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Using Risk Factors to Predict Drug Use in a College Population

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USING RISK FACTORS TO PREDICT DRUG USE

IN A COLLEGE POPULATION

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The purpose of this study was to provide evidence for the
model that the greater number of risk factors experienced by
an individual, the greater the drug use. A series of
questionnaires including a parental nurturance scale, the
PRIDE College Drug Use Prevalence Questionnaire, a
delinquency scale, the Zuckerman Sensation Seeking Scale, a
modification of the Social Readjustment Rating Scale, and
the Johns Hopkins Symptom Cheklist were administered to 235
college students. The series of questonnaires measured ten
risk factors used in the study that included high perceived
distance from parents, early tobacco use, low religiosity,
low academic motivation, sensation seeking, stressful life
events, psychologcial distress, peer drug use, parental drug
use, and disregard for rules. Pearson product moment
correlation coefficients indicated relationships of $r=.33$
between number of risk factors and marijuana use to $r=.48$
between number of risk factors and beer use. Regression
analyses indicated that sensation seeking and peer drug use
accounted for the most variance in drug use. The
relationships provide evidence for the predictive utility of

the model in predicting those individuals at risk for drug
use.   Implications for further research are discussed.

Introduction

The identification of adolescents who are at risk for drug use is a socially relevant problem. Three general approaches have been used in the identification of those who are at risk for drug use: (a) demographic profiles of drug users, (b) single variables that predict use, and (c) multiple variables that predict use. Each approach has been used to attempt to determine the variable(s) that account for the most variance in drug use. A description of representative research literature based on each of the three approaches follows.

Demographic Profiles

Often times, drug use research has been directed toward developing a profile of demographic variables such as age, sex, socioeconomic status, and race that is associated with drug use. While many studies have attempted to show that various combinations of demographic variables are useful in predicting drug use, there seems to be no one demographic profile that is clearly associated with drug use. For example, Napier, Carter, and Pratt (1981) collected data from 492 ninth and twelfth grade students in a rural county in southwestern Ohio. Collecting data via questionnaires in large group settings, the researchers compiled information on age, sex, socioeconomic status, and academic performance. Socioeconomic status was measured by having the students indicate their family's economic status using a

1-7 scale, with 1 being very poor and 7 being very wealthy.
Students' academic performance was assessed by having them
use a 1-5 scale to indicate their level of performance,
where 1 was "much worse" as compared to fellow classmates
and 5 was "much better" as compared to fellow classmates.
Alcohol consumption was determined by having the students
respond to a 1-5 scale, with 1 being "almost every day" and
5 being "never used." To assess marijuana use, each
participant responded using a 1-6 scale, with 1 being "used
almost every day" and 6 being "never used." Regression
analyses revealed that the best combination of independent
variables accounted for 12.7% of the variance in alcohol
consumption and 9.2% of the variance in marijuana use. No
demographic variable individually accounted for more than
1.8% of the variance in either alcohol consumption or
marijuana use.

In a related study, Kleinman and Lukoff (1978) used a
similar questionnaire technique with a population of 803
males and females in New York consisting of 534 American
blacks, 69 whites, and 200 West Indian blacks. Based on
self-reports of drug use patterns, three categories of drug
use were established: (1) no drug use, (2) use of marijuana
only, and (3) use of marijuana and other illicit drugs or
illicit drug use only. Regressing the demographic variables
of age, sex, ethnicity, marital status, and church
attendance against drug use, it was found that West Indian
blacks were less likely to use either marijuana or illicit
drugs than were the other two groups. Regression analyses

indicated that the combination of demographic variables accounted for less than 30% of the variance in drug use with the strongest single predictor being ethnicity.

Kandel (1983) provided additional support for the suggestion that demographic variables are not very accurate predictors of drug use. Using a sample of 1077 public secondary school students in the state of New York, she employed a structured self-administered questionnaire given in a classroom setting to determine sex, race, year in school, urbanicity, frequency of church attendance, socioeconomic status, and extent of marijuana use. Using multiple classification analyses, Kandel found that no single demographic variable or combination of demographic factors was significantly related to marijuana use.

Single Variable Predictions

Attempts to link single variables (i.e., personality variables like anxiety or depression) or life-style variables (i.e., patterns of peer drug use or family interaction) with drug use have yielded limited success (Kandel, 1983). Pandina and Schuele (1983), for instance, examined whether psychological distress, perceived self-esteem, perception of parental environment, and socially evaluated negative events were predictive of the nature and extent of drug use. Employing a sample of 1,960 junior and senior high students from two different school districts in central New Jersey, data were collected via a six-part survey questionnaire consisting of (1) sociodemographic questions; (2) the SCL-90, a 90 item

distress symptom checklist; (3) the Piers-Harris Test of Self-Concept; (4) the Streit-Schaefer Family Perception Inventory; (5) an Alcohol and Drug Use Inventory; and (6) an Alcohol and Drug Experience Inventory. Drug use was found to be significantly related to greater psychological distress (as assessed by the SCL-90), lower self-esteem (as assessed by the Piers-Harris Test of Self-Concept), perceived lack of love and caring in the parental environment (as assessed by the Streit-Schaefer Family Perception Inventory), and a greater number of negative events (as reported on the Alcohol and Drug Experience Inventory). Using analysis of variance, the researchers found significant relationships between each of the scales and drug use (i.e., the higher the psychological distress, the greater the drug use; the lower the self-esteem, the higher the drug use; the greater the perceived lack of caring in the parental environment, the greater the drug use; and the greater number of negative events in one's life, the greater the drug use). The researchers concluded that each of the four constructs examined related in different ways to drug usage as measured by the drug use inventory employed, indicating that single variables by themselves do not take into account all the possible environmental factors (i.e., intrapersonal, interpersonal, and societal) that represent an individual's relationship to his or her environment. They suggest, then, that combinations of single variables may provide better estimates for predicting drug use.

Multiple Variable Predictions

In attempting to find the best combination of predictors using groups of single variables to predict drug use, several authors (e.g., Segal, Huba, & Singer, 1980; Smith & Fogg, 1975) have attempted to find the best "set" of variables that are related to use. For instance, Napier, Bachtel, and Carter (1983) collected data from 2,060 junior and senior high school students in southern Georgia regarding age, sex, race, income, parental relationships, peer influence, religiosity, deviant behavior, parental drug use, and frequency of use of alcohol, marijuana, cigarettes, amphetamines, and barbiturates. Using stepwise regression analyses, they found that the best combination of factors accounted for 41.4% of the variance in alcohol use. Seven of the 10 variables (i.e., race, sex, deviant behavior, peer influence, age, parental use, and religiosity) combined to account for 35.4% of alcohol use.

Conclusion

Current attempts to identify adolescents at risk for drug use via the analysis of demographic profiles (e.g., Murty, 1979), single variable prediction models (e.g., Pandina & Schuele, 1983), or multi-variable regression analysis (e.g., Smith & Fogg, 1975) have not produced widely applicable prediction models. As a result, many researchers (e.g., Dunnett, 1975; Nathan & Harris, 1980; Bry, McKeon, & Pandina, 1982) have suggested that there may be as many different combinations of factors relating to drug use as there are drug users. Therefore, it probably will never be

possible to specify "the" set of predictor variables (and
their associated weights) that can be used to identify
individuals in the general population or particular
subgroups who are at risk for drug use. An alternative tack
is to adopt an approach similar to that employed in
predicting individuals' reactions to stress.

Using Stress Theory to Predict Drug Use

Stress theory (Dohrenwend, 1973) postulates that
whether or not an individual is experiencing stress is not
so much a matter of which particular stress factors a person
is experiencing as it is the number of stress factors being
experienced. In general, the greater the number of stress
factors present, the greater the potential an individual
will experience stress. Therefore, using stress theory as a
model, one would predict that the likelihood of drug use is
related to the number of, not the nature of, factors present
in an individual's life that have been identified as being
associated with drug use by some individuals (Sadava,
1975). Said in another way, the greater the number of risk
factors (i.e., psychosocial factors that have been found to
sometimes precede drug use) present in an individual's life,
the more likely he/she is to be a drug user. Thus, the
utility of the model lies in its ability to identify
individuals who are at risk for drug use and not in
determining the account of variance attributable to
particular risk factors for particular samples of
individuals.

Identified Risk Factors

Though inconsistencies exist and consensus has not been established, a number of factors have been identified as probable indicators of potential drug use in adolescents. These include high perceived distance from parents, early tobacco use, peer drug usage, low religiosity, low academic motivation, disregard for rules or behavioral problems, high sensation seeking, parental drug usage, stressful life events, and psychological distress.

High Perceived Distance From Parents

Kandel (1982) found several parental factors that were related to initiation of adolescent drug use. Among these were parent-child interaction (i.e., the more positive the relationship, the less likely adolescent drug usage) and frequency of parental drug use (i.e., the greater parental use, the greater adolescent use).

With respect to parent-child interactions, other researchers have linked future drug use to lack of closeness to parents (e.g., Brook, Lukoff, & Whiteman, 1980) and to lack of or inconsistent parental discipline practices (e.g., Penning & Barnes, 1982). For example, Brook, Lukoff, and Whiteman (1980) interviewed 284 white, West Indian black, and American black adolescents and their mothers on two occasions at three year intervals. Using several reliable scales to measure peer, personality, and family factors, the researchers found a correlation between lack of parental closeness and initiation of marijuana use ($r=.41$, $p<.01$). The authors describe the mothers of these adolescents as

being less assertive, having lower expectations for their
children, being less affectionate to their children, and
being less involved with their children in a variety of
activities.

Early Use of Tobacco

Davies and Kandel (1977) also found that early
initiation into cigarettes is associated with a greater
probability of involvement with more serious drugs such as
cocaine. Early use of cigarettes has also been found to be
related to greater involvement in deviant activities such as
theft, vandalism, and drug use (e.g., O'Donnell & Clayton,
1979).

