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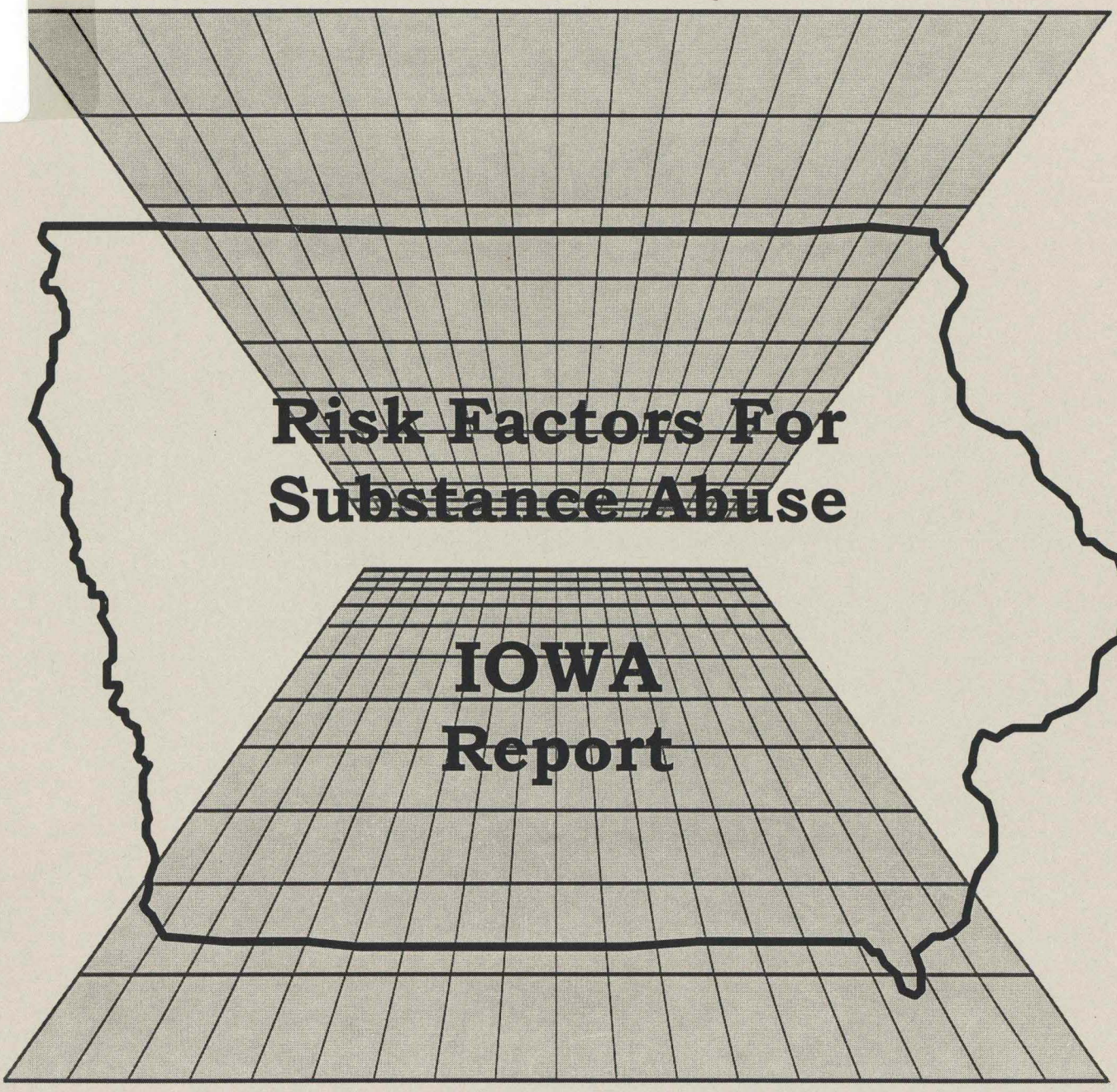

# Risk Factors For Substance Abuse

# IOWA Report

**Division of Substance Abuse and Health Promotion**
**Department of Public Health &**
**Division of Criminal and Juvenile Justice**
**Planning and Statistical Analysis Center**
**Department of Human Rights**

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# INTRODUCTION

At the request of Iowa Department of Public Health, Division of Substance Abuse and Health Promotion, and with the cooperation of the Iowa Department of Education, a study was designed with the purpose of developing a planning tool that would utilize existing research-based models of risk factors for substance abuse and evaluate them for the Iowa environment. This report is an attempt to address both these goals.

Experience has shown that trying to change behaviors of people once they have exhibited problem behaviors has only modest success. Not only is it difficult to achieve, but is also costly because programs must be directed individually at each person with a problem, without attempting to first change the conditions that likely contributed to the individual's problem behavior.

Conditions that affect human behavior are many and complex. One goal of this report is to present a conceptual model that provides a framework within which factors affecting behavior can be studied and addressed.

The first step in prevention is approaching a given problem with the highest possible understanding of it and all of the aspects and nuances that characterize the targeted population. Without an understanding of complex relationships among risk factors, behaviors and problems, effective means of prevention will remain elusive.

An approach that successfully addresses these issues should ultimately facilitate a county effort to prevent health and behavior problems related to substance abuse as well as provide a longitudinal evaluative tool. One of the possible approaches is presented here. It was originally based on ideas that came from the work of Dr. David J. Hawkins and Dr. Richard F. Catalano (Hawkins, Catalano, and Miller, Psychological Bulletin, **112**:64-105, 1992) and conducted using 1990 data sets.

## RISK-FOCUSED PREVENTION

The rationale behind a risk focused approach is that the more risk factors that an individual is exposed to, the more likely he or she will become involved in the related problem behavior. This being the case, the ability to identify specific factors that predispose individuals to become involved in substance abuse or other problem behaviors can assist in finding more efficient ways to alleviate community problems.

Since different communities have different profiles of risk factors, risk assessments should be done (as was done in the present study) for each individual community (in our case counties in Iowa). This approach enables us to modify any given prevention model to fit the situation in a given community (i.e., county). The better the fit of the prevention model relative to the actual situation in a county, the better the likelihood that the utilization of resources and efforts will be successful.

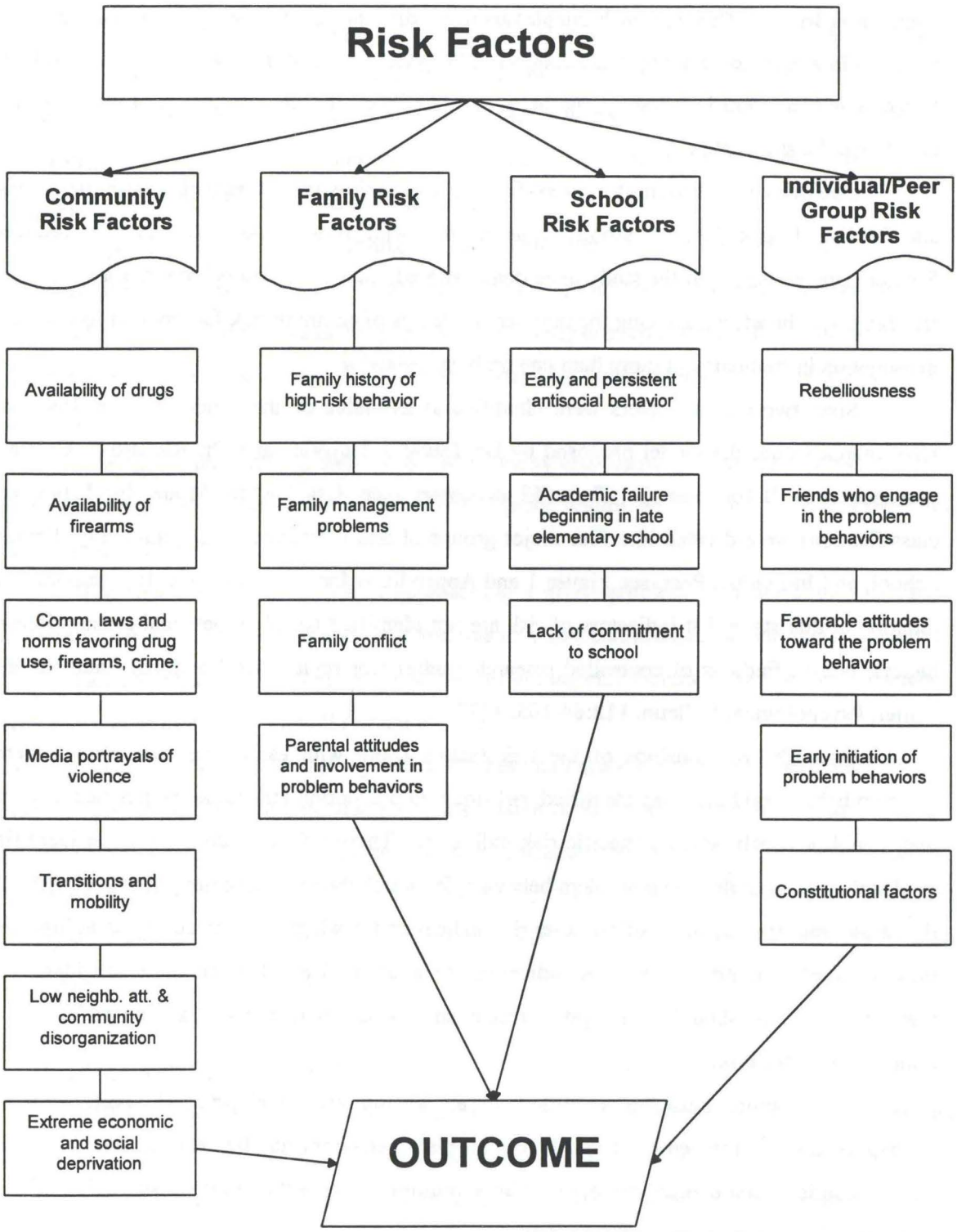
One clear implication of the risk-focused approach is that by reducing both the number and levels of risk factors, problems associated with those risks will also be reduced. Furthermore, as results of the study have demonstrated, many problem behaviors share common risk factors. Therefore, reducing the number and levels of common risk factors will likely result in reduction in frequency of more than one problem behavior.

Sixty-two risk indicators were identified as available on the county basis in Iowa and were mapped onto the model proposed by Dr. David J. Hawkins and Dr. Richard F. Catalano (see Appendix B for listing). These 62 indicators (see Risk Factors Model for listing and classification) were divided into four major groups of risk indicators (i.e., Community, Family, School, and Individual/Peer, see Figure 1 and Appendix B for classification). It is important to mention at this stage that indicators of risk are not identified based on personal assumptions or beliefs, but on findings of controlled research studies (for review see Hawkins, Catalano, and Miller, Psychological Bulletin, **112**:64-105, 1992).

Once the relationships of the risk factors (both with each other and with targeted problem behaviors) have been identified, risk-focused prevention efforts can be planned in a way that would primarily address specific risk indicators. These risk indicators would be identified as closely related to the given problem behavior, for which the targeted county is at high risk. At the same time, the existence of all other risk indicators for which a given county is at high risk must be kept in mind. When risk indicators for a targeted problem behavior are identified, prevention efforts should investigate mechanisms which would result in the reduction or elimination of the risk.

Risk factors must be addressed at an appropriate developmental stage, with the preferable time of intervention being before problem behaviors stabilize and become a "way of life". Counties should also strive to address multiple risks with multiple strategies, always including all diverse groups of the county.

**Figure 1:** Risk Factors Model



One of the identified goals of this study was to identify predictors for substance abuse among Iowa youth and changes in patterns of substance abuse among Iowa youth from 1990 to 1993. The following were hence used as outcome indicators:

| *Indicator number* | *Indicator name* |
|---|---|
| 51. | Percent of school children reporting alcohol use. |
| 52. | Percent of school children reporting tobacco use. |
| 53. | Percent of school children reporting smokeless tobacco use. |
| 54. | Percent of school children reporting marijuana use. |
| 55. | Percent of school children reporting cocaine use. |
| 56. | Percent of school children reporting amphetamine use. |
| 57. | Percent of school children reporting non-prescribed steroids use. |
| 58. | Percent of school children reporting glue abuse. |
| 59. | Alcohol related traffic fatalities |

Mean levels and the analysis of reported substance abuse among Iowa teens for both 1990 and 1993 can be found in Appendix A.

We hope that the model used in the present study will be useful not only as a tool for state and county level approaches to risk assessment, but also as a template that smaller communities can modify to investigate any existing problem in an even more specific way (e.g., county level studies could investigate individual cities, townships or other subdivisions). The investigators should keep in mind that, due to a small sample, the reliability of statistical analyses on such a sample will also be limited. However, as a descriptive tool, such a study should prove of great help in planning activities. The quantitative approach to county issues not only provides findings that may facilitate the prevention activities, but also results in creating sources of data that can be utilized to assess over time the effectiveness of prevention efforts in progress. While prevention efforts may be very efficient, it is sometimes difficult to justify them without the reliable, data driven, parameters. At the same time, quantified evaluation of a prevention effort that is not productive can point out the need for change and can help redirect efforts in a planned way.

# METHOD

All of the data sets presented and analyzed in this study were based on the 1993 estimates of county rates provided by various state agencies. Population parameters are those from the 1990 U.S. Census, Iowa. Outcome, (i.e., school children) indicators were obtained from a select subset of questions from the 1993 Department of Education's "Iowa Youth Survey" administered to children enrolled in public schools.

A total of 14,082 children participated in the "Iowa Youth Survey". From that number 3,492 were 6th graders; 3,613 8th graders; 3,611 10th graders; and 3,366 12th graders. The questions that were used in this study were completed by all students. Obtained response frequencies were weighted to obtain a county level estimate since the survey was administered by school districts. All data sets were estimates for the year 1993 except, as already mentioned, the 1990 population, number of founded child abuse and neglect cases, number of behavior disorder cases and number of substance abuse related deaths. The latter were not updated due to their unavailability at the time of data collection. Also not updated for 1993 were the number of suicides and chronic liver disease and cirrhosis deaths. These were, in the course of the study conducted in 1990, found to be almost completely unrelated to substance abuse, and will most likely be dropped from future follow-ups entirely. To enable complete design evaluation, data for these variables were carried over from the year 1990.

