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Risk Taking, Impulsiveness, and the Age-Crime Relationship

M Elizabeth Copeland-Teschner
University of North Florida

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RISK-TAKING, IMPULSIVENESS, AND THE AGE-CRIME RELATIONSHIP

by

M. Elizabeth Copeland-Teschner

A thesis submitted to the Department of Psychology
in partial fulfillment of the requirements
for the degree of Master of Arts in
Counseling Psychology

Signature Deleted

Committee Chairperson

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Second Reader

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Department Chairperson

UNIVERSITY OF NORTH FLORIDA

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A B S T R A C T

The study's purpose was to determine the influence of risk-taking and impulsiveness on criminal behavior, the factors' relationship to each other and their relationship, to age. It was hoped that the data would help explain the phenomenon of criminal burnout. Subjects were three groups of males aged 18 to 44, classed by their criminal history. Group One was 83 prisoners; group two, 53 subjects who had never been arrested; group three, 28 who had been arrested or incarcerated in the past, but who were not incarcerated at this time (the "erstwhile" group). Measures utilized were the Self-control (Sc) scale from the California Psychological Inventory, Risk-taking (Rtg) and Infrequency (Inf) scales from the Jackson Personality Inventory, a modified Choice Dilemmas Questionnaire, the Impulsiveness (Imp) and Venturesomeness (Ven) scales from the Eysenck, Pearson, Easting, and Allsopp (1985) I-7, and two behavioral measures: volunteering and cigarette smoking. Intercorrelations were computed over-all and by group; analyses of variance were performed on the three groups' scores on each measure. Impulsiveness and risk-taking were found to be related but separate concepts. Self-control (Sc), Imp, Ven, Inf and the two behavioral measures, volunteering and smoking, differentiated the three groups, with prisoners scoring significantly higher on Imp, Inf and risky behaviors than nonprisoners, and significantly lower on Sc. Causal inferences about the influence of impulsiveness on criminal behavior are supported by the erstwhile group's scores, which fall between the prisoners' and never-arresteds' scores. Causal inferences are further

supported by the significant positive relationship of impulsiveness to the individual's total number of arrests, and the significant negative relationship between self-control and total number of arrests, also on the significant correlation between Imp and amount of time elapsed since last arrest. Venturesomeness differentiated the three groups in an unexpected manner. The erstwhile group was the significantly higher scorer, suggesting a transformation of impulsiveness into less antisocial responses are 1) occurring, and 2) adaptive. Risk-taking had nearly a zero relationship to age. Impulsiveness is related to age in only one case: the group who had never been arrested significantly decrease in impulsiveness with age. This is not the case with prisoners or erstwhiles whose impulsiveness was found to decrease not with age but with other salient factors such as number of arrests and amount of time since last arrest/release. These findings suggest not only the critical involvement of impulsiveness in criminality, but also point to the developmental nature of this crucial quality. The value of these findings is their potential use in crime prevention and criminal rehabilitation. (146 references.)

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Risk-Taking, Impulsiveness, and the Age-Crime Relationship

This paper addresses specific areas of the current problem of ever-rising crime rates in an effort to discover remedies. It does seem that effective remedy would require some knowledge about cause. To clarify this assertion, an analogy would be a severe problem from a disease and the need for creating an effective vaccine. This process would, among other things, require specifying and isolating a germ or virus as the target for intervention and alterations. Unfortunately causes of crime are difficult to isolate. This is true partly because of the variety of acts which fall under the rubric "crime," and also because of changing definitions of crime.

Continuing the physical illness-infection analogy, it is as if treatment as been directed at the entire limb when only the large toe is infected. It is possible intervention has been directed to an entire segment of society (all the poor, or all youth, for example) when only a small portion of that segment is actually infected. This wastes precious resources and is largely ineffective treatment. In attempting to eliminate the necessity for crime, our society has raised the minimum wage, upgraded ghettos, integrated its races, created programs directed at the children of the poor, and legislated equality in education and in employment practices. Over-all, society appears to be healthier, yet crime has skyrocketed.

Crime, whatever its definition, is committed by people, and logic dictates that people commit crime for the same reasons they do everything else. There is a desired goal accompanied by learned goal-achieving behavior believed to be rewarding, and the perceived costs of the goal-

directed behavior are not sufficient to inhibit it. In support of this analysis is Hirschi's (1986) definition of criminality as "adherence to the pleasure principle."

Current methods of criminal treatment are apparently ineffective. This is attested to by the continuing increase of crime. Yet massive public support is required for any changes in the deeply traditional system of crime prevention and correction. Securing such support seems to require explainers and/or predictors of crime which are not only found empirically to be accurate, but also to have face validity from the perspective of the ordinary citizen.

In researching crime, two primary correlates consistently emerge. They are an individual's past history of offending, and his (see Footnote 1) age (Bartol, 1980; Blumstein & Cohen, 1982; Cline, 1980; Furnham, 1985; Hirschi and Gottfredson, 1983; Hirschi & Hindelang, 1977; Hoffman & Beck, 1984; Rowe & Tittle, 1977 [see Footnote 2]).

The age factor seemed most intriguing since there is a well known phenomenon, referred to as criminal burnout, which is age-related and which seems promising for producing clues to resolving the critical social problem of soaring crime rates. In criminal burnout, an individual with a history of offending simply ceases to be arrested. No matter how long the history of criminal behavior, around the late thirties and early forties they desist from being arrested. This is not exactly the same as declaring they desist from crime. That debate is not resolved. However, all that is needed for the current study is the curious fact that for reasons unknown, people stop committing crimes on a fairly predictable schedule.

Three age-related areas seem open to exploration. The first is the strong relationship of age to the onset of crime; second is the relationship of age to varying types of crimes; and third, the discontinuance of criminal offending by a certain age.

The ability to predict criminality is classified by Glueck and Glueck (1972) as "the most fruitful concept to have emerged in the history of criminology" (p. 1). Yet a predictor variable superior to past history has not been found (Hoffman & Beck, 1983). It seems, though, that this method is analogous to predicting who will fly an airplane based upon who has flown one in the past. While around 16 years old is the peak age for committing offenses, the vast majority of 16-year-olds who commit an original offense are never again arrested. In the same way that knowledge of which pilots plan to fly at a particular point in time is necessary for air traffic controllers, accurate identification of the teen-agers who will commit more crimes is necessary for prevention of further criminal behavior. If this exploration should lend greater understanding of the criminal act, it could also be helpful in rehabilitation of offenders.

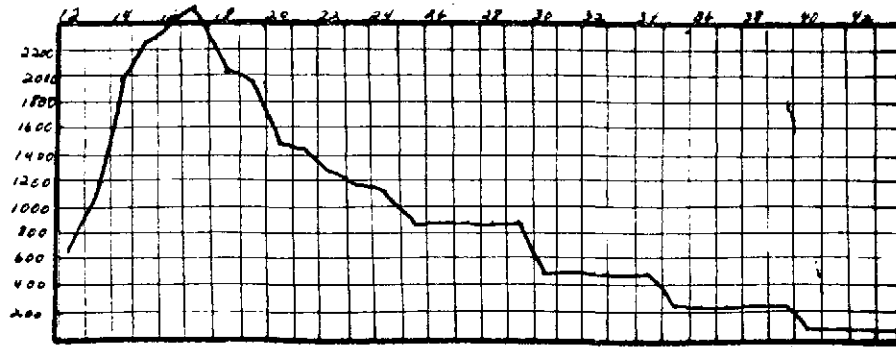
Some professionals who work with young offenders, such as judges, policemen and correctional personnel, claim that they do know in advance which ones will be back in the system. The problem is that most feel nothing can be done to positively change this "predestination." The Gluecks (1937/1966) asserted the observable quality that differentiates the repeaters is always imbedded in a psychiatric diagnosis (p. 205). Their theory has been partially supported by several studies finding a preponderance of psychiatric diagnoses in incarcerated populations. But the

exceptions, offenders without clinical diagnoses, weaken their argument, it seems. The psychiatric disorders may, as well, be responsible for the incarceration (apprehension and inadequate defense) more than for the crime.

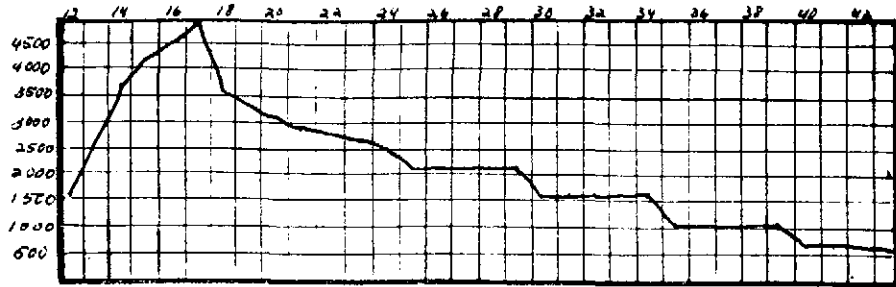
There have been no empirical studies of the accuracy of these data as predictors. One problem is that the qualities differentiating the young person who will reappear in the criminal justice system from one who will not have not been well elucidated. There are broad descriptors of these young people gleaned from conversations with professional juvenile workers, descriptors such as "troublemaker," "he mouths off," "disrespectful," "bad." Hopefully, a method which would help identify these at-risk young persons would also provide direction for the shaping of interventions.

For at least 150 years (Hirschi & Gottfredson, 1983) a relationship between age and crime has been found empirically. Age is the most powerful correlate of crime. The highest incidence of original offenses is in the teens, peaking around 17 to 19. It sharply drops over the next two or three years, then slowly declines until around the mid-thirties, after which age few crimes are committed (see Figure 1). Moberg's (1953) finding that no more crimes were occurring with increases in the aged population is, in part, a confirmation of the criminal burnout phenomenon. The Gluecks (1937/1966, 1972) felt so strongly about the age-crime relationship that they wrote that if a man had not yet done with offending by age 36, it was likely he would never be. Hoffman and Beck (1984) quote from a 1964 National Parole Institute publication: "One of the most firmly established

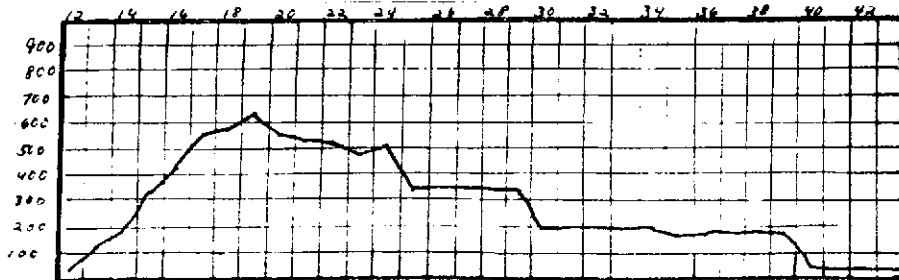
BURGLARY



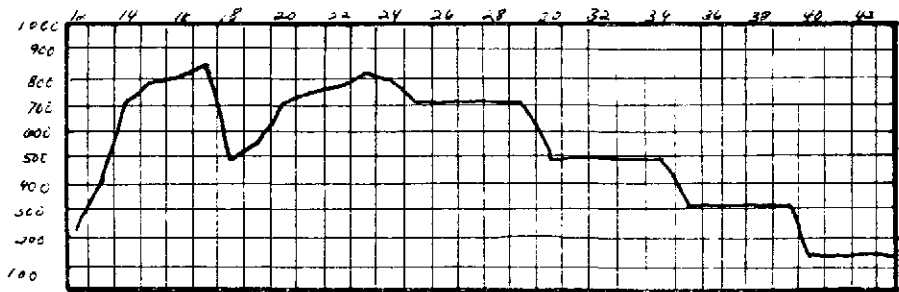
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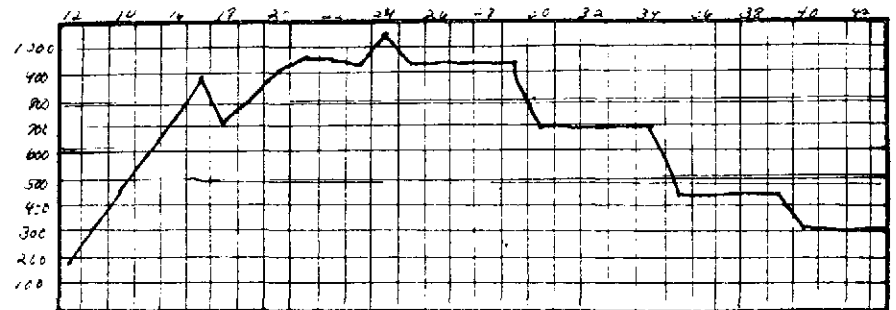
ROBBERY



SIMPLE ASSAULT



AGGRAVATED ASSAULT



pieces of statistical knowledge is that the older a man is when released from prison, the less likely he is to return to crime" (p. 617).

Yet the age-crime relationship, like the past history-crime link, is an unsatisfying predictor of who is likely to commit crime. The dilemma for investigators of the age-crime relationship is that neither variable can be directly manipulated. Nevertheless, it seems possible to dissect the powerful relationship between age and crime into more specific and empirically testable components. The goal is to isolate an accurate predictor of crime, with the added possibility that the factor also might be more accurately descriptive of criminal behavior, even explanatory. If this were the case, both rehabilitative and preventive efforts might be enhanced.

Age as the Primary Correlate of Criminal Behavior

In addition to the correlation between age and incidence of crime, age has been intriguingly related to type of offense. Cline (1980) found the peak age for committing the crimes of vandalism, motor vehicle theft, arson, burglary and larceny was 16.9-18.3 years of age. For stolen property charges, narcotics, violence, assault, weapons charges, and sex offenses the peak age was between 20.0 and 25.9. Alcohol-related offenses dominated the middle-aged population.

Another age-related change in criminal behavior is discussed by McGuire and Priestley (1985). They report that as offenders grow older they tend to become loners. Younger offenders tend to commit offenses in company. The following are the pertinent statistics from McGuire and Priestley :

Age	Solo	Pairs	Groups
10-14	36.5	36.1	25.4
15-16	41.0	29.5	29.5
17-20	62.8	24.4	12.8
45+	91.0	9.0	0.0

McGuire and Priestly related risky shift, the tendency of groups toward riskier propensities than lone individuals, to crime and, utilizing the above statistics, they further related it to age. An example of the application of potentially useful inferences one can make from such findings is that, probably, a crime which required collusion was committed by younger persons. Another inference one might pull out of the McGuire and Priestley statistics for application is that a crime involving high risk would be more likely to have been committed by a younger person.

Physical-Chemical Changes Associated With Age

Age represents any changes found to occur in a person over the passage of time. It is a surprisingly complex concept to define. The first element of age to be considered, the most obvious, is the various physical changes occurring in an individual over time. These are possibly associated with wrinkles, slower gait, less erect posture, a pervasive quieting of behavior, and slowing of responses. Some changes of age, such as organic damage and biochemical depletion, result in diminished or constricted motor and cognitive responses. Others changes are found to increment or fine-tune these. An example is the observable improvement in motor and cognitive performance accompanying practice and experience.

There is a strong possibility that criminal behavior declines for no more reason than that the criminal's body loses its agility. The body and biochemical cognitive functions become incapable of the type of performance

crime requires. Extending that idea, it is also possible that awareness of these age impairments precipitates cognitive and behavioral changes which then leads to abandoning criminal behavior.

No evidence, however, supports the relationship of physical impairment to ceasing criminal behavior. Furthermore, age-related physical impairments were found to involve changes which occur much later in the lifespan than the points associated with criminal activity--the late teens and then the mid-thirties.

One exception to the relatively late-occurring physical-biochemical changes is the testosterone involvement. There was ample evidence of its effect on crime-related behaviors, especially aggression, ranging from the historical practice of castration as punishment and reports of its crime-reducing side effects (Hawke, 1950; LeMaire, 1956) to the most recent publications, such as the August 1987 issue of *Omni*. *Omni* reported Dabbs' (1987) findings of significantly higher testosterone levels in violent offenders than other types of offenders. There are additional studies impressively linking testosterone to crime such as Selmanoff, Goldman, Maxson and Ginsberg (1977), who, in animal studies, found testosterone to be significantly involved in aggression, but only in the young animal. Witkin et al. (1976) has also linked testosterone to crime by way of their XYY chromosomal studies, finding that the XYY subject had higher testosterone levels and higher crime rates. While the interpretation of these findings are still controversial (especially concerning the criminal behavior criteria), the testosterone link to crime was implied.