Peer Drug Usage

Association with drug using peers during adolescence is
among the strongest risk factors of adolescent drug use
reported by some researchers (e.g., Kandel, 1983). In
Kandel's study, frequency of peer use accounted for 34% of
the variance in initiation to use of hard liquor, 48% of the
variance in initiation to use of marijuana, and 33% of the
variance in initiation to use of other illicit drugs. In a
previous study, Kandel (1982) found that, using self-reports
of adolescent friendship pairs, only 15% of adolescents
assessed had ever used marijuana when their best friend
independently reported having never used marijuana. In
contrast, 79% reported using marijuana when their best
friend independently reported having used marijuana 60 times
or more in their lives. Similarly, Napier, Bachtel, and
Carter (1983), in their study with Georgia youth, found

using regression analyses that peer drug usage entered first in every regression equation established. The authors also found a significant relationship between peer drug usage and marijuana use (r=.67, p<.05), peer drug usage and alcohol use (r=.44, p<.05), peer drug usage and amphetamine use (r=.47, p<.05), and peer drug usage and barbiturate use (r=.52, p<.05).

Low Religiosity

In a study of over 10,000 junior and senior high students, Jessor, Chase, and Donovan (1980) showed that greater involvement with marijuana was associated with lower religiosity and a lower frequency of church attendence. Other than peer usage, religiosity was found to be most highly correlated (r=-.37) with marijuana use. Additional support for low religiosity as a risk factor is presented by Murty (1979). Using regression analyses on demographic variables (i.e., sex, age, GPA, ethnicity, SES, and father's education level) in a population of 711 college sophomores, Murty found that a significant portion of variance was accounted for by religiosity (12.4%) as compared to all the other variables combined (16.4%).

Low Academic Motivation

Poor school performance is commonly associated with initiation of drug use (e.g., Jessor & Jessor, 1977; Kandel, Kessler, & Margulies, 1978). Smith and Fogg (1975), using longitudinal data from 542 suburban Boston adolescents, found that those individuals who had high grade point averages (as an indicator of high academic motivation) as

7th and 8th graders (year 1 of the study) were the nonusers as 11th and 12th graders (year 5 of the study). Kandel (1983), in her study of the 1,077 New York students, found that students with poor academic performance and higher absentee rates were more likely to have used marijuana.

Disregard for Rules

The degree to which an adolescent takes part in delinquent behavior or commits illegal acts has also been extensively researched and found to be related to adolescent drug use. Jessor, Chase, and Donovan (1980) note that proneness to problem behavior or a deviance syndrome have been suggested as explanations of drug use. Evidence for that interpretation has been reported by Kandel, Kessler, and Margulies (1978) using a random sample of 8,206 public secondary school students in New York State. The researchers found that previous delinquent behavior accounted for 41% of the variance in hard liquor use.

High Sensation Seeking

Segal, Huba, and Singer (1980) used 1,095 college students from Yale University and Murray State University to determine the extent to which students using substances could be identified based on 48 variables that assessed needs, daydreaming and mental style, optimal level of stimulation, and locus of control. Using both regression and discriminant analyses, experience seeking was the single variable that individually accounted for most of the drug use variance.

Parental Drug Usage

A parental factor found to be related to the initiation of adolescent drug use is parental drug use behavior (Kandel, 1982). Lawrence and Velleman (1974) obtained results that lead to similar conclusions. A 47-item, multiple choice questionnaire was administered to 1,416 students in an upper-middle-class high school near New York City. Data concerning four measures of parental use (i.e., smoking, drinking alcohol, using tranquilizers, and using sleeping pills) were collected. For those adolescents whose mother or father smoked at least one pack of cigarettes per day, 51% had used marijuana at least 3 times in their life. For those adolescents whose parents used tranquilizers, 45% had used marijuana or barbiturates at least 3 times in their life. Similar results have been reported by Kandel, Kessler, and Margulies (1978). These researchers found that parents who use hard liquor and psychoactive drugs (i.e., tranquilizers and stimulants) were much more likely to have children who initiate the use of illicit drugs than parents that did not use hard liquor or psychoactive drugs.

Stressful Life Events

Stressful life events, such as death of a close friend or relative or physical illness or injury, have long been associated with drug use. For instance, White, Johnson, and Horwitz (1986) interviewed 1,381 adolescents and found that stressful life events were significantly related to substance use (r=.25, p<.001). Other authors have reported similar findings--namely Pandina and Schuele (1983)--who

found that as the number of negative or stressful events increased so did the degree of substance use.

Psychological Distress

In addition to stressful life events, psychological distress has also been found to be related to drug use. In Pandina and Schuele's 1983 study of 1,960 junior and senior high students, the researchers found that those adolescents who were heavy drug users scored significantly higher on the SCL-90 (a measure of psychological distress). White, Johnson, and Horwitz (1986) interviewed 1,381 New Jersey adolescents ages 12, 15, and 18, and found, using the SCL-90 as a measure psychological distress, a significant relationship between the global symptom index of the SCL-90 and substance use.

Hypothesis

Based on the stress theory approach that suggests whether or not an individual is a drug user is not a function of which particular risk factors are present but rather the number of risk factors being experienced, the following hypothesis was investigated.

The greater the number of risk factors present for an individual, the greater the frequency of an individual's drug use.

Method

Participants

Participants were 284 college students enrolled in introductory classes in the Department of Psychology and the Department of Health and Safety at Western Kentucky University. Thirteen participants were eliminated because their questionnaires were not completed correctly. Thirty-six participants were dropped from the sample to restrict the sample to only those individuals for whom drinking alcohol was illegal in the Commonwealth of Kentucky (i.e., age 20 or younger).

The resulting sample of 235 college students consisted of 194 freshman, 36 sophomore and 5 junior students. One hundred and ten were male and 125 were female. The ethnic origin was predominately caucasion (i.e., 216 or 92.3%) with only 16 individuals (6.8%) being black.

Survey Instruments

Data were collected via the PRIDE College Drug Use Prevelance Questionnaire and five anonymous self-report questionnaires. Approximately 25-40 minutes were needed to complete the instruments.

Parental Nurturance Scale

The high perceived distance from parents risk factor was measured using a parental nurturance scale (see Appendix A) developed by White, Johnson, and Horwitz (1983). Participants responded to questions such as, "How often do

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your parents praise or compliment you?" using a 6-point scale including (1) never, (2) rarely, (3) sometimes, (4) often, (5) almost always, and (6) always.

Reliability of the parental nurturance scale. The authors of the scale performed a test-retest reliability study on a sample of 887 adolescents over a two-week time interval. The obtained correlation coefficient was .68, indicating a reasonably high degree of consistency over time. White, Johnson, and Horwitz (1986) also report a Cronbach alpha of .96 for the instrument.

Validity of the parental nurturance scale. To date, there are no known/published validity studies for this instrument.

PRIDE College Drug Usage Prevalence Questionnaire

Several risk factors (i.e, peer drug use, early tobacco use, low academic motivation, low religiosity, and parental drug use), as well as a measure of frequency and type of drug use, were assessed using the PRIDE College Drug Usage Prevalence Questionnaire (see Appendix B). This instrument uses a fixed category response set for a series of ten questions concerning use of beer, wine coolers, liquor, marijuana, cocaine, uppers, downers, inhalents, and hallucinogens.

Reliability of the PRIDE instrument. The probabilities of agreement for categoric response items from the PRIDE instrument have been found to range from .86 to 1.0, with a median probability of agreement of .96 between two administrations of the instrument (Curlette, 1983). The

time between administrations in this study was approximately
one-half hour for 1,002 students in the 7th through 12th
grades. In a similar study, a population of 2,779 students
in grades 7 through 12 were administered the PRIDE
instrument with a two-week interval between
administrations. The mean response of each of the 108 items
was compared for the 2,929 students on the first
administration with the mean response for the 2,779 students
on the second administration (Curlette, 1983). The data
were coded with a one-point difference between each response
category on each question so to allow for means and
differences between means to be calculated. After having
done so, none of the 108 items had a mean difference of more
than 0.25 between the first and second administration,
indicating small differences in responses between the first
and second administration.

An accuracy of response error rate has been calculated
for the PRIDE instrument to assess internal consistency of
responding by examining the "never use" responses to the
questions "How often do you..." and "What effect do you get
when you..." for particular substances (i.e., beer/wine,
liquor, etc.). On a sample of over 45,000, the highest
inconsistency rate was 5.5% for beer/wine, while the lowest
was 0.2% for cocaine (Craig, 1986).

Validity of the PRIDE instrument. The validity of any
drug use survey is difficult to determine. One method is to
compare the findings of two or more instruments purporting
to measure the same things. The validity of the PRIDE

instrument can be found by comparing level of use items for seniors from the PRIDE national incidental sample to the annual NIDA high school senior study (Johnston, O'Malley, & Bachman, 1986) based on a random sample of high school seniors from across the United States. In comparing matched items from the PRIDE instrument and the NIDA high school senior study survey, alcohol use was found to be 81.0% for the PRIDE instrument and 85.6% for the NIDA study. For marijuana use, the percentages were 35.7% for the PRIDE instrument and 40.6% for the NIDA study. Percentage of cocaine use was 10.4% for the PRIDE instrument and 13.1% for the NIDA study. The similar responses indicate that for matched items, the two instruments appear to be reflecting similar rates of usage with, if anything, the PRIDE instrument providing more conservative estimates of use.

Delinquency Scale

The disregard for rules risk factor was measured using a delinquency scale (see Appendix C) developed by White, Johnson, and Horwitz (1983). Participants responded to questions like "Within the last three years, how many times have you...avoided paying for things? broken into a building? hit or struck one of your parents?" Responses were made using a 5-point scale with 1 being 0 times, 2 being 1-2 times, 3 being 3-5 times, 4 being 6-10 times, and 5 being more than ten times.

Reliability for the delinquency scale. The authors of the scale performed a test-retest reliability study over a two-week interval on a sample of 1,308 adolescents. A

resulting coefficient of .38 was obtained (White, Johnson, &
Horwitz, 1983).

Validity for the delinquency scale. To date, there are
no known/published validity studies for this instrument.

