females and their families. The information collected from the surveys will help the project design a program that meets the needs of Hawaii's adolescents and their families.

As part of this project, you and your child will be asked to complete a questionnaire twice during the semester. The questionnaires will contain questions about your child's attitudes and behaviors; alcohol, tobacco, and other drug use; your parenting style; feelings; self-perception; and your child's peer relations. We may also be asking your child's school teacher to rate your child's behaviors in school. In addition to the teacher ratings, we may also be obtaining school attendance data and all additional school reports that are relevant. Your child will receive a \$5 coupon for each completion of the questionnaires.

All information from the questionnaires will be kept completely confidential and will be used for research purposes only. All information will be filed separately under a code number and will not be associated with your name or your address. You and your child do not have to complete the questionnaires. Payment, however, requires that you complete the questionnaires.

It is possible that answering some of the questions in the questionnaires may make your child feel uncomfortable because some of the questions are personal. If your child finds that completing the questionnaires is upsetting to her and you both want to share your concerns with us, please call Marcie Herring (phone: 689-0267).

If you agree to allow your child to participate in this project, you and your child are free to withdraw from the program at any time without penalty or prejudice.

Consent Form

AGREEMENT TO PARTICIPATE IN THE LEI 'ILIMA: HEALTHY CONNECTIONS FOR
FEMALE ADOLESCENTS PROJECT

I certify that my child and I have been told the purpose of this project, its procedures, and the expected length of involvement. I certify that I have read and that I understand the foregoing, that I have been given satisfactory answers to my inquiries concerning project procedures and other matters and that I have been advised that I am free to withdraw my consent and to discontinue participation in the project or activity at any time without prejudice.

I herewith consent to the participation of my minor child or minor ward in this project with the understanding that such consent does not waive any of my legal rights, nor does it release the principal investigator or the institution or any employee or agent thereof from liability for negligence.

Parent/Guardian's Name

Parent/Guardian's Signature

Date

Minor Participant's Name

Minor Participant's Signature

Date

(If you cannot obtain satisfactory answers to your questions or have comments or complaints about your treatment in this study, contact: Committee on Human Studies, University of Hawaii, 2540 Maile Way, Honolulu, Hawaii 96822. Phone: (808) 956-8658).

cc: Signed copy to parent(guardian)/subject

APPENDIX C

Lei 'Ilima Project Survey

The Lei 'Ilima Project and Coalition for a Drug-Free Hawaii is conducting this survey to learn more about adolescent girls in Hawaii. We would like to know more about your attitudes and feelings. Your answers to the questions in this survey will help us to improve a program for adolescent girls in Hawaii.

The survey is made up of several sections. Each section has its own instructions. Please read the instructions carefully. It is important that you answer the questions honestly and as best as you can. Remember, your answers will be kept strictly confidential. Your answers will be filed separately under a code number so that no one will know your answers and they will remain secret. There are no right or wrong answers. If you have any questions or problems about how to answer the questions, please ask for help anytime.

Please be sure to write in today's date, your name, age, grade and ethnicity on the bottom of this page. Leave the space labeled "CODE #" blank. After you have completed this survey, please check it over to make sure you have answered all the questions of this survey. Place the survey in the envelope and seal it. I will collect the sealed envelopes. Thank you very much for your participation.

ABOUT YOURSELF

Please fill in the information requested below.

TODAY'S DATE:

YOUR NAME:

YOUR AGE:

YOUR ETHNICITY:

MOTHER'S JOB:

FATHER'S JOB:

PARENTS' MARITAL STATUS:

CODE #:

INSTRUCTIONS FOR "WHAT I AM LIKE"

This survey has several sentences and, as you can see from the top of your sheet where it says "What I am like," we are interested in what you are like, what kind of a person you are like. Please remember that this is a survey, not a test. There are no right or wrong answers. Since teenagers are very different from one another, each of you will be putting something different. Please follow the instructions below.

1. First, for each sentence decide if you are more like the teenagers on the left side or on the right side of the sentence. Do not make a mark until you have decided if you are more like the teenagers on the left side or right side.
2. Secondly, after you decide which kind of teenagers you are most like, then decide if that is only sort of true for you, or really true for you. If it's only sort of true, then put an X in the under sort of true; if it's really true, then put an X in that box, under really true.
3. For each sentence you only check one box. Sometimes it will be on one side of the page, another time it will be on the other side of the page, but you can only check one box for each sentence. You don't check both sides, just the one side most like you.
4. Refer to the sample question that you did for practice. Continue with these sentences on your own. Remember, for each one, just check one box, the one that is most true for you, what you are most like. If you have any questions, please be sure to ask them.

Rev. 1/96

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WHAT I AM LIKE

SAMPLE SENTENCE

Really True for Me	Sort of True for Me		BUT		Sort of True for Me	Really True for Me
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers like to go to movies in their spare time	BUT	Other teenagers would rather go to sports events.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers feel that they are just as smart as others their age	BUT	Other teenagers aren't so sure and wonder if they are as smart.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers find it hard to make friends	BUT	For other teenagers it's pretty easy.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers do very well at all kinds of sports	BUT	Other teenagers don't feel that they are very good when it comes to sports.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers are <i>not</i> happy with the way they look	BUT	Other teenagers <i>are</i> happy with the way they look.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers feel that they are ready to do well at a part-time job	BUT	Other teenagers feel that they are not quite ready to handle a part-time job.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers feel that if they are romantically interested in someone, that person will like them back	BUT	Other teenagers worry that when they like someone romantically, that person <i>won't</i> like them back.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers usually do the right thing	BUT	Other teenagers often don't do what they know is right.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers are able to make really close friends	BUT	Other teenagers find it hard to make really close friends.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers are often disappointed with themselves	BUT	Other teenagers are pretty pleased with themselves.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers are pretty slow in finishing their school work	BUT	Other teenagers can do their school work more quickly.	<input type="checkbox"/>	<input type="checkbox"/>