Internal and External Factors Correlated With Crime

Most investigations of crime have focused on social and environmental influences such as educational opportunity, housing, poverty, unfair employment practices, and racial-cultural discrimination. The predominantly sociological focus of research has persisted through the early 20th Century, until quite recently. There is a lot of research with findings suggesting that the gigantic societal changes resulting from such a focus paradoxically might be said to have facilitated criminal behavior, since this is exactly what has happened. Investigation of heredity-genetics, traits-personality, or other representations of individual differences (composing a necessary crime component--the individual offender) have received much less attention until recently (e.g., Wilson and Hernstein, 1986).

Changing from exploring the external influences on criminal behavior was Megargee (1977a, 1977b, 1977c) who has done a massive work categorizing MMPI profiles of prisoners in order to isolate individual predictors of crime. He found ten major profiles representing different personality types, and several minor configurations. The problem seen to emerge at this point is that all of those classifications still covered only about half of the prisoner population he studied. This information suggests a great diversity in offenders' personality profiles. It suggests, too, that use of this method of analysis for intervention might be inefficient. It seems vastly more profitable to search for specific characteristics which might appear predictably in these varied profiles.

Some theorists and researchers have viewed crime as a phenomenon composed of individual differences and situational influences. Some who have encouraged exploration of these interacting multifactor conditions as they influence criminal behavior include Bandura (1973), Bartol (1980), Cornish and Clarke (1985), Eysenck (1964, 1977), McGuire and Priestley (1985), and Rotter (1966). It is easy to understand how the complexities of investigating an event consisting of masses of varying internal and external factors have produced complex theories but little scientific research.

In the only study comparing prisoners to nonprisoners found from a survey of 15 years' publications, Fodor (1973) operationalized Kohlberg's (1963) moral development model. Clear differences in moral development were established between offenders and nonoffenders. It seems that such individual differences between these groups promise to produce, at least, clues to a descriptor variable which will be more accurate than age. Perhaps they will also point to factors which could become predictors.

A theory of changing scale scores as reflectors of changes in specific qualities being related to offending would require first of all that differences in scores in scales measuring that quality be established between offender and nonoffender groups. Secondly, causal inferences as well as relationship statements might be made if the quality were found to change over time in nonoffender groups but not in offenders. Finally, a theory of relationship between levels of personality factors and criminal behavior and causal inferences would be strengthened by analyzing levels of those same qualities in a group of individuals who have offended in the

past but who have not been arrested for a period of time. An example of an outcome which would strengthen both relationship statements and causal inferences would be that this erstwhile group's scores in specific scales change as a function of time elapsed since last arrest. Another possible finding that would strengthen both causal inferences and relationship statements would be that scores on the specific qualities appear to vary with number of arrests.

An analysis of standardization data for widely used questionnaire-type psychological inventories (the California Psychological Inventory [CPI], Jackson Personality Inventory [JPI], and the Sixteen Personality Factors assessment [16PF]) found several qualities or scales where offenders and nonoffenders differ. Examples are the CPI's Sociality and Self-Control scales, and the JPI's Responsibility scale. The group means on various scales reported for high school students (approximate ages 14-17) were compared to those of college age students (approximate ages 18-22), then to graduate students (approximate ages 23-30), and finally to an over-all sample labeled "normals." Progressive differences were apparent. Quite importantly, the CPI data included results from various offender groups: troublesome students, juvenile delinquents, and adult prisoners. Not surprisingly these groups exhibited similarities to one another and differences from nonoffender groups on intuitively relevant scales.

Two qualities, represented by the CPI label "Self-control (Sc)" with its reciprocal "impulsiveness," and the JPI's "Risk-taking," appear to change over time (with age) in normal populations but not in offender populations. Age differences were also found in data from the I-> Impulsiveness

Questionnaire (Eysenck, 1985), especially in the Impulsiveness scale. Impulsiveness and risk-taking seem logically to be related to crime. There is, in addition, a fair amount of existing data concerning these two qualities, some of which has already established a link to offending and criminal behavior. Another point regarding the choice of risk-taking and impulsiveness as the selected factors is an already-established link with general decision-making (Garratt, 1985; Ziller, 1957). This perspective or model is fundamental to the present study.

The Objective in Criminal Risk-Taking: Crime Pays

Both Ziller (1957) and Garratt (1985) assert that the dynamics of risk-taking are the same as those operating in any sort of decision-making. All behavioral decisions are based in large part on the individual's perceptions of payoffs and probabilities. Slovic and Lichtenstein (1968) separated risk-taking behavior into two components, payoffs and associated probabilities. Later, Slovic, Fischhoff and Lichtenstein (1977) continued their investigation of risk-taking, but under the rubric of general decision theory.

What all of this has to do with crime may become clearer when including the following information: In the state of Florida over the last three years, the crime clearance rate (see Footnote 3) has been reported at around 20 percent. The critical point made by these statistics is that, on the average, only two out of ten offenders are arrested. It is well known that even fewer are convicted. Feeney, Dill and Weir (1983) reported that 30 to 60 percent of all robbery arrests are not convicted. Conversely, this means that 40 to 70 percent of robbery arrests are convicted. At the

highest figure, 70 percent convicted of the 20 percent arrested means that about 14 percent of perpetrators of reported crimes are punished. The lowest figures make that number of "punished" crimes about 8 percent, and an even smaller number are imprisoned. With only 8 to 14 percent of reported robberies resulting in any sort of punishment for their perpetrators, the fact is that a whopping 86 to 92 percent of robbers are rewarded for their robbing behavior.

In relating crime to decision-making theories, it is important to recognize that punishment for criminal behavior is not at all a sure thing. This becomes a critical point when considering Pearce-McCall and Newman (1986). They found that when punishment was noncontingent (meaning inconsistent or not a sure thing), the expectancy of a successful outcome is increased. From a behavioral-learning perspective, current contingencies increase the probability of crime simply because eight or nine times out of ten it will be rewarded. If Pearce-McCall and Newman are considered, a criminal must proceed with a subjective assessment of nearly 100 percent chance of success.

More consternating yet in its implications is Herrnstein (1967), who found that animal behavior is reinforced by any contingency less aversive than the expected one. If this dynamic generalizes to human subjects, then a criminal who is sentenced to a lighter penalty than he expects is paradoxically being rewarded for his criminal behavior.

Summarize all of this information on the framework presented by Grasmick and Bryjack (1980). They found that severity of punishment had a weak or insignificant effect on deterrence, but the level of perceived risk

of apprehension had a significant deterrent effect. All of these points together suggest that the effect of current arrest and incarceration rates on the crime rate are quite sinister. Greenberg (1981) emphasizes this by his conclusion that a low perception of punishment risk is the consequence of illegal behavior more than its cause. It seems that, whether examining crime as a behavior or as a cognitive act, the decision to commit crime may be usefully understood through a risky-choice model.

Risk-taking as an Element of Crime

Neal Shover (1983, 1985) and Cusson and Pinsonneault (1985) all interviewed aging "reformed" criminals, inquiring about what had happened to change them. The "aging criminals" reported, in various ways, they had begun to think about all the aversive things that could happen, of what could be lost. Often they commented on their sudden awareness of the finiteness of time. What caused these changes in cognition? Could such a change be inculcated? Almost all the ex-prisoners interviewed answered questions about why they changed in terms easily translated to risk. They spoke of things to be lost in consequence of their behavior, both material things and nonmaterial.

Risk-taking sometimes appears to be a quality varying between individuals but also within the same individual from time to time. This is seen, for example, in the Kogan and Wallach (1964) studies of risk-taking in groups. Yet psychometrists, such as Jackson (specifically in the JPI), see risk-taking as a fairly stable quality of the individual. In most studies risk-taking emerges as a purely situational response. One example is Aschenbrenner (1984), who found risk preference (the amount of risk an

individual is comfortable with) to be a function of the task rather than a stable or specific behavior. His finding was that risky choice was more influenced by situation than by any individual trait or tendency. Finally, some theorists such as Cohen, Sheposh and Hillix (1979) and, more recently, McGuire and Priestley (1985), conclude that risk-taking and criminal behavior can only be understood as being a variable result of the interaction between an individual and the situation. Paternoster, Saltzman, Waldo, and Chiricos (1982) concluded that the critical dynamics of risk-taking are an internal perception and evaluation of external factors. Crozier (1979), in a review of risk-taking literature, likewise concluded the primacy of subjective evaluation and perception in risk-taking. Felsenthal (1979) found that all his subject risky choices were made independent of past experience, supporting the strong situational nature of risk. One conclusion drawn from the present review is that the quality of risk-taking appears to be extremely variable within an individual (from time to time) which, nevertheless, remains fairly fixed in its boundaries or limits, perhaps only to be exceeded in extreme external conditions.

Krzysztofowicz and Duckstein (1980) established three types of bias in risky decision-making due to the following: (1) the effects (on the individual) of the outcome range (their perception of externals); (2) a preference for co-variance (individual limits of comfortability with subjective perception of externals); and (3) inconsistencies in assessments from different sources (distortion of individual perception and response due to external influences). Their work indicated at least three separate areas involved in a risky decision--potential outcomes, individual

preferences, external information. Implicitly included here is the individual's capacity to evaluate and respond.

The establishment of what appear to be universal biases involved in risk-taking imply the predominance of individual factors. An example of one of these was the Kahneman and Tversky (1984) finding that people tend to overweight probabilities toward either extreme. Metzger (1985) also found apparent universal biases. She posits "the gambler's fallacy," which is actually composed of three separate errors in subjective assessment. The first, she says, is an increasing risk preference over the course of a day (or longer, assumably). The second element is an insensitivity to actual contingencies. The third is a tendency to contradict expert opinion.

In summary, Van den Haag (1982) appears to state well what is shown by the foregoing studies. He suggests that the two areas to target for change are: (1) decreasing expectancy of profit for crime as compared to lawful activity, and (2) increasing the perception of probability of apprehension consequent to criminal activity. Waldo and Chiricos (1971) earlier published the same conclusions.

Problems With Risk-taking as Primary Variable

Risk-taking was an excellent factor for study since there is a great deal of literature explicating it. However, transposing some of those findings onto risk-taking as it occurs in criminal acts began to be troublesome. Examples are Levinger and Schneider (1969) and Williams (1965). Both these studies found that people admire a position more risky than their own. Wallach and Wing (1968) found that risk was culturally valued and Chapko (1973) found that it was a norm in our society to be

risky. These ideas do not fit neatly with a study of risk-taking as a primary factor in criminal behavior.

As is the case with many psychological factors, risk-taking turns out not always to be a negative quality. In fact, in many areas of everyday life risk-taking is a valued asset. It is desired in managers to the extent that much expensive training is employed to facilitate it. Many studies of risk-taking surveyed for this review were published in business and managerial publications (Morris, 1966; Sisson, 1985; Taylor, 1974; Ziller, 1957). The purpose of these publications was either to identify risk-takers in order to assess vocational fitness, or to refine the *skill* of risk-taking for managerial decisions.

Some studies, such as Roswal and Frith (1980), demonstrate another positive aspect of risk when they outline methods of using an individual's innate risk-taking propensity to facilitate various therapies. There are also socially desirable risk-taking behaviors, such as introducing oneself to a stranger or initiating conversation. Standing up for an unpopular belief is an American value, and it is risky. One of mankind's most desirable and valued qualities, courage, is also risk-taking.

Risk-taking is a quality paradoxically valued as both desirable and undesirable. Making the emergent dichotomy more complex, it seems that desirability apparently depends on some pretty vague variables, having mainly to do with invisible forces: motives. For example, a risky act, such as walking along a narrow ledge of a building ten stories in the air, can be--depending only on its motive--praised or punished. If it is done

in order to save a child, it is praised. If it is done in order to commit a robbery, it is despised.

It became obvious that the dual nature of this factor, risk-taking, could cost precious accuracy in research and effectiveness in application if operationalizations are not particularly attended to. Motives, however, are extremely difficult to operationalize.

In summary, it seems that risk-taking has elements which tend to prosocial as well as antisocial application and this division can be the source of error.

Impulsiveness: A More Narrowly Defined Variable

On consideration, impulsiveness, whether defined by a low self-control score or as being the opposite of reflectivity (Eysenck), has no prosocial connotation at all in the literature outside of a possible synonym for Rogerian spontaneity. Therefore, this factor was selected as stating more clearly and accurately the abstract principle visualized in risk-taking as being related to criminal behavior.

Consequent to illuminating the dichotomy of prosocial and antisocial risk-taking, and consequent to deciding to incorporate a study of impulsiveness, one major task of the current study is exploring the relationship between risk-taking and impulsiveness, as well as the relationship of each of these to crime. O'Keefe (1979) concluded from results of a comparison of 40 impulsive and 40 nonimpulsive children that there was no significant relationship between the two factors, risk-taking and impulsiveness. Jackson's (JPI Manual) definition of risk-taking is given by trait adjectives of high and low scorers. The high scorer on the

Risk-taking scale is described as "(r)eckless, bold, impetuous, intrepid, enterprising, incautious, venturesome, daring, rash." Megargee's (1972/Gough, CPI) description of the low scorer on self-control is "(i)mpulsive, shrewd, excitable, irritable, self-centered, and uninhibited; aggressive" It appears the low self-controlled (impulsive) individual possesses traits of the high risk-taker which are generally deemed negative, illustrated in the descriptors "reckless," "incautious," and "rash."

Other sources explicating impulsiveness include Thornton (1985), who reported finding it to be composed of two elements: (1) a high risk-taking tendency, and (2) a tendency not to evaluate risk before acting. Eysenck (1964) defines impulsiveness in terms of lacking reflectivity; Friis and Knox (1972) define it as the opposite of planfulness. Megargee (1972/Gough, CPI) defines it as the opposite of self-control. Oas (1985) defines impulsiveness as "disordered behavior occurring with (1) little or no premeditation, or (2) little or no psychological capacity for delay. Oas (1984) earlier had defined impulsiveness by the DSM-III criteria for attention deficit disorder, which encompasses both the definition of planfulness and that of self-control. Chaplin's Dictionary of Psychology (Chaplin, 1975) defines impulsiveness as "a more or less chronic tendency to act on impulse or without reflecting upon the consequences of action."

Bartol's (1980) definition of impulsiveness as "the inability to delay gratification" reinforced Mischel (1961), Quay (1965), Ross and Grossman (1974), and Stumphauzer (1973), all of whom concluded the same. It also begins to relate Hirschi's (1986) pleasure-principle definition of crime to this study of impulsiveness. All of these researchers and theorists have

concluded that a key component of impulsiveness is the inability to delay gratification. Mischel and Gilligan (1964) long ago established the link between dishonest behavior and a preference for immediate gratification.

Thompson, Teare, and Elliott (1983), in a review which included studies of impulsive children's characteristics, set them forth as follows:

1. Global search-and-scan strategy;
2. Poor selective attention;
3. Low anxiety over errors;
4. Aggressive social behavior;
5. Immaturity of moral reasoning;
6. Externalized behavior problems; and
7. Deficient reading skills.

Two of the descriptors isolated by Thompson, Teare, and Elliott, aggressive social behavior and immaturity of moral reasoning, are especially relevant to this study of impulsiveness as it relates to crime.

Waugh (1984) performed a factor analysis on a set of self-control-impulsiveness measures. He, like Gough, visualized these two qualities as the extreme poles of a dimension or quality, and concluded the following: "The phenomena of self-control or impulsivity were shown to be multidimensional even within same-sex subjects. Only one of the variables, delay of gratification, reflected specific developmental variance." The first point relevant to this study that Waugh makes is his acknowledgement of the vast potential for invalidity and unreliability in research by attesting to the multidimensional nature of impulsiveness. Secondly, he, too, isolates delay of gratification as a key component, suggesting further

it is the one component of impulsiveness-self control which fits a developmental model. If this is true, that acquisition of the ability to delay gratification fits a developmental model, any quality composed of the ability to delay gratification should also be found to significantly correlate with age, if only because of the passing of time is a necessary element of developmental processes.

Finally, and highly pertinent to this present investigation, Eysenck (1985) has established the relationship of impulsiveness to age.

Age as a Correlate of Risk and Impulsiveness

Changes Over Time

The following composite of studies indicates change over time (as one ages) in the way individuals perceive and evaluate risk. The changes examined are admittedly gross and certainly related to other phenomena. However, they are valuable because they demonstrate firstly that there is, in fact, change. Secondly, they suggest the nature of this change.