All data sets were weighted prior to the statistical evaluation. Weighting was done as specifically as possible (e.g. number of juvenile runaways in a given county was not weighted against the total county population, but against the total number of matching age juveniles in that county) to prevent obtaining a misleading picture for counties with skewed population distributions (i.e., predominantly old or young population).

Pearson's r correlation matrix was computed and two tailed estimates of significance were utilized. Only statistically significant ($p<0.01$ and $p<0.05$) correlations are reported and discussed here (see Appendix C for complete correlation matrix). A correlation coefficient (found in the correlation matrix) expresses the degree to which a change in one risk indicator is associated with change in another risk indicator (the larger the coefficient the closer the relationship between two indicators).

Correlations can be either positive or negative. Although in both cases we can conclude that the relationship exists between any two risk indicators for which a significant correlation was found, the character of these two types of relationships is quite different.

**Positive correlation** is found when high scores in one risk indicator are associated with high scores in another risk indicator. An example of positive correlation would be if families with many children tend to have higher incomes than do families with fewer children. If this were the case there would be a positive correlation between size of the family and amount of income.

**Negative correlation** is found when high scores in one risk indicator are associated with low scores in another risk indicator. In our example of relationship of family size and income a negative correlation would exist between family size and income if families with many children tended to have lower incomes than did families with few children.

It is important to emphasize that the existence of correlation between two risk indicators does not tell us anything about the cause-effect relationship. It is also not indicative of any direction of influence among indicators (i.e., which indicator influences which). It does, however, provide us with the estimation of the likelihood that an increase in one variable will coincide with the increase in the other variable. In order to make cause-effect assumptions we have to use the results of the correlational analysis and subject them to critical and informed consideration which takes into account existing knowledge about the analyzed risk indicators.

The change in reported substance abuse levels among school children from 1990 to 1993 on the state level was done using a 2 (year) x 4 (substance) Analysis of Variance (ANOVA). Tukey's B posthoc test was utilized to evaluate differences among means.

To evaluate the differences in reported levels of use of different substances in the year 1993 among Iowa school children, One-way Analysis of Variance (ANOVA) was performed with subsequent Tukey's B posthoc evaluation of the differences among means.

# RESULTS

## ALCOHOL USE AMONG CHILDREN

While the frequency of the reported alcohol use among Iowa teens is alarming, an encouraging finding is that the mean level of reported alcohol abuse among Iowa teens in 1993 was significantly lower from those reported in 1990 (see Figure 3 in Appendix A).

There was a strong positive relationship between children's alcohol use and economic and social deprivation indicators (i.e., persons, families and juveniles living below poverty level and unemployment rate). Also, the number of persons with less than high-school education was highly correlated with the number of children reporting alcohol use.

Notably, a higher percentage of children reported using alcohol in counties where they also reported having a family member believed to have a serious problem with alcohol and/or other drugs, and the drinking alcoholic beverages in presence of parents and/or some other family member. These correlations support the notion that both parental attitudes and family history of high risk behavior are very important predictors for alcohol use among children.

In the communities with high levels of school enrollment (participation in some type of education from grade school to post-graduate education) the number of children reporting alcohol use was smaller compared to communities with low school enrollment. The number of children reporting use of alcohol was greater in areas with schools where teachers are more likely to interrupt the teaching process to deal with major disruptions. In these same communities children apparently tend to be involved in rebellious behavior and to be surrounded by others who use alcohol and engage in problematic behavior, as indicated by positive correlations of alcohol use with indicators like

- Percent of children reporting driving a car while under influence,
- Percent of children reporting use of alcohol and/or other drugs at school,
- Percent of children reporting being disciplined at school for fighting, theft or property damage,
- Percent of children reporting riding in a car driven by a driver under influence of drugs,
- Percent of children reporting having a friend with a serious problem with alcohol and/or drugs,
- Percent of children reporting being to a party where other kids their age were drinking.

Alcohol use was also related to the early onset (before 12 years of age) of alcohol and tobacco use, as well as to the overall use of tobacco and smokeless tobacco among youth.

It should be noted that extreme economic and social deprivation, family history of high risk behavior, parental attitudes toward alcohol, and a majority of indicators of individual and peer related risk were closely related with alcohol use among children. There was no relationship between alcohol use and crime related risk indicators, or between alcohol use and indicators of family management problems. This would suggest that alcohol use among adolescents is not limited solely to more problematic communities. As will be seen below, abuse of other substances was much more closely related to severe social disruption in the county.

If all of the above is taken into consideration, the conclusion might be made that alcohol use among youth is more prevalent in communities characterized by a low socioeconomic status and low education levels. Peer and parental influences are apparently also related to alcohol abuse among youth. The non existent relationship between family conflict and alcohol use does not indicate that children from problematic households don't often have an alcohol problem. What it does suggest, unfortunately, is that the alcohol use is not any more frequent among these as compared to other children (i.e., those coming from "healthy" households).

## TOBACCO USE AMONG CHILDREN

The finding of a statistically significant increase of reported tobacco abuse among Iowa youth from 1990 to 1993 suggests that we should consider evaluating and revising existing prevention strategies.

Among the more interesting findings in this indicator's correlational pattern was that the tobacco use among children was correlated with a number of crime related indicators like the rate of drunkenness arrests, number of driving under influence arrests, total number of criminal offenses, and rate of adult property crime arrests.

Again we see a positive relationship among all extreme economic and social deprivation indicators and the observed substance (i.e., tobacco) abuse. The communities with high mobility, as indicated by number of housing units allocated or substituted (i.e., sold, rented, etc.), were also characterized by higher number of school children reporting use of tobacco.

Of the family related risk indicators, children using tobacco, similar to the children reporting alcohol use, also report having a family member with alcohol and/or other drugs problem. Four indicators of family management problems were also found to be correlated with the tobacco use. These were the number of juvenile runaways, number of births out of wedlock,

percent of children reporting physical abuse by an adult, and percent of children reporting sexual abuse. Family indicators, including divorce rate and number of households with female head of household (spouse absent), were also positively correlated with tobacco use among children.

High levels of the several school related risk indicators also were found in communities with a high rate of tobacco use among school children. More specifically, where there was a higher use of tobacco, there also was a higher number of behavior disorder cases, higher numbers of children reporting that they have beaten someone up or fought physically because somebody made them angry, and children reporting that their teacher had to interrupt the teaching process to deal with major student disruption or behavior problem. Also positively correlated with tobacco use was the number of school drop-outs. These findings implicate school environment as one of the factors in risk for tobacco use among youth.

Increased levels of a number of individual/peer related risk indicators were found in communities with higher number of children reporting tobacco use. These included the percent of school children reporting driving a car while under influence, using alcohol at school, being disciplined at school for fighting, theft or damaging property. Children from these communities also more frequently reported being driven in a car by a driver under the influence, having a friend with a serious problem with alcohol and/or drugs and being at a party where other kids their age were drinking. It is notable that in these communities the number of children that reported early onset alcohol, tobacco, marijuana and other drugs use is also higher. As can be seen, almost all peer/individual risk indicators turned out to be highly correlated with tobacco use among youth.

Use of tobacco among children is also related to reported alcohol, smokeless tobacco, marijuana, cocaine, amphetamine and glue abuse.

There was an inverse relationship between the number of children reporting use of tobacco and the number of people participating in voting. If one may conclude that the proportion of the population voting is a measurement of the integration of a given county it appears to be logical to expect that the communities in which a larger portion of population is more concerned about their respective county will have fewer children involved in the risk behavior.

It is important to note the similarities between correlational patterns of tobacco and more illicit drugs (which will be discussed later). Particularly important are relationships between family management problems and tobacco use among youth, as well as a number of school related factors. The relationship between tobacco use and several crime related indicators is

suggesting that increased tobacco use may be a sign of a more disturbed county than is the case with alcohol use. This implies that any preventive effort must be comprehensive so that it includes the entire community, school environment and family dynamics which all appear to have a role in contributing to tobacco use among school children.

## SMOKELESS TOBACCO USE AMONG CHILDREN

The observed correlational pattern for smokeless tobacco use closely resembled that found in alcohol use among children. Once again all of the extreme economic and social deprivation indicators are found to be positively correlated with the risk behavior at hand.

From the group of family risk indicators only educational attainment of less than 12 years among adults was found to be related to the smokeless tobacco use among youth. This is very important to note since abuse of other substances were predicted by several family risk indicators.

Two of the school related indicators were found to be correlated with the number of children reporting smokeless tobacco use, one being the percent of children reporting that their teacher had to interrupt teaching to deal with a major student disruption or behavior problem, and the other the school enrollment. School enrollment was negatively correlated with the smokeless tobacco use suggesting that this indicator may be an asset against smokeless tobacco use. This correlational pattern also suggests that, although school dynamics may not contribute very much to the prevalence of alcohol and smokeless tobacco use among children, the mere enrollment in the school may be a component that makes the child more resilient to smokeless tobacco use.

When analyzing individual/peer related risk indicators a striking similarity between the correlational patterns of alcohol and smokeless tobacco use among children was again observed. The same indicators that were related to the alcohol use (driving while under influence, use of alcohol at school, number of children reporting being disciplined for fight, theft or property damage, children reporting being driven by a driver under influence, having a friend with a serious alcohol and/or drug problem and being at a party where other kids their age were drinking) were found to be positively related to smokeless tobacco use among youth with the addition of the early first use of tobacco indicator which was also correlated with the alcohol use.

Given the aforementioned similarities between smokeless tobacco and alcohol use it was expected that these two indicators are also correlated with each other, which was indeed the case. Smokeless tobacco use was also related to tobacco and to cocaine use. Communities with a

greater number of teen births also have a larger proportion of children reporting smokeless tobacco use.

It should be noted that the reported use of both alcohol and smokeless tobacco among school children is lower in counties where higher proportion of population is enrolled in some kind of educational program as indicated by school enrollment.

There was no statistically observable difference in the levels of the reported smokeless tobacco use in 1990 compared to 1993.

The scarcity of indicators from the county and family risk indicator groups that significantly predicted levels of smokeless tobacco use among youth suggests that the use of smokeless tobacco is characteristic for communities with a high proportion of population below poverty level and low educational attainment. This means that preventive efforts, targeting smokeless tobacco use should focus on these counties. This is not to suggest that poverty causes the use of smokeless tobacco among children, but, maybe, the habits of these populations are conducive to children becoming users of this particular substance.

## MARIJUANA USE AMONG CHILDREN

A statistically significant increase in the reported marijuana use among Iowa school children from 1990 to 1993 warrants thoughtful revision of current prevention programs. It is important to note the correlational characteristics of marijuana use which relate it closely with familial problems, school environment disturbances and crime related indicators.

A similarity in the correlational pattern between reported marijuana use and reported tobacco use has been detected. Narcotics arrests, juvenile arrests, drunkenness arrests and driving under influence arrests as well as total number of criminal offenses were all positively correlated with marijuana use among youth. There is, therefore, a notable relationship between the crime in a county and the number of children reporting use of marijuana.

It was interesting to note that only the unemployment indicator (from the group of indicators of the economic and social deprivation) was correlated with marijuana use while poverty indicators were not, suggesting that the use of marijuana is more pervasive in the communities with higher levels of crime, but which are not necessarily characterized by high numbers of people living below poverty levels.

Numerous family related risk indicators were found to be related to marijuana use among children. These were

- Number of adults in alcohol and/or other drug treatment,
- Proportion of population with educational attainment of less than 12 years,
- Number of children reporting having a parent believed to have a serious problem with alcohol and/or other drugs,
- Number of children reporting family members other than parents believed to have a serious problem with alcohol and/or other drugs,
- Number of reported child abuse and neglect cases,
- Number of juvenile runaways and births out of wedlock,
- Number of children reporting being physically abused by an adult,
- Number of children reporting being sexually abused by someone in or outside of the family,
- Number of batterers education referrals,
- Divorce rate,
- Number of households with single, female head of household,
- Number of reported domestic violence cases,
- Adult violent crimes arrest rate, and
- Adult property crime arrest rate.

Also found to be related with marijuana use were all of our school related risk indictors. These included indicators such as

- Number of behavior disorder cases,
- Number of children reporting using weapon, force or threats to get money or things from someone,
- Number of children reporting beating someone up or fighting physically because they made them angry,
- Number of children reporting teaching process disruption,
- School enrollment, and
- School drop-out rate.

As can be seen, all of the six school related indicators of risk were positively correlated with marijuana use. It should be noted that this was not the case with the alcohol, tobacco and smokeless tobacco use, with the exception of the disruption of the teaching process by the

student. These findings strongly support the notion that what happens in our schools is an extremely relevant parameter in any prospective substance abuse prevention program targeting marijuana and, as will be shown, cocaine and other illicit drugs. It is very interesting to consider the fact that the school enrollment was positively correlated with marijuana use. This finding implies that high levels of school enrollment are not an asset when marijuana use is of interest. Quite the contrary, counties with high levels of school enrollment were also the ones where greater proportion of children reported marijuana use.

From the group of individual/peer risk indicators, the following were found to be correlated with marijuana use:

- Number of juvenile vandalism arrests,
- Children reporting use of alcohol and other drugs at school,
- Children reporting being disciplined for theft, fighting or damaging property,
- Children reporting having a friend with a serious problem with alcohol and/or other drugs and
- Children reporting being at a party where other kids their age were drinking.
- Early first use of tobacco, marijuana and other drugs were also found to be positively related to marijuana use among children.

- Tobacco, cocaine, amphetamines, non-prescribed steroids and glue abuse were all found to be closely related to marijuana use as well as alcohol related traffic fatalities and number of teen births.
- Negatively correlated with marijuana use indicator were the population voting indicator, number of persons with educational attainment less than 12 years, and marginally so the housing vacancy.

The finding of most concern is the close relationship between marijuana use and almost all highly adverse indicators of family conflict, county dysfunction, school problems and individual/peer related risk. The composite consideration of this indicator's correlational pattern suggests the conclusion that marijuana use follows the amount of problems in a given county. Again, it is necessary to keep in mind that relationship of this kind does not in any way imply conclusion that marijuana use leads to criminal behavior or vice versa in a particular individual.

It is, however, logical to conclude that any effort to prevent marijuana use will have to be even more comprehensive than the aforementioned one targeting tobacco, if any success is to be had.