Zuckerman Sensation Seeking Scale (SSS)

High sensation seeking was measured using Subscale III
of the Zuckerman Sensation Seeking Scale (see Appendix D).
Subscale III consists of 18 specific items of the total
72-item scale. Participants were offered alternate
responses to each item and were instructed to make choices
that best desribed their likes or the way they feel.
Participants' responses were scored based upon which choices
they made on the items making up the experience seeking
subscale. This subscale was derived to tap "experience for
its own sake" and includes items indicating wanderlust,
exhibitionism in dress and behavior, the use of marijuana
and hallucinatory drugs, association with unusual and
unconventional persons, a liking of modern and arousing
music and art, and flouting of 'irrational' authority.

Reliability of the Zuckerman Sensation Seeking Scale.
Ridgeway and Russell (1980) used 181 female and 155 male
college students to study the reliability of the SSS. Using
Cronbach's coefficient alpha, the researchers obtained
results of $r=.75$, indicating a reasonably high degree of
internal consistency in the instrument.

Validity of the Zuckerman Sensation Seeking Scale.
Farley (1971) used 116 undergraduates to determine the
convergent validity between the SSS and the Change Seeker

Index developed by Garlington and Shimona (1964). These two instruments purport to measure the same thing, thus lending some indication as to the validity of the SSS. The resulting correlation coefficient was $\underline{r}$=.63, $\underline{p}$<.01.

The Social Readjustment Rating Scale (SRRS)

The risk factor stressful life events was measured using a modification of the Social Readjustment Rating Scale (see Appendix E) developed by Holmes and Rahe (1967). The items in the modified version were those that pertain particulary to an adolescent population. The life events have been weighted (see Holmes & Rahe, 1967) and for items reported to have occurred in the past year, the weighted scores (see Appendix F) were summed to yield a measure for this factor.

Reliability of the SRRS. Gerst, Grant, Yager, and Sweetwood (1978) measured the reliability of the Social Readjustment Rating Scale (SRRS) using 213 male subjects. The instrument was administered four times over a two-year period at six-month intervals. The product moment correlation coefficients for 3-6, 6-12, and 12-24 month intervals were .96, .89, and .94, respectively, indicating relatively high stability over time.

Validity of the SRRS. Bieliauska and Webb (1974) used 116 females and 137 males to determine the validity of the SRRS. They examined individual scores on the SRRS and the ability to predict an individual's need for future professional help (i.e., seeking help from a counselor) using the SRRS scores. The correlation coefficients between

SRRS scores and professional help sought were significant ($\underline{r}$=.23, $\underline{p}$<.005).

The Johns Hopkins Symptom Checklist (SCL-90)

The Johns Hopkins Symptom Checklist (the SCL-90) is a self-report inventory that elicits responses about the degree of distress experienced by respondents in the recent past (see Appendix G). This 90-item psychiatric symptoms checklist has been used extensively in drug-effectiveness studies and epidemiological field surveys (e.g., Pandina & Schuele, 1983). The instrument yields scores on the following dimensions: somatization, obsessive-compulsiveness, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism, global symptom, positive symptom distress, and positive symptom total. Individuals respond using a 5-point scale: (1) not at all, (2) a little, (3) moderately, (4) quite, and (5) extremely.

Reliability of the SCL-90. Derogatis, Lipman, Rickels, Uhlenhuth, and Covi (1974) have established reliability coefficients for the SCL-90 including alpha coefficients of .77 to .90 and test-retest correlation coefficients of .79 to .90.

Validity of the SCL-90. Derogatis, Rickels, and Rock (1976) demonstrated the concurrent validity of the SCL-90 with the Minnesota Multiphasic Personality Inventory (MMPI) using a population of 209 volunteers. The goal was to compare component dimensions of the SCL-90 to comparable representative scales of the MMPI. The correlation

coefficients ranged from a low of .77 on the Psychotocism scales to a high of .90 on the Depression scales.

Procedure

Each participant received a clasped envelope that contained the SCL-90, the SRRS, the delinquency scale, the parental nurturance scale, the Zuckerman Sensation Seeking Scale, and a PRIDE College Drug Usage Prevalence Questionnaire.

After an envelope had been distributed to each participant, the following instructions were given orally. "The following set of questionnaires is part of my thesis project. I would like each of you to complete each of the questionnaires in the package."

"Please respond to each question, answering each by circling your choice. Each section has its own set of instructions, so please read each carefully. You will find questions on both sides of the page. It will take you approximately 25-40 minutes to answer the questions."

"Your answers will be totally anonymous and confidential. Do not put your name or any other identifying marks on any of the sheets. Your open and honest answers are necessary for valid results to be obtained. All the responses are confidential and will only be used in summary form. Again, your honest answers will be greatly appreciated."

"When you are finished, please place the completed questionnaires in the envelope and bring it to the front of the room. Thank you for your assistance."

The data from the questionnaires were then scored and computerized.

Scoring

Scoring the Risk Factors

Scoring procedures for each risk factor were as follows.

High perceived distance from parents. Scoring for the parental nurturance scale consisted of the arithmetic average of all responses with a score of 1 corresponding to the response "never" and a score of 6 corresponding to a response of "always."

Early tobacco use. The presence of this risk factor was established with a response of "10-11" or "under 10" to the question, "When did you first smoke cigarettes"? (See Appendix B, Section III).

Peer drug use. The presence of this risk factor was established with a response of "several" to the question "How many of your friends" for any of the substance choices on Section VIII of the PRIDE instrument (see Appendix B, Section VIII).

Low religiosity. The presence of this risk factor was established with a response of "0-2 times" to the question "How often did you attend church in the last year"? (see Appendix B, student characteristics section).

Low academic motivation. The presence of this risk factor was established with a report of "C," "D," or "F" to the question, "What were your average grades last semester?" (see Appendix B, student characteristics section).

Disregard for rules. The responses on the delinquency scale were summed to obtain a total score with a response of 1 being scored a 1 and a response of 5 being scored a 5.

High sensation seeking. One point was awarded for responding to each of the following: 160 A, 164 B, 167 A, 168 B, 170 A, 171 B, 179 A, 180 B, 182 B, 184 A, 185 A, 191 B, 192 A, 193 B, 196 A, 197 B, 201 A, and 209 B (see Appendix D). The points were summed and a total was obtained.

Parental drug use. The presence of this risk factor was established with a response of "a lot" to the question "How often do either of your parents" for one or more of the choices of substances in Section X of the Pride instrument (see Appendix B, Section X).

Stressful life events. The score for this risk factor was established by summing the weighted scores of the responses to the modification of the Social Readjustment Rating Scale (see Appendix F).

Psychological distress. The presence of this risk factor was established using the global symptom index of the SCL-90. The global symptom index was determined by taking the arithmetic average of the responses for all 90 items.

Frequency of drug use. Measures of drug use were obtained from the responses to questions in Section IV on the PRIDE instrument (see Appendix B, Section IV).

Process for Establishing the Sample

To establish a "clean" data set upon which analyses would be conducted, several modifications were made to the sample. The original sample of 284 was reduced to 235 by eliminating from the sample those individuals who did not complete the questionnaires appropriately and those who were age 21 and over. This modification was employed to restrict the sample to only those individuals for whom drinking alcohol was illegal in the Commonwealth of Kentucky (i.e., age 20 or younger).

To further "clean" the data set, an attempt was made to determine the degree to which participants responded consistently to Section IV (frequency of use categories) of the PRIDE instrument. To do so, a crosstabulation between Section IV (frequency of use categories) and Section V (effect of use categories) was done. Consistent responding would indicate that those participants who reported use of a particular substance in Secton IV of the PRIDE instrument would report an effect category (i.e., no high, a little high, very high, or bombed/stoned) for that particular substance in Section V of the PRIDE instrument. Similarly, those participants reporting no use of a substance in the frequency categories (Section IV) should report no use in the effect categories (Section V). This examination of the agreement between the two response categories allows for analyses to be conducted on the responses that are most consistent, deleting from the sample those participants that were inconsistent in their responses to Sections IV and V.

Determining cutoff Scores

There were three sets of cutoff scores for each of the scales that measured risk factors other than those derived from the PRIDE instrument--the Bry scoring criteria and the sample derived scoring criteria using scores on the parental nurturance scale, the Zuckerman Sensation Seeking Scale, the SRRS, and the SCL-90 were dichotomized and correlated with the frequency of alcohol use and frequency of marijuana use.

The Bry scoring criteria. The first set of cutoff scores was established by Bry (1983) on her sample of adolescents. The cutoff score for the parental nurturance scale was less than or equal to 2.36. On the Zuckerman Sensation Seeking Scale, the cutoff score was greater than or equal to 6. A score of 320 on the SRRS provided the cutoff score for the stressful life events factor. A global symptom index of greater than 1.5 on the SCL-90 provided the cutoff score for psychological distress.

Sample derived scoring criteria for alcohol use. To establish the alternative set of cutoff scores based on frequency of alcohol use, the sample was randomly divided into two groups--one consisting of 60% of the sample and a hold out group consisting of 40% of the sample--using frequency of use responses to place equal numbers of each frequency of use response in each group. Scores on the four scales for the 60% group were dichotomized using points of separation established at increments of 1 on the Zuckerman Sensation Seeking Scale, increments of 0.4 for the parental

nurturance scale, increments of 0.2 on the SCL-90, and increments of 25 for the SRRS. Then, the scores were correlated with frequency of use at every point of separation. The point at which the correlation was greatest became the new cutoff score. For the criteria based on alcohol use, the new cutoff scores were less than or equal to 2.0 on the parental nurturance scale, 7 or greater on the Zuckerman Sensation Seeking Scale, greater than or equal to 75 on the SRRS, and a global symptom index of greater than or equal to 1.0 on the SCL-90.

Sample derived scoring criteria for marijuana use. Using the same procedure as described above for determining the criteria scores based on alcohol use, a second set of cutoff scores was established using frequency of marijuana use. The new cutoff scores included a score of less than or equal to 2.80 on the parental nurturance scale, a score of 7 or greater on the Zuckerman Sensation Seeking Scale, a score of greater than or equal to 400 on the SRRS, and a global symptom index of greater than or equal to 1.0 on the SCL-90.

Analyses

Frequency Distribution

A frequency distribution was obtained to determine the demographic characteristics of the participants and to identify the number of individual and combined risk factors present for each of the participants. Based upon this analysis, the risk factor disregard for rules as measured by

the delinquency scale was not found to be present for any participant and was excluded from further analyses.