Sorce, Emde, Campos and Klinnert (1985) found that their subjects, 108 12-month-old infants, referenced maternal facial expressions as their cues for risky behavior. Their outcome is made more powerful by the fact that ambiguous facial expressions, such as curiosity and interest, were referenced almost twice as often as the more easily interpreted expressions, joy and anger. The very young child's search for information to make a risky decision is directed toward a specific, external, authority figure and such decisions are almost universally based on cues from those authority figures.

In a later phase, childhood, Arenson (1978) found no age or sex differences in game-playing risk-taking in a group of children aged 5 to 13. In another study, Harrington and McBride (1970) found young males were "disproportionately likely to take risks" in social situations. These studies indicate changes are occurring concerning sex differences and differential situational responding.

In the third phase, adolescence, Chassin et al. (1986) found their adolescent subjects referencing parents at one time, and their peers at another. However, in the areas they explored--risk-taking involved drinking and driving issues--Clark and Prolisko (1979) found that while parental attitudes and behaviors had some effect, peers were the critical cue senders. Their results imply, through the vacillation of source of influence, both that a change in source of influence occurs and, as well, the situational nature of risk-taking, manifesting at least by adolescence.

Brownfield (1966) found, in studying optimal stimulation levels, that sensation-seeking (closely related to risk-taking) decreased with age in every group tested.

Finally, as an ideal and in support of a model of progressive change, was Locander and Herman (1979). They conclude that self-confident adults, when considering risky choices, rely mainly on internal judgment. Only secondly do they rely on external sources, and then they are variable and not specific.

Age as a Correlate of Impulsiveness and Risk-Taking

An early study linking age with risk-taking (Brownfield, 1966), found that sensation-seeking, closely related to risk-taking as defined by

Zuckerman (1964, 1968), decreased with age in all the groups he tested. More recently, Bragg and Finn (1985) found similarly that age is specifically related to individual perception of risk. Their study found that directing subjects to use a seatbelt increased their assessment of the dangerousness of a driving course. However, this effect was found only in younger subjects. Older subjects did not alter their assessments. The Bragg and Finn conclusions support the previously cited studies showing change in risky decision-making over the life span.

Kishton, Starrett and Lucas (1984) performed a factor analysis of the Eysenck, Pearson, Easting and Allsopp instrument (I-7, 1985) utilized in the present study. A significant interaction of impulsiveness and age was apparent in adolescents, even within a narrow range of four years. The level of impulsiveness differentiated 14-year-olds from 18-year-olds. Relevantly, these ages are the same as those involved in the onset of criminal behavior. Also relevantly, these ages encompass the age when the majority of offenders desist from crime.

Eysenck, Pearson, Easton and Allsopp (1985), investigating the validity of their I-7, found a steady decline in Impulsiveness and Venturesomeness with age. A partial report of their age-group findings are as follows:

Age	n	<u>Impulsiveness</u>		<u>Venturesomeness</u>	
		Mean	St.Dev.	Mean	St.Dev.
16-19	73	9.84	4.13	11.51	3.34
20-29	97	7.93	4.12	10.31	3.73
30-39	69	7.06	5.20	7.25	3.70
40-49	87	6.08	4.15	7.08	3.58

Since those data were derived from a "normal" population, the findings probably accurately represent what appears to be the "normal," progressive diminution of impulsiveness and risk-taking with age. Possibly this process is the empirical representation of maturing or "growing up." The age differences seen in the Eysenck, Pearson, Easton, and Allsopp subjects are of the same nature as the differences between groups standardizing the CPI and the JPI.

One important question the present study addresses is whether or not this apparently "normal" process of diminishing impulsiveness and risk-taking with age holds in prisoner populations. Many professional workers observe prisoners as being immature, even child-like, in social interactions. An intriguing idea is that this apparent emotional-psychological and behavioral immaturity is accompanied by a similar or related retardation of moral development. If this were found to be the case, crime remedies might be more efficiently formulated and targeted.

Race or Culture as a Correlate of Risk-taking and Impulsiveness

Hirschi and Gottfredson (1983) reported finding significant differences between proportional representation of races in offender populations. The present study found likewise. In related work, Blumstein (1982) found that Black males in their 20s had an incarceration rate 25 times higher than that of the normal population. His exploration revealed that 80 percent of this disproportionality was attributed to the higher criminal involvement of Blacks, especially in homicide and robbery. Blumstein's findings suggest that the prisoner population cannot produce a fair or representative or sample or generalizable findings due to 1) the unbalanced racial mix, and

2) the significant differences in many areas between the races. It is important to note that this means that findings from studies investigating individual characteristics probably cannot be accurately generalized to prisoner populations. Also important is the suggestion that findings from prisoner populations reflect only a mean, not the significantly different racial outcomes, which may be critical. The extent of such racial differences must be explored, it seems, in order to achieve more accurate data and produce more effective remedies for crime.

As support for these statements, the establishes biases of assessment instruments are cited. Blacks have been found to do less well on traditional intelligence inventories, at least in part due to these instrument biases. It seems probable that the generally lower intelligence scores of prisoner populations are at least in part the result of the disproportionate number of Blacks in those populations. Many personality assessments also have been found to be culturally biased (Goldman, 1977). Racial differences have been found in school children utilizing both intelligence and personality assessments (Goldman, 1977), in adolescents (Moore & Handal, 1980), and in adults (Cross & Burger, 1982).

Since the current investigation utilizes the CPI, the publication by Cross and Burger (1982) of a demonstrated cultural bias in results from that instrument was especially pertinent. Because of all the above findings of racial differences, this study proposes to analyze its findings in the traditional manner, by considering the entire subject population, and then compare results of the two major racial groups.

Education, Intelligence, and Learning History as
Correlates of Risk-Taking and Impulsiveness

Three concepts, education, intelligence, and learning history, will be considered by this investigation rather than intelligence alone. Critical elements related to criminal behavior are not adequately represented by the label intelligence alone. As intelligence influences the amount of education possible (as well as what is learned from experiences), so does amount of education influence scores of most intelligence assessments.

Blaylock (1985), in a review, found three major variables in risk-taking: the decision environment, information about parameters of alternative choices, and the individual's cognitive style. These appear to encompass learning history (responses to the decision environment), education (information about parameters) and intelligence (cognitive style). The interaction between cognitive style and impulsiveness on performance of memory tasks by children was explored by Siegel, Kirasic and Kilburg (1973). Reflective children performed a recognition task significantly better, appearing to be more intelligent. They also performed a more thorough and detailed feature analysis than impulsive children in their experiment. Differences between reflectives and impulsives, however, did not reach significance on the easy items. Only on the more complex items did the reflectives emerged as superior performers. This suggests that probably within a fairly wide range, intelligence and impulsiveness are not significant factors in problem-solving.

Each of the incorporated elements--intelligence, education, learning history--and their relationship to either risk-taking or impulsiveness will now be briefly surveyed.

Intelligence

While intelligence has been linked with criminality (or more accurately, apprehension-arrest and incarceration) (Heilbrun, 1982), no study was found relating it to ceasing to offend ("burnout"). Intelligence undoubtedly plays a part in impulsiveness. However, it seems to play quite different roles depending on whether the intelligence level is high or low. High intelligence is associated with more sensation-seeking or risk-taking. Low intelligence is associated both with being incarcerated and with higher impulsiveness.

Prentice and Kelly (1963) explored the connection between intelligence and delinquency, and included a review of 21 other studies. They found delinquents to be in the dull-normal range of verbal ability and in the normal range of performance. They discuss Wechsler, who found that profile so common in delinquency that he defined it by that criteria. Prentice and Kelly disagreed with Wechsler's conclusions, however. They felt the correlation was superficial, and that some problem other than intelligence, such as specific learning disabilities, could offer a more accurate explanation of both the profile and of delinquency.

Kogan and Wallach (1964) found an association ($r = -.21$, $p < .05$) between verbal ability and risk-taking. This finding held only for males, it should be noted. They found no association at all between verbal ability and risk-taking in women. Since verbal ability is the area most often assessed

in measuring intelligence, Kogan and Wallach's findings suggest that intelligence has to do with risk-taking, but not much.

Finding only a weak correlation between intelligence and risk-taking suggests possibly that some subjects with high intelligence have high risk-taking propensity while others have low, and some with low intelligence likewise manifest high risk-taking and others, low. Therefore, it seems logical to search for a variable other than intelligence but related to it as a more accurate moderator of risk-taking.

Because of the strong logical connection between intelligence and risk, and intelligence and impulsiveness, lack of empirical validation of this relationship is curious. Perhaps this state of affairs can be explained by research methods. Most studies investigating this relationship utilize undergraduate populations, which are fairly homogeneous as to intelligence. As a matter of fact, most naturally occurring (meaning not experimentally created) groups probably will turn out to be homogeneous as to intelligence. This homogeneity in convenient populations could account for the consistent findings of insignificant correlation between impulsiveness or risk-taking and intelligence.

Pertinent to the current study's attempt to establish the complexity of risk-taking (in order to further extricate and isolate the concept of impulsiveness) was the Wallach and Kogan (1965) finding that verbally able males with both high test anxiety and low defensiveness were significantly less risky. In their search for explication of risk-taking, Kogan and Wallach (1964) explored a complex interaction of factors, concluding that

an adequate definition required a combination of several variables. The variables they isolated were sex, intelligence, anxiety and defensiveness.

Illuminating further the relationship of impulsiveness to intelligence were Friis and Knox (1972), who found IQ scores to be negatively related to impulsivity. Shure, Spivak and Jaeger (1971) found both aggression and delay of gratification to be negatively correlated with the level of problem-solving skills in preschool children. Messer (1970) found that impulsiveness declined with age in school children except in children who had failed a grade. These children's impulsiveness scores remained the same over the two and one half years of the study. Messer's findings support the link between learning disabilities and impulsiveness which Oas (1985) and others have found.

On all tests of short-term memory in emotionally disturbed children, Finch, Edwards, and Searcy (1984) found correlations with impulsivity. They also found that in this disturbed group of children, reflectives did better than impulsives on memory tests. Memory deficits would be expected to produce poorer performance, or manifest as a learning disability, particularly on verbal ability-type intelligence assessments.

Heilbrun (1982) found three models of impaired cognitive processing related to criminal violence:

- (1) Low IQ with associated poor impulse control;
- (2) Low empathy; and
- (3) Lack of inhibition against physical aggression due to poor socialization.

Especially relevant to the current study is Heilbrun's item (1), low intelligence with the "associated poor impulse control." While low intelligence might account for the other two factors Heilbrun isolated, these also can occur in the case of normal or high intelligence. Heilbrun expressed his belief that the criminal with low intelligence had a narrower range of "straight" alternatives. While this argument seems popular, it seems that such a narrowing of alternatives could exert little influence on whether or not a person decides to commit a crime since, in the case of low intelligence, the range of "crooked" alternatives also would be narrowed. Logically the connection of low intelligence with crime does not appear realistic. It seems that criminal acts, including unsuccessful criminal acts, would require as much thought as noncriminal alternatives. Furthermore, the level of intelligence required to learn inhibition against criminal activity is minimal. Behavioral studies have adequately demonstrated that all sorts of inhibitions can be taught, even to the severely retarded. If this were not the case, crime and retardation would be almost perfectly correlated. An example of this point is found in Hughes' (1985) study of learning disabled children and the effect of problem-solving skills training on their impulse control. In analyzing his methods, it seems that subjects simply were given more intensive training with the same methods and the same materials as was given to normal children.

The Hughes (1985) study is highly relevant to the theme of the current investigation because he found, among other things, that impulse control was significantly increased in the intensive-training group. The study

becomes, in its entirety, an example of the low relevance of intelligence to the learning impulse inhibition. While intelligence and self-control, as measured by the CPI and reported in its standardization data, covary closely, Hughes and other behavioral studies suggest that intelligence may be a factor in crime (as in any behavior) only insofar as it hinders an individual's understanding of prohibitions or consequences. Intelligence may be found to contribute to violent crime insofar as it limits the individual's coping capabilities (the exceeding of which might lead to a violent response). Yet it has been demonstrated, especially by Hughes (1985) and Sowers, Verdi, Bourbeau and Sheehan (1985), that even severe intelligence limitations can be overcome with specific education/learning.

In summary, it seems that individual intelligence level, within fairly wide boundaries, is not crucial to either criminality or to impulsiveness, but that persistence, intensity, and specialization of training-education are. In the case of impulsiveness, an individual's intelligence level may turn out to indicate little more than how intense training must be to accomplish the prescribed amount of learning to achieve impulse control. On the other hand, intelligence is probably accurately associated with incarceration, although not necessarily to criminal acts. As has been elsewhere noted, understanding of the relationship between intelligence and crime is critically limited since most testing on criminals is done on incarcerated persons who may not be a fair sample of intelligence levels.

Education

Risky shift is a phenomenon where members of a group become more risky--or less cautious--on a given issue over time. Wallach and Wing

(1968) and others have found that risky shift in groups occurs only after subjects exchange information. This implies that it is actually education or peer pressure fostering the change.

One study exploring the effect of relevant education on risk-taking behavior was Schoemaker (1979). He compared the gambling behaviors of two groups of undergraduates--one group had completed a statistics course while the other had not. He found (1) that there was reduced cognitive complexity in the educated group when assessing duplex bets; (2) that the quality of risk assesment improved in the educated group; and (3) that the educated group had significantly higher risk-taking based on a moment model (which has a situational basis).

Another demonstration that even a small amount of specific education has a significant effect on risk-taking behavior is Duryea (1985). He found that a few hours of education over one week's time produced a significant reduction in risk-taking attitudes. Education also appears to be the critical component in the Sowers, Verdi, Bourbeau and Sheehan (1985), just discussed. They were successful in teaching self-control to a mentally retarded group by merely simplifying the learning steps and tailoring reinforcers. The outcome was significant improvement of self-control in the learning-impaired subjects.

Summarizing studies illuminating the influence of education on impulsiveness or risk-taking, it seems likely that education (learning) and not intelligence is the key factor in impulsive or risky behavior change. Deterrence, after all, may turn out to be little more than a matter of

education, the learning of prosocial inhibitions, specifically tailored to specific learners.

Learning History (What Has He Been Exposed To and How Has He Learned to Respond?)

The difficulty in separating learning history from education is considerable, and appears to have mainly to do with apparently random external press, or stimuli, the type and range of experiences, and the individual's models, all of which may turn out to be the same thing. In a discussion of the importance of learning history to impulsiveness, some serious implications emerge concerning individual responsibility. This responsibility rests specifically in the development of social cooperation, self-control, and compliance in children by their parents. One example of these implications is found in Honig (1985). He concluded in a review that there were three major factors of impulsiveness, all of which confirm the conclusions of studies cited earlier. The first major factor he isolates is child-rearing style; the second, infant-mother attachment; third is the presence of early compliance behaviors.

Glueck and Glueck (1937/1972) posited similar factors for use in identifying future criminals while they were still small children. More recent experimental studies exploring the same factors include Rohrbeck and Twentyman (1986), who studied the children of abusing, neglecting, and normal mothers. They found the highest scores on all measures of impulsiveness were from children of abusing mothers. No other variables besides this child-raising style were found to produce significant differences in a child's impulsiveness.

Further support for the idea of impulsiveness' being to a large measure the result of child-raising style (learning) is Power and Chapieski (1986). They report that their results show individual differences in impulse control are related to differences in child-discipline styles.

It is certain that more than a single component of parenting methods, for instance punishment or nonpunishment, is involved in producing an impulsive child. Suggesting the idea that it is a pervasive attitude which, in part, underlies or includes a punishment component, is an additional finding by Power and Chapieski. They concluded from their data that physical punishers also made fewer objects available to their infants (who, incidentally, were found to be rated as generally less competent by this study). They also found that families who had their children in lower quality child care services also tended to be more distracted and less concerned with the child generally. It is allowed that the possible true source of all these negative behaviors and neglect is worried distraction by simply overburdened caretakers whose irritability also can result in cruelty to a child. Nevertheless, these findings support the general theory that impulse control is a learning product of specific parenting styles.

That traditional abuse is not necessarily the culprit but the underlying attitudes allows for explaining those children who are not taught impulse control because either permissive, irresponsible parents as well as those who do not learn it due to overprotective parents. Supporting such a theory is the reality of a crime rate which has spiraled in spite of great advances made against poverty. This means that if distraction and neglect was primarily due to poverty, the crime rate would

have diminished as the minimum wage rose. Additionally, there is evidence that impulsive children tend to come from more advantaged homes.