## COCAINE AND AMPHETAMINE USE AMONG CHILDREN

There were no available data for the use of these substances in 1990 but considering the potential damage that these substances have on the developmental process even the smallest percentage of reported use (and it is not so small in Iowa, see Table 1 in Appendix A) should warrant our close attention.

Correlational patterns for these two outcome indicators were almost identical to the correlational pattern described for marijuana use. Our conclusion is that very similar, if not identical, types of influences are conducive to marijuana, cocaine and amphetamine use.

## NON-PRESCRIBED STEROIDS USE AMONG CHILDREN

The correlational pattern of the steroids use indicator was found to be somewhat heterogeneous. Although no clear groupings of indicators emerged, one should note that almost all groups of risk indicators are more or less found to be represented at significantly higher levels in the counties where more children report use of non-prescribed steroids. A number of crime related indicators were found to be elevated, as well as some of the more critical family related risk indicators. These communities also have a greater number of juveniles living under poverty level (but not families and adults living below poverty level), greater unemployment, and larger number of juveniles reporting participating in behaviors that would be characterized as antisocial and rebellious. Following is the listing of the risk indicators that were positively correlated with the number of children reporting non-prescribed steroids use.

- Drunkenness arrests
- Number of juveniles below poverty level
- Children reporting parents believed to have a serious problem with alcohol and/or other drugs.
- Number of juvenile runaways
- Number of births out of wedlock
- Percent of children reporting being physically abused by an adult
- Percent of children reporting to be sexually abused by someone in, or outside of the family
- Number of batterers education referrals
- Number of households with female head of households

- Adult violent crime arrest rate
- Adult property crime arrest rate
- Children reporting using weapon, force or threats to get money or things from someone
- Children reporting beating someone up or fighting physically because they made them mad
- Percent of school children reporting teacher having to stop teaching to deal with a major student disruption or behavior problem
- School drop-out rate
- Children reporting driving while under influence
- Children reporting use of alcohol at school
- Children reporting being disciplined at school for fighting, theft or damaging property
- Percent of school children reporting having a friend with a serious substance abuse problem
- Percent of children reporting use of alcohol, marijuana and other drugs at an early age (less than 12 years)
- Marijuana, cocaine, amphetamine and glue abuse
- Teen births

It should be noted that, while correlating with a number of predicting risk indicators, use of the non-prescribed steroids is not correlated with either alcohol or tobacco (both types) use. At the same time a strong relationship of marijuana, cocaine, amphetamine and glue abuse and non-prescribed steroids use was found. This finding indicates that a specific segment of the youth population is using more illicit drugs (i.e., marijuana, cocaine and amphetamines), as opposed to the children that use tobacco and alcohol, and non-prescribed steroids.

## GLUE ABUSE AMONG CHILDREN

Due to the increased problem of glue abuse among youth in Iowa and the catastrophic effects it has on the user's health, this indicator was introduced to our study. Increased frequency of glue abuse was characteristic for counties where high levels of both the early first use and use of alcohol, tobacco, marijuana, cocaine, amphetamine and non-prescribed steroids use were registered. Alcohol related traffic fatalities were also more frequent in these communities.

It is notable that from the group of the school related factors, percent of children reporting major disruption in class, children reporting participating in fights, children reporting using weapon and/or force for extortion and number of school drop-outs were found to be correlated with glue abuse. Numerous family related risk indicators were relevant in predicting the number of children abusing glue in a county. These belonged mostly to the groups of family management problems (e.g., reported child abuse and neglect cases. number of juvenile runaways, number of births out of wedlock, percent of children reporting physical abuse by an adult, percent of children reporting sexual abuse by someone in, or outside of the family) and family conflict (e.g., number of batterers education referrals, number of single parent households with female head) risk indicators.

Of all the community risk indicators only crime rate and number of DUI arrests were found to be significantly related to the glue abuse among youth.

From the group of individual/peer related factors only the number of children reporting use of alcohol and/or other drugs at school as well as early first use of all types of substances were found to be related to glue abuse.

Apparently, any preventive effort targeting glue abuse should devote a significant part of the time and resources to the prevention of the family conflict and management problems. Considering the extreme damage that glue abuse can do to a developing child this effort is necessary. It is important to keep in mind that the average reported level of use of glue is higher than the average reported use of amphetamines among Iowa youth.

## ALCOHOL RELATED TRAFFIC FATALITIES

Although intuitively logical, it was interesting to note the statistical confirmation that there is a strong relationship between the number of alcohol related traffic fatalities and alcohol sales in gallons. Notably, this was the first time that alcohol sales in gallons appeared as a significant indicator of an outcome risk behavior indicator.

Driving under influence arrests was, as expected, found to be more frequent in counties where there was greater frequency of traffic related fatalities. Total criminal offenses indicator was also positively correlated with number of alcohol related traffic fatalities.

From the group of family related risk indicators, the following were found to be related to alcohol related traffic fatalities:

- Number of children reporting a parent and some other family member believed to have a serious alcohol and/or drug problem,
- Number of reported child abuse and neglect cases,
- Number of juvenile runaways,
- Number of births out of wedlock,
- Number of children reporting physical abuse by an adult,
- Number of children reporting sexual abuse by someone in, or outside of the family,
- Divorce rate, and
- Number of households with female head (spouse absent).

As can be seen, numerous indicators of family management problems are in evidence in the correlational pattern of the alcohol related traffic fatalities. Considering the known adverse effects that alcoholism in the family has on its normal functioning, all of the aforementioned correlations only reiterate the importance of prevention and treatment of alcoholism.

Children from counties with a high number of alcohol related traffic fatalities more often report beating someone up or fighting physically because someone made them angry. Also characteristic is the higher number of school drop outs. Children more often report use of alcohol and/or other drugs at school and early onset of use of alcohol, tobacco, marijuana and other drugs. Alcohol related traffic fatalities were also positively correlated with the levels of tobacco, marijuana, cocaine, amphetamine and glue abuse in Iowa counties.

Again, an inverse relationship between the number of people voting and the risk indicator at hand was registered.

# DISCUSSION

The existing body of scientific research on the antecedents of substance abuse was partly based on retrospective studies, and partly on correlational studies (as is the present one). The former studies have been widely criticized due to their reliance on memories and less than accurate records. The latter studies, although manipulating data collected in the present, are unable to provide a clear cut proof of causal relationship. The best they can do is provide evidence of relationship, from which causation must be inferred.

The extant literature implicated a wide array of factors (e.g., developmental, cognitive, behavioral, peer pressure, family, etc.) as sources of substance abuse risk. An attempt will be made to address the more important ones, and interpret our findings using existing reviews of research (Schinke, Botvin and Orlandi, 1991).

## Developmental Factors

During the developmental period of adolescence normal mechanisms of development of autonomy and independence, personal identity and other skills necessary for future survival, can also lead adolescents to engage in risk behaviors. This is partly due to the sense of claiming adult territory when engaging in these behaviors, and partly due to the need to conform to the predominant behavior in a particular group. It is a common assumption that adolescents have a false sense of invulnerability and immortality. This may be an additional component which leads to the most remarkable indifference towards possible adverse consequences that their use of substance might have. This characteristic has also been used as an explanation for a disregard towards warnings from parents, teachers and health professionals.

Indeed, we have observed the aforementioned to be the case among the Iowa youth as well. Positive relationships between substance abuse and rebellious behavior and alienation indicators (both individual and peer) have been repeatedly found. This was particularly the case with tobacco, marijuana, cocaine and amphetamine use.

**Cognitive Factors**

In the early 1960's Piaget identified a fundamental change in the cognitive functioning that takes place during adolescence. He stated that, as opposed to the "concrete operational" mode of thinking oriented on "here and now" found in preadolescents, the adolescent thought pattern is more relative, abstract and hypothetical. Changes in this cognitive pattern may allow adolescents to develop rationales for their behaviors. At the same time, these changes can produce confusion given the often irrational and inconsistent behavior of adults (from the adolescent viewpoint). If we consider that the majority of preventive education (especially that which takes place in the family) occurs in the preadolescent or earlier phases of the development, one can easily see how inconsistencies in adult behavior may be transferred to the educational messages that they attempt to convey. This may effectively lead to complete ignoring of the educational messages. Given the social aspects of the substance abuse among adolescents (i.e., perceived greater peer acceptance that follows from conforming to the given group's behavior) it becomes almost logical that health concerns expressed by adults take second place in the adolescent's internal debate on whether to take drugs or not.

**Behavioral Factors**

Jessor (1982) suggested that substance abuse could be just one part of a general behavior syndrome that is characterized by internally consistent values and life-style patterns. The individuals who abuse different substances simultaneously tend to get lower grades in school, do not become involved in sports and youth club activities, and are more likely to exhibit antisocial behavior (e.g., lying, stealing, fighting).

This opinion was confirmed by the findings of our study. Although it does not attempt to explain the sources of such a behavioral syndrome, it is still useful in describing the observed correlations among indicators of antisocial behavior and substance abuse. It is also important to note that commonalities in the behavior pattern of substance abusers suggest the high probability of common sources. This opens the possibility that a comprehensive prevention effort may simultaneously have positive effects on the use of several different substances.

**Peer pressure**

This issue hinges around the aforementioned issue of conformity behavior which increases rapidly during preadolescence and early adolescence, and declines equally fast toward the end of adolescence (Mussen, Conger and Kagan, 1974). Simultaneously, parental influences decline beginning in childhood and are replaced by peer influence by the time of adolescence. This, in turn, may have a major role in promotion of substance abuse. The literature reports differential susceptibility to the conforming drives between sexes with girls being more conforming to peer group pressure than boys (Maccoby and Masters, 1970). The same is the case with more dependent and anxious (Walter, Marshal and Shooter, 1960) and low self-esteem individuals (Hartnup, 1970). Given the evidence that boys have higher rates of use, one is led to think that the dynamics of peer pressure might be somewhat different between the sexes. The fact that the abuse of substances is more frequent among boys than girls is somewhat in contradiction with the above theory.

Numerous correlations among peer antisocial behavior indicators and substance abuse were found in our study as well. This finding provides further support to the notion that the peer influences are important, but also suggests that issues of conformity among Iowa youth should be investigated more closely. This is something that should be done on a less global level than the state report. In turn, local prevention workers and teachers should be aware of this issue.

**Family factors**

This has typically been the strongest factor associated with substance abuse. Both the behavior and attitude of family members have been implicated in the pathogenesis of substance abuse.

In our study the same was found to be the case. Alcohol use is the substance of choice for the majority of Iowa school children. It was correlated with the presence of a family member with a serious alcohol and/or drug problem. These children also reported drinking in the presence of adults which suggests that permissive parental attitudes toward alcohol consumption may be a risk factor for alcohol use. The same was the case with children reporting smokeless tobacco use. These findings become even more striking when one considers that the other (in some way more serious) indicators of family problems were not implicated in the pathogenesis of alcohol and smokeless tobacco use among Iowa youth.

One finding of our study that is of particular importance is the positive relationship between almost all of the family related risk indicators and the tobacco, marijuana, cocaine and

amphetamine use among school children. The abuse of more serious substances is, in Iowa, apparently related to the more severe disturbances of family management and structure, than is the case with alcohol and smokeless tobacco. The majority of the family related risk indicators were also found to be significant indicators of the non-prescribed steroids and glue abuse.

**School Factors**

Given that school is the place where children spend the majority of their time outside the home, and that it is the place where they are surrounded by different groups of peers to which they may feel the necessity to conform, it becomes very important to assess that environment.

A number of significant correlations between school related risk indicators and the reported marijuana, cocaine and amphetamine use differentiated these outcome indicators from others. More specifically, alcohol, tobacco, steroids, glues, smokeless tobacco were rarely related to school risk indicators. This finding suggests that problems of children using marijuana, cocaine and amphetamines are more pervasive and include the school environment. Because of this, the problem of marijuana, cocaine and amphetamine requires attention on more levels (school, family, peer, etc.) than is the case with other substances. Also, one is led to conclude that prevention programs targeting alcohol, tobacco, steroids, glue and smokeless tobacco use that concentrate the majority of their efforts on the school environment could have very limited effect. It appears to be more beneficial for prevention programs targeting marijuana, cocaine and amphetamines, to devote more, but not exclusive, attention to school environment.

**Economic and social deprivation**

Economic and social deprivation were found to be an important factor for both alcohol and smokeless tobacco. The same was the case in the communities where a higher percentage of school children reported tobacco use. Marijuana, cocaine and amphetamine use were related to the levels of unemployment in the county, but not the number of people, families or juveniles living below poverty level. Notably, most levels of poverty were not related to either the reported non-prescribed steroids use or the reported glue abuse among Iowa youth. The only exception was the positive relationship between number of juveniles living under poverty level and non-prescribed steroids use.

It should be noted that the availability of alcohol, as measured by the sales of alcohol by county was not found to be related to the consumption of alcohol among school children. This

finding follows a long line of studies in which it was impossible to demonstrate statistical relationships between the increased availability of drugs and higher use. However, it should be mentioned again that the alcohol sales were positively related to the number of alcohol related traffic accidents.

# CONCLUSIONS

It is clear that not all substance abuse problems have the same sources. Of particular importance was almost identical correlation patterns found among reported marijuana, cocaine and amphetamine use among school children. Similar correlational patterns were also found between alcohol and smokeless tobacco use. Almost identical, but different from other outcome indicators, were correlational patterns of steroids and glue abuse. Therefore, any prevention effort will need to identify the targeted substance(s) which should be the one(s) identified to be the most prominent problem in a given county. Following the identification of the targeted substance(s), optimal utilization of resources will require planning a strategy that will encompass risk factors identified to be important in Iowa for a given substance. For example, intensive work on improving economic situations and reducing the number of poor in a county should not be expected to alleviate non-prescribed steroids and glue abuse among school children. On the other hand a comprehensive effort on preventing family management problems will produce positive effects on multiple substances (e.g., marijuana, cocaine and amphetamines).

Although this study is a snapshot of a point in time, our intent is to continue tracking these indicators over time and assess their usability in evaluating changes that occur due to policy or other changes.

When used in conjunction with the "Risk Factors For Substance Abuse User Manual Report", a document based on this research to assist with local planning, the reader should be able to develop a risk assessment tool of both evaluative and planning worth.