Risk Factor Correlations with Frequency of Use

Using Pearson correlation coefficients, the total number of risk factors using Bry's criteria on the N=235 sample was correlated with the frequency of use responses from Section IV of the PRIDE instrument. Analyses were done on frequency of alcohol and marijuana use only due to the infrequent reported use of other drugs in this sample.

Risk Factor Analysis on Hold Out Group

Upon establishing the new cutoff scores based on alcohol and marijuana use, and modifying the data set for consistency of responding, the new cutoff scores were used to establish individual and combined risk factor totals on the remaining 40% of the sample (N=82). Total risk factors for each group of criteria scores (i.e., Bry and the two sample derived sets of criteria scores) were correlated with frequency of use using the 40% hold out group. The Bry criteria were used to provide a point of comparison for the sample derived cutoff scores.

Regression Analyses

Stepwise regression analyses were performed using the nine risk factors regressed on frequency of alcohol and marijuana use. Stepwise regression analyses were also performed using seven demographic variables including age, ethnicity, size of home town, education levels of participant's mother and father, the average number of times each class was missed, and GPA regressed on frequency of

alcohol and marijuana use. In addition, a regression analysis was performed using a combination of the nine risk factors and seven demographic variables regressed on frequency of use.

Results

Sample Characteristics

The sample consisted of 235 undergraduate students (110 males and 125 females) enrolled in introductory courses in the Department of Psychology and Department of Health and Safety at Western Kentucky University. The sample was comprised primarily of freshmen (N=194), most of whom were 18 years of age. The participants were predominately white (92.3%) native Kentuckians (82.0%), and from a small city or rural area (82.2%). Living in a dorm was the predominate housing arrangement for the participants (79.1%). Forty-four percent of the sample reported being protestants while 19.4% reported being catholic. A complete description of the demographic characteristics of the participants is provided in Table 1.

Number of Risk Factors and Frequency of Drug Use

The relationship between number of risk factors present for each individual and the extent of an individual's drug use was examined using the Bry and the sample derived scoring criteria.

Analyses Using Bry's Criteria

The presence or absence of risk factors was first established by using the Bry (1983) scoring system. The risk factors of high perceived distance from parents, high

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Table 1

Sample Demographic Characteristics

VARIABLE	NUMBER OF PARTICIPANTS	PERCENT OF SAMPLE
CLASSIFICATION		
Freshman	194	82.6%
Sophomore	36	15.3%
Junior	5	2.1%
SEX		
Male	110	46.8%
Female	125	53.2%
AGE		
17	6	2.6%
18	123	52.3%
19	75	31.9%
20	31	13.2%
HAVE CHILDREN		
Yes	1	0.4%
No	227	99.1%
ETHNIC ORIGIN		
White	216	92.3%
Black	16	6.8%
Hispanic	0	0.0%
Asian	1	0.4%
Other	1	0.4%
PARENTS LIVING ARRANGEMENT		
Together	181	77.0%
Apart	46	19.6%
Deceased	8	3.4%
HOME RESIDENCE		
In Kentucky	191	82.0%
Outside Kentucky	42	18.0%
In rural area	71	31.6%
In small town	71	31.6%
In small city	43	19.1%
In large city	40	17.8%
MARRIED		
Yes	4	1.7%
No	225	98.3%

Table 1 (continued)

VARIABLE	NUMBER OF PARTICIPANTS	PERCENT OF SAMPLE
EDUCATION LEVEL OF MOTHER		
Less than high school	29	12.6%
High school graduate	94	40.7%
Some college	44	19.0%
College graduate	64	27.7%
EDUCATION LEVEL OF FATHER		
Less than high school	33	14.5%
High school graduate	77	33.9%
Some college	52	22.9%
College graduate	65	28.6%
HAVE JOB		
Yes, full-time	5	2.3%
Yes, part-time	85	38.3%
No	132	59.5%
GPA		
0.0-1.0	7	3.0%
1.0-2.0	28	11.9%
2.0-2.5	64	27.2%
2.5-3.0	65	27.7%
3.0-4.0	71	30.2%
AVERAGE TIMES MISSED CLASS		
0-1	84	35.9%
2-3	99	42.3%
4-5	31	13.2%
6 or more	20	8.5%
AVERAGE GRADES LAST SEMESTER		
A	36	15.3%
B	106	45.1%
C	72	30.6%
D	17	7.2%
E	4	1.7%
AREA OF DEGREE PROGRAM		
Arts & Humanities	29	12.4%
Social and Behavioral Sciences	14	6.0%
Education	41	17.5%
Science and Technology	52	22.2%
Business Administration	57	24.4%
Other	41	17.5%

Table 1 (continued)

VARIABLE	NUMBER OF PARTICIPANTS	PERCENT OF SAMPLE
LIVING ARRANGEMENTS		
In a dorm	186	79.1%
In an apartment	24	10.2%
At a fraternity or sorority house	5	2.1%
With parents	17	7.2%
Other	3	1.3%
MEMBER OF		
Fraternity or sorority	33	31.4%
Varsity sports team	13	12.4%
Other organization	59	56.2%
TIMES ATTENDED CHURCH IN LAST YEAR		
0-2 times	71	30.2%
Once per month	58	24.7%
Once per week	70	29.8%
More than once per week	36	15.3%
RELIGIOUS AFFILIATION		
Protestant	102	44.0%
Catholic	45	19.4%
Jewish	2	0.9%
Other affiliation	61	26.3%
No affiliation	22	9.5%

sensation seeking, disregard for rules, stressful life events, and psychological distress were established using previously developed scales that purported to measure each of the factors. The five additional risk factors of early tobacco use, peer drug use, parental drug use, low academic motivation, and low religiosity were established by participants' responses to the PRIDE College Drug Use Prevalence Questionnaire. The frequency of drug use was established using responses to Section IV of the PRIDE instrument. Table 2 indicates the frequency of use responses for each category of drugs as measured by the Pride instrument for this sample.

The first analysis was conducted to examine how effectively Bry's risk factor model could account for the frequency of alcohol and marijuana use for the entire sample (N=235). The Bry delinquency risk factor (e.g., disregard for rules) was not included in the analysis because no one in the sample was identified as being at risk on that factor. The number of risk factors for each individual was correlated with frequency of use for beer, wine coolers, liquor, and marijuana. These correlations were r=.39 for beer use, r=.35 for wine cooler use, r=.40 for alcohol use, and r=.33 for marijuana use. These correlations indicated a moderate relationship between the number of risk factors present and frequency of use.

Analyses on the 40% Hold Out Group

To establish the alternative cutoff scores for the parental nurturance scale, Zuckerman Sensation Seeking

Table 2

Frequency of Drug Use For Each Category of Drug

DRUG	FREQUENCY GROUP	NUMBER OF PARTICIPANTS	PERCENT OF SAMPLE
CIGARETTES	NO USE	148	63.0%
	LO USE	32	13.6%
	MED USE	8	3.4%
	HI USE	47	20.0%
BEER	NO USE	65	27.7%
	LO USE	49	20.9%
	MED USE	42	17.9%
	HI USE	79	33.6%
WINE COOLERS	NO USE	70	29.8%
	LO USE	82	34.9%
	MED USE	61	26.0%
	HI USE	22	9.4%
LIQUOR	NO USE	71	30.2%
	LO USE	67	28.5%
	MED USE	56	23.8%
	HI USE	41	17.4%
MARIJUANA	NO USE	168	71.5%
	LO USE	43	18.3%
	MED USE	10	4.3%
	HI USE	14	6.0%
COCAINE	NO USE	229	97.4%
	LO USE	6	2.6%
	MED USE	0	0%
	HI USE	0	0%
UPPERS	NO USE	216	92.3%
	LO USE	9	3.8%
	MED USE	5	2.1%
	HI USE	4	1.7%

NO USE indicates a response of "did not use"
LO USE indicates responded use of once/year or 6 times/year
MED USE indicates responded use of once/month or twice/month
HI USE indicates responded use of once/week, 3 times/week or every day

Table 2 (continued)

Frequency of Drug Use For Each Category of Drug

DRUG	FREQUENCY GROUP	NUMBER OF PARTICIPANTS	PERCENT OF SAMPLE
DOWNERS	NO USE	228	97.4%
	LO USE	5	2.1%
	MED USE	1	0.4%
	HI USE	0	0%
INHALENTS	NO USE	233	99.1%
	LO USE	2	0.9%
	MED USE	0	0%
	HI USE	0	0%
HALLUCINOGENS	NO USE	229	97.4%
	LO USE	5	2.1%
	MED USE	0	0%
	HI USE	1	0.4%

NO USE indicates a response of "did not use"
LO USE indicates responded use of once/year or 6 times/year
MED USE indicates responded use of once/month or twice/month
HI USE indicates responded use of once/week, 3 times/week or every day

Scale, the SRRS, and the SCL-90, 60% of the age 20 and under

sample (randomly divided by frequency of use responses) had

their scores on these four scales dichotomized and

correlated with their frequency of use responses for alcohol

and marijuana. The point at which the correlation was

greatest for both alcohol and marijuana use was used as the

cutoff score.

A comparison of the number of individuals meeting the

criteria for individual risk factors using Bry's criteria

and the sample derived criteria in the 40% hold out group

(N=82) is presented in Table 3. It should be noted that

differences occur only with risk factors measured by a scale

that had a sample derived cutoff score -- high perceived

distance from parents, high sensation seeking, stressful

life events, and psychological distress.

Sample derived alcohol use criteria. The criteria

scores based on alcohol use were used on the 40% hold out

sample (N=82). The number of risk factors was correlated

with the frequency of use. It was found that the

correlations ranged from $r=.30$ for marijuana use to $r=.43$

for beer use (see Table 4). These correlations indicate a

moderate relationship between total number of risk factors

and frequency of use.