Really True for Me	Sort of True for Me		BUT		Sort of True for Me	Really True for Me
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers have a lot of friends		Other teenagers don't have very many friends.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers think they could do well at just about any new athletic activity.		Other teenagers are afraid they might not do well at a new athletic activity.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers wish their body was different		Other teenagers like their body the way it is.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers feel that they <i>don't</i> have enough skills to do well at a job		Other teenagers feel that they <i>do</i> have enough skills to do a job well.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers are <i>not</i> dating the people they are really attracted to		Other teenagers <i>are</i> dating those people they are attracted to.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers often get in trouble for the things they do		Other teenagers usually <i>don't</i> do things that get them in trouble.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers do have a close friend they can share secrets with		Other teenagers do not have a really close friend they can share secrets with.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers don't like the way they are leading their life		Other teenagers do like the way they are leading their life.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers do very well at their classwork		Other teenagers don't do very well at their classwork.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers are very hard to like		Other teenagers are really easy to like.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers feel that they are better than others their age at sports		Other teenagers don't feel they can play as well.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers wish their physical appearance was different		Other teenagers like their physical appearance the way it is.	<input type="checkbox"/>	<input type="checkbox"/>

Really True for Me	Sort of True for Me			Sort of True for Me	Really True for Me
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers feel they are old enough to get and keep a paying job	BUT	Other teenagers do not feel they are old enough, yet, to really handle a job well.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers feel that people their age will be romantically attracted to them	BUT	Other teenagers worry about whether people their age will be attracted to them.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers feel really good about the way they act	BUT	Other teenagers <i>don't</i> feel that good about the way they often act.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers wish they had a really close friend to share things with	BUT	Other teenagers <i>do</i> have a close friend to share things with.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers are happy with themselves most of the time	BUT	Other teenagers are often not happy with themselves.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers have trouble figuring out the answers in school	BUT	Other teenagers almost always can figure out the answers.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers are popular with others their age	BUT	Other teenagers are not very popular.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers don't do well at new outdoor games	BUT	Other teenagers are good at new games right away.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers think that they are good looking	BUT	Other teenagers think that they are not very good looking.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers feel like they could do better at work they do for pay	BUT	Other teenagers feel that they are doing really well at work they do for pay.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers feel that they are fun and interesting on a date	BUT	Other teenagers wonder about how fun and interesting they are on a date.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers do things they know they shouldn't do	BUT	Other teenagers hardly ever do things they know they shouldn't do.	<input type="checkbox"/>

Really True for Me	Sort of True for Me			Sort of True for Me	Really True for Me
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers find it hard to make friends they can really trust	BUT	Other teenagers <i>are</i> able to make close friends they can really trust.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers like the kind of person they are	BUT	Other teenagers often wish they were someone else.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers feel that they are pretty intelligent	BUT	Other teenagers question whether they are intelligent.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers feel that they are socially accepted	BUT	Other teenagers wished that more people their age accepted them.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers do not feel that they are very athletic	BUT	Other teenagers feel that they <i>are</i> very athletic.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers really like their looks	BUT	Other teenagers wish they looked different.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers feel that they are really able to handle the work on a paying job	BUT	Other teenagers wonder if they are really doing as good a job at work as they should be doing.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers usually <i>don't</i> go out with the people they would really like to date	BUT	Other teenagers <i>do</i> go out with the people they really want to date.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers usually act the way they know they are supposed to	BUT	Other teenagers often don't act the way they are supposed to.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers <i>don't</i> have a friend that is close enough to share really personal thoughts with	BUT	Other teenagers <i>do</i> have a close friend that they can share personal thoughts and feelings with.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some teenagers are very happy being the way they are	BUT	Other teenagers wish they were different.	<input type="checkbox"/>

CESD

INSTRUCTIONS: Circle the number for each statement which best describes how often you felt or behaved this way--DURING THE PAST WEEK.

	Rarely or None of the Time (Less than 1 day)	Some or a Little of the Time (1-2 Days)	Occasionally or a Moderate Amount of the Time (3- 4 Days)	Most of All of the Time (5-7 Days)
DURING THE PAST WEEK:	0	1	2	3
1. I was bothered by things that usually don't bother me.	0	1	2	3
2. I did not feel like eating; my appetite was poor.	0	1	2	3
3. I felt that I could not shake off the blues even with help from my family or friends.	0	1	2	3
4. I felt that I was just as good as other people.	0	1	2	3
5. I had trouble keeping my mind on what I was doing.	0	1	2	3
6. I felt depressed.	0	1	2	3
7. I felt that everything that I did was an effort.	0	1	2	3
8. I felt hopeful about the future.	0	1	2	3
9. I thought my life had been a failure.	0	1	2	3
10. I felt fearful.	0	1	2	3
11. My sleep was restless.	0	1	2	3
12. I was happy.	0	1	2	3
13. I talked less than usual.	0	1	2	3
14. I felt lonely.	0	1	2	3
15. People were unfriendly.	0	1	2	3
16. I enjoyed life.	0	1	2	3
17. I had crying spells.	0	1	2	3
18. I felt sad.	0	1	2	3
19. I felt that people disliked me.	0	1	2	3
20. I could not get "going".	0	1	2	3

INSTRUCTIONS: Below is a list of items that describe teenagers. For each item that describes you **now or within the past 6 months**, please circle the **2** if the item is **very true or often true** of you. Circle the **1** if the item is **somewhat or sometimes true** of you. If the item is **not true** of you, circle the **0**.