Comprehensive approaches, such as this one, require not only broad vision, but also many participants. With the commitment to understand the underlying dynamics of such problems as substance abuse, delinquency, violence and teen pregnancies, communities can make significant difference in enacting forthcoming prevention strategies. This study was not intended to change the approach to the substance abuse prevention in it's entirety, but rather to complement existing knowledge and activities, and to provide help in looking at the health and behavior problems from a particular perspective - one of understanding the possible reasons for their occurrence and of enhancing awareness of most sensible venues to approach such problems in a preventive way.

# APPENDIX A

## Statewide trends and use of substances among Iowa Youth in 1990 - 1993

# STATEWIDE TRENDS AND USE OF SUBSTANCES AMONG IOWA YOUTH IN 1990 - 1993

In order to statistically evaluate changes in the number of children, enrolled in Iowa schools, reporting use of substances, a 2 (year) x 4 (substance) Analysis of Variance (ANOVA) revealed a significant decrease in overall reported use of drugs among Iowa youth [$F(1,783)=6.08$, $p<0.01$]. During the posthoc evaluation it was discovered that this was due to a significant decrease of the reported alcohol use among youth. Also found was a highly significant effect for levels of use of different substances [$F(3,783)=2579.39$, $p<0.0001$]. The year x substance interaction was also found to be significant [$F(3,783)=68.69$, $p<0.0001$] warranting further analysis. To investigate sources of the interaction Tukey's B posthoc test was utilized. It revealed a significant decrease of reported alcohol use from 1990 to 1993 ($p<0.01$), a significant increase in reported tobacco use from 1990 to 1993 ($p<0.01$), no change in reported smokeless tobacco use, and a significant increase in reported marijuana use ($p<0.05$) among school children in Iowa.

**Table 1**: State mean levels of reported use of substances among Iowa school children (percent children reporting use)

| Substance(s) | 1990 | 1993 |
|---|---|---|
| Alcohol | 53.91 | 44.36 |
| Tobacco | 25.33 | 28.63 |
| Smokeless Tobacco | 14.96 | 16.26 |
| Marijuana | 7.22 | 8.69 |
| Cocaine | | 2.32 |
| Amphetamine | | 5.27 |
| Non-prescribed Steroids | | 2.51 |
| Glue | | 7.89 |

As can be seen in Figure 3 the encouraging finding of the overall decrease in reported substance abuse among Iowa school children should be tempered with the awareness that it is largely due to a decrease in alcohol use, while reported tobacco and marijuana use have significantly increased from the year 1990 to 1993.

**Figure 3**: Substance abuse among Iowa school children

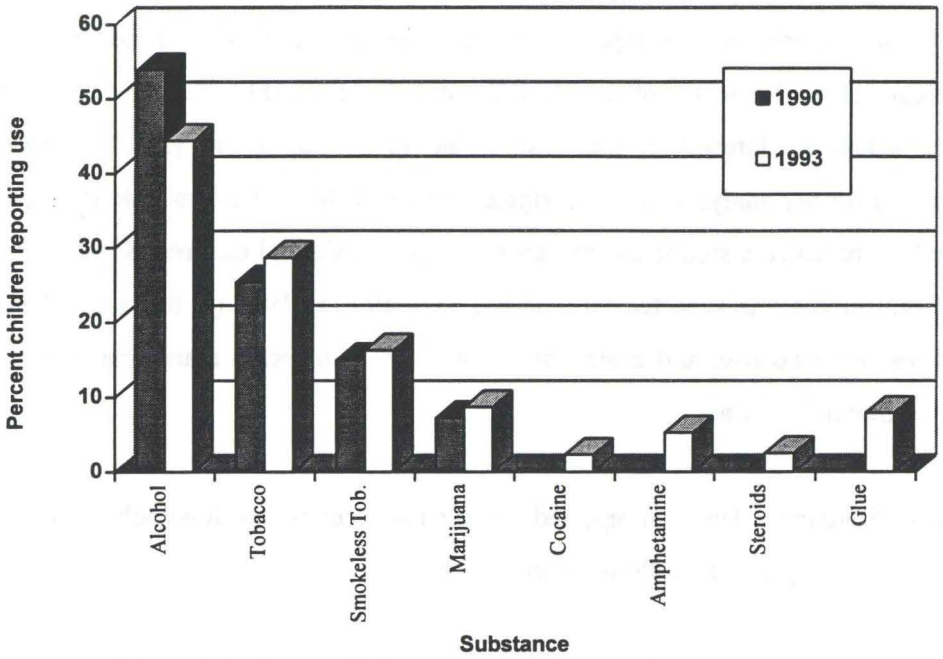



**Table 2**: Rank order of substances by number of children reporting use

| Substance(s) | RANK |
|---|---|
| Alcohol | 1.00 |
| Tobacco | 2.00 |
| Smokeless tobacco | 3.00 |
| Marijuana & Glue | 4.00 |
| Amphetamine | 5.00 |
| Steroids and Cocaine | 6.00 |

The statewide means of the reported substance abuse among Iowa school children were submitted to the One-way Analysis of Variance to establish the levels of use. As you can see in Table 2, alcohol is the drug of choice with 44.36% children using it at some point in time. Although significantly lesser, reported use of tobacco (28.63%) closely follows the reported use of alcohol. Next in line is smokeless tobacco (16.26) followed by marijuana and glue. It should be noted that the use of marijuana and glue were found to be at statistically equal levels of 8.68% and 7.89% respectively. These levels, taking into account the potential health hazard these substances present are of particular concern. Amphetamines are reported to be used by significantly fewer children (5.27) than alcohol, tobacco, smokeless tobacco and marijuana and glue. Amphetamine use is however more frequent then use of steroids and cocaine which are at statistically equal levels of 2.32% and 2.51% respectively.

# APPENDIX B

## Substance Abuse Risk Factors Model

# SUBSTANCE ABUSE RISK FACTORS MODEL

## a). COMMUNITY RISK FACTORS

### 1. AVAILABILITY OF DRUGS

1. Alcohol sales in gallons (n/100 total population)

### 2. AVAILABILITY OF FIREARMS

### 3. COMMUNITY LAWS AND NORMS FAVORABLE TO CRIME AND DRUGS

2. Narcotics arrests (n/100,000 total population)
3. Juvenile arrests (n/100,000 juveniles)
4. Drunkenness arrests (n/100,000 total population)
5. Driving under influence arrests (n/100,000 total population)

### 4. MEDIA PORTRAYALS OF VIOLENCE

### 5. TRANSITIONS AND MOBILITY

6. Percent of housing units allocated and substituted (n/100 housing units) (C-1990)

### 6. LOW NEIGHBORHOOD ATTACHMENT AND COMMUNITY DISORGANIZATION

7. Population voting in senatorial elections (n/100 total population) (1990)
8. Housing vacancy rate (n/100 total population) (C-1990)
9. Total criminal offenses (n/100,000 total population)

### 7. EXTREME ECONOMIC AND SOCIAL DEPRIVATION

10. Persons living below poverty level (n/100 total population) (C-1990)
11. Juveniles living below poverty level (n/100 total population) (C-1990)
12. Families living below poverty level (n/100 total population) (C-1990)
13. Civilian labor force unemployed (n/100 total population) (C-1990)

# b) FAMILY RISK FACTORS

## 8. FAMILY HISTORY OF HIGH RISK BEHAVIOR

14. Adults in alcohol or other drug treatment programs (n/100 adults)
15. Chronic liver disease and cirrhosis deaths (not necessarily alcohol related) (n/100,000 population) (1990)
16. Educational attainment: Adults (25 years old or older) completing fewer than 5 years of school) (n/100 total population) (C-1990)
17. Educational attainment: Adults (25 years old or older) completing fewer than 12 years of school) (n/100 total population) (C-1990)
18. Parents believed to have serious problem with alcohol and/or other drugs; percent school children reporting
19. Family members other than parents believed to have serious problem with alcohol and/or other drugs; percent school children reporting

## 9. FAMILY MANAGEMENT PROBLEMS

20. Reported child abuse and neglect cases (n/1000 of total number of juveniles) (1990)
21. Juvenile runaways (n/1000 juveniles)
22. Births out of wedlock (n/100 of total births)
23. Percent of school children reporting physical abuse by an adult
24. Percent of school children reporting sexual abuse by someone in, or outside of the family
25. Percent of school children reporting they would most likely first seek help from their parents if they had problem with alcohol and/or other drug

## 10. FAMILY CONFLICT

26. Batterers education referrals (n/100,000 total population)
27. Divorce (n/1000 marriages)
28. Households with female head of household (spouse absent) (n/100) (C-1990)
29. Domestic violence cases reported (n/100,000 total population)

## 11. PARENTAL ATTITUDES AND INVOLVEMENT IN CRIME AND DRUGS

30. Adult violent crime arrests (n/100,000 total population)
31. Adult property crime arrests (n/100,000 total population)
32. Percent of school children reporting drinking alcoholic beverages in presence of parents, and/or some other family member

## c) SCHOOL RISK FACTORS

### 12. EARLY AND PERSISTENT ANTISOCIAL BEHAVIOR

33. Behavior disorder cases (n/1000 children 5-14 yrs.) (1990)
34. Percent of school children reporting using weapon, force or threats to get money or things from someone
35. Percent of school children reporting beating someone up or fighting physically because they made them angry
36. Percent of school children reporting teacher stopping teaching to deal with a major student disruption or behavior problem

### 13. ACADEMIC FAILURE

### 14. LACK OF COMMITMENT TO SCHOOL

37. School enrollment (n/100 children)
38. School drop-out rates (7-12th grade) (n/1000 enrolled children)

## d) INDIVIDUAL/PEER RISK FACTORS

### 15. ALIENATION AND REBELLIOUSNESS

39. Suicide rate (n/100,000 total population) (1990)
40. Juvenile vandalism arrests (n/100,000 juveniles)
41. Percent of school children reporting driving a car while under influence of drugs
42. Percent of school children reporting use of alcohol and/or other drugs at school
43. Percent of school children reporting being disciplined at school fro fighting, theft or damaging property

### 16. FRIENDS WHO ENGAGE IN THE PROBLEM BEHAVIOR

44. Percent of school children reporting riding in a car driven by a driver under influence of drugs
45. Percent of school children reporting having a friend with a serious problem with alcohol and/or drugs
46. Percent of school children reporting being to a party where other kids their age were drinking

### 17. FAVORABLE ATTITUDES TOWARD THE PROBLEM BEHAVIOR

**18. EARLY INITIATION OF THE PROBLEM BEHAVIOR**

47. Early first use (before 12)- Alcohol (n/100 participating children)
48. Early first use (before 12)- Tobacco (n/100 participating children)
49. Early first use (before 12)- Marijuana (n/100 participating children)
50. Early first use (before 12)- other drugs (n/100 participating children)

**19. CONSTITUTIONAL RISK FACTORS**

## OUTCOME INDICATORS

51. Percent of school children reporting alcohol use
52. Percent of school children reporting tobacco use
53. Percent of school children reporting smokeless tobacco use
54. Percent of school children reporting marijuana use
55. Percent of school children reporting cocaine use
56. Percent of school children reporting amphetamine use
57. Percent of school children reporting non-prescribed steroids use
58. Percent of school children reporting glue abuse
59. Alcohol related traffic fatalities (n/100,000 total population)
60. Births to women less than 18 years old (n/100 births)
61. Substance abuse related deaths (n/100,000 total population) (1990)
62. Juveniles in alcohol and other drug treatments (n/1000)

## APPENDIX C

### Correlation Matrix [1]

(Indicators numbered according to the classification in Appendix B)

Levels of significance indicated in the following manner

* - $p<0.05$

** - $p<0.01$

[1] **Note**: This matrix provides the actual values of correlation coefficients. Statistically significant findings are reported in the body of the report, and the reader need not refer to this appendix for a description of such findings; it is provided for the benefit of readers who might be interested in the actual values of correlation coefficients.