Sample derived marijuana use criteria. The criteria

scores based on marijuana use were used on the 40% hold out

group. When the number of risk factors was correlated with

frequency of use, the correlations ranged from $r=.27$ for

marijuana use to $r=.45$ for beer use (see Table 4). The

Table 3

Total Number of Individuals Meeting Criteria for Individual Risk Factors
(N=82)

RISK FACTOR	BRY CRITERIA	SAMPLE DERIVED CRITERIA	
		(Alcohol)	(Marijuana)
Perceived distance from parents	8	7	10
Early tobacco use	15	15	15
Peer drug use	73	73	73
Parental drug use	8	8	8
Religiosity	28	28	28
Academic motivation	42	42	42
Disregard for rules	0	0	0
Sensation seeking	52	52	52
Stressful life events	2	0	82
Psychological distress	12	27	27

Table 4

Correlation Between Total Number of Risk Factors
and Frequency of Use Using Bry's Criteria
and Sample Derived Criteria
(N=82)

	BEER	WINE COOLERS	LIQUOR	MARIJUANA
Bry's Criteria	.478	.366	.432	.332
Sample Derived (Alcohol)	.440	.358	.416	.303
Sample Derived (Marijuana)	.449	.348	.380	.279

correlations again indicate a moderate relationship between total number of risk factors and frequency of use and are similar to the relationships found for the other two sets of criteria scores.

Bry criteria. The Bry criteria were used on the 40% hold out group (N=82) to serve as points of comparison for the sample derived cutoff scores. The data presented in Table 4 represent relationships of $r=.33$ between total number of risk factors and frequency of marijuana use to $r=.48$ between total number of risk factors and frequency of beer use. These data indicate a moderate relationship between total number of risk factors as determined by the Bry criteria and frequency of use of beer, wine coolers, liqour, and marijuana, lending some support to the proposed hypothesis of the greater the number of risk factors the greater the frequency of drug use. Approximately 12-20% of the variance in alcohol and marijuana use is accounted for by total number of risk factors. The highest correlations with frequency of use are obtained using the Bry criteria. Thus, the Bry cutoff scores are those best able to discriminate those individuals who are at risk for a given factor.

Results of Regression Analyses

In an attempt to determine other possible risk factors that may be appropriate for predicting drug use, three stepwise regression analyses were performed. One regressed the risk factors on frequency of use; one regressed demographic characteristics on frequency of use; and one

used a combination of risk factors and demographic variables regressed on frequency of use.

Risk Factor Regression

When regressing the risk factors on frequency of use of beer, wine coolers, liquor, and marijuana, the factors that entered the regression equation earliest and most frequently were sensation seeking, peer drug use, and parental drug use. Those that did not make a significant additional contribution in any of the cases included stressful life events, high perceived distance from parents, and low academic motivation. These results indicate which factors may be most appropriate for this sample and which may not. A summary of the results of the regression analysis regressing the risk factors on frequency of alcohol and marijuana use are presented in Table 5.

Demographic Variables Regression

Table 6 presents the results of the regression analysis regressing demographic variables on frequency of use of alcohol and marijuana. When regressing the demographic variables of age, ethnicity, size of hometown, education levels of mother and father, GPA, and average number of times class was missed on frequency of use, those entering earliest and most frequently included size of hometown and average number of times class was missed. Those notably missing from the equation include GPA, age, ethnicity, and educational level of parents.

Table 5

Regression Analysis 1
Risk Factors Regressed on Frequency of Use
(First number indicates amount of variance accounted for and number in parenthesis indicates order of entrance into regression equation)

| | FREQUENCY OF USE OF | | | |
RISK FACTOR	BEER	WINE COOLERS	LIQUOR	MARIJUANA
Perceived distance from parents	----	----	----	1.1%(3)
Early tobacco use	1.9%(4)	1.5%(4)	1.5%(4)	----
Religiosity	2.6%(3)	0.9%(5)	0.9%(5)	0.9%(4)
Academic motivation	----	----	----	----
Sensation seeking	21.4%(1)	21.1%(1)	21.1%(1)	14.2%(1)
Stressful life events	----	----	----	----
Psychological distress	1.0%(5)	----	----	1.1%(2)
Peer drug use	10.4%(2)	5.4%(2)	5.4%(?)	----
Parental drug use	0.9%(6)	2.9%(3)	2.9%(3)	----

Table 6

Regression Analysis 2
Demographic Variables Regressed on Frequency of Use
(First number indicates amount of variance accounted for and
number in parenthesis indicates order of entrance into
regression equation)

FREQUENCY OF USE OF

RISK FACTOR	BEER	WINE COOLERS	LIQUOR	MARIJUANA
Age	----	----	0.9%(4)	----
Ethnicity	----	----	2.0%(3)	----
Size of hometown	5.0%(2)	2.1%(1)	2.1%(2)	----
Education level of mother	2.4%(3)	----	----	----
Education level of father	----	----	----	----
Average number of times each class was missed	10.6%(1)	1.2%(2)	13.6%(1)	14.3%(1)
GPA	----	----	----	----

Combination Regression

Table 7 represents the results of the regression analysis using both the risk factors and demographic variables regressed on frequency of use. When the combination was used, the risk factors peer drug use and sensation seeking entered earliest. The variable average number of times class was missed entered into the equation first for marijuana use. No other demographic variables appear to account for much of the variance in alcohol and marijuana use.

Table 7

Regression Analysis 3
Combination of Risk Factors and Demographic Variables
Regressed on Frequency of Use
(First number indicates amount of variance accounted for and
number in parenthesis indicates order of entrance into
regression equation)

	FREQUENCY OF USE OF			
RISK FACTOR	BEER	WINE COOLERS	LIQUOR	MARIJUANA
Perceived distance from parents	----	----	----	1.1%(3)
Early tobacco use	1.9%(4)	1.5%(4)	1.5%(4)	----
Religiosity	2.6%(3)	0.9%(5)	0.9%(5)	0.9%(4)
Academic motivation	----	----	----	----
Sensation seeking	21.4%(1)	21.1%(1)	21.1%(1)	14.2%(2)
Stressful life events	----	----	----	----
Psychological distress	1.0%(5)	----	----	1.1%(2)
Peer drug use	10.4%(2)	5.4%(2)	5.4%(2)	----
Parental drug use	0.9%(6)	2.9%(3)	2.9%(3)	----
Age	----	----	1.0%(7)	----
Ethnicity	----	----	1.9%(5)	----
Size of hometown	1.8%(5)	----	0.8%(8)	----

Table 7 (continued)

	FREQUENCY OF USE OF			
RISK FACTOR	BEER	WINE COOLERS	LIQUOR	MARIJUANA
Education level of mom	----	----	----	----
Education level of dad	----	----	----	----
Average number of times each class was missed	1.2%(7)	----	3.4%(3)	14.3%(1)
GPA	----	----	----	---

Discussion

Findings Based on the Bry Model

While the obtained relationships provide moderate support for the Bry model that the greater the number of risk factors the greater the frequency of drug use, the model appears to have promise in identifying individuals who are potential drug users. The correlations between number of risk factors and the frequency of alcohol and marijuana use are moderate and are of the same relative magnitude found using demographic profiles (e.g., Napier, Carter, & Pratt, 1981) or multiple variable predictors (e.g, Napier, Bachtel, & Carter, 1983). The strength of the Bry model lies in its ability to identify those individuals who are at risk for drug use and not in its ability to identify the amount of variance associated with particular risk factors that are used to predict drug use. In that regard, the findings seem to indicate that there may be different "sets" or "pools" of risk factors appropriate for different populations. The Bry risk factors were originally applied to a group of adolescents in urban New England and these factors may not be totally appropriate for the particular sample (i.e., early college age) used in this study, as evidenced by the fact that no one was identified as being at risk on the disregard for rules factor measured by the delinquency scale. Similarly, very few (less than 8%) were identified as being at risk on the factors high perceived

distance from parents and stressful life events. Similarly, other risk factors may be more useful for predicting drug use for college populations such as frequency of class attendence. It should be noted that while there may be different sets of risk factors for different populations, the sets may all share in common certain risk factors (e.g., peer drug use and sensation seeking). Thus, further research is needed to identify the risk factors that compose the prediction sets for particular populations. The research should take the form of both replicating the present study and exploring the applicability of the Bry model to other populations.

Modifications to Bry Model

Modification of the Risk Factors

The set of risk factors to be used with this particular population may need modification to maximize the predictive utility of the model. Also, modifications may be needed for some of the instruments used to measure risk factors that are appropriate for the sample

Inappropriate risk factors. One way to establish whether or not a risk factor is appropiate for a sample is by examining the degree to which it identifies individuals at risk on that factor. Specifically, if the factor identifies too many people, the factor is not discriminating enough, or if it does not identify enough people, it may be that the factor is not appropriate for the sample. In this particular sample, no one was identified as being at risk for the disregard for rules factor measured by the

delinquency scale. Thus, it appears that this risk factor may be inappropriate for this sample due to the self-selected, volunteer nature of college students.

Alternative risk factors. Regression analysis is one way of identifying new risk factors that may be appropriate for use with a particular population. Two such factors identified in this study (because of the early levels at which these variables entered the regression equation and the amount of variance for which they accounted) were size of hometown and average number of times class was missed (two variables obtained with the PRIDE instrument). The relationships seem to indicate that the larger the hometown of an indivdual or the greater the number of times class was missed, the greater the frequency of use. Caution should be taken with this finding as it pertains to average number of times class was missed; missing class may not indicate drug use as much as drug use may influence the number of times an individual misses class.

Alternative measures. For some risk factors that are appropriate for a given population (as evidenced by the research literature and the nature of the factor) it may be that the instrument with which the factor was measured is not the best available to measure that factor. This finding would become apparent if the measure identified relatively few individuals or if the nature of the questions in the measure were inappropriate for the sample. In the case of this study, two such risk factors appeared to have questionable measures as evidenced by the small percentages

of individuals identified as being at risk for the factor
and the type of questions that were part of the measure.
One such risk factor was high perceived distance from
parents measured with the parental nurturance scale. The
scale identified less than 8% of the sample as being at risk
for this factor. It appears that some of the questions and
corresponding answer choices may be inappropriate for
college students, especially for those students who do not
live at home while attending school.

The other such risk factor was stressful life events
measured by the modified Social Readjustment Rating Scale.
The scale identified less than 8% of the sample as being at
risk for this factor. There were a limited number of events
making up the scale, some of which may not pertain to this
particular population. Thus, for these two risk factors
(i.e., high perceived distance from parents and stressful
life events), new instruments may need to be developed or
other measures employed to measure these factors.