0 = Not True 1 = Somewhat or Sometimes True 2 = Very True or Often True

1. I argue a lot.	0	1	2
2. I brag.	0	1	2
3. I am mean to others.	0	1	2
4. I try to get a lot of attention.	0	1	2
5. I destroy my own things.	0	1	2
6. I destroy things belonging to others.	0	1	2
7. I disobey at school.	0	1	2
8. I am jealous of others.	0	1	2
9. I get in many fights.	0	1	2
10. I physically attack people.	0	1	2
11. I scream a lot.	0	1	2
12. I show off or clown.	0	1	2
13. I am stubborn.	0	1	2
14. My moods or feelings change suddenly.	0	1	2
15. I talk too much.	0	1	2
16. I tease others a lot.	0	1	2
17. I have a hot temper.	0	1	2
18. I threaten to hurt people.	0	1	2
19. I am louder than other kids.	0	1	2

INSTRUCTIONS: Below is a list of statements dealing with your general feelings about yourself. Please record the appropriate answer per item, depending on whether you strongly agree, agree, disagree, or strongly disagree with it.

- 1 = Strongly Agree
- 2 = Agree
- 3 = Disagree
- 4 = Strongly Disagree

- _____ 1. On the whole, I am satisfied with myself.
- _____ 2. At times I think I am no good at all.
- _____ 3. I feel that I have a number of good qualities.
- _____ 4. I am able to do things as well as most other people.
- _____ 5. I feel I do not have much to be proud of.
- _____ 6. I certainly feel useless at times.
- _____ 7. I feel that I'm a person of worth, at least on an equal plane with others.
- _____ 8. I wish I could have more respect for myself.
- _____ 9. All in all, I am inclined to feel that I am a failure.
- _____ 10. I take a positive attitude toward myself.

11. Finally, can you tell me how honestly you think you answered this survey?

- [] Very honestly
- [] Somewhat honestly
- [] Not very honestly

**YOU ARE DONE!
THANK YOU FOR YOUR HELP!**

LEI 'ILIMA PROJECT SURVEY (Part 2)

The Lei 'Ilima Project and Coalition for a Drug-Free Hawaii is conducting this survey to learn more about adolescent girls in Hawaii. We would like to know more about your attitudes and behaviors, alcohol, tobacco, and other drug use, your feelings, and how you feel about yourself, your parents, and your friends. Your answers to the questions in this survey will help us to improve a program for adolescent girls in Hawaii.

The survey is made up of several sections. Each section has its own instructions. Please read the instructions carefully. It is important that you answer the questions honestly and as best as you can. Remember, your answers will be kept strictly confidential. Your answers will be filed separately under a code number so that no one will know your answers and they will remain secret. There are no right or wrong answers. If you have any questions or problems about how to answer the questions, please ask for help anytime.

Please be sure to write in today's date, your name, age, grade and ethnicity on the bottom of this page. Leave the space labeled "CODE #" blank. After you have completed this survey, please check it over to make sure you have answered all the questions of this survey. Place the survey in the envelope and seal it. I will collect the sealed envelopes. Thank you very much for your participation.

ABOUT YOURSELF

Please fill in the information requested below.

TODAY'S DATE:

YOUR NAME:

YOUR AGE:

YOUR ETHNICITY:

Intro-2comp. 1/96

CODE# _____

INSTRUCTIONS: Below is a list of items that describe teenagers. For each item that describes you now or within the past 6 months, please circle the 2 if the item is very true or often true of you. Circle the 1 if the item is somewhat or sometimes true of you. If the item is not true of you, circle the 0.

0 = Not True 1 = Somewhat or Sometimes True 2 = Very True or Often True

-
- | | | | |
|---|---|---|----------|
| 18. I don't feel guilty after doing something I shouldn't. | 0 | 1 | 2 |
| 19. I hang around with kids who get in trouble. | 0 | 1 | 2 |
| 20. I lie or cheat. | | 0 | 1 2 |
| 21. I would rather be with older kids than kids my own age. | 0 | 1 | 2 |
| 22. I run away from home. | 0 | 1 | 2 |
| 23. I set fires. | 0 | 1 | 2 |
| 24. I steal at home. | 0 | 1 | 2 |
| 25. I steal from places other than home. | 0 | 1 | 2 |
| 26. I swear or use dirty language. | 0 | 1 | 2 |
| 27. I cut classes or skip school. | 0 | 1 | 2 |
| 28. I use alcohol or drugs for nonmedical purposes
(describe): _____

_____ | 0 | 1 | 2 |

SECTION TWO: CIGARETTES, ALCOHOL, AND OTHER DRUGS

The next few questions are about CIGARETTES, CHEWING TOBACCO, SNUFF OR DIP, including Redman, Levi Garrett, Beechnut, Skoal, Skoal Bandits, or Copenhagen. These questions refer to the use of tobacco other than for religious purposes.

29. On how many DAYS in the LAST MONTH (30 days) did you smoke a cigarette?
 None
 1 or 2 days in the last month
 3 to 5 in the last month
 6 to 9 in the last month
 10 to 19 in the last month
 20 to 31 in the last month
30. On the days you smoke cigarettes, how many do you smoke?
 Less than 1 cigarette
 1 or 2 cigarettes
 3 to 7 cigarettes
 About half a pack of cigarettes
 A pack or more of cigarettes
 I don't smoke cigarettes
31. On how many DAYS did you use chewing tobacco, snuff or dip in the LAST MONTH (30 days)?
 None
 1 or 2 days in the last month.
 3 to 5 in the last month
 6 to 9 in the last month
 10 to 19 in the last month
 20 to 31 in the last month
32. On the days you used chewing tobacco, snuff or dip, how many times did you use it?
 Less than once
 1 or 2 times
 3 to 7 times
 8-12 times
 More than 12 times
 I don't use smokeless tobacco
33. Do you think your best friend smokes cigarettes or uses chewing tobacco, snuff or dip sometimes?
 Yes No
34. If your friends found out that you smoked cigarettes or used chewing tobacco, snuff or dip, how do you think they'd feel?
 They would approve
 They would disapprove but still be my friends
 They would disapprove and stop being my friends
 They wouldn't care

35. How would your parents feel if they found out you smoked cigarettes or used chewing tobacco, snuff or dip sometimes?
- They would not be upset at all
 - They would be a little upset
 - They would be pretty upset
 - They would be very upset

The next few questions are about ALCOHOL. By alcohol, we mean BEER, WINE, WINE COOLERS, GRAIN ALCOHOL, or HARD LIQUOR.