| Indicator | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.00 | 0.22 | 0.21 | 0.23 | 0.22 | -0.01 | -0.04 | .35196** | .31424** | 0.00 |
| 2 | 0.22 | 1.00 | .44461** | 0.20 | .28749** | 0.01 | -0.11 | -0.11 | .41301** | -0.14 |
| 3 | 0.21 | .44461** | 1.00 | .50029** | .45058** | -0.06 | -.33207** | -0.15 | .68399** | -0.09 |
| 4 | 0.23 | 0.20 | .50029** | 1.00 | .63212** | -0.16 | -.25836* | -0.08 | .54424** | 0.01 |
| 5 | 0.22 | .28749** | .45058** | .63212** | 1.00 | -0.06 | -.24599* | 0.06 | .53342** | -0.08 |
| 6 | -0.01 | 0.01 | -0.06 | -0.16 | -0.06 | 1.00 | 0.13 | .37168** | -0.07 | .30728** |
| 7 | -0.04 | -0.11 | -.33207** | -.25836* | -.24599* | 0.13 | 1.00 | 0.19 | -.32804** | 0.00 |
| 8 | .35196** | -0.11 | -0.15 | -0.08 | 0.06 | .37168** | 0.19 | 1.00 | -0.15 | .27959** |
| 9 | .31424** | .41301** | .68399** | .54424** | .53342** | -0.07 | -.32804** | -0.15 | 1.00 | 0.04 |
| 10 | 0.00 | -0.14 | -0.09 | 0.01 | -0.08 | .30728** | 0.00 | .27959** | 0.04 | 1.00 |
| 11 | -0.03 | -0.10 | -0.09 | -0.03 | -0.08 | .29668** | 0.09 | .31423** | 0.05 | .88012** |
| 12 | -0.08 | -0.09 | -0.08 | -0.03 | -0.10 | .39098** | 0.04 | .2896** | 0.02 | .91122** |
| 13 | 0.03 | 0.06 | 0.12 | 0.10 | 0.10 | .23155* | -0.07 | 0.10 | .24265* | .31171** |
| 14 | .21963* | 0.06 | .27198* | .28845** | .25408* | 0.02 | -0.18 | 0.10 | .35185** | 0.01 |
| 15 | 0.09 | -.2229* | 0.01 | -0.01 | 0.03 | -0.08 | 0.00 | 0.09 | -0.01 | 0.05 |
| 16 | -0.02 | 0.00 | .27683* | 0.10 | 0.02 | 0.03 | -.26658** | -0.02 | .22637* | 0.06 |
| 17 | -.22998* | -.25164* | -0.17 | -.31129** | -0.16 | .234* | 0.05 | 0.11 | -.34109** | .31246** |
| 18 | 0.06 | 0.10 | 0.11 | 0.11 | 0.04 | 0.04 | -.23403* | -0.11 | .23456* | -0.07 |
| 19 | -0.01 | .26347* | 0.18 | 0.16 | 0.09 | 0.01 | -.23428* | -0.02 | .35509** | 0.07 |
| 20 | 0.19 | 0.11 | .31889** | .39512** | .31254** | 0.00 | -.29304** | -0.03 | .47864** | -0.03 |
| 21 | 0.19 | 0.20 | .28202** | .2767* | 0.12 | -0.13 | -.44689** | -.2274* | .42949** | -0.04 |
| 22 | .22066* | 0.16 | .40533** | .36042** | .32187** | -0.03 | -.35972** | 0.06 | .5852** | 0.08 |
| 23 | -0.10 | -0.01 | 0.09 | 0.12 | 0.01 | 0.14 | -.2565* | -0.07 | .26016* | 0.12 |
| 24 | -0.04 | .22416* | .27041* | .22319* | 0.17 | 0.10 | -.35093** | -0.08 | .35966** | 0.08 |
| 25 | 0.15 | -0.12 | 0.02 | 0.09 | 0.05 | -0.07 | -0.10 | -0.06 | .26354* | 0.03 |
| 26 | 0.14 | 0.14 | .27043* | .28004** | 0.12 | -0.12 | -0.12 | -0.15 | .26616* | -0.13 |
| 27 | 0.06 | 0.20 | .22202* | 0.15 | 0.12 | -0.03 | -.25192* | 0.00 | .35626** | -0.10 |
| 28 | 0.19 | 0.15 | .35361** | .37759** | .2398* | -0.07 | -.39808** | -0.18 | .62555** | 0.05 |
| 29 | 0.16 | .31445** | .62726** | .5936** | .54202** | -0.13 | -.25418* | -0.07 | .7944** | 0.00 |
| 30 | 0.19 | .36112** | .51435** | .31488** | 0.19 | -0.16 | -.3147** | -.22574* | .59608** | -0.08 |
| 31 | .35857** | .3399** | .5037** | .40142** | .27966** | -0.16 | -.36266** | -.21399* | .71876** | -0.01 |
| 32 | .32569** | -0.03 | -0.03 | 0.00 | -0.02 | .27457** | -0.04 | 0.11 | -0.05 | 0.05 |
| 33 | 0.14 | -0.04 | -0.01 | 0.15 | -0.03 | 0.00 | -0.09 | 0.01 | .2544* | 0.09 |
| 34 | 0.18 | 0.16 | 0.13 | .23956* | 0.11 | -0.10 | -0.19 | -0.07 | 0.21 | -0.09 |
| 35 | 0.06 | -0.05 | 0.05 | 0.14 | 0.08 | 0.03 | -0.15 | 0.02 | .24351* | 0.06 |
| 36 | 0.01 | 0.19 | 0.10 | 0.12 | 0.06 | 0.05 | -0.04 | 0.09 | 0.21 | 0.15 |
| 37 | 0.02 | 0.04 | .2619* | .31935** | 0.21 | -0.18 | -.34468** | -.33515** | .31342** | 0.10 |
| 38 | 0.09 | .28818** | .50799** | .30416** | .24814* | -0.05 | -.3286** | -0.13 | .55465** | 0.07 |
| 39 | -0.09 | 0.03 | -0.03 | -0.08 | -0.04 | -0.03 | 0.02 | 0.19 | -0.02 | 0.19 |
| 40 | 0.12 | .26231* | .68225** | .24535* | .27475* | -0.03 | -0.14 | -0.05 | .42458** | -0.08 |
| 41 | 0.15 | 0.11 | -0.01 | -0.08 | -0.06 | .32399** | 0.06 | .26259** | -0.13 | .3131** |
| 42 | 0.15 | .38371** | 0.14 | 0.18 | 0.16 | .23609* | -0.13 | 0.15 | 0.20 | .20488* |
| 43 | -0.02 | 0.02 | -0.07 | 0.04 | 0.02 | 0.14 | -0.06 | 0.15 | 0.09 | 0.11 |
| 44 | 0.13 | 0.00 | -0.15 | -0.07 | -0.10 | .38007** | 0.17 | .38994** | -0.09 | .24097* |
| 45 | -0.03 | 0.19 | 0.06 | -0.04 | 0.00 | 0.17 | -0.05 | .23425* | 0.05 | 0.00 |
| 46 | 0.07 | 0.20 | 0.06 | 0.03 | -0.05 | .24792* | -0.07 | .22344* | -0.01 | 0.14 |
| 47 | 0.09 | -0.16 | -0.15 | -0.07 | -0.06 | .3025** | 0.03 | 0.19 | -0.01 | .25133* |
| 48 | -0.06 | 0.02 | -0.03 | 0.12 | 0.09 | .2227* | -0.07 | .2905** | 0.14 | .35804** |
| 49 | 0.17 | 0.17 | .29207** | .31107** | 0.21 | -0.08 | -.36042** | -0.15 | .52458** | 0.04 |
| 50 | 0.11 | 0.12 | .22631* | 0.17 | 0.18 | 0.00 | -.30088** | -0.04 | .30053** | 0.12 |
| 51 | 0.08 | 0.05 | -0.10 | -0.07 | -0.08 | .37148** | 0.00 | .35813** | -0.12 | .3342** |
| 52 | -0.03 | 0.21 | 0.14 | .22836* | .22312* | .23644* | -.22888* | 0.12 | .25381* | .25231* |
| 53 | -0.20 | -0.05 | -0.20 | -0.01 | -0.08 | 0.16 | 0.19 | .44504** | -0.14 | .29033** |
| 54 | 0.18 | .44441** | .40035** | .34039** | .3068** | -0.01 | -.41467** | -.21076* | .61602** | -0.01 |
| 55 | 0.11 | .38971** | .25466* | .22643* | 0.14 | -0.05 | -.29458** | -0.05 | .3626** | 0.05 |
| 56 | 0.02 | .44556** | .29252** | .31121** | .32432** | 0.05 | -.37959** | -0.13 | .42453** | 0.00 |
| 57 | 0.09 | 0.05 | 0.17 | .24581* | 0.09 | -0.07 | -0.14 | -0.04 | 0.11 | 0.12 |
| 58 | 0.18 | -0.03 | 0.17 | 0.18 | .27421* | 0.06 | -0.09 | 0.01 | .27483* | -0.02 |
| 59 | .27423* | 0.14 | 0.17 | 0.10 | .31727** | 0.17 | -.27609** | 0.15 | .23209* | -0.06 |
| 60 | -0.04 | 0.07 | .21495* | 0.14 | 0.07 | 0.12 | -0.15 | 0.03 | .34558** | .24168* |
| 61 | -0.04 | -0.16 | 0.07 | 0.15 | 0.06 | 0.11 | 0.05 | 0.05 | -0.02 | 0.15 |
| 62 | 0.21 | -0.02 | 0.11 | 0.21 | 0.05 | 0.14 | -0.09 | 0.11 | 0.13 | .24871* |

| Indicator | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | -0.03 | -0.08 | 0.03 | .21963* | 0.09 | -0.02 | -.22998* | 0.06 | -0.01 | 0.19 |
| 2 | -0.10 | -0.09 | 0.06 | 0.06 | -.2229* | 0.00 | -.25164* | 0.10 | .26347* | 0.11 |
| 3 | -0.09 | -0.08 | 0.12 | .27198* | 0.01 | .27683* | -0.17 | 0.11 | 0.18 | .31889** |
| 4 | -0.03 | -0.03 | 0.10 | .28845** | -0.01 | 0.10 | -.31129** | 0.11 | 0.16 | .39512** |
| 5 | -0.08 | -0.10 | 0.10 | .25408* | 0.03 | 0.02 | -0.16 | 0.04 | 0.09 | .31254** |
| 6 | .29668** | .39098** | .23155* | 0.02 | -0.08 | 0.03 | .234* | 0.04 | 0.01 | 0.00 |
| 7 | 0.09 | 0.04 | -0.07 | -0.18 | 0.00 | -.26658** | 0.05 | -.23403* | -.23428* | -.29304** |
| 8 | .31423** | .2896** | 0.10 | 0.10 | 0.09 | -0.02 | 0.11 | -0.11 | -0.02 | -0.03 |
| 9 | 0.05 | 0.02 | .24265* | .35185** | -0.01 | .22637* | -.34109** | .23456* | .35509** | .47864** |
| 10 | .88012** | .91122** | .31171** | 0.01 | 0.05 | 0.06 | .31246** | -0.07 | 0.07 | -0.03 |
| 11 | 1.00 | .91566** | .37126** | 0.02 | 0.02 | 0.10 | .44175** | 0.02 | 0.11 | 0.02 |
| 12 | .91566** | 1.00 | .39625** | -0.01 | 0.04 | 0.11 | .49525** | 0.03 | 0.11 | -0.06 |
| 13 | .37126** | .39625** | 1.00 | 0.19 | 0.04 | 0.08 | 0.05 | .37234** | .36687** | 0.13 |
| 14 | 0.02 | -0.01 | 0.19 | 1.00 | 0.04 | 0.11 | -0.14 | .29564** | .40702** | .43266** |
| 15 | 0.02 | 0.04 | 0.04 | 0.04 | 1.00 | -0.07 | 0.09 | -0.12 | -0.20 | 0.02 |
| 16 | 0.10 | 0.11 | 0.08 | 0.11 | -0.07 | 1.00 | .25533* | 0.08 | .24816* | .23729* |
| 17 | .44175** | .49525** | 0.05 | -0.14 | 0.09 | .25533* | 1.00 | -0.03 | -0.11 | -.25296* |
| 18 | 0.02 | 0.03 | .37234** | .29564** | -0.12 | 0.08 | -0.03 | 1.00 | .47282** | .26357** |
| 19 | 0.11 | 0.11 | .36687** | .40702** | -0.20 | .24816* | -0.11 | .47282** | 1.00 | .30251** |
| 20 | 0.02 | -0.06 | 0.13 | .43266** | 0.02 | .23729* | -.25296* | .26357** | .30251** | 1.00 |
| 21 | -0.04 | -0.08 | .24339* | .23606* | -0.06 | 0.14 | -.22178* | .44885** | .4004** | .43475** |
| 22 | .2046* | 0.18 | .45508** | .31075** | 0.18 | .24144* | -0.13 | .366** | .37173** | .47634** |
| 23 | 0.18 | 0.15 | .25317* | .24896* | -0.09 | 0.03 | -0.11 | .44532** | .35748** | .23157* |
| 24 | 0.18 | 0.13 | .42899** | .37742** | -0.19 | .34462** | -0.02 | .51224** | .53225** | .3479** |
| 25 | 0.07 | 0.06 | 0.19 | 0.17 | -0.06 | -0.15 | -0.15 | .23528* | 0.16 | .26076** |
| 26 | -0.05 | -0.11 | 0.17 | .19859* | -0.11 | 0.11 | -.2286* | .31977** | 0.19 | .28743** |
| 27 | 0.02 | -0.03 | .26999** | .37233** | -0.11 | 0.17 | -.2022* | .42073** | .45977** | .36951** |
| 28 | 0.12 | 0.09 | .56214** | .41322** | 0.01 | .19801* | -.26247** | .46674** | .55243** | .5236** |
| 29 | 0.07 | 0.05 | .20412* | 0.18 | 0.02 | 0.10 | -0.18 | 0.19 | 0.17 | .37359** |
| 30 | -0.08 | -0.11 | .26941** | .29668** | -0.08 | 0.08 | -.25411* | .3568** | .36929** | .39009** |
| 31 | 0.00 | -0.04 | .35418** | .35876** | -0.07 | 0.14 | -.38472** | .40544** | .48467** | .45468** |
| 32 | -0.03 | 0.11 | 0.04 | -0.01 | -0.11 | -0.04 | 0.11 | 0.06 | 0.04 | -0.10 |
| 33 | 0.12 | 0.11 | .30235** | 0.09 | 0.00 | 0.13 | -0.16 | 0.17 | 0.16 | 0.20 |
| 34 | -0.01 | -0.07 | 0.12 | 0.11 | -.32301** | 0.11 | -0.19 | 0.16 | .25373* | 0.17 |
| 35 | 0.14 | 0.09 | .28502** | 0.01 | -0.15 | 0.12 | -0.09 | .31619** | .30076** | .2675** |
| 36 | 0.17 | 0.16 | .33872** | 0.14 | -0.01 | 0.05 | -0.10 | 0.12 | .28585** | .22736* |
| 37 | -.24204* | -0.17 | -0.09 | 0.09 | -0.02 | -0.06 | -.45905** | -0.07 | 0.01 | 0.10 |
| 38 | 0.13 | 0.13 | .4705** | .40008** | -0.07 | .29993** | -0.09 | .37514** | .45607** | .41766** |
| 39 | 0.17 | 0.17 | 0.18 | 0.03 | 0.18 | -0.01 | 0.08 | -0.13 | 0.20 | -0.07 |
| 40 | -0.09 | -0.13 | 0.05 | 0.21 | 0.10 | .26546* | -0.18 | -0.05 | .216* | .28847** |
| 41 | .32933** | .39104** | 0.07 | -0.01 | -0.03 | -0.01 | .33056** | -0.15 | -0.03 | -0.11 |
| 42 | .24442* | .21003* | .30549** | 0.17 | -0.13 | 0.03 | -0.05 | 0.09 | .36948** | 0.16 |
| 43 | 0.19 | 0.15 | .24289* | 0.03 | -0.19 | 0.02 | -0.02 | .21343* | .35341** | .26259** |
| 44 | .31997** | .35795** | 0.17 | 0.01 | -0.07 | -0.10 | .30426** | 0.02 | .20524* | -0.01 |
| 45 | 0.01 | 0.01 | 0.19 | .25049* | -0.08 | 0.00 | -0.08 | 0.15 | .36814** | 0.03 |
| 46 | 0.13 | 0.19 | 0.13 | 0.06 | -0.07 | 0.15 | 0.05 | -0.06 | .25939* | 0.09 |
| 47 | .29153** | .31391** | .37808** | -0.02 | 0.00 | -0.01 | 0.16 | .22665* | .25646* | 0.07 |
| 48 | .44782** | .42834** | .41258** | 0.13 | 0.00 | 0.13 | .23014* | 0.19 | .37216** | 0.16 |
| 49 | 0.14 | 0.06 | .31085** | .47202** | -0.13 | .24297* | -0.20 | .42143** | .47613** | .43193** |
| 50 | 0.16 | 0.13 | .2948** | 0.10 | -0.05 | 0.19 | 0.02 | .32195** | .31278** | .21161* |
| 51 | .31418** | .42209** | .24037* | 0.04 | -0.07 | 0.08 | .31972** | -0.01 | .20813* | -0.02 |
| 52 | .34272** | .31884** | .40336** | 0.19 | -0.02 | 0.09 | 0.18 | 0.18 | .4034** | 0.13 |
| 53 | .38396** | .35708** | .21076* | 0.03 | -0.01 | 0.06 | .21524* | -0.06 | 0.15 | -0.12 |
| 54 | 0.03 | -0.01 | .37577** | .52746** | -0.17 | 0.13 | -.34523** | .40756** | .5968** | .53719** |
| 55 | 0.14 | 0.09 | .23448* | .35952** | -.27939** | .2119* | -0.08 | .30766** | .52226** | .31843** |
| 56 | 0.12 | 0.05 | .34918** | .40749** | -.22505* | 0.07 | -.20291* | .33923** | .53115** | .44528** |
| 57 | .20837* | 0.15 | 0.17 | 0.14 | -0.02 | 0.10 | 0.00 | .2621** | 0.12 | 0.18 |
| 58 | 0.06 | -0.01 | 0.16 | 0.12 | -0.04 | 0.01 | -0.05 | 0.10 | 0.07 | .27676** |
| 59 | 0.01 | -0.02 | 0.04 | .22462* | 0.02 | 0.12 | 0.03 | .27611** | .36267** | .31543** |
| 60 | .34218** | .34568** | .4299** | .22404* | 0.17 | .21869* | 0.06 | 0.17 | .21639* | .21872* |
| 61 | 0.18 | 0.18 | 0.00 | -0.02 | 0.15 | -0.03 | 0.10 | -0.14 | -0.17 | 0.18 |
| 62 | .21111* | .22412* | 0.14 | .28855** | -0.02 | -0.03 | 0.02 | 0.06 | -0.01 | .24492* |