Relevant to this discussion, Curt Bartol (1980) asks: "Why does emotional upheaval and conflict in a home produce more delinquency than an emotionally stable one?" He then proceeds to answer the question by stating his conclusion that emotional instability in the home tends to produce children who have not witnessed a wide variety of socially desirable behavior; for example, an unavailable, abusive, or alcoholic father, and a neglecting mother. He adds that he believes that the breakdown of the modeling process is the real culprit. A powerful support for Bartol's assertions and this study's was the early work of Bandura and Mischel (1965) in establishing the importance of modeling to the process of a child's acquisition of the ability to delay gratification.

Peer Influence as a Correlate of Risk-Taking and Impulsiveness

Duryea's (1985) study of the effect of education on risk-taking attitudes and behavior, discussed earlier, was designed to explore the influence of peer compliance on adolescents. Duryea's subjects were ninth-grade students, aged around 15, in a group containing both boys and girls. These teen-agers did, in fact, demonstrate significantly reduced peer compliance after one week's instruction on the dangers inherent in the target situations. However, peer compliance in those risky situations was by no means eliminated, only diminished. This statistical reality stands alone as a strong argument for the power of peer pressure on risk-taking because compliance in risky situations was still strongly in evidence.

Studies utilizing the Choice Dilemmas Questionnaire (CDQ) (Wallach & Kogan, 1961, 1964; Kogan & Wallach, 1965) found the risky shift phenomenon in groups occurred without exception when information was exchanged among group members (Felsenthal, 1979; Goethals and Demorest, 1979; Goethals and Zanna, 1979; Wallach and Mabli, 1970). Beyond the educational implications already discussed is the strong possibility that peer pressure, rather than, or in combination with, education is a causal influence in changing risky behavior.

Roberts and Castore (1972) sought explication of the information exchange factor and concluded that the risky shift was due more to compliance with peer pressure than any actual change of perspective. However, their study unearthed the involvement of yet another unspecified influence, which seems to be insufficiently explained under the heading of peer pressure. They found that in a group of four, a subject would become more risky if only one other person in the group took a riskier stand; however, subjects would not shift to a more conservative position unless all the other three had done so.

There seems to be a change over the lifespan in the individual's receptivity to external influences. While peer influence appears powerful throughout life, it has been shown to be age-dependent, sex-dependent, education-dependent, and also to depend on the individual's level of self-confidence. Additional studies investigating these relationships include Chassin, Presson, Montello, Sherman and McGrew (1986), who found the smoking behavior (which the authors classed as a risky behavior) of nearly 4,000 sixth through eleventh graders depended equally on peer and parental

influences. Another related study is Duryea (1985), who found drinking attitudes of ninth graders depended more on parental behavior than peers', but did incorporate both external influences. Finney (1984) also demonstrated the power of peer compliance in undergraduate subjects both in perception of risk and in actual volunteering behavior.

Anxiety as a Correlate of Risk-taking and Impulsiveness

A Kogan and Wallach (1961) study already cited in this paper in support of sex and other differences, found anxiety to be an influencer of risk-taking. They found that high test anxiety, high defensiveness and high verbal ability were the primary traits of the high risk-takers. In the same era O'Connor and Atkinson (1962) found an interactive effect of anxiety and risk which involve a third factor, need achievement, along with a reversal of the anxiety variable. They found high risk preference in subjects with a combination of high need achievement and low test anxiety.

Gal-or, Tenenbaum, Furst and Shertzer (1985) analyzed risk performance in military parachute jump training. Surprisingly their findings suggest that the lack of anxiety does not improve performance. It was the individual's self-control making the difference, no matter what his level of anxiety was. Most importantly they found that neither anxiety nor self-control exerted a single effect on performance. Significant effects were seen only in the interaction of the two traits. Subjects high in both anxiety and self-control were the best performers in an extremely risky behavior. The poorest performers were subjects who were high in anxiety but low in self-control. (To be noted here is the fact that the Gal-or study employed actual behavior as the dependent variable, which seems to be

reflecting a somewhat different phenomenon from that measured by pencil-and-paper questionnaires.)

Yap and Peters (1985) concluded that impulsiveness in children was slowed by anxiety over errors. Since risk-taking has been shown to be both increased and diminished by anxiety, according to what other factors are active, these Yap and Peters findings suggest that there are yet other explanations for the seemingly inconsistent effects. Anxiety may take different forms, such as anxiety over possible errors or some valuable contingency, or it simply varies in its effect according to its level.

Other Variables Shown to Be Influential

Some studies have linked internal-external locus of control to risk-taking and impulsiveness. Cohen, Sheposh and Hillix (1979) found that internals risked more than externals in gambling tasks requiring skill. This seems logical since someone attributing cause to personally controllable factors would tend to rely on his self-assessment of skills, while someone attributing cause to external factors would depend less on their own abilities. In line with this reasoning, Cohen et al. found externals took greater risks based solely on chance than did internals. In an older study, Liverant and Scodel (1960) found internals' gambling behavior to differ significantly from externals'. The internals made bets in the intermediate range of amounts and probabilities. Demonstrating less over-all variability in all choices than externals, of the internals they studied, not one selected an extreme probability. Externals were more variable and extreme in their selections in both amounts and probabilities.

Kirschenbaum, Tomarken and Humphrey (1985) isolated another variable influencing impulsiveness/self-control. They found that the induction of positive affect significantly improved self-regulation, but only in a low-mastery condition. In mastery conditions, self-control of subjects was not significantly affected by either induced negative or positive affect. Conversely, Ruderman (1985) found a complex interaction. He found that under the condition of an induced dysphoric mood, subjects who had been restrained earlier from eating over-indulged. Unrestrained subjects ate their normal amounts.

Mischel and Staub (1965) some 20 years earlier found in studies of delay of gratification, that subjects who were given negative feedback on a task later preferred smaller, immediate rewards to larger delayed ones. Those who had received positive feedback tended to choose delayed, larger payoffs. Positive feedback was pinpointed as the critical component, since this study found that subjects who received no feedback at all responded the same as did those who had received negative feedback, that is, they were unwilling to delay.

In a highly pertinent study, Bennett (1974) concluded that high self-esteem equalled success on parole, in other words, non-recidivism. Joplin (1972) had earlier found the same. Joplin, too, reports that high self-esteem significantly predicted non-recidivists.

Also possibly relevant to this self-affect factor was Messer (1976), who found that children who failed a grade in school remained at the same level of impulsiveness two and one half years later while the rest of the

children in the study demonstrated regular patterns of diminished impulsiveness.

Perry (1985) appears to have produced a landmark study in finding that happy children exercised self-restraint significantly more than did unhappy children. Similarly, Fry (1975) found that children were more likely to break rules when recently given negative feedback regarding their failures or their personal shortcomings. That this particular factor is consistently influential over the lifespan is indicated by Graf (1971) in finding that undergraduate subjects responded exactly the same way.

Goldstein, Rollins and Miller (1986) found distractability was positively related to reflection-impulsiveness. Highly distractable children were impulsive in their cognitive problem-solving style. They also found that a measure of persistence had a negative correlation with MFFT errors (a measure of impulsiveness). These data support Das' (1985) findings of a positive attention deficit disorder-impulsiveness relationship.

Mischel and Metzner (1962), who found that age and intelligence were factors in children's ability to delay gratification, also found that the length of the delay involved was critical to this interaction. Walls and Smith (1970) later found a significant difference in the ability to delay gratification (defined as delayed reinforcement) between advantaged and disadvantaged children. They found that disadvantaged children would not defer small, immediate reinforcers for later, larger rewards while advantaged children would.

Certainly related to this current investigation of impulsiveness were the findings of Tarbox, Weigel and Biggs (1985). They found that a certain cognitive style (broad internal scanning) in alcoholics correlated with success in abstinence, one manifestation of self-control or a form of delay of gratification.

Two studies found deep muscle relaxation to be associated with decreased impulsiveness. Gaber, Arieli and Merbaum (1984), and Porter and Omizo (1984) found significant reductions in impulsiveness covarying with increased relaxation practice.

Birth order was found by Lopez (1983) to be a significant variable to reflection-impulsivity. He found firstborns to be significantly more reflective and other birth-order subjects to be more impulsive.

Hypotheses

Based on the foregoing review, several hypotheses were derived for testing. Hypothesis Number One is that risk-taking and impulsiveness are related concepts, but not the same. It is believed that risk-taking definitions incorporate the qualities defining impulsiveness. This would make impulsiveness a component of risk-taking. If this were the case, instrument intercorrelations between measures primarily measuring risk-taking and those primarily measuring impulsiveness should result in strong but not total agreement. Since several of the measures are classed as assessors of risk-taking and others as assessors of impulsiveness, an analysis of which subjects score high and low on which measures should shed light on both of the qualities. Also indicated should be the suitability of each for research on offenders and the meaning of findings from those populations.

Hypothesis Number Two is that prisoners will be found to be higher in impulsiveness and risky behaviors than the nonprisoner population. A test of this hypothesis will be made by performing ANOVAs on the means of the three groups on each measure. This, by the way, should tend to explicate results from the test of Hypothesis Number One. For example, if all instruments were assessing the same thing, then all should either differentiate or fail to differentiate the three incarceration-status groups. In other words, if the measures tap the same area, they will produce equivalent results in differentiating the groups. If prisoners are found to be higher in impulsiveness than nonprisoners, and if this finding is

supported by causal inferences, then interventions may be made for the purposes of crime prevention and criminal rehabilitation.

Hypothesis Number Three is that impulsiveness and risk-taking will describe criminality better than age. One major potential of a supportive outcome would be the possibility of more accurate prediction. To test this hypothesis, correlations will be computed for age and all impulsiveness and risk measures. Secondly, ANOVA will be performed to determine age differences between the three groups. Thirdly, correlations between incarceration status and each impulsiveness measure will be computed.

Hypothesis Number Four is that there are racial differences in the results of all measures used. This outcome is potentially important for more accurate application of interventions. Cause of these differences is a moot question insofar as their value for prediction of crime and rehabilitation of offenders. If either of the racial groups is found to have significantly higher impulsiveness, then interventions may be efficiently administered by tailoring to need, and effectively applied by giving sufficiently to the group in greatest need, rather than interpreting the figures at an over-all, racially mixed group norm.

Hypothesis Number Five is that dissimulation will be higher in the prisoner groups, and that the dissimulation will significantly affect the results of all measures. If this should be found to be true, empirical support for the nongeneralizability of findings of the compared groups would be available, hopefully avoiding confusion and disappointment by researchers and rehabilitators alike.

Method

Subjects

Subjects for this study were volunteers recruited from four very different environments. Included were prisoners, an Army unit, a group of recovering alcoholics, and students from the technical school of a junior college. Since one of the main objectives was to compare prisoners with non-prisoners, subject groups were sought that would closely match prisoners on age, racial mix, education and social status.

Prisoners were recruited from two locations. The first two groups were sentenced males and females incarcerated in a county work-release facility. The second two groups of prisoners were all males, both sentenced and unsentenced, from the county jail.

The Army unit was an active-duty unit whose job is maintenance and repair of computerized weapons systems.

The recovering alcoholics came from a group composed of persons attending a regular meeting of Alcoholics Anonymous.

The students were also from two different groups in regular attendance of classes at the vocational-technical division of a junior college. The first group tested was the morning refrigeration and air-conditioning class. The second group was from evening classes composed of students in the carpentry, electricity, and refrigeration and air-conditioning courses.

There were a total of 212 subjects tested ranging in age from 18 to 45. Mean age was 27.14 years and the standard deviation was 6.6. After adjustments for infrequent responses were made 186 subjects remained in the

study. Males numbered 164 and females 22. Racially, the adjusted group contained 48 black, 136 white, and two "other" subjects.

Data from seven subjects were discarded for the following reasons: There were three apparently illiterate responders, all of whom were prisoners; two were discarded for inappropriate responses, again these were from the prisoner population; two subjects completed the questionnaire properly but failed to enter their age or race, making their data useless. One of these last-mentioned was a female from the "erstwhile" population, a group of persons who have been incarcerated in the past but who are currently free, and the other came from a prisoner.

After an initial set of correlations were computed for analysis and comparison, there were 19 subjects whose data was discarded because of elevated Infrequency scale (from the Jackson Personality Inventory). The level of acceptability chosen for this project allowed up to three of the 20 possible infrequent responses to be made. It was arbitrarily determined that when a subject scored four or more on this scale of fairly obvious unusual statements, the rest of the data could not be relied upon and all data from that subject was discarded. An example item from the Infrequency scale is: "I have sight in only one eye." Subjects whose data were discarded were as follows, by incarceration-status groups: Black male prisoners, 8; White male prisoners, 4; Black male never-arrested, 3; White male "erstwhiles," 2; "other" race, male, 1. (While data from females is not considered in this report, it was of interest that no female subject of any class or race gave more than three Infrequent responses.)

Also removed from this study were data from females because there were not enough of them in each incarceration-status group to compare meaningfully and also because of the extreme differences found between their mean scores and the males'.

After removing females, subjects were 117 white males, mean age 26.29 with a standard deviation of 6.37, and 45 black males, mean age 26.31 with a standard deviation of 6.39. These data were analyzed by race, then were regrouped into an unseparated racial mix before being redivided, this time by incarceration-status groups. Subjects were divided into three groups as follows: Males never arrested (n=53), mean age of 26.40, standard deviation of 5.63; males "erstwhile" (n=28), mean age of 27.32, standard deviation of 6.76; male prisoners (n=83), mean age of 26.29, standard deviation of 6.67.

Procedures

Subject testing on the two work-release prisoner groups was done in the evening; on the prisoner groups in the jail, one was done in the morning and one in the evening. The Army group was tested in the late afternoon and the Alcoholics Anonymous groups were tested late at night. One of the two groups of students were tested in the early morning and the other in the evening.

Data were collected from subjects in large groups. Instructions were read prior to distributing questionnaires. A copy of the instructions which were read is included as Appendix I, and a copy of the two-page questionnaire is included as Appenxdix II.

All subjects in the prisoner population in both incarceration facilities were initially brought into a large room for my introduction and request for volunteers. Subjects in the other populations were approached as they regularly met to request their participation. Of the prisoners at the work release facility only about 25% of the total inmate population participated. Of the prisoners at the jail, about 75% participated. A little over half of the men assigned to the same job area in the U.S. Army unit agreed to participate. About 25% of the persons attending the A.A. meeting agreed to stay late to participate. About 80% of the students who were requested to participate did so.

Once those who did not wish to participate had left the area, the instructions were read, questions were answered, and materials passed out. The only exception to this was the prisoner groups. In two cases, at the work release center where volunteers had to leave the area and go to another building, and at the jail where the procedures allow men to leave who did not wish to participate, administration of the timed section was impossible. As a result only a few subjects completed the timed portion of the questionnaire and those results will not be included in this project.

Analyses

The analyses consisted of performing simple one-way analyses of variance (ANOVA) computations to compare the three groups: never-arrested, erstwhile, prisoner. The ANOVAs tested the null hypothesis that the groups were equal in age and in levels of self-control (Sc, CPI), volunteering behavior, impulsiveness (Eysenck I₇), risk-taking (Rt, JPI) and cigarette smoking behavior. Computations and analyses of correlations were also

performed to obtain an indication of change in the measures with age and with incarceration status. Also investigated were instrument intercorrelations.

Instruments: Description and Rationale

A copy of the questionnaire, which is a compilation of some 11 separate measures, is included as Appendix II. As has been discussed, data from all of the sections was not utilized. The separate tests were reduced to 75% their original typewritten size, then printed on both sides of 14-inch paper. Simple written instructions prefaced each section.

Volunteering Behavior Assessment. The first section explains the interest of the researcher in doing future work and in determining what percent of subjects could be expected to participate in the proposed projects. The respondent is asked to check either of the two experiments if he would be willing to participate.

The first future experiment to be described is a study of gambling behavior. The subject is informed he will have the opportunity to win and keep worthwhile rewards. He is further informed there is also the chance of receiving a mild electric shock during this experiment. The second choice the subject has is to participate in a study requiring extensive personality testing utilizing questionnaires. This section represents an attempt to assess risk-taking or impulsiveness behaviorally, as well as distinguish it from volunteerism.

Self-Control/Impulsiveness Assessment. The next measure is the Self-Control scale (Sc) from the California Psychological Inventory. It contains 50 items and all are presented in the same order they appear in that larger

instrument. An example of the items is: "I find it hard to keep my mind on a task or job." Subjects register their responses by circling a T or F, for true and false. As mentioned earlier, Sc was originally designed to assess a quality labeled impulsiveness and was named the Impulsiveness Scale. Later, the direction of the items in this scale was reversed for consistency in form with the other scales of the CPI. The scale was renamed Self-Control, implying the polar construct of the concept assessed, from Impulsiveness to Self-control. Permission for inclusion of Sc from CPI was secured from the copyright holder.