36. On how many DAYS did you have an alcoholic drink in the LAST MONTH (30 days)? (By a drink, we mean a can of beer, a glass of wine, a wine cooler, or a shot of hard liquor.) For example, if you drank alcohol each weekend night, that would be 8 days (4 weekends times 2 days each weekend).
- None
 - 1 or 2 days in the last month.
 - 3 to 5 days in the last month.
 - 6 to 9 days in the last month.
 - 10 to 19 days in the last month.
 - 20 to 31 days in the last month.
37. On the days you drink alcohol, about how many drinks do you have? (By a drink, we mean a can of beer, a glass of wine, a wine cooler, or a shot of hard liquor.)
- Less than a drink
 - 1 drink
 - 2 drinks
 - 3 drinks
 - 5 or more drinks
 - I don't drink alcohol
38. On how many DAYS in the LAST MONTH (30 days) did you have FIVE OR MORE alcoholic drinks?
- None
 - 1 or 2 days in the last month.
 - 3 to 5 days in the last month.
 - 6 to 9 days in the last month.
 - 10 to 19 days in the last month.
 - 20 to 31 days in the last month.
39. Do you think your best friend drinks alcohol sometimes?
- Yes
 - No
40. If your friends found out that you drank alcohol sometimes, how do you think they'd feel?
- They would approve
 - They would disapprove but still be my friends
 - They would disapprove and stop being my friends
 - They wouldn't care

41. How would your parents feel if they found out you drank alcohol sometimes?
- They would not be upset at all
 - They would be a little upset
 - They would be pretty upset
 - They would be very upset

The next few questions are about MARIJUANA (Sometimes called dope, grass, weed, pot, smoke, hash, jones, spleef, joint, doobee, herb, sen, sezz, stick, stone, ganja, or cannabis.)

42. On how many DAYS did you use any marijuana in the LAST MONTH (30 days)? For example, if you used marijuana each weekend night, that would be 8 days (4 weekends times 2 days each weekend).
- None
 - 1 or 2 days in the last month.
 - 3 to 5 days in the last month.
 - 6 to 9 days in the last month.
 - 10 to 19 days in the last month.
 - 20 to 31 days in the last month.
43. On the days you use marijuana, how many times do you use it?
- Once a day
 - Twice a day
 - 3 or more times a day
 - I don't use marijuana
44. Do you think your best friend uses marijuana sometimes?
- Yes
 - No
45. If your friends found out that you used marijuana sometimes, how do you think they'd feel?
- They would approve
 - They would disapprove but still be my friends
 - They would disapprove and stop being my friends
 - They wouldn't care
46. How would your parents feel if they found out you used marijuana sometimes?
- They would not be upset at all
 - They would be a little upset
 - They would be pretty upset
 - They would be very upset

The next question is about INHALANTS. Inhalants are substances that you breath in to get high, such as amyl and butyl nitrite (sometimes called poppers, snappers, rush, or hardware) or glue, aerosol sprays, gasoline or lighter fluids, ether, correction or cleaning fluids. (Inhalants are sometimes called huff, sniff, whiteout, and whippets).

47. On how many DAYS did you use any inhalants in the LAST MONTH (30 days)?
- None
 - 1 or 2 days in the last month.
 - 3 to 5 days in the last month.
 - 6 to 9 days in the last month.
 - 10 to 19 days in the last month.
 - 20 to 31 days in the last month.
48. During the last 30 days, have you used any of the following on your own, that is, without a doctor telling you to take them (check yes if you have used the drug in the past thirty days, no if you have not)?
- | <u>Yes</u> | <u>No</u> | |
|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | Cocaine or Crack Cocaine |
| <input type="checkbox"/> | <input type="checkbox"/> | Heroin or Opium |
| <input type="checkbox"/> | <input type="checkbox"/> | LSD or Acid |
| <input type="checkbox"/> | <input type="checkbox"/> | Speed or Uppers |
| <input type="checkbox"/> | <input type="checkbox"/> | Claradine |
| <input type="checkbox"/> | <input type="checkbox"/> | Downers or Tranquilizers |
| <input type="checkbox"/> | <input type="checkbox"/> | PCP or Angel Dust |
| <input type="checkbox"/> | <input type="checkbox"/> | Ecstasy |

The next few questions cover your feelings about and experiences with using alcohol and drugs.

49. Pretend your best friend offered you a cigarette and you did not want it. Howhard would it be to say "no"?
- Not hard at all
 - Not very hard
 - Pretty hard
 - Very hard
50. Pretend your best friend offered you a drink of beer or wine and you did not want it. Howhard would it be to say "no"?
- Not hard at all
 - Not very hard
 - Pretty hard
 - Very hard

51. Pretend your best friend offered you some marijuana and you did not want it. How hard would it be to say "no"?
- Not hard at all
 - Not very hard
 - Pretty hard
 - Very hard
52. Pretend your best friend offered you some cocaine or some other drug and you did not want it. How hard would it be to say "no"?
- Not hard at all
 - Not very hard
 - Pretty hard
 - Very hard

SECTION THREE: YOU, YOUR FAMILY AND YOUR NEIGHBORHOOD

Now, we would like some information about you, your family and your neighborhood.

Indicate how often the following takes place.