| Indicator | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.19 | .22066* | -0.10 | -0.04 | 0.15 | 0.14 | 0.06 | 0.19 | 0.16 | 0.19 |
| 2 | 0.20 | 0.16 | -0.01 | .22416* | -0.12 | 0.14 | 0.20 | 0.15 | .31445** | .36112** |
| 3 | .28202** | .40533** | 0.09 | .27041* | 0.02 | .27043* | .22202* | .35361** | .62726** | .51435** |
| 4 | .2767* | .36042** | 0.12 | .22319* | 0.09 | .28004** | 0.15 | .37759** | .5936** | .31488** |
| 5 | 0.12 | .32187** | 0.01 | 0.17 | 0.05 | 0.12 | 0.12 | .2398* | .54202** | 0.19 |
| 6 | -0.13 | -0.03 | 0.14 | 0.10 | -0.07 | -0.12 | -0.03 | -0.07 | -0.13 | -0.16 |
| 7 | -.44689** | -.35972** | -.2565* | -.35093** | -0.10 | -0.12 | -.25192* | -.39808** | -.25418* | -.3147** |
| 8 | -.2274* | 0.06 | -0.07 | -0.08 | -0.06 | -0.15 | 0.00 | -0.18 | -0.07 | -.22574* |
| 9 | .42949** | .5852** | .26016* | .35966** | .26354* | .26616* | .35626** | .62555** | .7944** | .59608** |
| 10 | -0.04 | 0.08 | 0.12 | 0.08 | 0.03 | -0.13 | -0.10 | 0.05 | 0.00 | -0.08 |
| 11 | -0.04 | .2046* | 0.18 | 0.18 | 0.07 | -0.05 | 0.02 | 0.12 | 0.07 | -0.08 |
| 12 | -0.08 | 0.18 | 0.15 | 0.13 | 0.06 | -0.11 | -0.03 | 0.09 | 0.05 | -0.11 |
| 13 | .24339* | .45508** | .25317* | .42899** | 0.19 | 0.17 | .26999** | .56214** | .20412* | .26941** |
| 14 | .23606* | .31075** | .24896* | .37742** | 0.17 | .19859* | .37233** | .41322** | 0.18 | .29668** |
| 15 | -0.06 | 0.18 | -0.09 | -0.19 | -0.06 | -0.11 | -0.11 | 0.01 | 0.02 | -0.08 |
| 16 | 0.14 | .24144* | 0.03 | .34462** | -0.15 | 0.11 | 0.17 | .19801* | 0.10 | 0.08 |
| 17 | -.22178* | -0.13 | -0.11 | -0.02 | -0.15 | -.2286* | -.2022* | -.26247** | -0.18 | -.25411* |
| 18 | .44885** | .366** | .44532** | .51224** | .23528* | .31977** | .42073** | .46674** | 0.19 | .3568** |
| 19 | .4004** | .37173** | .35748** | .53225** | 0.16 | 0.19 | .45977** | .55243** | 0.17 | .36929** |
| 20 | .43475** | .47634** | .23157* | .3479** | .26076** | .28743** | .36951** | .5236** | .37359** | .39009** |
| 21 | 1.00 | .50913** | .34077** | .43683** | .24832* | .40736** | .3619** | .64889** | .22143* | .60971** |
| 22 | .50913** | 1.00 | .3639** | .45711** | .22557* | .36214** | .48249** | .69855** | .4864** | .37941** |
| 23 | .34077** | .3639** | 1.00 | .60925** | .22648* | .22401* | .33689** | .40382** | 0.12 | 0.18 |
| 24 | .43683** | .45711** | .60925** | 1.00 | 0.06 | .25677* | .3928** | .46808** | 0.16 | .27866** |
| 25 | .24832* | .22557* | .22648* | 0.06 | 1.00 | 0.16 | .27066** | .33807** | .28906** | .26154** |
| 26 | .40736** | .36214** | .22401* | .25677* | 0.16 | 1.00 | .35897** | .36026** | .36042** | .36747** |
| 27 | .3619** | .48249** | .33689** | .3928** | .27066** | .35897** | 1.00 | .54482** | .36903** | .40219** |
| 28 | .64889** | .69855** | .40382** | .46808** | .33807** | .36026** | .54482** | 1.00 | .43148** | .61227** |
| 29 | .22143* | .4864** | 0.12 | 0.16 | .28906** | .36042** | .36903** | .43148** | 1.00 | .34571** |
| 30 | .60971** | .37941** | 0.18 | .27866** | .26154** | .36747** | .40219** | .61227** | .34571** | 1.00 |
| 31 | .72781** | .60294** | .25277* | .39558** | .28951** | .41018** | .50128** | .7982** | .44995** | .69138** |
| 32 | -0.03 | -0.03 | -0.02 | -0.13 | -0.08 | 0.00 | -.30069** | 0.03 | -0.15 | -0.02 |
| 33 | .2799** | .44294** | .26163** | .23662* | 0.20 | 0.11 | .31467** | .41728** | .23676* | .2864** |
| 34 | .27321** | .26121** | .28091** | .36631** | 0.14 | .31729** | 0.19 | .26613** | 0.15 | 0.16 |
| 35 | .28426** | .36829** | .50712** | .38652** | .34453** | 0.16 | .26079** | .41805** | 0.08 | .2846** |
| 36 | 0.19 | .27308** | .27652** | .25636* | 0.12 | 0.16 | .31328** | .31312** | 0.17 | 0.18 |
| 37 | .25756* | -0.10 | 0.05 | 0.05 | -0.07 | 0.01 | -0.19 | 0.13 | -0.02 | .24003* |
| 38 | .35607** | .51356** | .29824** | .51868** | 0.04 | 0.17 | .46406** | .65789** | .36009** | .46675** |
| 39 | -0.03 | 0.05 | -0.04 | -0.06 | -0.05 | 0.03 | 0.10 | 0.07 | 0.02 | -0.04 |
| 40 | 0.10 | 0.21 | 0.07 | 0.20 | 0.05 | 0.14 | 0.13 | .22154* | .37279** | .36403** |
| 41 | -0.19 | 0.01 | 0.11 | 0.06 | -0.18 | -0.06 | -0.09 | -0.12 | -0.11 | -0.18 |
| 42 | .26212** | .2795** | .24954* | .40528** | -0.05 | 0.10 | 0.16 | .29416** | 0.02 | .20546* |
| 43 | .22923* | .24085* | .24285* | .26099** | 0.20 | 0.06 | .28214** | .31135** | 0.06 | .237* |
| 44 | -0.13 | 0.08 | 0.13 | 0.03 | -0.02 | -0.16 | -0.04 | -0.01 | -0.13 | -0.16 |
| 45 | 0.13 | 0.17 | 0.01 | 0.18 | -0.15 | -0.15 | .20336* | 0.18 | -0.04 | 0.13 |
| 46 | 0.00 | 0.12 | -0.02 | 0.20 | -.26022* | -0.06 | -0.04 | 0.05 | -0.09 | -0.03 |
| 47 | 0.09 | 0.17 | .3325** | 0.14 | 0.12 | 0.11 | 0.01 | .22411* | -0.09 | 0.06 |
| 48 | .22561* | .31347** | .25887* | .37976** | 0.16 | 0.01 | 0.18 | .29371** | 0.06 | 0.19 |
| 49 | .5043** | .54391** | .54259** | .64277** | .25943* | .41701** | .42994** | .65988** | .27761** | .50242** |
| 50 | .34222** | .31844** | .54586** | .49657** | 0.03 | .23169* | .29395** | .38481** | 0.17 | .31998** |
| 51 | -0.05 | 0.08 | 0.05 | 0.19 | -0.12 | -0.12 | -0.09 | 0.01 | -0.16 | -0.15 |
| 52 | .29233** | .36305** | .30313** | .51022** | -0.08 | 0.11 | .22632* | .33517** | 0.11 | 0.15 |
| 53 | -0.11 | 0.11 | 0.02 | 0.19 | -0.02 | -0.01 | 0.08 | -0.10 | -0.03 | -0.19 |
| 54 | .58816** | .55938** | .41755** | .64357** | 0.17 | .34162** | .46456** | .70509** | .35853** | .55999** |
| 55 | .44633** | .38193** | .35227** | .58999** | 0.13 | .35216** | .37447** | .40361** | .23197* | .3682** |
| 56 | .45688** | .50173** | .44886** | .64039** | 0.18 | .30297** | .42143** | .52168** | .27598** | .36126** |
| 57 | .30241** | .33875** | .38486** | .30793** | 0.09 | .39202** | 0.11 | .27394** | 0.10 | .22363* |
| 58 | .23294* | .25843* | .3126** | .24934* | 0.03 | .26765** | 0.03 | .23744* | 0.11 | 0.14 |
| 59 | .19932* | .25408* | .24247* | .31646** | -0.02 | 0.07 | .23812* | .22379* | 0.16 | 0.16 |
| 60 | .34451** | .66394** | .2609** | .39335** | 0.16 | .23145* | .42653** | .4686** | .23791* | .21513* |
| 61 | -0.03 | 0.11 | -0.03 | -0.09 | -0.03 | 0.08 | -0.08 | 0.00 | 0.06 | -0.05 |
| 62 | .22781* | 0.14 | 0.10 | 0.13 | 0.16 | -0.04 | 0.05 | 0.10 | 0.09 | 0.05 |