Modification of Scoring Criteria

One modification to the Bry model suggested by the data
was developing sample-derived criteria scores based on the
strongest relationships between the scales and frequency of
use. It would be expected that correlations between number
of risk factors and frequency of use would be greatest using
the sample-derived criteria. However, this did not prove to
be the case. The correlations using the Bry criteria were
higher than those using the sample-derived criteria.

One possible explanation for this finding is that of

multicolinearity. Simply stated, multicolinearity suggests
that the independent variables (e.g., risk factors) are
highly intercorrelated, thereby leading to an inability to
separate the individual effects of the variables. Another
possible explanation for this finding is sampling error.
Even though the 60% and 40% groups were randomly assigned
based on frequency of use, other characteristics were not
controlled. Anomolies resulting from sampling may have
produced the outcomes observed.

Developing different criteria scores based upon both
alcohol and marijuana use is important in that each of the
drugs (i.e., alcohol and marijuana) may have a different
impact on future drug use. Thus, it may be that users of
these two "gateway" drugs (e.g., drugs found to precede use
of more serious drugs such as cocaine) are different.
Again, further investigation of the differences between
those using alcohol and those using marijuana and the effect
on further drug use is needed to determine if those using
these "gateway" drugs are indeed different. The
significance of finding a differnece in use patterns again
lies in the prevention area. Thus, the better those in the
prevention field are able to distinguish different drug use
patterns, the better able they will be to intervene
effectively.

Limitations

In discussing modifications to the Bry model, it is
important to note particular limitations also. It is
apparent that the model is limited by the risk factors

chosen for the model, specifically as they relate to a particular population. For example, it is difficult to determine without further research which set of factors is most appropriate for a given population. Presently, the chosen risk factors stem primarily from the research literature.

It is important to note, too, that the meaningfulness of this model lies in its ability to identify individuals who are potentially at risk for drug use. Other methods, particularly regression models, are more directed toward identifying a specific set of variables that account for the most variance in drug use. While it may be true that some regression models have established a group of factors that account for a larger amount of variance in drug use than the risk factor model employed in this study, the essence of the risk factor model is in its ability to identify individuals who are at risk while the focus of the regression approach is to identify risk factors and their associated prediction weights.

Implications

Perhaps the most beneficial aspect of the model lies in its potential as a prevention tool. If the model is reasonably accurate in predicting frequency of drug use as evidenced by targeting large percentages of individuals who are at high risk, it will enable those individuals responsible for operating prevention programs to better address the needs of individuals at risk. Thus, while the moderate level of relationship between total number of risk

factors and drug use does indicate that the model has some utility, further research is needed to better evaluate the integrity of the model.

Replication Studies

Several different types of replication studies for further research seem to be indicated. The simplest of which is to replicate this study (e.g., use the same risk factors and scoring criteria without modifications) on a different sample of college students. This replication will determine if the model can be further supported for use with the college age population. Studies utilizing the modifications of the risk factors and scoring criteria are also in order. These studies will indicate whether or not modified risk factors and scoring criteria are more appropriate for the college age population.

Model Extension

Future studies using modifications of the risk factors and the instruments used to measure the risk factors are also needed. These studies are necessary to try to identify the risk factors appropriate for particular populations and to identify if there are particular risk factors that are more important than others in "triggering" use. Determining the appropriate sets of factors for various populations and/or if there are trigger risk factors will aid in the utilization of the model for use in prevention programs.

Summary/Conclusions

Novel in its approach, the model of using number of risk factors to identify drug users appears to have promise. As a prediction tool, the model should provide valuable information to those working in prevention programs and drug education in helping to identify those most at risk and those most in need of prevention programs.

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Appendices

Appendix A

FOR THE FOLLOWING QUESTIONS, USE THESE ANSWER CHOICES:

1) Never
2) Rarely
3) Sometimes
4) Often
5) Almost Always
6) Always

How often do your parents...

107.	praise or compliment you?	1 2 3 4 5 6
108.	comfort you when you are afraid?	1 2 3 4 5 6
109.	notice when you are good at home or in shcool?	1 2 3 4 5 6
110.	enjoy talking things over with you?	1 2 3 4 5 6
111.	seem to know what you need or want?	1 2 3 4 5 6
112.	talk with you?	1 2 3 4 5 6
113.	give you the choice of what to do whenever possible?	1 2 3 4 5 6
114.	make you feel better after talking over your worries with them?	1 2 3 4 5 6
115.	give up something for you?	1 2 3 4 5 6
116.	give you a lot of care and attention?	1 2 3 4 5 6
117.	act very patient with you?	1 2 3 4 5 6
118.	speak to you with a warm and friendly voice?	1 2 3 4 5 6
119.	cheer you up when you are sad?	1 2 3 4 5 6
120.	smile at you?	1 2 3 4 5 6
121.	speak of the good things you do?	1 2 3 4 5 6
122.	enjoy doing things with you?	1 2 3 4 5 6
123.	enjoy going on drives, trips, or visits with you?	1 2 3 4 5 6
124.	understand you?	1 2 3 4 5 6
125.	make you feel wanted?	1 2 3 4 5 6

Appendix B

PRIDE

COLLEGE DRUG USAGE PREVALENCE QUESTIONNAIRE

AUTHORS: J. Gleaton R. Adams

I. PERSONAL AND FAMILY INFORMATION

1. CLASSIFICATION

_ FRESHMAN
_ SOPHOMORE
_ JUNIOR
_ SENIOR
_ GRADUATE
_ TRANSFER
_ STUDENT

2. SEX:

_ MALE
_ FEMALE

3. AGE:

_ UNDER 18
_ 18
_ 19
_ 20
_ 21
_ 22
_ 23
_ 24
_ 25
_ 26
_ OVER 26

4. DO YOU HAVE CHILDREN?

_ YES
_ NO

5. ETHNIC ORIGIN:

_ WHITE
_ BLACK
_ HISPANIC
_ ASIAN
_ OTHER

6. ARE YOUR PARENTS

_ TOGETHER?
_ APART?
_ DECEASED?

7. IS YOUR HOME RESIDENCE LOCATED

_ IN STATE?
_ OUT OF STATE?

_ IN RURAL AREA?
_ IN SMALL TOWN?
_ IN SMALL CITY?
_ IN LARGE CITY?

8. ARE YOU

_ MARRIED?
_ SINGLE?

9. WHAT IS THE EDUCATIONAL LEVEL OF YOUR MOTHER?———FATHER?

_ LESS THAN HIGH SCHOOL _
_ HIGH SCHOOL GRAD _
_ SOME COLLEGE _
_ COLLEGE GRAD _

10. DO YOU HAVE A JOB?

_ YES, FULL-TIME
_ YES, PART-TIME
_ NO

II. STUDENT CHARACTERISTICS

USED WITH PERMISSION FROM PRIDE

11. WHAT IS YOUR G.P.A. BETWEEN?

_ 0.0 AND 1.0
_ 1.0 AND 2.0
_ 2.0 AND 2.5
_ 2.5 AND 3.0
_ 3.0 AND 4.0

12. ON THE AVERAGE, HOW MANY TIMES DID YOU MISS EACH CLASS LAST TERM?

_ 0-1
_ 2-3
_ 4-5
_ 6 OR MORE

13. WHAT WERE YOUR AVERAGE GRADES LAST SEMESTER?

_ A
_ B
_ C
_ D
_ F

14. IN WHAT AREA IS YOUR DEGREE PROGRAM?

_ ARTS & HUMANITIES
_ SOCIAL & BEHAVIORAL SCIENCES
_ EDUCATION
_ SCIENCE & TECHNOLOGY
_ BUSINESS ADMINISTRATION
_ OTHER

15. I LIVE:

_ IN A DORM
_ IN AN APARTMENT
_ AT A FRATERNITY/ SORORITY HOUSE
_ WITH PARENTS
_ OTHER

16. ARE YOU A MEMBER OF A:

_ FRATERNITY OR SORORITY
_ VARSITY SPORTS TEAM?
_ OTHER COLLEGE ORGANIZATION?

17. HOW OFTEN DID YOU ATTEND CHURCH IN THE LAST YEAR?

_ 0-2 TIMES
_ ONCE/MONTH
_ ONCE/WEEK
_ MORE THAN ONCE/WEEK

18. ARE YOU:

_ PROTESTANT?
_ CATHOLIC?
_ JEWISH?
_ OTHER RELIGIOUS AFFILIATION?
_ NO RELIGIOUS AFFILIATION?

III. WHEN DID YOU FIRST

	NEVER USED	UNDER 10	10-11	12-13	14-15	16-17	18-20	OVER 21
1. Smoke cigarettes?								
2. Drink beer?								
3. Drink wine coolers?								
4. Drink liquor?								
5. Smoke marijuana?								
6. Use cocaine?								
7. Use uppers (non-prescription)?								
8. Use downers (non-prescription)?								
9. Use inhalents (glue, etc.)?								
10. Use hallucinogens (PCP, LSD, etc.)?								

IV. WITHIN THE LAST YEAR HOW OFTEN HAVE YOU

	DID NOT USE	ONCE/YEAR	6 TIMES/YR	ONCE/MONTH	ONCE/WEEK	3 TIMES/WEEK	EVERY DAY
1. Smoked cigarettes?							
2. Drunk beer?							
3. Drunk wine coolers?							
4. Drunk liquor?							
5. Smoked marijuana?							
6. Used cocaine?							
7. Used uppers (non-prescription)?							
8. Used downers (non-prescription)?							
9. Used inhalents (glue, etc.)?							
10. Used hallucinogens (PCP, LSD, etc.)?							

V. WHAT EFFECT DO YOU MOST OFFEN GET WHEN YOU

1. Drink beer?.................................
2. Drink wine coolers?.....................
3. Drink liquor?..............................
4. Smoke marijuana?........................
5. Use cocaine?...............................
6. Use uppers (non-prescription)?.........
7. Use downers (non-prescription)?........
8. Use inhalents (glue, etc.)?..............
9. Use hallucinogens (PCP, LSD, etc.)?....
10. Use heroin or opiates?...................