Demographic Data. The third section was for the purpose of obtaining the necessary demographic material on the subject: Sex, age, race, education, and arrest history.

(Modified) Choice Dilemmas Questionnaire. The next section was a modified form of the Choice Dilemmas Questionnaire (CDQ). Items were reworded based on difficulties experienced by a group of ex-prisoners during pretesting. They reported they could not understand the original CDQ questions, with topics such as "blue chip" stock purchase decisions. It is suspected the method of subjective assessment ("How sure would you have to be in order to advise your friend to take the risk?") was also confusing to most subjects, and not limited to the prisoner group.

There are five items in this portion. Two items (Items number 3 and 5) introduce choices associated with offending. Permission was obtained from Michael Wallach, one of the creators of the CDQ, to utilize the ideas and the modified items. An example of the items is: "On your job as a computer operator with a large firm you have discovered there is an account

where your company deposits customer refunds until they are claimed. You are able to transfer money from the refunds account to your own account for short periods of time in order to draw interest on it amounting to a very large sum of money over time. If you are caught you will lose your job and possibly have charges filed against you. On a scale of 0 to 100 per cent, how sure of success must you be to move the money?"

The original CDQ was created to assess the risk-taking propensity of individuals and was used on subjects who were generally well educated. It presents a hypothetical situation wherein the subject must advise a third party in making making a choice. An example is the presentation of a situation where the subject is to advise a friend about quitting a secure job in order to go into business for himself. The subject is to mark how sure he would have to be of success of the risky venture in order to advise his friend to make the risky choice. The answer is made by circling a number representing percentages, ten of them in a Likert-type array, from 10 to 100. A low number represents a riskier position and a high number represents more caution, a need for greater levels of certainty.

While an assessment of risk-taking propensity or preference is required for investigating its relationship with impulsiveness, some research has shown that responses from the CDQ do not reflect the real-life risky behaviors of subjects. Herman (1984) investigated risks taken by patients in the management of a health problem and found a complex interaction of factors involved in behavior that was not reflected in hypothetical risky choice questions. Additionally Jenson, Erickson and Gibbs (1978) found that perceived risk involving another person was less predictive of actual

choice than was perceived personal risk. The CDQ-type form was nevertheless included because of its extensive use in previous studies and also because it offered a vehicle for incorporating the crime-related probes.

Risky Behaviors Survey. Next is a section exploring actual risky behaviors and the attitudes associated with them. The areas explored are behaviors which have been about equally publicized as being dangerous. This made more likely attitudes about them would not be dependent on specialized knowledge. These measures were felt to represent the individual's actual choices concerning risky behaviors. Assessed were smoking behavior, weight, and use of seatbelts. The only responses used in this study are those concerning cigarette smoking behavior. The item asks how many cigarettes the subject smokes per day.

Risk-taking Assessment and Infrequent Responses. The next section is comprised of the Risk-taking and Infrequency scales of the Jackson Personality Inventory (JPI). Each scale contains 20 items. Both scales are presented in the same order in which they appear in the larger instrument. They are alternated such that every other item is of the same scale. The odd-numbered items assess risk-taking while the even assess infrequency. An example of the Infrequency items has already been provided. An example of the Risk-taking scale items is: "People have told me I seem to enjoy taking chances." Answers are indicated by circling T or F, for true and false. Permission for use of these scales was obtained by permission from the copyright holder.

The Infrequency scale was chosen because the experimenter has heard prisoners comment that their test-taking is not always conscientious, often being done haphazardly, carelessly, or with the intent of producing a specific impression. The inclusion of this scale was first of all to analyze differences in group data before and after infrequent responders were eliminated. An infrequent responder was arbitrarily determined to be any subject with four or more infrequent responses.

The Risk-taking scale is intended to assess the degree of risk-taking behavior. The high scorer is defined by the JPI manual thus: "Enjoys gambling and taking a chance; willingly exposes self to situations with uncertain outcomes; enjoys adventures having an element of peril; takes chances; unconcerned with danger."

Impulsiveness and Venturesomeness (Eysenck I-7). The next section, containing 54 items, is the longest of this survey. This instrument is the product of Sybil Eysenck, Pearson, Easting, and Allsopp (1985). The questionnaire (I-7) is composed of items assessing three qualities which they call impulsiveness, venturesomeness, and empathy. An example of an Impulsiveness scale item is: "Are you often surprised at people's reactions to what you do or say?" Items are answered by circling a yes or no response according to whether or not the statement made by the item fits the subject. Permission for use of I-7 was obtained in writing from Sybil Eysenck.

Other Sections

Also incorporated into this questionnaire were inquiries about the subject's vocational preferences, a subjective evaluation of satisfaction

with certain areas of life, a superficial health assessment, and probes about how dangerous certain risky behaviors actually felt to be and subject fluency (intelligence). None of the data from these measures is included in the present report.

Results

Hypothesis Number One stated that impulsiveness and risk-taking are separate but related concepts. Computed correlations between the instruments used in this study produced some significant relationships. As well, they produced some covariances which were surprisingly unimpressive. An example of significant findings from correlations between measures in the total group of all subjects (see Table 1) was the powerful finding ($p < .0001$) of a negative correlation between CPI Self-control and I-7 Impulsiveness ($r = -.59$). On the other hand, there was no significant correlation between Self-control and I-7 Venturesomeness. This indicates that CPI Self-control (which was conceived of, remember, by its creator as a reciprocal of impulsiveness) and I-7 Impulsiveness are measuring a similar quality, while I-7 Venturesomeness is assessing a quality only weakly related to either, if at all.

This distinction between the qualities is relevant because of the logical association between them. It seems that Risk-taking and Venturesomeness may well be quite healthy traits, perhaps indicators of self-actualization. Impulsiveness, on the other hand, appears to have no positive connotations and, as measured by I-7, significantly discriminates prisoners-criminals from nonprisoners-noncriminals ($r = .33$, $p < .0001$), and ANOVA significantly discriminates between prisoners and nonprisoners ($p < .0003$).

Surprisingly, given the correlational data indicating the contrary, ANOVA found that Venturesomeness also discriminated the groups, and it did so at a $p < .01$ significance level. Curiously, however, it was the erstwhile

Notes for Reading Tables

- CPI: This is the Self-control/impulsiveness scale of the CPI.
- CDQ: This is the modified Choice Dilemmas Questionnaire.
- VLG: This is the behavior of volunteering for the gambling experiment.
- IMP: This is the Impulsiveness scale of the I-7.
- VEN: This is the Venturesomeness scale of the I-7.
- RTK: This is the Risk-taking scale of the JPI.
- CIG: This is cigarette-smoking behavior measured in number of cigarettes smoked daily.

Table 1

Instrument Intercorrelations Using Data From All Subjects

	<u>CPI</u>	<u>CDQ</u>	<u>VOL</u>	<u>IMP</u>	<u>VEN</u>	<u>RTK</u>	<u>CIG</u>
CPI	1.0000	.1682	-.1560	-.5836	-.1274	-.2802	-.2014
	.0000	.0237*	.0274*	.0001**	.0814	.0001**	.0057**
	200	181	200	188	188	192	187
CDQ		1.0000	-.0060	-.2351	.0093	-.1546	.0627
		.0000	.9349	.0017**	.9021	.0366**	.4030
		186	186	176	176	183	180
VOL			1.0000	.0012	.1258	.0558	.1067
			.0000	.9871	.0814	.4370	.1418
			205	193	193	196	191
IMP				1.0000	-.0337	.2783	.2360
				.0000	.6422	.0001**	.0013**
				193	193	188	182
VEN					1.0000	.0587	.0410
					.0000	.0046**	.5826
					193	188	182

RTK	1.0000	.1272
	.0000	.0812
	196	189
CIG		1.0000
		.0000
		189

* p < .05.

** p < .01.

group who were significantly higher in Venturesomeness than either the prisoner or the never-arrested group.

Impulsiveness, as indicated by an inverse of CPI Self-control, significantly discriminated the three incarceration-status groups through correlational computations of $r = -.32$ ($p < .0001$). ANOVA resulted in significant differences between the groups ($p < .0003$). Significant correlations between CPI Self-control at $p < .03$ level were, positively, the CDQ and, negatively, volunteering behavior. Other significant negative correlations with CPI Sc reached significance at a $p < .01$ level. These were the Impulsiveness scale from I-7, the Risk-taking scale from JPI and cigarette smoking behavior.

The CDQ instrument failed to significantly correlate with volunteering and cigarette smoking behaviors, and the I-7 Venturesomeness scale.

I-7 Impulsiveness failed to correlate with Venturesomeness, just as it was reported to do by its creators. It did, however, significantly correlate with cigarette smoking behavior and Risk-taking, as well as Self-control.

Volunteering (for future research) behavior significantly correlated with Incarceration status, but with no other measures. This outcome could be an indication of boredom in jail and a readiness to relieve it, or a desire to make a good impression in order to boosting personal self-esteem or to secure imagined future benefits. On the other hand, specific volunteerism for the gambling experiment which included the possibility of painful shocks did correlate significantly with JPI Risk-

taking ($r=.23$, $p < .004$) as well as with amount of arrests ($r=.16$, $p < .04$). Moreover, volunteering for gambling with chance of painful shocks correlated negatively with Self-control ($r=-.17$, $p < .03$).

The subpopulations of this study (male and female, White and Black, prisoner-erstwhile-never arrested) were found to differ significantly from each other on most measures; however, the instruments of measure maintained roughly the same interrelationships. As an example, Table 2 presents roughly the same instrument intercorrelations as in Table 1, but the data were derived from white males, one subgroup of the study's subjects.

Hypothesis Number Two stated that prisoners would be higher in impulsiveness and risk-taking than never-arrested subjects. A series of ANOVAs were performed, seeking to determine whether differences between prisoners and the other groups were significant. The dependent variable in these analyses was incarceration status (three groups of never-arrested, erstwhile, and prisoners). The independent variable was the mean score and variance of each group on each measure. These were: CPI (Sc), CDQ-type questionnaire, I-7 Impulsiveness and Venturesomeness scales, JPI Risk-taking and Infrequency scales, and the behavioral measures of volunteering and cigarette smoking. Table 3 lists the means by group and their standard deviations. Asterisks indicate those measures or instruments significantly differentiating the three groups.

A pretest was the ANOVA computation performed to ascertain any age differences between the three groups. There was no significant difference. ($F=.31$, $df=2$, $p < .73$)

A pretest was the ANOVA computation performed to ascertain any age differences between the three groups. There was no significant difference. (F=.31, df=2, p <.73)

Table 2

Instrument Intercorrelations
in the Population of White Males

	<u>CPI</u>	<u>CDQ</u>	<u>VOL</u>	<u>IMP</u>	<u>VEN</u>	<u>RTK</u>	<u>CIG</u>
CPI	1.0000	.2822	-.1250	-.5997	-.0887	-.2877	-.2570
	.0000	.0027**	.1689	.0001**	.0048**	.0015**	.0046**
	121	111	121	117	117	119	120
CDQ		1.0000	-.0126	-.3338	.0144	-.2366	-.1035
		.0000	.8944	.0004**	.8809	.0116*	.2731
		114	114	110	110	113	114
VOL			1.0000	-.0012	.0755	.0510	.1786
			.0000	.9899	.4123	.5773	.0481*
			124	120	120	122	123
IMP				1.0000	-.0578	.3142	.2545
				.0000	.5304	.0005**	.0052**
				120	120	119	119

VEN	1.0000	.1737	.0451
	.0000	.0589	.6260
	120	119	119
RTK		1.0000	.1277
		.0000	.1611
		122	122
CIG			1.0000
			.0000
			123

* p < .05.

** p < .01.

Table 3

Incarceration-Status Group Means and Standard Deviations
All Males Less High Infrequency Scorers

	<u>Never-Arrested</u>			<u>Erstwhile</u>			<u>Prisoners</u>		
	<u>Mean</u>	<u>St.Dev.</u>	<u>(n)</u>	<u>Mean</u>	<u>St.Dev.</u>	<u>(n)</u>	<u>Mean</u>	<u>St.Dev.</u>	<u>(n)</u>
**CPI	26.18	6.55	(51)	23.29	7.91	(28)	20.58	7.55	(80)
CDQ	405.5	66.8	(47)	400.8	55.2	(26)	385.8	78.0	(74)
**VOL	.47	.61	(53)	.54	.51	(28)	.81	.59	(74)
VLG	.1509	.36	(53)	.1786	.39	(28)	.2410	.43	(83)
**IMP	7.04	4.16	(50)	8.39	4.34	(28)	10.45	4.49	(76)
*VEN	8.36	2.88	(50)	10.14	2.95	(28)	7.54	3.38	(76)
RTK	7.40	3.57	(50)	8.50	4.52	(28)	8.15	3.83	(78)
*INF(W)	.4286	.495	(42)				.7917	.892	(48)
**CIG	7.25	10.41	(51)	13.71	12.94	(28)	17.35	12.31	(75)

* p < .05.

** p < .01.

(W) Whites only.

1) The CPI Self-control scale (Sc) significantly differentiated the three incarceration-status groups. The results of ANOVA on the means of the three groups revealed significant difference ($F=8.79$, $df=2$, $p < .0003$). The group differences were analyzed through Fisher's Least Significant Differences (LSD) test and it was found that the never-arrested group was significantly higher in self-control than the erstwhile group ($26.1765-23.2857=2.8908$), who were, in turn, significantly higher in self-control than were the prisoners tested ($23.2857-20.5750=2.7107$). Fisher's LSD with t at the .005 level was 2.5305.

2) In contrast, the second test of the power of the CDQ-type instrument to differentiate failed to achieve significance. The results of ANOVA on the means of the three groups revealed that the CDQ-type instrument does not differentiate the three groups ($F=.99$, $df=2$, $p=n.s.$).

3) The third test was of the power of the behavioral measure of volunteering responses to differentiate the three groups. The results of ANOVA on the means of the three groups revealed that volunteering behavior significantly differentiates the three groups ($F=10.19$, $df=2$, $p < .0001$). Results of Fisher's LSD computations show prisoners (mean volunteering score=.8072) were significantly higher in volunteering behavior than erstwhiles (mean=.5357) and never-arresteds (mean=.4717). While higher, erstwhiles' mean score did not achieve significance over never-arresteds' even using t at the .05 level.

4) The fourth test was of the power of the volunteering for the gambling experiment carrying a possibility of painful shock to differentiate the three groups. This response failed to differentiate (F=.24, df=2, p=n.s.).

5) The fifth test was of the power of the Infrequency scale of the JPI to differentiate the three groups. The results of ANOVA revealed no significant difference between the three groups (F=1.23, df=2, p=n.s.). However, a t-test between the never-arrested group mean and the prisoner group mean (data available for Whites only) showed a significant difference (t=2.04, p < .025).

6) The sixth test was of the power of the Impulsiveness scale of the Eysenck I-7 to differentiate the three groups. The results of ANOVA on the means of the three groups revealed that the Impulsiveness scale significantly differentiates them (F=8.54, df=2, p < .0003). The result of the Fisher's LSD computation was that the prisoner group mean (10.45) was significantly higher than the erstwhile group mean (8.39) and the prisoner group mean (7.04) with t at the .005 level (LSD=1.475). The erstwhile group mean was found to be significantly higher than the never-arrested group when t was at the .01 level (LSD= 1.332).

7) The seventh test was of the power of the Venturesomeness scale of the Eysenck I-7 to differentiate the three groups. The results of ANOVA on the means of the three groups revealed that the Venturesomeness scale of the Eysenck I-7 differentiated them (F=4.39, df=2, p < .02). This time it was the Erstwhile group that had the significantly higher score. The erstwhile group mean was 10.14; the never-arrested group

mean was 8.36; the prisoner group mean was 7.54, and Fisher's LSD was .9529 when t was at the .005 level.

8) The eighth test was of the power of the Risk-taking scale of the JPI to differentiate the three groups. The results of ANOVA on the means of the three groups revealed that risk-taking, as measured by the JPI, failed to differentiate the three groups ($F=1.03$, $df=2$, $p < .36$).