53. How often do you use alcohol just before or while attending school?
- Almost everyday
 - Once or twice a week
 - A few times a month
 - A few times a year
 - Never
54. How often do you use drugs, such as marijuana or cocaine, just before or while attending school?
- Almost everyday
 - Once or twice a week
 - A few times a month
 - A few times a year
 - Never
55. During the past 2 months, did you ever feel sad, down or depressed almost every day for TWO WEEKS OR MORE IN A ROW?
- Yes
 - No

The next several questions are about your attitudes and your friends' attitudes toward cigarettes, alcohol, and other drugs. Check the box in front of the answer that is closest to how you feel about what the sentence says.

- Check YES! If you believe very strongly that the sentence is true for you, that is the way you feel almost all of the time.
- Check yes If you sort of agree that the sentence is true for you, that it is the way you feel most of the time.
- Check no If you sort of agree that the sentence is false for you, that you do not feel that way.
- Check NO! If you believe very strongly that the sentence is false, that you almost never feel this way.

56. If I use alcohol or drugs, I will have more health problems than other people. [] YES! [] yes [] no [] NO!
57. If I don't use alcohol or drugs I will be happier. [] YES! [] yes [] no [] NO!
58. Smoking cigarettes fits with the kind of life I want to lead. [] YES! [] yes [] no [] NO!
59. Getting drunk every now and then fits with the kind of life I want to lead. [] YES! [] yes [] no [] NO!
60. How do you think your closest friends feel about this statement: People who use drugs are stupid. [] YES! [] yes [] no [] NO!

The next few questions are about your family. If you were raised mostly by foster parents, stepparents, or others, answer for them. For example, if you have both a stepfather and a natural father, answer for the one that was the most important in raising you. Please check the box that you agree with most.

- Check YES! If you believe very strongly that the sentence is true for you, that it is the way you feel almost all of the time.
- Check yes If you sort of agree that the sentence is true for you, that it is the way you feel most of the time.
- Check no If you sort of believe the sentence is false for you, that you do not feel that way most of the time.
- Check NO! If you believe very strongly that the sentence is false, that you almost never feel this way.

61. My parents want to know who I am going out with when I go out with other boys/girls. [] YES! [] yes [] no [] NO!
62. In my free time away from home, my parents know who I'm with and where I am. [] YES! [] yes [] no [] NO!
63. My parents want me to tell them where I am if I don't come home right after school. [] YES! [] yes [] no [] NO!

64. When you get home from school, who is waiting for you most days? (Please pick the answer that best fits you)
- A parent or other grown-up is there
 - No one else is home -- I am alone for a while
 - No grown up is home -- I take care of my younger brother(s) or sister(s)
 - No grown up is home -- my older brother(s) or sister(s) is there.
 - I don't go home after school
 - I'm not in school
65. How often do you have disagreements or arguments with your parents?
- Almost everyday
 - Once or twice a week
 - A few times a month
 - A few times a year
 - Never
66. How often do you talk with your parents about your plans for the future?
- Almost everyday
 - Once or twice a week
 - A few times a month
 - A few times a year
 - Never
67. How often do you talk with your parents about problems with your friends?
- Almost everyday
 - Once or twice a week
 - A few times a month
 - A few times a year
 - Never
68. How often do you talk with your parents about how well you get along with your teachers?
- Almost everyday
 - Once or twice a week
 - A few times a month
 - A few times a year
 - Never
69. Have you ever wished that one or both of your parents would drink less?
- My parents don't drink
 - Yes
 - No
70. Have you ever wished that one or both of your parents would smoke cigarettes less?
- My parents don't smoke cigarettes
 - Yes
 - No

71. Have you ever wished that one or both of your parents would use drugs less?
 My parents don't use drugs
 Yes
 No
72. How are your grades in school? (Please pick the answer that best describes how you do in general?)
 Excellent (A or 90 and above)
 Above average (B or 80 - 90)
 Average (C or 70 - 80)
 Below average (D or 60 - 70)
 Unsatisfactory (F or below 60)
 Not in school
73. During the LAST FOUR WEEKS how many whole days of school have you missed?
 None 4 to 5 days
 1 day 6 to 10 days
 2 days 11 or more days
 3 days Not in school last four weeks
74. Are you currently seeing any doctor, psychologist, psychiatrist, therapist, or healer for any emotional problem?

 No
 Yes
75. In the past, have you ever seen a doctor, psychologist, psychiatrist, therapist, or healer for any emotional problem?

 No
 Yes
76. Do any of your classes include learning about alcohol, tobacco, and other drugs?

 No
 Yes
77. In your school, do your classes include learning how to feel good about yourself?

 Yes
 No
 Don't know
 I am not in school
78. In your school, do your classes include learning how to get along with others?

 Yes
 No
 Don't know
 I am not in school

79. In your school, do your classes include learning how to make better decisions?
- Yes
 - No
 - Don't know
 - I am not in school
80. How often do you go to meetings or activities for a club or youth group?
- Everyday
 - Several days a week
 - Once in a while
 - Not at all
81. Are you currently involved in any youth programs such as Girl Scouts, YMCA/YWCA, PAL, Boys and Girls Club, Church Clubs, or other programs?
- No
 - Yes
82. Finally, can you tell me how honestly you think you answered this survey?
- Very honestly
 - Somewhat honestly
 - Not very honestly

**YOU ARE DONE!
THANK YOU FOR YOUR HELP!**

APPENDIX D**EMT NATIONAL YOUTH SURVEY
BASELINE QUESTIONNAIRE
12-18 Version**

**Sponsored by the Center for Substance Abuse Prevention,
U.S. Department of Health and Human Services**

These questions are part of a study of how young people feel about alcohol, tobacco and other drugs, and whether they use them. We hope that you will answer all of the questions honestly and thoughtfully. The survey is being conducted by a private research firm for the Center for Substance Abuse Prevention; U.S. Department of Health and Human Services.