| Indicator | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .35857** | .32569** | 0.14 | 0.18 | 0.06 | 0.01 | 0.02 | 0.09 | -0.09 | 0.12 |
| 2 | .3399** | -0.03 | -0.04 | 0.16 | -0.05 | 0.19 | 0.04 | .28818** | 0.03 | .26231* |
| 3 | .5037** | -0.03 | -0.01 | 0.13 | 0.05 | 0.10 | .2619* | .50799** | -0.03 | .68225** |
| 4 | .40142** | 0.00 | 0.15 | .23956* | 0.14 | 0.12 | .31935** | .30416** | -0.08 | .24535* |
| 5 | .27966** | -0.02 | -0.03 | 0.11 | 0.08 | 0.06 | 0.21 | .24814* | -0.04 | .27475* |
| 6 | -0.16 | .27457** | 0.00 | -0.10 | 0.03 | 0.05 | -0.18 | -0.05 | -0.03 | -0.03 |
| 7 | -.36266** | -0.04 | -0.09 | -0.19 | -0.15 | -0.04 | -.34468** | -.3286** | 0.02 | -0.14 |
| 8 | -.21399* | 0.11 | 0.01 | -0.07 | 0.02 | 0.09 | -.33515** | -0.13 | 0.19 | -0.05 |
| 9 | .71876** | -0.05 | .2544* | 0.21 | .24351* | 0.21 | .31342** | .55465** | -0.02 | .42458** |
| 10 | -0.01 | 0.05 | 0.09 | -0.09 | 0.06 | 0.15 | 0.10 | 0.07 | 0.19 | -0.08 |
| 11 | 0.00 | -0.03 | 0.12 | -0.01 | 0.14 | 0.17 | -.24204* | 0.13 | 0.17 | -0.09 |
| 12 | -0.04 | 0.11 | 0.11 | -0.07 | 0.09 | 0.16 | -0.17 | 0.13 | 0.17 | -0.13 |
| 13 | .35418** | 0.04 | .30235** | 0.12 | .28502** | .33872** | -0.09 | .4705** | 0.18 | 0.05 |
| 14 | .35876** | -0.01 | 0.09 | 0.11 | 0.01 | 0.14 | 0.09 | .40008** | 0.03 | 0.21 |
| 15 | -0.07 | -0.11 | 0.00 | -.32301** | -0.15 | -0.01 | -0.02 | -0.07 | 0.18 | 0.10 |
| 16 | 0.14 | -0.04 | 0.13 | 0.11 | 0.12 | 0.05 | -0.06 | .29993** | -0.01 | .26546* |
| 17 | -.38472** | 0.11 | -0.16 | -0.19 | -0.09 | -0.10 | -.45905** | -0.09 | 0.08 | -0.18 |
| 18 | .40544** | 0.06 | 0.17 | 0.16 | .31619** | 0.12 | -0.07 | .37514** | -0.13 | -0.05 |
| 19 | .48467** | 0.04 | 0.16 | .25373* | .30076** | .28585** | 0.01 | .45607** | 0.20 | .216* |
| 20 | .45468** | -0.10 | 0.20 | 0.17 | .2675** | .22736* | 0.10 | .41766** | -0.07 | .28847** |
| 21 | .72781** | -0.03 | .2799** | .27321** | .28426** | 0.19 | .25756* | .35607** | -0.03 | 0.10 |
| 22 | .60294** | -0.03 | .44294** | .26121** | .36829** | .27308** | -0.10 | .51356** | 0.05 | 0.21 |
| 23 | .25277* | -0.02 | .26163** | .28091** | .50712** | .27652** | 0.05 | .29824** | -0.04 | 0.07 |
| 24 | .39558** | -0.13 | .23662* | .36631** | .38652** | .25636* | 0.05 | .51868** | -0.06 | 0.20 |
| 25 | .28951** | -0.08 | 0.20 | 0.14 | .34453** | 0.12 | -0.07 | 0.04 | -0.05 | 0.05 |
| 26 | .41018** | 0.00 | 0.11 | .31729** | 0.16 | 0.16 | 0.01 | 0.17 | 0.03 | 0.14 |
| 27 | .50128** | -.30069** | .31467** | 0.19 | .26079** | .31328** | -0.19 | .46406** | 0.10 | 0.13 |
| 28 | .7982** | 0.03 | .41728** | .26613** | .41805** | .31312** | 0.13 | .65789** | 0.07 | .22154* |
| 29 | .44995** | -0.15 | .23676* | 0.15 | 0.08 | 0.17 | -0.02 | .36009** | 0.02 | .37279** |
| 30 | .69138** | -0.02 | .2864** | 0.16 | .2846** | 0.18 | .24003* | .46675** | -0.04 | .36403** |
| 31 | 1.00 | 0.00 | .31571** | .34795** | .25656* | .25961* | .23568* | .53927** | -0.01 | .26678* |
| 32 | 0.00 | 1.00 | -0.20 | 0.04 | 0.06 | -0.04 | 0.03 | -0.06 | -0.04 | -0.07 |
| 33 | .31571** | -0.20 | 1.00 | 0.16 | .33083** | 0.16 | -0.04 | .24081* | 0.09 | -0.12 |
| 34 | .34795** | 0.04 | 0.16 | 1.00 | .42156** | .27202** | -0.05 | .24788* | -0.08 | 0.06 |
| 35 | .25656* | 0.06 | .33083** | .42156** | 1.00 | .42154** | -0.08 | .29893** | 0.00 | 0.06 |
| 36 | .25961* | -0.04 | 0.16 | .27202** | .42154** | 1.00 | -0.12 | .37898** | 0.02 | 0.14 |
| 37 | .23568* | 0.03 | -0.04 | -0.05 | -0.08 | -0.12 | 1.00 | 0.07 | -0.11 | 0.11 |
| 38 | .53927** | -0.06 | .24081* | .24788* | .29893** | .37898** | 0.07 | 1.00 | 0.09 | .37983** |
| 39 | -0.01 | -0.04 | 0.09 | -0.08 | 0.00 | 0.02 | -0.11 | 0.09 | 1.00 | -0.01 |
| 40 | .26678* | -0.07 | -0.12 | 0.06 | 0.06 | 0.14 | 0.11 | .37983** | -0.01 | 1.00 |
| 41 | -0.18 | .34819** | -0.12 | 0.05 | 0.06 | 0.08 | -.21563* | -0.02 | 0.09 | -0.02 |
| 42 | .34011** | .22364* | 0.04 | .43471** | .37139** | .38638** | -0.03 | .34983** | 0.12 | 0.08 |
| 43 | .23352* | 0.06 | .34513** | .41711** | .61849** | .41546** | -.22479* | 0.19 | 0.00 | 0.07 |
| 44 | -0.12 | .4971** | -0.04 | 0.11 | 0.19 | -0.01 | -.36702** | -0.01 | 0.18 | -0.13 |
| 45 | 0.17 | 0.15 | 0.13 | -0.08 | -0.04 | 0.07 | -0.06 | .29314** | .27714** | 0.09 |
| 46 | 0.06 | .50383** | 0.02 | 0.06 | 0.00 | 0.08 | -0.09 | 0.16 | 0.18 | 0.12 |
| 47 | 0.02 | .40451** | 0.07 | 0.03 | .47517** | .33023** | -0.14 | 0.12 | 0.04 | -0.16 |
| 48 | 0.13 | 0.04 | .33564** | 0.10 | .43004** | .31683** | -.22247* | .25343* | .21372* | 0.01 |
| 49 | .57311** | 0.03 | .24253* | .44007** | .4589** | .32609** | 0.10 | .53604** | -0.08 | 0.18 |
| 50 | .30715** | -0.01 | 0.18 | .37808** | .47008** | .29636** | 0.11 | .436** | 0.00 | 0.12 |
| 51 | -0.05 | .56394** | 0.03 | 0.08 | 0.13 | .21659* | -.23503* | 0.14 | 0.18 | -0.09 |
| 52 | .24103* | 0.13 | .20806* | 0.13 | .20494* | .26956** | -0.10 | .34185** | 0.11 | 0.09 |
| 53 | -0.09 | -0.09 | 0.12 | 0.14 | 0.09 | .22224* | -.39775** | 0.04 | .28808** | -0.13 |
| 54 | .68237** | 0.02 | .24468* | .36269** | .31431** | .41065** | .21624* | .6635** | 0.03 | .26553* |
| 55 | .47047** | 0.01 | 0.11 | .54387** | .27281** | .31486** | 0.00 | .44097** | 0.00 | 0.12 |
| 56 | .47212** | -0.03 | .2096* | .41288** | .35842** | .40194** | 0.06 | .5519** | -0.02 | 0.15 |
| 57 | .26437** | 0.01 | 0.11 | .46358** | .4844** | .29436** | -0.01 | .2823** | -0.09 | -0.03 |
| 58 | 0.13 | 0.07 | 0.06 | .32837** | .36262** | .34513** | 0.06 | .31519** | -0.10 | 0.02 |
| 59 | 0.15 | 0.02 | 0.11 | 0.13 | .2681** | 0.15 | -0.07 | .25681* | -0.07 | 0.17 |
| 60 | .39558** | -.22161* | .3951** | 0.17 | .28743** | .23954* | -0.14 | .38115** | .19905* | 0.07 |
| 61 | -0.07 | -0.03 | -0.03 | -0.06 | -0.14 | 0.09 | -0.02 | 0.07 | 0.04 | 0.05 |
| 62 | 0.09 | 0.01 | 0.14 | -0.08 | -0.09 | 0.04 | 0.13 | 0.10 | 0.06 | 0.00 |

| Indicator | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.15 | 0.15 | -0.02 | 0.13 | -0.03 | 0.07 | 0.09 | -0.06 | 0.17 | 0.11 |
| 2 | 0.11 | .38371** | 0.02 | 0.00 | 0.19 | 0.20 | -0.16 | 0.02 | 0.17 | 0.12 |
| 3 | -0.01 | 0.14 | -0.07 | -0.15 | 0.06 | 0.06 | -0.15 | -0.03 | .29207** | .22631* |
| 4 | -0.08 | 0.18 | 0.04 | -0.07 | -0.04 | 0.03 | -0.07 | 0.12 | .31107** | 0.17 |
| 5 | -0.06 | 0.16 | 0.02 | -0.10 | 0.00 | -0.05 | -0.06 | 0.09 | 0.21 | 0.18 |
| 6 | .32399** | .23609* | 0.14 | .38007** | 0.17 | .24792* | .3025** | .2227* | -0.08 | 0.00 |
| 7 | 0.06 | -0.13 | -0.06 | 0.17 | -0.05 | -0.07 | 0.03 | -0.07 | -.36042** | -.30088** |
| 8 | .26259** | 0.15 | 0.15 | .38994** | .23425* | .22344* | 0.19 | .2905** | -0.15 | -0.04 |
| 9 | -0.13 | 0.20 | 0.09 | -0.09 | 0.05 | -0.01 | -0.01 | 0.14 | .52458** | .30053** |
| 10 | .3131** | .20488* | 0.11 | .24097* | 0.00 | 0.14 | .25133* | .35804** | 0.04 | 0.12 |
| 11 | .32933** | .24442* | 0.19 | .31997** | 0.01 | 0.13 | .29153** | .44782** | 0.14 | 0.16 |
| 12 | .39104** | .21003* | 0.15 | .35795** | 0.01 | 0.19 | .31391** | .42834** | 0.06 | 0.13 |
| 13 | 0.07 | .30549** | .24289* | 0.17 | 0.19 | 0.13 | .37808** | .41258** | .31085** | .2948** |
| 14 | -0.01 | 0.17 | 0.03 | 0.01 | .25049* | 0.06 | -0.02 | 0.13 | .47202** | 0.10 |
| 15 | -0.03 | -0.13 | -0.19 | -0.07 | -0.08 | -0.07 | 0.00 | 0.00 | -0.13 | -0.05 |
| 16 | -0.01 | 0.03 | 0.02 | -0.10 | 0.00 | 0.15 | -0.01 | 0.13 | .24297* | 0.19 |
| 17 | .33056** | -0.05 | -0.02 | .30426** | -0.08 | 0.05 | 0.16 | .23014* | -0.20 | 0.02 |
| 18 | -0.15 | 0.09 | .21343* | 0.02 | 0.15 | -0.06 | .22665* | 0.19 | .42143** | .32195** |
| 19 | -0.03 | .36948** | .35341** | .20524* | .36814** | .25939* | .25646* | .37216** | .47613** | .31278** |
| 20 | -0.11 | 0.16 | .26259** | -0.01 | 0.03 | 0.09 | 0.07 | 0.16 | .43193** | .21161* |
| 21 | -0.19 | .26212** | .22923* | -0.13 | 0.13 | 0.00 | 0.09 | .22561* | .5043** | .34222** |
| 22 | 0.01 | .2795** | .24085* | 0.08 | 0.17 | 0.12 | 0.17 | .31347** | .54391** | .31844** |
| 23 | 0.11 | .24954* | .24285* | 0.13 | 0.01 | -0.02 | .3325** | .25887* | .54259** | .54586** |
| 24 | 0.06 | .40528** | .26099** | 0.03 | 0.18 | 0.20 | 0.14 | .37976** | .64277** | .49657** |
| 25 | -0.18 | -0.05 | 0.20 | -0.02 | -0.15 | -.26022* | 0.12 | 0.16 | .25943* | 0.03 |
| 26 | -0.06 | 0.10 | 0.06 | -0.16 | -0.15 | -0.06 | 0.11 | 0.01 | .41701** | .23169* |
| 27 | -0.09 | 0.16 | .28214** | -0.04 | .20336* | -0.04 | 0.01 | 0.18 | .42994** | .29395** |
| 28 | -0.12 | .29416** | .31135** | -0.01 | 0.18 | 0.05 | .22411* | .29371** | .65988** | .38481** |
| 29 | -0.11 | 0.02 | 0.06 | -0.13 | -0.04 | -0.09 | -0.09 | 0.06 | .27761** | 0.17 |
| 30 | -0.18 | .20546* | .237* | -0.16 | 0.13 | -0.03 | 0.06 | 0.19 | .50242** | .31998** |
| 31 | -0.18 | .34011** | .23352* | -0.12 | 0.17 | 0.06 | 0.02 | 0.13 | .57311** | .30715** |
| 32 | .34819** | .22364* | 0.06 | .4971** | 0.15 | .50383** | .40451** | 0.04 | 0.03 | -0.01 |
| 33 | -0.12 | 0.04 | .34513** | -0.04 | 0.13 | 0.02 | 0.07 | .33564** | .24253* | 0.18 |
| 34 | 0.05 | .43471** | .41711** | 0.11 | -0.08 | 0.06 | 0.03 | 0.10 | .44007** | .37808** |
| 35 | 0.06 | .37139** | .61849** | 0.19 | -0.04 | 0.00 | .47517** | .43004** | .4589** | .47008** |
| 36 | 0.08 | .38638** | .41546** | -0.01 | 0.07 | 0.08 | .33023** | .31683** | .32609** | .29636** |
| 37 | -.21563* | -0.03 | -.22479* | -.36702** | -0.06 | -0.09 | -0.14 | -.22247* | 0.10 | 0.11 |
| 38 | -0.02 | .34983** | 0.19 | -0.01 | .29314** | 0.16 | 0.12 | .25343* | .53604** | .436** |
| 39 | 0.09 | 0.12 | 0.00 | 0.18 | .27714** | 0.18 | 0.04 | .21372* | -0.08 | 0.00 |
| 40 | -0.02 | 0.08 | 0.07 | -0.13 | 0.09 | 0.12 | -0.16 | 0.01 | 0.18 | 0.12 |
| 41 | 1.00 | .44071** | 0.06 | .56612** | 0.09 | .43431** | 0.19 | 0.14 | 0.06 | 0.01 |
| 42 | .44071** | 1.00 | .38068** | .37185** | .29814** | .45431** | .29887** | .39509** | .43999** | .28369** |
| 43 | 0.06 | .38068** | 1.00 | .22843* | .24675* | .23895* | .22203* | .44617** | .33875** | 0.18 |
| 44 | .56612** | .37185** | .22843* | 1.00 | .33374** | .49369** | .44005** | .40829** | 0.03 | 0.14 |
| 45 | 0.09 | .29814** | .24675* | .33374** | 1.00 | .52114** | -0.05 | .26079** | 0.18 | 0.00 |
| 46 | .43431** | .45431** | .23895* | .49369** | .52114** | 1.00 | 0.08 | .2153* | 0.11 | -0.11 |
| 47 | 0.19 | .29887** | .22203* | .44005** | -0.05 | 0.08 | 1.00 | .51371** | .23559* | .42112** |
| 48 | 0.14 | .39509** | .44617** | .40829** | .26079** | .2153* | .51371** | 1.00 | .37942** | .37199** |
| 49 | 0.06 | .43999** | .33875** | 0.03 | 0.18 | 0.11 | .23559* | .37942** | 1.00 | .56048** |
| 50 | 0.01 | .28369** | 0.18 | 0.14 | 0.00 | -0.11 | .42112** | .37199** | .56048** | 1.00 |
| 51 | .62319** | .51887** | .26624** | .6813** | .35575** | .76723** | .39645** | .44175** | 0.06 | -0.01 |
| 52 | .3366** | .57212** | .22097* | .42101** | .39405** | .47742** | .30734** | .64348** | .4257** | .34115** |
| 53 | .31668** | .40661** | .26206** | .3526** | .26975** | .32882** | 0.11 | .55239** | 0.14 | -0.01 |
| 54 | 0.00 | .52743** | .3214** | 0.03 | .38651** | .26368** | 0.12 | .34396** | .7816** | .41281** |
| 55 | 0.16 | .53405** | .3347** | 0.08 | .23267* | .23535* | 0.07 | .28609** | .73923** | .45941** |
| 56 | 0.10 | .54151** | .30246** | 0.16 | .28728** | 0.15 | .22656* | .41121** | .68306** | .52725** |
| 57 | .21426* | .45614** | .23065* | 0.02 | -.2056* | -0.12 | .3719** | 0.19 | .51197** | .48349** |
| 58 | 0.05 | .34584** | 0.16 | 0.04 | -0.13 | -0.14 | .42117** | .20619* | .41639** | .45343** |
| 59 | -0.02 | .21505* | 0.17 | 0.18 | 0.12 | 0.08 | .20736* | .19979* | .29568** | .3798** |
| 60 | 0.10 | .29368** | .28013** | 0.01 | .22112* | 0.12 | -0.01 | .29616** | .36502** | 0.11 |
| 61 | 0.16 | 0.02 | -0.06 | -0.01 | -0.11 | 0.01 | -0.08 | -0.05 | -0.03 | -0.05 |
| 62 | 0.12 | 0.06 | 0.05 | -0.03 | 0.14 | 0.12 | -0.05 | 0.08 | 0.13 | -0.12 |