9) The ninth test was of the power of amount of cigarettes smoked daily as a measure of a risky behavior (cigarette smoking) to differentiate the three groups. The results of ANOVA on the means of the three groups revealed that cigarette smoking significantly differentiated the three groups ($F=9.36$, $p < .0002$). The range in number of cigarettes smoked daily reported by the three groups were as follows: never arrested, 0-30 cigarettes daily; erstwhile, 0-40 cigarettes daily; and prisoner, 0-60 cigarettes daily. Fisher's LSD (with t at the .005 level, $LSD=4.094$) shows that erstwhiles smoked significantly more than never-arresteds and with t at .025 (Fisher's $LSD=3.115$), the prisoners smoked significantly more than did the erstwhiles.

Summarizing, the measures found to significantly differentiate the three incarceration-status groups were the following: Self-control, a reciprocal of impulsiveness as measured by the CPI; volunteering behavior; Impulsiveness as measured by the I-7; Venturesomeness also as measured by the I-7; Infrequency, the JPI measure of infrequent responses; and cigarette smoking as measured by amount of cigarettes smoked daily. Prisoners scored lower on self-control, and higher on impulsiveness than the other groups on all the measures of those

qualities. They scored significantly higher on risky behaviors (volunteering and smoking) than did the other two groups. The exception was found in a measure which was actually not a measure of impulsiveness. It was the I-7 Venturesomeness scale. The erstwhile group scored the highest on that measure. There were no significant differences between the three groups in qualities measured by the CDQ and the JPI Risk-taking scale. The JPI Infrequency scale was a differentiating factor between prisoners and never-arresteds only in the case of White males.

* * *

Hypothesis Number Three was that impulsiveness and risk-taking would both describe and predict criminality better than age does. In order to test this, first the correlations between age and scores from each measure were analyzed. Next, correlations between incarceration status and each measure were examined. Incarceration status consisted of three levels, which made more difficult the interpretation of correlational data; age was grouped into eight levels, which likewise was a bit more than usual for performing analysis of variance. Nevertheless, no indication that age has anything to do with incarceration is apparent in correlational data. Analysis of variance on the mean ages of the three groups disclosed that there is no significant difference between them. Furthermore, correlational data shows age seems to have very little to do with risk and impulsiveness. If impulsiveness explains crime better than age, then prisoners would be expected to exhibit significantly higher impulsiveness, and probably risk-taking tendencies, than the

other two groups, regardless of their age. The hypothesis was supported by results of ANOVA performed in testing Hypothesis Number Two.

Table 4 lists the relevant results of correlations of each measure and age. Table 5 presents the correlations between each measure and each incarceration group. Table 6 presents correlations between age and measure, by incarceration group. Table 7 shows the mean ages of the three groups, as well as the mean age by race.

Age was divided into eight levels, 18-20; 21-23; 24-26; 27-29; 30-32; 33-35; 36-38; 39+. ANOVA was performed on the three incarceration groups by these age groups and no significant differences were found ($F=.23$, $df=2$, $p=n.s.$). There also were no age differences between racial groups (see Table 7).

Table 8 presents correlational data from the erstwhile group indicating that impulsiveness varies with the amount of time elapsed since last release from jail. This additional data strengthens a causal inference that impulsiveness is a source of criminal behavior. While none of these impulsiveness-time elapsed correlations reach significance they are sufficiently directional to suggest a relationship which might be found through more accurate operationalization. This relationship is the one existing between the passage of time (probably not age alone) since last arrest and diminished impulsiveness. The passage of time alone (age), it is to be remembered, occurs in a significant relationship with diminished impulsiveness only in the group which has managed to stay out of jail in some way, the never-arresteds.

Table 4

Correlations of Each Measure and Age

All Males

		INC	CDQ	JPI	CPI	VOL	IMP	VEN	CIG
AGE	(r)	-.0130	.0831	-.0006	.0135	-.0682	-.1326	-.1121	.1808
	(p)	.8691	.3200	.9900	.8663	.3854	.1011*	.1663	.0249**
	(n)	164	147	156	159	164	154	154	154

* p < .10.

** p < .05.

Table 5

Correlations of Each Measure and Incarceration Status

All Males

		<u>INC</u>	<u>CDQ</u>	<u>JPI</u>	<u>CPI</u>	<u>VOL</u>	<u>IMP</u>	<u>VEN</u>	<u>CIG</u>
INC	(r)	-.0130	-.3249	.2552	.3334	-.1351	.3548		
	(p)	.8691	.0001**	.0010**	.0001**	.0947*	.0001**		
	(n)	164	159	164	154	154	154		154

* p < .10.

** p < .01.

Table 6

Correlations of Age and Measures, By Group

		<u>Never-Arrested</u>	<u>Erstwhile</u>	<u>Prisoner</u>
CPI-AGE	(r)	.0631	-.0075	.0083
	(p)	.6601	.9705	.9437
	(n)	51	28	80
VOL-AGE	(r)	-.0051	-.2138	-.0535
	(p)	.9711	.2746	.6312
	(n)	53	28	83
IMP-AGE	(r)	-.3247	-.0764	-.0689
	(p)	.0214*	.6992	.5541
	(n)	50	28	76
VEN-AGE	(r)	-.2120	.0737	-.1631
	(p)	.1394	.7094	.1591
	(n)	50	28	76
CIG-AGE	(r)	.3786	.0472	.1810
	(p)	.0062**	.8113	.1206
	(n)	51	28	75

* p < .05.

** p < .01.

Table 7

Mean Age, Standard Deviation, and Range by Group
 And Mean Age, Standard Deviation, and Range by Race--Prisoners Only

<u>Never-Arrested</u>			<u>Erstwhile</u>			<u>Prisoners</u>		
<u>Mean</u>	<u>St.Dev.</u>	<u>Range</u>	<u>Mean</u>	<u>St.Dev.</u>	<u>Range</u>	<u>Mean</u>	<u>St.Dev.</u>	<u>Range</u>
26.39	5.63	19-43	27.32	6.76	18-45	26.28	6.67	18-44

Prisoners

<u>White Males</u>			<u>Black Males</u>		
<u>Mean</u>	<u>St.Dev.</u>	<u>Range</u>	<u>Mean</u>	<u>St.Dev.</u>	<u>Range</u>
26.59	6.51	18-45	27.57	6.17	18-42

Table 8

Correlations Between Time Since Release
In the Erstwhile Group and Each Measure

Time Since Release-CPI(Sc)	(r) .1946
	(p) .3407
	(n) 26
Time Since Release-VOL	(r) -.2086
	(p) .3064
	(n) 26
Time Since Release-IMP	(r) -.2493
	(p) .2194
	(n) 26
Time Since Release-CIG	(r) -.0901
	(p) .6615
	(n) 26

(Note: While none of these correlations reached significance, their direction of correlation is, nevertheless, supportive of the contentions of this paper.)

Adding further strength to inferences of causality are the correlations relating impulsiveness to total amount of arrests in both the prisoner group and the erstwhiles. Those correlations are listed in Table 9.

* * *

Hypothesis Number Four was that there are significant differences between racial groups in their scores on impulsiveness and risk-taking measures, especially in the prisoner subjects. Table 7 lists means and standard deviations for prisoners of both races on each instrument. Simple t-tests were computed comparing racial groups for the prisoner subpopulation only and prisoners were found to significantly differ on CPI Self-control, and on I-7 Impulsiveness and Venturesomeness (listed in Table 10).

a) Results of the simple one-way t-test comparison of Black and White prisoners' CPI Self-control group means were: $t=1.36$, $.10 < p < .05$, around .07. The Black prisoners reflected significantly higher self-control scores.

b) The results of a simple one-way t-test comparison of Black and White prisoners' group means from the Eysenck I-7 Impulsiveness scale were: $t=1.70$, $p < .05$. Black prisoners reflected significantly lower Impulsiveness scores than did White prisoners.

c) The results of a simple one-way t-test comparison of Black and White prisoners' group means on the Eysenck I-7 were: $t=2.95$, $p < .01$. Black prisoners reflected significantly lower Venturesomeness scores than did White prisoners.

Table 9

Relationship of Impulsiveness Measures to
Number of Admitted Arrests

	<u>Erstwhiles</u>		<u>Prisoners</u>
AMT-REL	(r) -.3790		.0000
	(p) .0562*		1.0000
	(n) 26		83
AMT-CPI	(r) -.2582		-.0664
	(p) .1846		.5583
	(n) 28		80
AMT-CDQ	(r) .3681		-.1132
	(p) .0643*		.3362
	(n) 26		74
AMT-VOL	(r) -.1204		.1342
	(p) .5415		.2269
	(n) 28		83

AMT-IMP	(r)	.3052	.1046
	(p)	.1143 (Near significance)	.3687
	(n)	28	76
AMT-CIG	(r)	.2467	.0965
	(p)	.2057	.4100
	(n)	28	75

AMT symbolizes Number of Arrests.

REL symbolizes time elapsed since release.

Table 10

 Comparisons of Measures By Race

	<u>White Prisoners</u>			<u>Black Prisoners</u>		
	<u>Mean</u>	<u>St.Dev.</u>	<u>(n)</u>	<u>Mean</u>	<u>St.Dev.</u>	<u>(n)</u>
*CPI	19.58	7.95	(48)	22.95	6.82	(40)
CDQ	392.2	76.2	(45)	377.5	80.7	(36)
VOL	.96	.45	(49)	.57	.70	(42)
GAM	.25	.43	(49)	.21	.42	(42)
*IMP	10.98	4.82	(47)	9.32	3.59	(37)
*VEN	8.28	3.16	(47)	6.32	3.15	(37)
RTK	8.52	4.24	(48)	7.79	3.16	(37)
INF	.79	.94	(48)	2.21	2.20	(38)
CIG	19.40	13.33	(48)	14.55	10.73	(33)

* Significant difference, $p < .05$.

Table 11.1

Intercorrelations by Group
Never-Arrested Group (n=53)

	Age	CPI	CDQ	VLG	IMP	VEN	RTK	CIG
Age	1.0000							
	.0000							
	53							
CPI	.0631	1.0000						
	.6601	.0000						
	51	51						
CDQ	.0419	-.0272	1.0000					
	.7799	.8593	.6601					
	47	45	51					
VLG	-.2473	-.2693	.2453	1.0000				
	.0742*	.0560*	.0966*	.2453				
	53	51	47	47				

IMP	-.3247	-.4353	-.2408	.1945
	.0214**	.0020†	.1111	.1760
	50	48	45	50

VEN	-.2120	-.1005	.2316	.2705	.0712
	.1394	.4968	.1259	.0575*	.6234
	50	48	45	50	50

RTK	-.0603	-.2937	-.0253	.1665	.4477	.1718
	.6774	.0427**	.8672	.2478	.0013†	.2378
	50	48	46	50	49	49

INF	.0588	-.0434	-.2914	-.1315	.2425	-.0979	.0469
	.6850	.6795	.0495**	.3640	.0932*	.5033	.7463
	51	49	47	51	49	40	50

CIG	.3786	-.0239	-.0602	.0626	.0851	.1818	.1539	.2482
	.0062†	.8704	.6877	.6626	.5610	.2112	.2859	.0823*
	51	49	47	51	49	49	50	50

* p < .10

** p < .05

† p < .01

Table 11.2

Intercorrelations by Group
Erstwhile Group (n=28)

	Age	CPI	CDQ	VLG	IMP	VEN	RTK	CIG
Age	1.0000							
	.0000							
	28							
CPI	-.0073	1.0000						
	.9705	.0000						
	28	28						
CDQ	.0728	.1483	1.0000					
	.7238	.4698	.0000					
	26	26	28					
VLG	-.0647	-.0292	.0472	1.0000				
	.7436	.8829	.8191	.0000				
	28	28	28	28				

IMP	-.0764	-.6272	-.4583	.1977			
	.6992	.0004†	.0185**	.3133			
	28	28	26	28			
VEN	.0737	.0902	.2359	.2986	-.3195		
	.7094	.6481	.2458	.1227	.0974*		
	28	26	28	28	28		
RTK	.1231	-.1452	.1601	.7463	.0727	.3804	
	.5326	.4611	.4348	.0001†	.7131	.0458**	
	28	26	28	28	28	28	
INF	-.1657	.0031	-.0455	-.0432	-.0540	-.0395	-.0713
	.3993	.9875	.8254	.8271	.7848	.9420	.7186
	28	28	26	28	28	28	28
CIG	.0472	-.1118	.1754	.4509	-.0091	.3966	.3954
	.8113	.5712	.3916	.0160**	.0932*	.0306**	.0373**
	28	28	26	28	28	28	28

* p < .10

** p < .05

† p < .01

Table 11.3

Intercorrelations by Group
Prisoner Group (=83)

	Age	CPI	CDQ	VLG	IMP	VEN	RTK	CIG
Age	1.0000							
	.0000							
	83							
CPI	.0080	1.0000						
	.9437	.0000						
	80	80						
CDQ	.0985	.2542	1.0000					
	.4037	.0324**	.0000					
	74	71	74					
VLG	.0901	-.1367	-.0709	1.0000				
	.4178	.2268	.5478	.0000				
	83	80	74	83				

IMP	-.0689	-.5592	-.2199	-.1204	1.0000			
	.5541	.0001†	.0716*	.3004	.0000			
	76	73	68	76	76			
VEN	-.1631	-.2677	-.0778	.0197	.1582	1.0000		
	.1591	.0221**	.5282	.8659	.1723	.0000		
	76	73	68	76	76	76		
RTK	-.0247	-.4277	-.2195	-.0612	.4179	.4134	1.0000	
	.8299	.0001†	.0640*	.5947	.0002†	.0003†	.0000	
	78	76	72	78	73	73	78	
INF	.2509	.0249	-.1583	-.1367	.1744	-.2450	.0204	
	.0267**	.8310	.1841	.2328	.1401	.0367**	.8596	
	78	76	72	78	73	73	78	
CIG	.1810	-.2265	.0086	-.1552	.2717	.0827	.0494	.0502
	.1201	.0540*	.9437	.1836	.0229*	.4960	.6763	.6711
	75	73	70	75	75	70	74	74

* p < .10

** p < .05

† p < .01

Discussion

One finding of this study is that impulsiveness and risky behaviors are found to occur at significantly higher levels in criminals (prisoners) than in noncriminals (nonprisoners), both excriminals and those who have never offended. This was established through ANOVA and supported by a positive correlation between impulsiveness and incarceration status ($r=.24$, $p < .001$). These correlational results indicate that as incarceration status increases in severity, so does impulsiveness increase.

Another important set of findings, and a surprise, is that risk-taking and venturesomeness occur at significantly higher levels in the "erstwhile" group (excriminals) than in criminals, and was lowest in the never-arrested group. This finding supports the idea of a developmental change in impulsiveness occurring in the offender which, when it is accomplished, equates with desisting from crime. A related, or possibly reciprocal, finding is that self-control occurs at significantly lower levels in criminals than in noncriminals. Self-control occurs at a significantly higher rate in exoffenders than in offenders, and further is significantly higher in those who have never offended than in exoffenders. Additionally and again surprisingly, risk-taking measures did not differentiate criminals from noncriminals.

It is believed, however, that the most important findings of this study were the result of comparisons made in order to support these original points. The first of these is that impulsiveness does, indeed, decline with age ($r=-.32$, $p < .02$), as would be logically expected, but only in the case of

the "normal" or never-arrested population. This age-related decrement was not found to occur in criminals, whether they were currently incarcerated or had been free for varying lengths of time. Another of these supportive points which turn out to be important was the finding that impulsiveness was strongly correlated with amount of arrests of an individual ($r=.26$, $p < .0004$). This category equates with classifications labeled as "past history of offending." Still another of these support-type findings was that impulsiveness diminished as length of time since last arrest or release increased ($r=-.22$, $p < .02$). In other words, as subjects managed to remain out of jail longer and longer, their impulsiveness was found to be proportionately less.

In searching for a factor which would predict and describe criminal behavior better than age, risky behaviors were utilized as samples of generalized risky or impulsive behavior in the individual. Volunteering behavior, specifically for the gambling experiment which was potentially either rewarding or punishing and labeled a risky behavior, was found to decrease with age ($r=-.25$, $p < .07$) in the never-arrested group. This finding supported the results of ANOVA in levels of impulsiveness between the three groups of this study. Nevertheless, in both the erstwhile and prisoner groups there was no significant relationship between this measure of impulsiveness and age ($r=-.07$, $p < .70$ for the erstwhiles; $r=-.07$, $p < .55$ for prisoners). These volunteering behavior data support the impulsiveness data.