The study will help our country learn more about how to prevent the use of alcohol and drugs.

Your answers will be kept strictly confidential. The information you provide is legally protected by a Certificate of Confidentiality. No one in your school or community will ever know how you answered the questions.

The study is completely voluntary. If you do not want to fill out the survey or any of the questions, you do not have to. No one else will know your decision.

This is not a test, so there are no right or wrong answers. We would like you to work fairly quickly, so that you can finish. Please work quietly and by yourself.

We think you will find the questionnaire to be very interesting and that you will like filling it out. Thank you very much for being an important part of this study.

Completing this questionnaire will take an average of 45 minutes per response. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to DHHS Reports Clearance Officer; Paperwork Reduction Project (0930-0178); Room 531-H; Humphrey Building; 200 Independence Ave., SW; Washington, DC 20201.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control number for this project is (0930-0178).

INSTRUCTIONS

1. You should answer each question by marking one of the answer boxes. If you don't find an answer that fits exactly, choose the one that comes closest.
2. Mark your answers carefully so we can tell which answer box you chose. Do not mark more than one box for any question except for question 19, and do not mark in between the boxes.
3. It is very important that you answer each question truthfully. The study cannot help unless you *tell the truth*.
4. Some questions ask about your parents. By parents, we mean the adults who are raising you. If you have been raised mostly by foster parents, step-parents, or others, answer for them. For example, if you have both a step-father and a natural father, answer for the one that is most important in raising you.

SECTION ONE: FACTS ABOUT YOU

1. Are you male or female?
 Male
 Female

2. In what year were you born?
 1977 1983
 1978 1984
 1979 1985
 1980 1986
 1981 1987
 1982 1988

3. In what month were you born?
 January July
 February August
 March September
 April October
 May November
 June December

4. On what day of the month were you born?
 1 9 17 25
 2 10 18 26
 3 11 19 27
 4 12 20 28
 5 13 21 29
 6 14 22 30
 7 15 23 31
 8 16 24

5. What is your home zip code?

6. Are you Hispanic or Latino?
 Yes, I am
 No, I am not

7. What else do you call yourself?
 American Indian or Alaskan native
 Asian or Pacific Islander
 Black or African American
 White
 Other (write in):

8. What languages do your parents or other people who are raising you speak at home?
 Only or mostly English
 Only or mostly a language other than English
 English and a language other than English equally

9. How often do you go to sports practice or play in games?
 Almost every day A few times a year
 Once or twice a week Never
 A few times a month

10. How often do you take lessons or attend classes out of school?
 Almost every day A few times a year
 Once or twice a week Never
 A few times a month
11. How often do you go to meetings or activities for a club or youth group?
 Almost every day A few times a year
 Once or twice a week Never
 A few times a month
12. How often do you talk to an adult about what you are doing or thinking?
 Almost every day A few times a year
 Once or twice a week Never
 A few times a month
13. How often do you do work at home (chores, baby sitting, cooking)?
 Almost every day A few times a year
 Once or twice a week Never
 A few times a month
14. Last summer how often did you go to a summer program for learning or fun?
 Almost every day A few times a year
 Once or twice a week Never
 A few times a month
15. How are your grades in school? (Please pick the answer that best describes how you do in general?)
 Excellent (A or 90 and above)
 Above average (B or 80 - 90)
 Average (C or 70 - 80)
 Below average (D or 60 - 70)
 Unsatisfactory (F or below 60)
 Not in school
16. During the LAST FOUR WEEKS how many whole days of school have you missed?
 None 4 to 5 days
 1 day 6 to 10 days
 2 days 11 or more days
 3 days Not in school last four weeks
17. What is the highest grade of school you have completed?
 4th 10th
 5th 11th
 6th 12th
 7th College
 8th Vocational
 9th
18. Have you dropped out of school?
 Yes
 No

38. I like to do things with my family. YES! yes no NO!
39. I can do most things I try. YES! yes no NO!
40. When I am mad, I yell at people. YES! yes no NO!
41. If I study hard, I will get better grades. YES! yes no NO!
42. My friends respect me. YES! yes no NO!
43. I would feel bad if adults found out I used alcohol or
drugs. YES! yes no NO!
44. Sometimes I break things on purpose. YES! yes no NO!
45. It is important to do your part in helping at home. YES! yes no NO!
46. It is important to think before you act. YES! yes no NO!
47. I would like to quit school as soon as I can. YES! yes no NO!
48. I enjoy talking with my family. YES! yes no NO!
49. I always like to do my part. YES! yes no NO!
50. I like the way I look. YES! yes no NO!
51. If I feel like it, I hit people. YES! yes no NO!
52. If you work hard, you will get what you want. YES! yes no NO!
53. I would get in trouble if an adult found out I used
alcohol or drugs. YES! yes no NO!

PLEASE GO TO THE NEXT PAGE

SECTION THREE: CIGARETTES, ALCOHOL, AND OTHER DRUGS

The next few questions are about **CIGARETTES, CHEWING TOBACCO, SNUFF OR DIP, including Redman, Levi Garrett, Beechnut, Skoal, Skoal Bandits, or Copenhagen.** These questions refer to the use of tobacco other than for religious purposes.