| Indicator | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.08 | -0.03 | -0.20 | 0.18 | 0.11 | 0.02 | 0.09 | 0.18 | .27423* | -0.04 |
| 2 | 0.05 | 0.21 | -0.05 | .44441** | .38971** | .44556** | 0.05 | -0.03 | 0.14 | 0.07 |
| 3 | -0.10 | 0.14 | -0.20 | .40035** | .25466* | .29252** | 0.17 | 0.17 | 0.17 | .21495* |
| 4 | -0.07 | .22836* | -0.01 | .34039** | .22643* | .31121** | .24581* | 0.18 | 0.10 | 0.14 |
| 5 | -0.08 | .22312* | -0.08 | .3068** | 0.14 | .32432** | 0.09 | .27421* | .31727** | 0.07 |
| 6 | .37148** | .23644* | 0.16 | -0.01 | -0.05 | 0.05 | -0.07 | 0.06 | 0.17 | 0.12 |
| 7 | 0.00 | -.22888* | 0.19 | -.41467** | -.29458** | -.37959** | -0.14 | -0.09 | -.27609** | -0.15 |
| 8 | .35813** | 0.12 | .44504** | -.21076* | -0.05 | -0.13 | -0.04 | 0.01 | 0.15 | 0.03 |
| 9 | -0.12 | .25381* | -0.14 | .61602** | .3626** | .42453** | 0.11 | .27483* | .23209* | .34558** |
| 10 | .3342** | .25231* | .29033** | -0.01 | 0.05 | 0.00 | 0.12 | -0.02 | -0.06 | .24168* |
| 11 | .31418** | .34272** | .38396** | 0.03 | 0.14 | 0.12 | .20837* | 0.06 | 0.01 | .34218** |
| 12 | .42209** | .31884** | .35708** | -0.01 | 0.09 | 0.05 | 0.15 | -0.01 | -0.02 | .34568** |
| 13 | .24037* | .40336** | .21076* | .37577** | .23448* | .34918** | 0.17 | 0.16 | 0.04 | .4299** |
| 14 | 0.04 | 0.19 | 0.03 | .52746** | .35952** | .40749** | 0.14 | 0.12 | .22462* | .22404* |
| 15 | -0.07 | -0.02 | -0.01 | -0.17 | -.27939** | -.22505* | -0.02 | -0.04 | 0.02 | 0.17 |
| 16 | 0.08 | 0.09 | 0.06 | 0.13 | .2119* | 0.07 | 0.10 | 0.01 | 0.12 | .21869* |
| 17 | .31972** | 0.18 | .21524* | -.34523** | -0.08 | -.20291* | 0.00 | -0.05 | 0.03 | 0.06 |
| 18 | -0.01 | 0.18 | -0.06 | .40756** | .30766** | .33923** | .2621** | 0.10 | .27611** | 0.17 |
| 19 | .20813* | .4034** | 0.15 | .5968** | .52226** | .53115** | 0.12 | 0.07 | .36267** | .21639* |
| 20 | -0.02 | 0.13 | -0.12 | .53719** | .31843** | .44528** | 0.18 | .27676** | .31543** | .21872* |
| 21 | -0.05 | .29233** | -0.11 | .58816** | .44633** | .45688** | .30241** | .23294* | .19932* | .34451** |
| 22 | 0.08 | .36305** | 0.11 | .55938** | .38193** | .50173** | .33875** | .25843* | .25408* | .66394** |
| 23 | 0.05 | .30313** | 0.02 | .41755** | .35227** | .44886** | .38486** | .3126** | .24247* | .2609** |
| 24 | 0.19 | .51022** | 0.19 | .64357** | .58999** | .64039** | .30793** | .24934* | .31646** | .39335** |
| 25 | -0.12 | -0.08 | -0.02 | 0.17 | 0.13 | 0.18 | 0.09 | 0.03 | -0.02 | 0.16 |
| 26 | -0.12 | 0.11 | -0.01 | .34162** | .35216** | .30297** | .39202** | .26765** | 0.07 | .23145* |
| 27 | -0.09 | .22632* | 0.08 | .46456** | .37447** | .42143** | 0.11 | 0.03 | .23812* | .42653** |
| 28 | 0.01 | .33517** | -0.10 | .70509** | .40361** | .52168** | .27394** | .23744* | .22379* | .4686** |
| 29 | -0.16 | 0.11 | -0.03 | .35853** | .23197* | .27598** | 0.10 | 0.11 | 0.16 | .23791* |
| 30 | -0.15 | 0.15 | -0.19 | .55999** | .3682** | .36126** | .22363* | 0.14 | 0.16 | .21513* |
| 31 | -0.05 | .24103* | -0.09 | .68237** | .47047** | .47212** | .26437** | 0.13 | 0.15 | .39558** |
| 32 | .56394** | 0.13 | -0.09 | 0.02 | 0.01 | -0.03 | 0.01 | 0.07 | 0.02 | -.22161* |
| 33 | 0.03 | .20806* | 0.12 | .24468* | 0.11 | .2096* | 0.11 | 0.06 | 0.11 | .3951** |
| 34 | 0.08 | 0.13 | 0.14 | .36269** | .54387** | .41288** | .46358** | .32837** | 0.13 | 0.17 |
| 35 | 0.13 | .20494* | 0.09 | .31431** | .27281** | .35842** | .4844** | .36262** | .2681** | .28743** |
| 36 | .21659* | .26956** | .22224* | .41065** | .31486** | .40194** | .29436** | .34513** | 0.15 | .23954* |
| 37 | -.23503* | -0.10 | -.39775** | .21624* | 0.00 | 0.06 | -0.01 | 0.06 | -0.07 | -0.14 |
| 38 | 0.14 | .34185** | 0.04 | .6635** | .44097** | .5519** | .2823** | .31519** | .25681* | .38115** |
| 39 | 0.18 | 0.11 | .28808** | 0.03 | 0.00 | -0.02 | -0.09 | -0.10 | -0.07 | .19905* |
| 40 | -0.09 | 0.09 | -0.13 | .26553* | 0.12 | 0.15 | -0.03 | 0.02 | 0.17 | 0.07 |
| 41 | .62319** | .3366** | .31668** | 0.00 | 0.16 | 0.10 | .21426* | 0.05 | -0.02 | 0.10 |
| 42 | .51887** | .57212** | .40661** | .52743** | .53405** | .54151** | .45614** | .34584** | .21505* | .29368** |
| 43 | .26624** | .22097* | .26206** | .3214** | .3347** | .30246** | .23065* | 0.16 | 0.17 | .28013** |
| 44 | .6813** | .42101** | .3526** | 0.03 | 0.08 | 0.16 | 0.02 | 0.04 | 0.18 | 0.01 |
| 45 | .35575** | .39405** | .26975** | .38651** | .23267* | .28728** | -.2056* | -0.13 | 0.12 | .22112* |
| 46 | .76723** | .47742** | .32882** | .26368** | .23535* | 0.15 | -0.12 | -0.14 | 0.08 | 0.12 |
| 47 | .39645** | .30734** | 0.11 | 0.12 | 0.07 | .22656* | .3719** | .42117** | .20736* | -0.01 |
| 48 | .44175** | .64348** | .55239** | .34396** | .28609** | .41121** | 0.19 | .20619* | .19979* | .29616** |
| 49 | 0.06 | .4257** | 0.14 | .7816** | .73923** | .68306** | .51197** | .41639** | .29568** | .36502** |
| 50 | -0.01 | .34115** | -0.01 | .41281** | .45941** | .52725** | .48349** | .45343** | .3798** | 0.11 |
| 51 | 1.00 | .57158** | .50855** | 0.15 | 0.17 | 0.18 | 0.04 | 0.01 | 0.06 | 0.13 |
| 52 | .57158** | 1.00 | .46268** | .52335** | .42975** | .57913** | 0.17 | .21092* | .27355** | .31169** |
| 53 | .50855** | .46268** | 1.00 | 0.08 | .24837* | 0.16 | 0.10 | -0.07 | -0.03 | .2702** |
| 54 | 0.15 | .52335** | 0.08 | 1.00 | .72067** | .82904** | .28098** | .36555** | .279** | .33402** |
| 55 | 0.17 | .42975** | .24837* | .72067** | 1.00 | .73221** | .51701** | .3353** | .23563* | .29447** |
| 56 | 0.18 | .57913** | 0.16 | .82904** | .73221** | 1.00 | .43459** | .45641** | .32576** | .31288** |
| 57 | 0.04 | 0.17 | 0.10 | .28098** | .51701** | .43459** | 1.00 | .55432** | 0.11 | .28935** |
| 58 | 0.01 | .21092* | -0.07 | .36555** | .3353** | .45641** | .55432** | 1.00 | .2625** | 0.10 |
| 59 | 0.06 | .27355** | -0.03 | .279** | .23563* | .32576** | 0.11 | .2625** | 1.00 | 0.01 |
| 60 | 0.13 | .31169** | .2702** | .33402** | .29447** | .31288** | .28935** | 0.10 | 0.01 | 1.00 |
| 61 | 0.03 | 0.01 | 0.08 | -0.05 | 0.01 | -0.05 | 0.14 | .22728* | -0.04 | 0.08 |
| 62 | 0.16 | 0.14 | 0.10 | 0.18 | 0.14 | 0.14 | 0.05 | 0.09 | -0.14 | .27046** |

| Indicator | 61 | 62 |
|---|---|---|
| 1 | -0.04 | 0.21 |
| 2 | -0.16 | -0.02 |
| 3 | 0.07 | 0.11 |
| 4 | 0.15 | 0.21 |
| 5 | 0.06 | 0.05 |
| 6 | 0.11 | 0.14 |
| 7 | 0.05 | -0.09 |
| 8 | 0.05 | 0.11 |
| 9 | -0.02 | 0.13 |
| 10 | 0.15 | .24871* |
| 11 | 0.18 | .21111* |
| 12 | 0.18 | .22412* |
| 13 | 0.00 | 0.14 |
| 14 | -0.02 | .28855** |
| 15 | 0.15 | -0.02 |
| 16 | -0.03 | -0.03 |
| 17 | 0.10 | 0.02 |
| 18 | -0.14 | 0.06 |
| 19 | -0.17 | -0.01 |
| 20 | 0.18 | .24492* |
| 21 | -0.03 | .22781* |
| 22 | 0.11 | 0.14 |
| 23 | -0.03 | 0.10 |
| 24 | -0.09 | 0.13 |
| 25 | -0.03 | 0.16 |
| 26 | 0.08 | -0.04 |
| 27 | -0.08 | 0.05 |
| 28 | 0.00 | 0.10 |
| 29 | 0.06 | 0.09 |
| 30 | -0.05 | 0.05 |
| 31 | -0.07 | 0.09 |
| 32 | -0.03 | 0.01 |
| 33 | -0.03 | 0.14 |
| 34 | -0.06 | -0.08 |
| 35 | -0.14 | -0.09 |
| 36 | 0.09 | 0.04 |
| 37 | -0.02 | 0.13 |
| 38 | 0.07 | 0.10 |
| 39 | 0.04 | 0.06 |
| 40 | 0.05 | 0.00 |
| 41 | 0.16 | 0.12 |
| 42 | 0.02 | 0.06 |
| 43 | -0.06 | 0.05 |
| 44 | -0.01 | -0.03 |
| 45 | -0.11 | 0.14 |
| 46 | 0.01 | 0.12 |
| 47 | -0.08 | -0.05 |
| 48 | -0.05 | 0.08 |
| 49 | -0.03 | 0.13 |
| 50 | -0.05 | -0.12 |
| 51 | 0.03 | 0.16 |
| 52 | 0.01 | 0.14 |
| 53 | 0.08 | 0.10 |
| 54 | -0.05 | 0.18 |
| 55 | 0.01 | 0.14 |
| 56 | -0.05 | 0.14 |
| 57 | 0.14 | 0.05 |
| 58 | .22728* | 0.09 |
| 59 | -0.04 | -0.14 |
| 60 | 0.08 | .27046** |
| 61 | 1.00 | .35572** |
| 62 | .35572** | 1.00 |

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