The outcomes reflecting measures of impulsiveness, volunteering for a risky experiment and cigarette smoking were also found to significantly

differentiate the three incarceration-status groups. Prisoners had significantly higher risky behavior and impulsiveness scores with the erstwhile group scores falling consistently in between the prisoner and the never-arrested groups.

Self-control, as measured by the CPI, highly correlated with impulsiveness as measured by I-7, ($r = -.58$, $p < .0001$), made no reciprocal increases with age in any of the groups. This finding seems to contradict the suggestion that self-control as measured by the CPI is the reciprocal concept of impulsiveness, at least insofar as impulsiveness is measured by the I-7. One interesting possibility is that self-control is a foundational quality, and from its presence or absence arises impulsiveness. This quality could be stable by age 18 and, since the lowest age of subjects for this study was 18, this developmental-type change would not be apparent in the present work.

Over-all, a significant $r = -.23$, $p < .0009$, was found to obtain between incarceration status (never arrested, erstwhile, prisoner) and CPI Self-control. Self-control (CPI) did correlate negatively, but not significantly, with amount of arrests in all subjects who had been arrested at any time in their lives ($r = -.26$, $p < .18$, erstwhiles; $r = -.07$, $p < .56$, prisoners). This indicates self-control diminishes as incarceration status increases in severity (never-arrested were rated 1; erstwhiles, 2; prisoners, 3). Self-control was obviously higher, even although not significantly, in the erstwhile group than in current prisoners. Since self-control, like impulsiveness, does differentiate criminal groups from noncriminal groups, it would be expected that self-control or its lack would be an important

factor in remaining out of prison once released. If this were true, then those who are currently in prison would have relatively low self-control scores and relatively high impulsiveness scores (which they do). Moreover, it would be expected that the erstwhile group would have a strong positive correlation between time since release and self-control, and a strong negative correlation between time since release and impulsiveness (which they do, although not significantly). Refining measurements or operationalizations should produce significant correlations. For example, subjects in the erstwhile group were unbalanced in amounts of time since release, with seven (25%) of the 28 having one year or less since last release and the rest range up to 30 years. Further, these subjects differed in individual amount of previous arrests (which was shown to be a significant factor in this study and equates with "past history of offending"). Such an interpretation is supported by the finding of significant correlation between incarceration status and self-control.

As to Hypothesis Number One, instrument intercorrelations indicate that risk-taking and impulsiveness are indeed related concepts, but not as closely as language might imply. Support for the theory of relatedness was found in the significant intercorrelations between the CPI Self-control measure, the Choice Dilemmas Questionnaire, volunteering behavior, Impulsiveness and Venturesomeness, the JPI Risk-taking measure, and cigarette smoking behavior. The propensity to make less risky choices (the CDQ-type instrument) was found to increase as CPI Self-control increased ($r=.17$, $p < .02$). Volunteering behavior decreased ($r=-.16$, $p < .03$) and Venturesomeness decreased ($r=-.12$, $p < .08$) as CPI Self-control increased.

Cigarette smoking decreased as CPI Self-control increased ($r=-.20$, $p < .006$). Risk-taking, too, decreased as Self-control increased ($r=-.28$, $p < .0001$). Impulsiveness had the highest correlation with Self-control ($r=-.58$, $p < .0001$).

While all these measures covaried, some did so more powerfully or more significantly. While both impulsiveness and risk-taking correlated with self-control at the .0001 level, impulsiveness did so at the ratio of $-.58$, while risk-taking correlated at the rate of $-.28$. This reflected a similar but much stronger influence or relationship between impulsiveness and self-control than between risk-taking and self-control. Curiously, risk-taking correlated at exactly the same level and rate with impulsiveness as it did with self-control. Also, risk-taking was found to correlate with volunteering over all subjects at $r=.18$, $p < .01$, and the correlation between risk-taking and cigarette smoking was $r=.16$, $p < .03$. However, when analyzed by groups, risk-taking did not significantly correlate with volunteering behavior or smoking, except in the case of the erstwhile group whose results showed extremely high correlations. Those results were $r=.75$, $p < .0001$ for risk-taking and volunteering, and $r=.40$, $p < .04$ for risk-taking and smoking. Risk-taking was quite strongly positively correlated with I-7 venturesomeness, which did not correlate significantly with I-7 impulsiveness.

The related CDQ-type instrument significantly correlated negatively with impulsiveness ($r=-.24$, $p < .002$), suggesting that as impulsiveness goes up, there is a decrease in the degree of certainty about outcome preferred by the subject.

Importantly, the JPI Risk-taking scale does not significantly correlate with incarceration status. In other words, there is no significant relationship between risk-taking and criminality, while there is a highly significant relationship between impulsiveness and criminality as well as self-control and criminality.

The CPI Self-control scale and the I-7 Impulsiveness scale appear quite closely related. Volunteering behavior and results of the CDQ are almost identical, that is volunteering behavior decreased .17 for each year of age, and the CDQ score (higher indicates more caution) increased .17 for each year of age.

Cigarette smoking emerged as a definitive correlation both with age and with incarceration status. One curious finding concerning smoking was that it was shown to increase with age, but (importantly) self-control was found not to increase with age. Yet as Self-control increased, smoking decreased ($r = -.20$, $p < .006$). This finding might reflect the greater incidence of smoking in a generation inundated with health-threat publicity only after they had formed positive associations and a chemical addiction. Nevertheless, this study did find that over all subjects, smoking behavior decreases as self-control increases ($r = -.24$, $p < .003$). Most curiously in this regard, while impulsiveness was found to significantly diminish with age only in the never-arrested group, that was the only group where increased age correlated with increased smoking.

One argument or explanation posits that smoking might not indicate the same impulsiveness associated with greater criminal involvement. This argument maintains that smoking could be caused or facilitated by being in

jail. A counterpoint to that suggestion is that cigarette smoking was measured in this study by amount of cigarettes smoked per day. The logical probability was that prisoners had less money and therefore less cigarettes. This was supported by the numerous prisoner responses reporting that they smoked six or ten cigarettes per day. In other words, the prisoners reported more exact (less than a pack) numbers of cigarettes smoked per day. Indeed, the range of responses to this item were as follows: never-arrested group, 0-30 cigarettes were smoked daily; erstwhile group, 0-40 cigarettes were smoked daily; prisoner group, 0-60 cigarettes were smoked daily. A second counterpoint to the argument that jail causes or facilitates smoking was that smoking was found to increase with age in the never-arrested group, but not in the erstwhile group, who had been in jail, but now were not. Extending this second argument, smoking did not decrease according to time since release from prison or jail.

Another behavioral measure of impulsiveness, volunteering, could also be argued to occur at a higher rate in prisoners than nonprisoners due to reasons other than impulsiveness or risk-taking. Examples are boredom, or a desire to cooperate based on a belief that some good will come to the participant. To be considered in this regard is the position of the volunteer-request item. It is the first item on the questionnaire. More than half of the subjects in the prisoner group missed the first portion of the questionnaire because of the general confusion at the beginning of those sessions. The volunteering section likely was overlooked since experimenter instructed late-comers to "skip the first portion," because it contained the timed material, hoping it could be done later. It was

impossible to administer the timed portion on these occasions, and no directions were given to attend to the volunteering section. If a subject did not mark either of the choices of future experiments, it was counted as not volunteering. Despite this, volunteering behavior discriminated prisoners and nonprisoners, making this all the more convincing an outcome. In all of the non-prisoner groups, only two subjects missed the first portion (students in the early morning air-conditioning class who came in late). As a result, it seems that volunteering nonprisoners are certainly a more accurate representation of their groups' volunteering behavior (significantly lower) than were the amount of volunteering prisoners.

It was noted that all the above measures differentiated prisoners from nonprisoners except the CDQ-type instrument and the JPI Risk-taking scale. This outcome supports the contention that risk and impulsiveness measures explore distinctly different phenomena. Impulsiveness might be conceived of as being a special case of risk-taking or, probably more correctly, as a special case of risky decision-making. One logical interpretation, given the strong correlations discovered, is that one is necessarily risky if impulsive; however, one is not necessarily impulsive if risky. Intelligence may prove to be a critical third factor in this relationship.

* * *

Self-control, volunteering behavior, impulsiveness, venturesomeness, and cigarette smoking differentiated prisoners from nonprisoners, strongly confirming the substantial influence of impulsiveness on criminal behavior. Some important findings of this research extend those conclusions by allowing strong inferences of causality. As part of the results from all

these measures found to differentiate prisoners and nonprisoners, the erstwhile group's mean scores fell right in between the two. This circumstance suggests progression, or a developmental sort of incrementing perhaps, and supports the causal inference that impulsiveness influences the degree criminal behavior. Further, changes in these impulsiveness scores are, by extension, causally associated with changes in incarceration status.

Impulsiveness was found to increase in both the prisoner and erstwhile groups when the number of arrests reported increased. What this indicated was that individuals with the highest impulsiveness also had been arrested the most often. This finding helps counter the argument that prisoners all might have tried to give an impression of being "bad" since it held in the erstwhile group as well.

Another support for causal inference was the very weak but firmly negative in direction finding ($r = -.25$, $p < .22$) that impulsiveness decreases in the erstwhile group as the amount of time since last release increases. Since it can be argued that jail causes impulsiveness, the reverse of this paper's position, it is helpful to highlight that when considering prisoners (with no time elapsed), impulsiveness significantly diminishes with time elapsed since having been in jail ($r = -.22$, $p < .02$). Further supporting impulsiveness as a cause of criminal behavior is the finding of its significant increase as the amount of times one has been in jail increases ($r = .26$, $p < .0004$). The possibility of a reversal of the suggested causal direction is disarmed by the consideration of how one could have come to be incarcerated in the first place in that case.

There is a final argument for the causal influence of impulsiveness on criminality. This is the finding in the never-arrested group that impulsiveness diminished as a function of age ($r = -.32$, $p < .02$), but not so in offender groups. This strong relationship incidentally implies that impulsiveness follows a developmental process (at least that its diminishing does, and that is the primary focus of inquiry). The importance of this finding and this interpretation is underlined by the fact that in the other two groups this "developmental" relationship did not obtain.

The result of performing analysis of variance (ANOVA) computations on the results from each incarceration-status group on each measure was that volunteering behavior, self-control (CPI), Impulsiveness and Venturesomeness (I-7), and cigarette smoking were all found to significantly differentiate prisoners, erstwhiles, and never-arrested subjects, while the CDQ-type risk-preference questionnaire and JPI Risk-taking failed to differentiate them. One probable meaning of these findings is that since prisoner and nonprisoner populations drastically differ in the areas under study, especially impulsiveness, findings about risk-taking or impulsiveness obtained with from a nonprisoner population cannot be generalized to prisoners and likely, to criminals. This seems quite important for rehabilitation efforts and, as well, for prevention, because while isolating impulsiveness as a critical element of criminal behavior, also emphasized is the fact that much of what is known about impulsiveness has been found using noncriminal populations and may not be generalizable.

Especially important are the findings of this study for their implications concerning child-raising. The taming of impulsiveness and the instilling of self-control are the very business of parenting, and the findings of this present study highlight this parenting task as never before in its crucial importance in the prevention of crime.

* * *

A major idea addressed by this paper was that "age," as crime's strongest correlate, was a poor predictor or explainer, and that more accurate factors or variables existed. In the present study, correlations were computed between age and all measures of impulsiveness and risk utilized. Computations of the covariance between age and incarceration status were also performed. Further, The results of ANOVAs performed on the age of subjects in the three groups showed there were no differences. This condition was intentional. The nonprisoner subjects for the study were selected to be closely matched to prisoner populations in age, education, racial distribution and socio-economic factors.

Importantly, no measure utilized in this study except cigarette smoking found any differences due to age when considering all subjects. However, when results were analyzed by group, age was found to be a major factor in decreasing impulsiveness in the "normal", or noncriminal, group. However, there were numerous findings of the relationship between impulsiveness and criminal behavior. Thus was Hypothesis Number Three supported: Impulsiveness and risk-taking describe criminality better than does the factor of age.

T-tests were performed on results of the Self-control and Impulsiveness measures to superficially test for racial differences. Significant differences were found, supporting Hypothesis Number Four which stated there were such racial differences in the qualities explored in this study. The finding of racial differences on impulsiveness measures simply implies the need for more culturally specialized research and, likely, more cultural-specific interventions in the field of rehabilitation and prevention. In each case, the Black population was found to reflect significantly higher self-control and significantly lower impulsiveness.

Hypothesis Number Five was that dissimulation would be found to occur at a higher rate in prisoners than in the other two groups. This would be an important finding because of its implication that test or research results from one population could not be accurately generalized to the other population and, as well, that interventions (rehabilitative or preventive) also might not be generalizable. That findings from prisoners would contain distortions due to dishonesty is a logical hypothesis since these men are being punished for dishonesty at the time they are being tested. This means that data and interpretations should be attempted only after some form of data checking is done. The Infrequency scale is a model for indications that a subject has answered dysfunctionally. It is suggested that all data from such a subject would become questionable and should be discarded, or at the least handled separately. Correlational computations found a significant relationship between incarceration status and Infrequent responses ($r=.15$, $p < .04$ before high-Infrequent responses were removed and $r=.25$, $p < .0009$ after they were removed).

FOOTNOTES

1. Since most studies cited, as well as the current one, utilize data from male subjects, the pronoun "he" will often be used generically in this paper.

2. Rowe and Tittle (1977) investigated propensity to crime in a normal population while most criminal studies surveyed convicted criminals. The Rowe and Tittle results showed criminal propensity followed the same shape of data as arrest rates, age-wise. Youthful inexperience has been considered as one possible explanation of the low mean age of incarcerated criminals. The logic involved is their inexperience could cause them to make mistakes a more experienced, and probably older, criminal would not make. Consequently they would be more likely to be incarcerated. The criminal propensity peaks, age-wise, in the over-all "normal" population matches those of arrest-incarceration reports. This suggests that the high rate of young prisoners may accurately represent the age groups actually involved in crime.

3. The crime clearance rate is the clearance of a reported crime by a criminal justice disposition. This means that some persons arrested will be found to be responsible for more than one reported crime, thus clearing several; on other occasions several persons are arrested in clearing one crime.

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STATEMENT TO BE READ TO SUBJECTS PRIOR TO HANDING OUT MATERIALS

For the purpose of finding answers that can help young people who are beginning to get into trouble, I am doing some personality research on people who have had problems with the law at some time in their lives. If you have never been arrested, your information is valuable in another way. I will not be able to tell you exactly how the information you give will be used until all the testing is done and the results are analyzed. This will take several months.

The information you give will be used to write the thesis I must produce to complete my work on a master's degree in psychology and it is hoped that the results can be used to improve our system of corrections. I need you to answer over 100 questions openly and as honestly as you can. Some of the questions will ask about the way you usually think or feel. Hardly anyone thinks or feels exactly the same all the time, so answer these the way you USUALLY feel. I want you to remember that on this type of questionnaire, there is no such thing as right and wrong. The questions ask about things that almost everybody does or feels at some time, and all people are different. Some questions will ask you to think pretty hard. Some will tell you about a situation and ask you to make a choice about how you would handle it.

If any of the questions appear appear tricky, I want you to know they are not intended to be. If you re-read that question I hope it will become more clear. But if you still feel it's tricky, just hold up your hand and I will come help you if I can. And also remember, at any time you are uncomfortable or wish to stop, you may do so. Some questions will be

repeated. This is because several different types of tests were used, and some of them had the same type of question on them. The timed portion is very short. Getting a mental block when you are under time pressure is common, so don't feel badly if this happens to you. Most people cannot do very much in the short time you will be given, so don't feel like you didn't do well.

I cannot pay you in any way for your participation. The only reward you will get is knowing that your answers are important, and they will be used to help others who need it.

If you have a question at any time during the testing, just hold up your hand and I'll come answer it if I can.

DO YOU HAVE ANY QUESTIONS BEFORE I HAND OUT MATERIALS?

REMEMBER: THERE ARE NO RIGHT ANSWERS AND NO WAY YOU CAN GIVE A WRONG ANSWER, AND YOU CAN PUT IT DOWN AND LEAVE ANY TIME YOU WANT TO.

Volunteers are needed for two upcoming proposed studies. The first will investigate gambling behavior and volunteer subjects will play the part of gamblers who will be able to win (and keep) reasonable amounts of money, while also risking slightly painful electric shocks if they lose. The second study will investigate elements of the personality and will require several hours of in-depth personality testing with questionnaires. If you would consider participating in either of these studies, please indicate which study you will be available for _____ so we can estimate how many persons might be willing to participate. Thank you.