VIII. HOW MANY OF YOUR FRIENDS

1. Smoke cigarettes?.........................
2. Drink beer?................................
3. Drink wine coolers?.......................
4. Drink liquor?..............................
5. Smoke marijuana?.........................
6. Use cocaine?...............................
7. Use uppers (non-prescription)?..........
8. Use downers (non-prescription)?.........
9. Use inhalents (glue, etc.)?...............
10. Use hallucinogens (PCP, LSD, etc.)?......
11. Use heroin or opiates?....................

VI. WHERE DO YOU (mark each category that applies to you)

1. Smoke cigarettes?.........................
2. Drink beer?................................
3. Drink wine coolers?.......................
4. Drink liquor?..............................
5. Smoke marijuana?.........................
6. Use cocaine?...............................
7. Use uppers (non-prescription)?..........
8. Use downers (non-prescription)?.........
9. Use inhalents (glue, etc.)?...............
10. Use hallucinogens (PCP, LSD, etc.)?......
11. Use heroin or opiates?....................

IX. DO YOU FEEL THE FOLLOWING DRUGS ARE HARMFUL TO YOUR HEALTH?

1. Cigarettes?................................
2. Beer?......................................
3. Wine coolers?.............................
4. Liquor?....................................
5. Marijuana?................................
6. Cocaine?..................................
7. Uppers (non-prescription)?..............
8. Downers (non-prescription)?.............
9. Inhalents (glue, etc.)?...................
10. Hallucinogens (PCP, LSD, etc.)?..........

VII. WHEN DO YOU (mark each category that applies to you)

1. Smoke cigarettes?.........................
2. Drink beer?................................
3. Drink wine coolers?.......................
4. Drink liquor?..............................
5. Smoke marijuana?.........................
6. Use cocaine?...............................
7. Use uppers (non-prescription)?..........
8. Use downers (non-prescription)?.........
9. Use inhalents (glue, etc.)?...............
10. Use hallucinogens (PCP, LSD, etc.)?......
11. Use heroin or opiates?....................

X. HOW OFTEN DO EITHER OF YOUR PARENTS

1. Drink Beer?................................
2. Drink wine coolers?.......................
3. Drink liquor?..............................
4. Drink marijuana?..........................
5. Use cocaine?...............................
6. Use uppers (non-prescription)?..........
7. Use downers (non-prescription)?.........
8. Use inhalents (glue, etc.)?...............
9. Use hallucinogens (PCP, LSD, etc.)?......
10. Use heroin or opiates?....................

Appendix C

FOR THE FOLLOWING QUESTIONS, USE THESE ANSWER CHOICES:

1) zero times
2) 1-2 times
3) 3-5 times
4) 6-10 times
5) 10+ times

Within the last three years,
how many times have you ...

126. avoided paying for such things
as movies, bus or subway
or food?   1 2 3 4 5

127. broken into a building to
look for something to steal
or to steal something?   1 2 3 4 5

128. used a weapon, like a club, knife,
or a gun in a fight?   1 2 3 4 5

129. stolen (or tried to steal)
a motor vehicle, such as a
car or motorcycle?   1 2 3 4 5

130. hit or struck one of your parents? 1 2 3 4 5

131. used a knife or gun or something (like
a club) to get something from a
person (held up or robbed
someone)?   1 2 3 4 5

132. damaged property on purpose
(such as slashing tire, breaking
windows, setting fire to
someone else's property)?   1 2 3 4 5

133. stolen things worth less than $50.00? 1 2 3 4 5

134. stolen things worth over $50.00?   1 2 3 4 5

Appendix D

EACH OF THE FOLLOWING ITEMS CONTAINS TWO CHOICES, 1 & 2.
PLEASE INDICATE WHICH OF THE CHOICES MOST DESCRIBES YOUR
LIKES OR THE WAY YOU FEEL. PLEASE INDICATE BY CIRCLING 1 OR
2 AT THE RIGHT.

135. 1) I dislike the sensations one gets when flying 1 2
      2) I enjoy many of the rides in amusement parks

136. 1) I would like a job which would require a   1 2
         lot of traveling
      2) I would prefer a job in one location

137. 1) I would like to hitchhike across the country   1 2
      2) Hitchhiking is too dangerous a way to travel

138. 1) I do not find gambling worth the risk   1 2
      2) I like to gamble for money

139. 1) I can't wait to get into the indoors on   1 2
         a cold day
      2) I am invigorated by a brisk, cold day

140. 1) I like "wild" uninhibited parties   1 2
      2) I prefer quiet parties with good conversation

141. 1) Using "four letter words" in public is vulgar   1 2
         and inconsiderate of the feelings of others
      2) I sometimes use "four letter words" to express my
         feelings or to shock someone

142. 1) I often wish I could be a mountain climber   1 2
      2) I can't understand people who risk their
         necks climbing mountains

143. 1) I dislike all body odors   1 2
      2) I like some of the earthy body smells

144. 1) I like to dress in unusual styles   1 2
      2) I tend to dress conservatively

145. 1) I am only interested in traveling in   1 2
         civilized parts of the world
      2) I would like to travel to strange, out of
         the way places like the upper Amazon or Antartica

146. 1) I like to explore a strange city or town   1 2
         town by myself, even if it means getting lost
      2) I prefer a guide when I am in a place I
         don't know well

EACH OF THE FOLLOWING ITEMS CONTAINS TWO CHOICES, 1 & 2.
PLEASE INDICATE WHICH OF THE CHOICES MOST DESCRIBES YOUR
LIKES OR THE WAY YOU FEEL. PLEASE INDICATE BY CIRCLING 1 OR
2 AT THE RIGHT.

147. 1) I have tried marijuana or would like to   1 2
      2) I would never smoke marijuana

148. 1) I would not like to try any drug which might   1 2
         produce strange and dangerous effects on me
      2) I would like to try some of the new drugs
         that produce hallucinations

149. 1) A sensible person avoids activities that   1 2
         are dangerous
      2) I sometimes like to do things that are a little
         frightening

150. 1) I dislike "swingers"   1 2
      2) I enjoy the company of real "swingers"

151. 1) I find that stimulants make me uncomfortable   1 2
      2) I often like to get high (drinking liquor
         or smoking marijuana)

152. 1) In a good sexual relationship people never   1 2
         get bored with each other
      2) It's normal to get bored after a time
         with the same sexual partner

153. 1) I would like to take up the sport   1 2
         of water-skiing
      2) I would not like to take up water-skiing

154. 1) Most adultery happens because of sheer boredom 1 2
      2) Adultery is almost always the sign of
         a sick marriage

155. 1) I would like to try surf-board riding   1 2
      2) I would not like to try surf-board riding

156. 1) I would like to take off on a trip with   1 2
         no pre-planned or definite routes or timetable
      2) When I go on a trip I like to plan my route
         and timetable fairly carefully

157. 1) I prefer the "down-to-earth" kinds of people   1 2
         as friends
      2) I would like to make friends in some of the
         "far-out" groups like artists or "hippies"

158. 1) I would not like to learn to fly an airplane   1 2
      2) I would like to learn to fly an airplane

EACH OF THE FOLLOWING ITEMS CONTAINS TWO CHOICES, 1 & 2.
PLEASE INDICATE WHICH OF THE CHOICES MOST DESCRIBES YOUR
LIKES OR THE WAY YOU FEEL. PLEASE INDICATE BY CIRCLING 1 OR
2 AT THE RIGHT.

159. 1) Most beards are unsightly   1 2
      2) I like to see men wearing beards

160. 1) I would like to go scuba diving   1 2
      2) I prefer the surface of the water to the depths

161. 1) I would like to meet some persons who are   1 2
         homosexual (men or women)
      2) I stay away from anyone I suspect of being "queer"

162. 1) I prefer modern jazz or classical music to   1 2
         more popular or light classical music
      2) I prefer popular or light classical music to
         modern jazz or classical music

163. 1) I like to drive in open convertables   1 2
      2) I do not like to drive in open convertables

164. 1) I would like to have the experience of   1 2
         being hypnotized
      2) I would not like to be hypnotized

165. 1) The most important goal of life is to live   1 2
         it to the fullest and experience as much of it
         as you can
      2) The most important goal of life is to find
         peace and happiness

166. 1) I would like to try parachute jumping   1 2
      2) I would never want to try jumping out of
         a plane with or without a parachute

167. 1) I enter cold water gradually giving myself   1 2
         time to get used to it
      2) I like to dive or jump right into the ocean
         or a cold pool

168. 1) I do not like the irregularity and discord   1 2
         of most modern music
      2) I like to listen to new and unusual kinds of music

169. 1) I prefer friends who are excitingly   1 2
         unpredictable
      2) I prefer friends who are reliable and predictable

EACH OF THE FOLLOWING ITEMS CONTAINS TWO CHOICES, 1 & 2.
PLEASE INDICATE WHICH OF THE CHOICES MOST DESCRIBES YOUR
LIKES OR THE WAY YOU FEEL. PLEASE INDICATE BY CIRCLING 1 OR
2 AT THE RIGHT.

170. 1) I am not interested in experience for its   1 2
own sake
2) I like to have new and exciting experiences and
sensations even if they are a little frightening,
unconventional or illegal

171. 1) When I go on a vacation I prefer the comfort   1 2
of a good room and bed
2) When I go on a vacation I would prefer the
change of camping out

172. 1) When I go in an ocean or lake I like to   1 2
stay close to shore
2) Sometimes I like to swim far out from the shore

173. 1) I often enjoy flouting irrational authority   1 2
2) I am generally respectful of lawful authority

174. 1) The essence of good art is in its clarity,   1 2
symmetry of form and harmony of colors
2) I often find beauty in the "clashing" colors and
irregular forms of modern paintings

175. 1) I like to dive off the high board   1 2
2) I don't like the feeling I get standing on
the high board (or I don't go near it at all)

176. 1) I like to date members of the opposite sex   1 2
who are physically exciting
2) I like to date members of the opposite sex
who share my values

177. 1) Heavy drinking usually ruins a party because   1 2
some people get loud and boisterous
2) Keeping the drinks full is the key to a good party

178. 1) I sometimes like to do "crazy" things just   1 2
to see the effects on others
2) I almost always behave in a normal way. I am not
interested in shocking or upsetting others

179. 1) A person should have considerable sexual   1 2
experience before marriage
2) It's better if two married persons begin their
sexual experience with each other

EACH OF THE FOLLOWING ITEMS CONTAINS TWO CHOICES, 1 & 2.
PLEASE INDICATE WHICH OF THE CHOICES MOST DESCRIBES YOUR
LIKES OR THE WAY YOU FEEL. PLEASE INDICATE BY CIRCLING 1 OR
2 AT THE RIGHT.