54. On how many DAYS in the LAST MONTH (30 days) did you smoke a cigarette? For example, if you smoked a cigarette each weekend night, that would be 8 days (4 weekends times 2 days each weekend).
- None
 - 1 or 2 days in the last month
 - 3 to 5 in the last month
 - 6 to 9 in the last month
 - 10 to 19 in the last month
 - 20 to 31 in the last month
55. On the days you smoke cigarettes, how many do you smoke?
- Less than 1 cigarette
 - 1 or 2 cigarettes
 - 3 to 7 cigarettes
 - About half a pack of cigarettes
 - A pack or more of cigarettes
 - I don't smoke cigarettes
56. On how many DAYS did you use chewing tobacco, snuff or dip in the LAST MONTH (30 days)?
- None
 - 1 or 2 days in the last month.
 - 3 to 5 in the last month
 - 6 to 9 in the last month
 - 10 to 19 in the last month
 - 20 to 31 in the last month
57. On the days you used chewing tobacco, snuff or dip, how many times did you use it?
- Less than once
 - 1 or 2 times
 - 3 to 7 times
 - 8-12 times
 - More than 12 times
 - I don't use chewing tobacco, snuff or dip
58. Have you **EVER SMOKED** a cigarette, even just a few puffs, or used chewing tobacco, snuff or dip?
- Yes
 - No
59. Do you think your best friend smokes cigarettes or uses chewing tobacco, snuff or dip sometimes?
- Yes
 - No

60. If your friends found out that you smoked cigarettes or used chewing tobacco, snuff or dip, how do you think they'd feel?
- They would approve
 - They would disapprove but still be my friends
 - They would disapprove and stop being my friends
 - They wouldn't care
61. How would your parents feel if they found out you smoked cigarettes or used chewing tobacco, snuff or dip sometimes?
- They would not be upset at all
 - They would be a little upset
 - They would be pretty upset
 - They would be very upset

The next few questions are about ALCOHOL. By alcohol, we mean BEER, WINE, WINE COOLERS, GRAIN ALCOHOL, or HARD LIQUOR.

62. On how many DAYS did you have an alcoholic drink in the LAST MONTH (30 days)? (By a drink, we mean a can of beer, a glass of wine, a wine cooler, or a shot of hard liquor.)
- None
 - 1 or 2 days in the last month.
 - 3 to 5 days in the last month.
 - 6 to 9 days in the last month.
 - 10 to 19 days in the last month.
 - 20 to 31 days in the last month.
63. On the days you drink alcohol, about how many drinks do you have? (By a drink, we mean a can of beer, a glass of wine, a wine cooler, or a shot of hard liquor.)
- Less than a drink
 - 1 drink
 - 2 drinks
 - 3 drinks
 - 5 or more drinks
 - I don't drink alcohol
64. On how many DAYS in the LAST MONTH (30 days) did you have FIVE OR MORE alcoholic drinks?
- None
 - 1 or 2 days in the last month.
 - 3 to 5 days in the last month.
 - 6 to 9 days in the last month.
 - 10 to 19 days in the last month.
 - 20 to 31 days in the last month.
65. Have you EVER had a drink of alcohol?
- Yes
 - No
66. Do you think your best friend drinks alcohol sometimes?
- Yes
 - No

67. If your friends found out that you drank alcohol sometimes, how do you think they'd feel?
- They would approve
 - They would disapprove but still be my friends
 - They would disapprove and stop being my friends
 - They wouldn't care
68. How would your parents feel if they found out you drank alcohol sometimes?
- They would not be upset at all
 - They would be a little upset
 - They would be pretty upset
 - They would be very upset

The next few questions are about MARIJUANA (Sometimes called dope, grass, weed, pot, smoke, hash, jones, spleef, joint, doobee, herb, sen, sezz, stick, stone, ganja, or cannabis.)

69. On how many DAYS did you use any marijuana in the LAST MONTH (30 days)?
- None
 - 1 or 2 days in the last month.
 - 3 to 5 days in the last month.
 - 6 to 9 days in the last month.
 - 10 to 19 days in the last month.
 - 20 to 31 days in the last month.
70. On the days you use marijuana, how many times do you use it?
- Once a day
 - Twice a day
 - 3 or more times a day
 - I don't use marijuana
71. Have you EVER TRIED marijuana?
- Yes
 - No
72. Do you think your best friend uses marijuana sometimes?
- Yes
 - No
73. If your friends found out that you used marijuana sometimes, how do you think they'd feel?
- They would approve
 - They would disapprove but still be my friends
 - They would disapprove and stop being my friends
 - They wouldn't care
74. How would your parents feel if they found out you used marijuana sometimes?
- They would not be upset at all
 - They would be a little upset
 - They would be pretty upset
 - They would be very upset

The next question is about **INHALANTS**. Inhalants are substances that you breathe in to get high, such as amyl and butyl nitrite (sometimes called **poppers, snappers, rush, or hardware**) or glue, aerosol sprays, gasoline or lighter fluids, ether, correction or cleaning fluids. (Inhalants are sometimes called **huff, sniff, whiteout, and whippets**).

75. On how many **DAYS** did you use any inhalants in the LAST MONTH (30 days)?
- None
 - 1 or 2 days in the last month.
 - 3 to 5 days in the last month.
 - 6 to 9 days in the last month.
 - 10 to 19 days in the last month.
 - 20 to 31 days in the last month.
76. During the last 30 days, have you used any of the following on your own, that is, without a doctor telling you to take them (check yes if you have used the drug in the past thirty days, no if you have not)?
- | Yes | No | |
|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | Cocaine or Crack Cocaine |
| <input type="checkbox"/> | <input type="checkbox"/> | Heroin or Opium |
| <input type="checkbox"/> | <input type="checkbox"/> | LSD or Acid |
| <input type="checkbox"/> | <input type="checkbox"/> | Speed or Uppers |
| <input type="checkbox"/> | <input type="checkbox"/> | Zaladine |
| <input type="checkbox"/> | <input type="checkbox"/> | Downers or Tranquilizers |
| <input type="checkbox"/> | <input type="checkbox"/> | PCP or Angel Dust |
| <input type="checkbox"/> | <input type="checkbox"/> | Ecstasy |

The next few questions cover your feelings about and experiences with using alcohol and drugs.