_____ Gambling Behavior Study _____ Personality Study

Each of the following items will require you to write as many answers as you can in a short period of time. Do not begin answering any item until time is called to begin, and be ready to stop when time is called to stop, even if you are in the middle of a word. Use the back if you run out of space.

For a warm-up, the administrator will call time and you will have only 12 seconds to write the word "the" as many times as possible. Do not begin until time.

1. Imagine you have a carpenter's nail about four inches long. How many uses can you think of for this nail? Do not begin writing until time is called. (1 Min.)

2. Imagine you are preparing to make a simple mechanical repair to your car. What things must you do first? Do not begin writing until time is called. (1 Min.)

3. Imagine you have a candle which has been lit, placed in a candle-holder, and then set on a table in the room you are now in. How many problems can you think of that could possibly occur with this arrangement? Wait to begin. (1 Min.)

4. Imagine you are preparing to wash your car. How many problems can you think of that could possibly occur to prevent your finishing the job? Wait. (1 Min.)

1. A person needs to "show off" a little now and then. T F
2. I have had very peculiar and strange experiences. T F
3. I am often said to be hotheaded. T F
4. I sometimes pretend to know more than I really do. T F
5. Sometimes I feel like smashing things. T F
6. Most people would tell a lie if they could gain by it. T F
7. I think I would enjoy having authority over other people. T F
8. I find it hard to keep my mind on a task or job. T F
9. I have sometimes stayed away from another person because I feared doing or saying something that I might regret afterwards. T F
10. Sometimes I feel like swearing. T F
11. I like to boast about my achievements every now and then. T F
12. I must admit I often try to get my own way regardless of what others may want. T F
13. Sometimes I think of things too bad to talk about. T F
14. I would do almost anything on a dare. T F
15. I like to be the center of attention. T F
16. I would like to see a bullfight in Spain. T F
17. At times I feel like picking a fist fight with someone. T F
18. Sometimes I have the same dream over and over. T F
19. I do not always tell the truth. T F
20. I fall in and out of love rather easily. T F
21. I would like to wear expensive clothes. T F
22. I consider a matter from every standpoint before I make a decision. T F
23. I have strange and peculiar thoughts. T F
24. My home life was always happy. T F
25. I often act on the spur of the moment without stopping to think. T F
26. My way of doing things is apt to be misunderstood by others. T F
27. I never make judgments about people until I am sure of the facts. T F
28. Most people are secretly pleased when someone else gets into trouble. T F
29. Sometimes I feel as if I must injure either myself or someone else. T F
30. I often do whatever makes me feel cheerful here and now, even at the cost of some distant goal. T F
31. I can remember "playing sick" to get out of something. T F
32. I think I would like to fight in a boxing match sometime. T F
33. I like to go to parties and other affairs where there is lots of loud fun. T F
34. I have frequently found myself, when alone, pondering such abstract problems as freewill, evil, etc. T F
35. I keep out of trouble at all costs. T F
36. I am apt to show off in some way if I get the chance. T F
37. I am often bothered by useless thoughts which keep running through my mind. T F
38. I must admit that I have a bad temper, once I get angry. T F
39. I like large, noisy parties. T F
40. I often feel as though I have done something wrong or wicked. T F
41. I am a better talker than a listener. T F
42. Sometimes I rather enjoy going against the rules and doing things I'm not supposed to. T F
43. I have very few quarrels with members of my family. T F
44. I have never done anything dangerous for the thrill of it. T F
45. I used to like it very much when one of my papers was read to the class in school. T F
46. I feel that I have often been punished without cause. T F
47. I would like to be an actor on the stage or in the movies. T F
48. At times I have a strong urge to do something harmful or shocking. T F
49. I often get feelings like crawling, burning, tingling, or "going to sleep" in different parts of my body. T F
50. Police cars should be especially marked so that you can always see them coming. T F

Sex M F

Current Age _____

Race _____

Last school grade completed 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 +

If you have ever been arrested, please give your age as best you can remember, at the time of each arrest. 1st _____ 2nd _____ 3rd _____ 4th _____ Last _____

If you were sentenced on any arrest, how long has it been since you were last released? _____ Years _____ Months _____ Presently Incarcerated

4. For your personal best health, how many cigarettes do you feel are the maximum you should smoke? _____ Packs
5. What is your current weight? _____ pounds
6. How many pounds do you feel you are overweight? _____ pounds
7. Before the seat belt law was passed, what percentage of the time when you were in a car did you use your seat belt? _____ per cent
8. What per cent of injuries from auto accidents do you think could have been either prevented or lessened if the individual had been wearing a seat belt? _____ per cent

Please circle the T if the statement is true for you most of the time, or most recently; circle the F if the statement is not true for you most of the time, or most recently.

1. When I want something, I'll sometimes go out on a limb to get it. T F
2. Of the people I know, I like some better than others. T F
3. I rarely make even small bets. T F
4. My musical compositions have been played in concert halls around the world. T F
5. I would enjoy bluffing my way into an exclusive club or private party. T F
6. I have had at least one cold in my life. T F
7. If I invested any money in stocks, it would probably only be in safe stocks from large, well known companies. T F
8. I have sometimes hesitated before making a decision. T F
9. If the possible reward was very high, I would not hesitate putting my money into a new business that could fail. T F
10. I have sight in only one eye. T F
11. When in school, I rarely took the chance of bluffing my way through an assignment. T F
12. I have no sense of taste at all. T F
13. People have told me that I seem to enjoy taking chances. T F
14. I have kept a pet monkey for years. T F
15. Skindiving in the open ocean would be much too dangerous for me. T F
16. In my lifetime I have eaten at least one meal in a restaurant. T F
17. The thought of investing in stocks excites me. T F
18. Some things don't turn out exactly as I plan them. T F
19. I rarely, if ever, take risks when there is another alternative. T F
20. I have won trophies in professional golf tournaments. T F
21. I enjoy taking risks. T F
22. I run five miles every day to keep healthy. T F
23. I would prefer a stable position with a moderate salary to one with a higher salary but less security. T F
24. I eat imported cheeses with all my meals. T F
25. Taking risks does not bother me if the gains involved are high. T F
26. I can eat most foods without feeling ill. T F
27. I consider security an important element in every aspect of my life. T F
28. I have made several trips overseas to study old ruins and rock formations. T F
29. I would enjoy the challenge of a project that could mean either a promotion or loss of a job. T F
30. I do some things better than others. T F
31. I try to avoid situations that have uncertain outcomes. T F
32. I believe there are some jobs which I would not enjoy doing. T F
33. I think I would enjoy almost any type of gambling. T F
34. I can walk a few blocks without getting too tired. T F
35. I would participate only in business undertakings that are relatively certain. T F
36. Everyone in my family has the same birthday. T F
37. In games I usually "go for broke" rather than playing it safe. T F
38. All jokes seem pointless to me. T F
39. I probably would not take the chance of borrowing money for a business deal even if it might be profitable. T F
40. I usually sleep at least four hours every night. T F

(IF THERE IS NO CHANCE YOU WOULD ADVISE OR PARTICIPATE IN WHAT THE ITEM ASKS, YOU MAY MARK ZERO. ZERO MEANS NO CHANCE OF ACTING ON THIS ITEM.)

1. Mr. A. has a job working for the City making \$6 an hour with good security and benefits, including pension. Mr. A.'s long-time friend has just started a new business that looks promising, and he believes it is possible to make a great deal of money. He has asked Mr. A. to quit his job with the City and come work with him as his equal partner. If the business goes, Mr. A. will make a lot more money than he could at the City, but if it fails he will have lost his secure position. Imagine you are to advise Mr. A. On a scale of 0 per cent to 100 per cent, how sure must you be of the success of the new business to advise Mr. A. to go for it?

0 10 20 30 40 50 60 70 80 90 100

2. Mr. B. has been told by his doctor he has a bad heart. He has two major choices of what he can do to survive. One is to change almost everything in his life--his workload, eating habits, social life, and more--all of which are quite difficult to change. His other choice is to have an operation which will correct the problem, but there is a chance he will not survive the operation. Imagine you are to advise Mr. A. On a scale of 0 to 100 per cent, how sure of success must you be to advise him to have the operation?

0 10 20 30 40 50 60 70 80 90 100

3. Mr. C. has done you an injustice. As you try to make him repair the damage he resists and causes you further damage. You find yourself shortly after this in a position to spread a destructive rumor about Mr. C., which could hurt him professionally. However, since the rumor is untrue, your discovery as the source of this rumor will be very embarrassing and you could be sued by Mr. C. On a scale of 0 to 100 per cent, how sure of success must you be to spread the rumor?

0 10 20 30 40 50 60 70 80 90 100

4. D. is captain of his football team. It is the last few seconds of the big game of the year against their rival school. D. has the choice of calling a play that is almost certain to produce 3 points for a tie game, or a play which could produce a touchdown and sure victory, but sure defeat if it misses. Imagine you are advising D. On a scale of 0 to 100 per cent, how sure of success of the touchdown play must you be to advise him to go for it?

0 10 20 30 40 50 60 70 80 90 100

5. On your job as a computer operator with a large firm you have discovered there is an account where your company deposits customer refunds until they are claimed. You are able to transfer money from the refunds account to your own account for short periods of time in order to draw interest on it amounting to a very large sum of money over time. If you are caught you will lose your job and possibly have charges filed against you. On a scale of 0 to 100 per cent, how sure of success must you be to move the money?

0 10 20 30 40 50 60 70 80 90 100

GENERAL HEALTH ASSESSMENT

1. On a scale of 0-10, rate your present health. _____
2. On a scale of 0-10, rate your recent energy level. _____
3. How many cigarettes do you smoke per day? _____ Packs

I.7 Age _____ Sex _____

INSTRUCTIONS: Please answer each question by putting a circle around the "YES" or the "NO" following the question. There are no right or wrong answers, and no trick questions. Work quickly and do not think too long about the exact meaning of the question.

PLEASE REMEMBER TO ANSWER EACH QUESTION

- | | | |
|--|-----|----|
| 1. Would you enjoy water skiing? _____ | YES | NO |
| 2. Usually do you prefer to stick to brands you know are reliable, to trying new ones on the chance of finding something better? _____ | YES | NO |
| 3. Would you feel sorry for a lonely stranger? _____ | YES | NO |
| 4. Do you quite enjoy taking risks? _____ | YES | NO |
| 5. Do you often get emotionally involved with your friends' problems? _____ | YES | NO |
| 6. Would you enjoy parachute jumping? _____ | YES | NO |
| 7. Do you often buy things on impulse? _____ | YES | NO |
| 8. Do unhappy people who are sorry for themselves irritate you? _____ | YES | NO |
| 9. Do you generally do and say things without stopping to think? _____ | YES | NO |
| 10. Are you inclined to get nervous when others around you seem to be nervous? _____ | YES | NO |
| 11. Do you often get into a jam because you do things without thinking? _____ | YES | NO |
| 12. Do you think hitchhiking is too dangerous a way to travel? _____ | YES | NO |
| 13. Do you find it silly for people to cry out of happiness? _____ | YES | NO |
| 14. Do you like diving off the high-board? _____ | YES | NO |
| 15. Do people you are with have a strong influence on your moods? _____ | YES | NO |
| 16. Are you an impulsive person? _____ | YES | NO |
| 17. Do you welcome new and exciting experiences and sensations, even if they are a little frightening and unconventional? _____ | YES | NO |
| 18. Does it affect you very much when one of your friends seems upset? _____ | YES | NO |
| 19. Do you usually think carefully before doing anything? _____ | YES | NO |
| 20. Would you like to learn to fly an aeroplane? _____ | YES | NO |
| 21. Do you ever get deeply involved with the feelings of a character in a film, play or novel? _____ | YES | NO |
| 22. Do you often do things on the spur of the moment? _____ | YES | NO |
| 23. Do you get very upset when you see someone cry? _____ | YES | NO |
| 24. Do you sometimes find someone else's laughter catching? _____ | YES | NO |
| 25. Do you mostly speak without knowing things out? _____ | YES | NO |
| 26. Do you often get involved in things you later wish you could get out of? _____ | YES | NO |
| 27. Do you get so 'carried away' by new and exciting ideas, that you never think of possible snags? _____ | YES | NO |
| 28. Do you find it hard to understand people who risk their necks climbing mountains? _____ | YES | NO |
| 29. Can you make decisions without worrying about other people's feelings? _____ | YES | NO |

- | | | |
|---|-----|----|
| 30. Do you sometimes like doing things that are a bit frightening? _____ | YES | NO |
| 31. Do you need to use a lot of self-control to keep out of trouble? _____ | YES | NO |
| 32. Do you become more irritated than sympathetic when you see someone cry? _____ | YES | NO |
| 33. Would you agree that almost everything enjoyable is illegal or immoral? _____ | YES | NO |
| 34. Generally do you prefer to enter cold sea water gradually, to diving or jumping straight in? _____ | YES | NO |
| 35. Are you often surprised at people's reactions to what you do or say? _____ | YES | NO |
| 36. Would you enjoy the sensation of skiing very fast down a high mountain slope? _____ | YES | NO |
| 37. Do you like watching people open presents? _____ | YES | NO |
| 38. Do you think an evening out is more successful if it is unplanned or arranged at the last moment? _____ | YES | NO |
| 39. Would you like to go scuba diving? _____ | YES | NO |
| 40. Would you find it very hard to break bad news to someone? _____ | YES | NO |
| 41. Would you enjoy fast driving? _____ | YES | NO |
| 42. Do you usually work quickly, without bothering to check? _____ | YES | NO |
| 43. Do you often change your interests? _____ | YES | NO |
| 44. Before making up your mind, do you consider all the advantages and disadvantages? _____ | YES | NO |
| 45. Can you get very interested in your friends' problems? _____ | YES | NO |
| 46. Would you like to go pot-holing? _____ | YES | NO |
| 47. Would you be put off a job involving quite a bit of danger? _____ | YES | NO |
| 48. Do you prefer to 'sleep on it' before making decisions? _____ | YES | NO |
| 49. When people shout at you, do you shout back? _____ | YES | NO |
| 50. Do you feel sorry for very shy people? _____ | YES | NO |
| 51. Are you happy when you are with a cheerful group and sad when the others are glum? _____ | YES | NO |
| 52. Do you usually make up your mind quickly? _____ | YES | NO |
| 53. Can you imagine what it must be like to be very lonely? _____ | YES | NO |
| 54. Does it worry you when others are worrying and panicky? _____ | YES | NO |

PLEASE CHECK TO SEE THAT YOU HAVE ANSWERED ALL THE QUESTIONS

LIFE SATISFACTION CHECK LIST

Each item below is a goal or need that a person can have. Rate how you stand AT THIS MOMENT in each of these goals or needs. Study the key carefully before beginning since misunderstanding it can make your answers say the opposite of what you really mean.

1. I am satisfied with the way things are right now.
2. I would like to do a little better than I am right now.
3. I would like to a lot better than I am right now.
4. I feel I am totally deprived of this right now.

- | | |
|--|---|
| <input type="checkbox"/> Clothes | <input type="checkbox"/> Spending Money |
| <input type="checkbox"/> School or Vocational Training | <input type="checkbox"/> Love Life |
| <input type="checkbox"/> Doing something useful in society | <input type="checkbox"/> Self-acceptance |
| <input type="checkbox"/> Entertainment facilities at home | <input type="checkbox"/> Job |
| <input type="checkbox"/> Self-confidence | <input type="checkbox"/> Membership in Groups |
| <input type="checkbox"/> Automobile | <input type="checkbox"/> Social Skills |

On a scale of 0-10, rate the following jobs according to how well you think you would like to have that particular job. If you would like a job very much, a high number is placed in the blank to the left of it. Zero means you would not like the job at all.

- | | |
|--|--|
| <input type="checkbox"/> Policeman | <input type="checkbox"/> Construction Contractor |
| <input type="checkbox"/> Doctor | <input type="checkbox"/> Priest or Minister |
| <input type="checkbox"/> High School Teacher | <input type="checkbox"/> Test Pilot |

Now rate how difficult you feel it would be for you to get each job. This includes how difficult you feel it would be for you to get the training required for it. Use the 0-10 rating scale where 0 means it would not be difficult at all and 10 means it would be impossible for you.

- | | |
|--|--|
| <input type="checkbox"/> Policeman | <input type="checkbox"/> Construction Contractor |
| <input type="checkbox"/> Doctor | <input type="checkbox"/> Priest or Minister |
| <input type="checkbox"/> High School Teacher | <input type="checkbox"/> Test Pilot |