180.   1) Even if I had the money I would not care to   1 2
           associate with flighty persons like those in the
           "jet set"
        2) I could conceive of myself seeking pleasures
           around the world with the "jet set"

181.   1) I like people who are sharp and witty even   1 2
           if they do sometimes insult others
        2) I dislike people who have their fun at the
           expense of hurting the feelings of others

182.   1) Almost everything enjoyable is illegal   1 2
           or immoral
        2) The most enjoyable things are perfectly
           legal and moral

183.   1) There is altogether too much portrayal of   1 2
           sex in movies
        2) I enjoy watching many of the "sexy" scenes
           in movies

184.   1) I feel best after taking a couple of drinks   1 2
        2) Something is wrong with people who need liquor
           to feel good

185.   1) People who ride motorcycles must have some   1 2
           kind of an unconscious need to hurt themselves
        2) I would like to drive or ride on a motorcycle

186.   1) People should dress according to some   1 2
           standards of taste, neatness and style
        2) People should dress in individual ways even
           if the effects are sometimes strange

187.   1) Sailing long distances in small crafts   1 2
           is foolhardy
        2) I would like to sail a long distance in a small
           but seaworthy sailing craft

188.   1) Skiing fast down a high mountain slope is   1 2
           a good way to end up on crutches
        2) I think I would enjoy the sensations of skiing
           very fast down a high mountain slope

189.   1) I prefer people who are calm and even tempered 1 2
        2) I prefer people who are emotionally
           expressive even if they are a bit unstable

Appendix E

FOR THE FOLLOWING QUESTIONS, USE THESE ANSWER CHOICES:

1) Yes 2) No

Within the last year, has this event happened to you?

1.	Jail term	1	2
2.	Death of close family member	1	2
3.	Personal injury or illness	1	2
4.	Change in health of family member	1	2
5.	Gain of new family member	1	2
6.	Death of a close friend	1	2
7.	Outstanding personal achievement	1	2
8.	Change in living conditions	1	2
9.	Revision of personal habits	1	2
10.	Change in residence	1	2
11.	Change in school	1	2
12.	Change in social activities	1	2
13.	Change in sleeping habits	1	2
14.	Change in number of family get-togethers	1	2
15.	Change in eating habits	1	2
16.	Minor violation of the law	1	2

Appendix F

1. Jail term (63)*

2. Death of close family member (63)

3. Personal injury or illness (53)

4. Change in health of family member (44)

5. Gain of new family member (39)

6. Death of a close friend (37)

7. Outstanding personal achievement (28)

8. Change in living conditions (25)

9. Revision of personal habits (24)

10. Change in residence (20)

11. Change in school (20)

12. Change in social activities (18)

13. Change in sleeping habits (15)

14. Change in number of family get-togethers (15)

15. Change in eating habits (15)

16. Minor violation of the law (11)

*(Numbers in parentheses indicate wieghted scores for each event). (Weighted scores did not appear are participants' copies).

Appendix G

FOR THE FOLLOWING QUESTIONS, USE THESE ANSWER CHOICES:

0) Not at all
1) A little
2) Moderately
3) Quite
4) Extremely

Within the last year, how much were you distressed by...?

17.	Headaches	0	1	2	3	4
18.	Nervousness or shakiness inside	0	1	2	3	4
19.	Repeated unpleasant thoughts that won't leave your mind	0	1	2	3	4
20.	Faintness or dizziness	0	1	2	3	4
21.	Loss of sexual interest or pleasure	0	1	2	3	4
22.	Feeling critical of others	0	1	2	3	4
23.	The idea that someone else can control your thoughts	0	1	2	3	4
24.	Feeling others are to blame for most of your troubles	0	1	2	3	4
25.	Trouble remembering things	0	1	2	3	4
26.	Worried about sloppiness	0	1	2	3	4
27.	Feeling easily annoyed or irritated	0	1	2	3	4
28.	Pains in heart or chest	0	1	2	3	4
29.	Feeling afraid in open spaces or on the streets	0	1	2	3	4
30.	Feeling low in energy or slowed down	0	1	2	3	4
31.	Thoughts of ending your life	0	1	2	3	4
32.	Hearing voices that other people do not hear	0	1	2	3	4
33.	Trembling	0	1	2	3	4
34.	Feeling that most people cannot be trusted	0	1	2	3	4
35.	Poor appetite	0	1	2	3	4

FOR THE FOLLOWING QUESTIONS, USE THESE ANSWER CHOICES:

0) Not at all
1) A little
2) Moderately
3) Quite
4) Extremely

Within the last year, how much were you distressed by...?

36.	Crying easily	0	1	2	3	4
37.	Feeling shy or uneasy with the opposite sex	0	1	2	3	4
38.	Feelings of being trapped or caught	0	1	2	3	4
39.	Suddenly scared for no reason	0	1	2	3	4
40.	Temper outbursts that you could not control	0	1	2	3	4
41.	Feeling afraid to go out of your house alone	0	1	2	3	4
42.	Blaming yourself for things	0	1	2	3	4
43.	Pains in lower back	0	1	2	3	4
44.	Feeling blocked in getting things done	0	1	2	3	4
45.	Feeling lonely	0	1	2	3	4
46.	Feeling blue	0	1	2	3	4
47.	Worrying too much about things	0	1	2	3	4
48.	Feeling no interest in things	0	1	2	3	4
49.	Feeling fearful	0	1	2	3	4
50.	Your feelings being easily hurt	0	1	2	3	4
51.	Other people being aware of your private thoughts	0	1	2	3	4
52.	Feeling others do not understand you or are unsympathetic	0	1	2	3	4
53.	Feeling that people are unfriendly or dislike you	0	1	2	3	4
54.	Having to do things very slowly to insure correctness	0	1	2	3	4

FOR THE FOLLOWING QUESTIONS, USE THESE ANSWER CHOICES:

0) Not at all
1) A little
2) Moderately
3) Quite
4) Extremely

Within the last year, how much were you distressed by...?

55.   Heart pounding or racing   0   1   2   3   4

56.   Nausea or upset stomach   0   1   2   3   4

57.   Feeling inferior to others   0   1   2   3   4

58.   Soreness of your muscles   0   1   2   3   4

59.   Feeling that you are watched
      or talked about by others   0   1   2   3   4

60.   Trouble falling asleep   0   1   2   3   4

61.   Having to check and doublecheck
      what you do   0   1   2   3   4

62.   Difficulty in making decisions   0   1   2   3   4

63.   Feeling afraid to travel on buses,
      subways, or trains   0   1   2   3   4

64.   Trouble getting your breath   0   1   2   3   4

65.   Hot or cold spells   0   1   2   3   4

66.   Having to avoid certain things, places,
      or activities because they frighten you 0   1   2   3   4

67.   Your mind going blank   0   1   2   3   4

68.   Numbness or tingling in parts
      of your body   0   1   2   3   4

69.   A lump in your throat   0   1   2   3   4

70.   Feeling hopeless about the future   0   1   2   3   4

71.   Trouble concentrating   0   1   2   3   4

72.   Feeling weak in parts of your body   0   1   2   3   4

FOR THE FOLLOWING QUESTIONS, USE THESE ANSWER CHOICES:

0) Not at all
1) A little
2) Moderately
3) Quite
4) Extremely

Within the last year, how much were you distressed by...?

73. Feeling tense or keyed up   0 1 2 3 4

74. Heavy feelings in your arms or legs   0 1 2 3 4

75. Thoughts of death or dying   0 1 2 3 4

76. Overeating   0 1 2 3 4

77. Feeling uneasy when people are
watching or talking about you   0 1 2 3 4

78. Having thoughts that are not your own   0 1 2 3 4

79. Having urges to beat, injure,
or harm someone   0 1 2 3 4

80. Awakening in the early morning   0 1 2 3 4

81. Having to repeat the same actions
such as touching, counting, or washing   0 1 2 3 4

82. Sleep that is restless or disturbed   0 1 2 3 4

83. Having urges to break or smash things   0 1 2 3 4

84. Having ideas or beliefs that others
do not share   0 1 2 3 4

85. Feeling very self-conscious with others   0 1 2 3 4

86. Feeling uneasy in crowds, such as
shopping or at a movie   0 1 2 3 4

87. Feeling everything is an effort   0 1 2 3 4

88. Spells of terror or panic   0 1 2 3 4

89. Feeling uncomfortable about eating
or drinking in public   0 1 2 3 4

90. Getting into frequent arguements   0 1 2 3 4

91. Feeling nervous when you are left alone   0 1 2 3 4

FOR THE FOLLOWING QUESTIONS, USE THESE ANSWER CHOICES:

0) Not at all
1) A little
2) Moderately
3) Quite
4) Extremely

Within the last year, how much were you distressed by...?

92. Others not giving you proper
    credit for your achievements   0 1 2 3 4

93. Feeling lonely even when you
    are with people   0 1 2 3 4

94. Feeling so restless you couldn't
    sit still   0 1 2 3 4

95. Feelings of worthlessness   0 1 2 3 4

96. The feeling that something bad
    is going to happen to you   0 1 2 3 4

97. Shouting or throwing things   0 1 2 3 4

98. Feeling afraid you will faint in public 0 1 2 3 4

99. Feeling that people will take
    advantage of you if you let them   0 1 2 3 4

100. Having thoughts about sex that
     bother you a lot   0 1 2 3 4

101. The idea that you should be punished
     for your sins   0 1 2 3 4

102. Thoughts and images of a frightening
     nature   0 1 2 3 4

103. The idea that something serious
     is wrong with your body   0 1 2 3 4

104. Never feeling close to another person 0 1 2 3 4

105. Feelings of guilt   0 1 2 3 4

106. The idea that something is wrong
     with your mind   0 1 2 3 4