77. Pretend your best friend offered you a cigarette and you did not want it. How hard would it be to say "no?"
- Not hard at all
 - Not very hard
 - Pretty hard
 - Very hard
78. Pretend your best friend offered you a drink of beer or wine and you did not want it. How hard would it be to say "no?"
- Not hard at all
 - Not very hard
 - Pretty hard
 - Very hard
79. Pretend your best friend offered you some marijuana and you did not want it. How hard would it be to say "no?"
- Not hard at all
 - Not very hard
 - Pretty hard
 - Very hard

80. Pretend your best friend offered you some cocaine or some other drug and you did not want it. How hard would it be to say "no?"
- Not hard at all
 - Not very hard
 - Pretty hard
 - Very hard

SECTION FOUR: YOU, YOUR FAMILY AND YOUR NEIGHBORHOOD

Now, we would like some information about you, your family and your neighborhood.

81. How often do you get into fights?
- Almost every day
 - Once or twice a week
 - A few times a month
 - A few times a year
 - Never
82. How often do you damage or destroy things that do not belong to you (for example, street signs, cars, or neighbor's property).
- Almost every day
 - Once or twice a week
 - A few times a month
 - A few times a year
 - Never
83. How often are you in trouble with school officials (for example, poor grades, skipping school, or acting out in class).
- Almost every day
 - Once or twice a week
 - A few times a month
 - A few times a year
 - Never
84. How often do you use alcohol just before or while attending school?
- Almost every day
 - Once or twice a week
 - A few times a month
 - A few times a year
 - Never
85. How often do you use drugs, such as marijuana or cocaine, just before or while attending school?
- Almost every day
 - Once or twice a week
 - A few times a month
 - A few times a year
 - Never
86. During the past 2 months, did you ever feel sad, down or depressed almost every day for TWO WEEKS OR MORE IN A ROW?
- Yes
 - No

87. During the last 2 months, how many times were you in trouble with the law, that is, arrested or threatened with arrest?
- 0 times
 - 1 time
 - 2 or 3 times
 - 4 or 5 times
 - 6 or more times

The next several questions are about your attitudes and your friends' attitudes toward cigarettes, alcohol, and other drugs. Check the box in front of the answer that is closest to how you feel about what the sentence says.

- Check YES! If you believe very strongly that the sentence is true for you, that it is the way you feel almost all of the time.
- Check yes If you sort of agree that the sentence is true for you, that it is the way you feel most of the time.
- Check no If you sort of believe the sentence is false for you, that you do not feel that way most of the time.
- Check NO! If you believe very strongly that the sentence is false, that you almost never feel this way.

88. If I use alcohol or drugs, I will have more health problems than other people. YES! yes no NO!
89. If I don't use alcohol or drugs I will be happier. YES! yes no NO!
90. Smoking cigarettes fits with the kind of life I want to lead. YES! yes no NO!
91. Getting drunk every now and then fits with the kind of life I want to lead. YES! yes no NO!
92. Your closest friends feel that people who use drugs are stupid. YES! yes no NO!

The next few questions are about your family. If you have been raised mostly by foster parents, step-parents, or others, answer for them. For example, if you have both a step-father and a natural father, answer for the one that is the most important in raising you. Please check the box that you agree with most.

93. My parents want to know who I am going out with when I go out with other boys/girls. YES! yes no NO!
94. In my free time away from home, my parents know who I'm with and where I am. YES! yes no NO!
95. My parents want me to tell them where I am if I don't come home right after school. YES! yes no NO!
96. When you get home from school, who is waiting for you most days? (Please pick the answer that best fits you)
- A parent or other grown-up is there
 - No one else is home -- I am alone for awhile
 - No grown up is home -- I take care of my younger brother(s) or sister(s)
 - No grown up is home -- my older brother(s) or sister(s) is there
 - I don't go home after school
 - I'm not in school

97. How often do you have disagreements or arguments with your parents?
 Almost every day
 Once or twice a week
 A few times a month
 A few times a year
 Never
98. How often do you talk with your parents about your plans for the future?
 Almost every day
 Once or twice a week
 A few times a month
 A few times a year
 Never
99. How often do you talk with your parents about problems with your friends?
 Almost every day
 Once or twice a week
 A few times a month
 A few times a year
 Never
100. How often do you talk with your parents about how well you get along with your teachers?
 Almost every day
 Once or twice a week
 A few times a month
 A few times a year
 Never
101. Have you ever wished that one or both of your parents would drink less?
 My parents don't drink
 Yes
 No
102. Have you ever wished that one or both of your parents would smoke cigarettes less?
 My parents don't smoke cigarettes
 Yes
 No
103. Have you ever wished that one or both of your parents would use drugs less?
 My parents don't use drugs
 Yes
 No
104. In your school, do your classes include learning about alcohol and other drugs?
 Yes
 No
 Don't know
 I am not in school
105. In your school, do your classes include learning how to feel good about yourself?
 Yes
 No
 Don't know
 I am not in school

106. In your school, do your classes include learning how to get along with others?
 Yes
 No
 Don't know
 I am not in school
107. In your school, do your classes include learning how to make better decisions?
 Yes
 No
 Don't know
 I am not in school

The next few questions are about things that happen in many neighborhoods. Please indicate how often these things happen in your neighborhood.

108. You see people drinking alcohol on the street.
 Almost every day
 Once or twice a week
 A few times a month
 A few times a year
 Never
109. Someone gets robbed.
 Almost every day
 Once or twice a week
 A few times a month
 A few times a year
 Never
110. You see someone using drugs.
 Almost every day
 Once or twice a week
 A few times a month
 A few times a year
 Never
111. You see the police arrest someone.
 Almost every day
 Once or twice a week
 A few times a month
 A few times a year
 Never
112. You see a fight.
 Almost every day
 Once or twice a week
 A few times a month
 A few times a year
 Never
113. Finally, can you tell me how honestly you think you answered this survey?
 Very honestly
 Somewhat honestly
 Not very honestly

YOU ARE DONE!

THANK YOU FOR YOUR HELP!

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