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SOME VARIABLES ASSOCIATED WITH
DYSFUNCTIONAL BEHAVIOR DEPENDENCE
IN A COLLEGE SAMPLE

by

Donald Sheldon Ijams

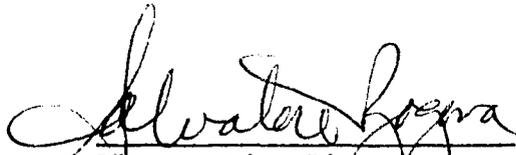
A Dissertation Submitted to the Faculty of the
DEPARTMENT OF PSYCHOLOGY
In Partial Fulfillment of the Requirements
For the Degree of
DOCTOR OF PHILOSOPHY
In the Graduate College
THE UNIVERSITY OF ARIZONA

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THE UNIVERSITY OF ARIZONA

GRADUATE COLLEGE

I hereby recommend that this dissertation prepared under my direction by DONALD SHELDON IJAMS entitled SOME VARIABLES ASSOCIATED WITH DYSFUNCTIONAL BEHAVIOR DEPENDENCE IN A COLLEGE SAMPLE be accepted as fulfilling the dissertation requirement of the degree of DOCTOR OF PHILOSOPHY


Dissertation Director

Aug 15, 1972
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ABSTRACT

The present investigation is an exploratory study of psychological dependence on behavior, particularly its incidence in a college population, its relationship to selected personality variables, and its generality among behaviors. Literature in four areas, drug use, tobacco smoking, eating beyond normal requirements, and marijuana smoking, suggests that the psychological correlates of individual inability to control the frequency of enactment of particular behaviors might be similar across behaviors and might be tied to personality constructs involving the experience of control. Cross-behavioral research was undertaken in order to shed light on potentially similar psychological concomitants of dysfunctional behavior dependence, and to lay the groundwork for future research in the dependence area.

Three concerns guided the present research effort: (1) to describe the incidence of and age and sex differences in psychological dependence on ten behaviors common to a college population: watching television or movies, listening to radio or records; talking with friends; day dreaming; taking physical risks; engaging in sexual behavior; eating beyond normal requirements;

smoking tobacco; drinking alcoholic beverages; smoking marijuana, and taking pills or drugs for other than medical reasons; (2) to explore the relationship between dysfunctional behavior dependence and self-control and "maturity" personality variables; and (3) to examine how psychological dependence on behavior is manifested across several behaviors.

These concerns were addressed through the examination of data gathered with three self-report questionnaires. The Behavior Dependence Inventory requested three items of information about each of the ten behaviors under investigation: current frequency of enactment, level of anticipated discomfort at being deprived of the behavior, and level of dysfunction perceived to result from the current frequency of enactment. The combination of high frequency of enactment and high discomfort at deprivation defined high dependence on the behavior. The Self-control, Responsibility, and Socialization scales of the California Psychological Inventory (CPI) comprised the second data gathering instrument. The third instrument was Coan's Personal Opinion Survey (POS), a seven-factor, experience of control inventory. The CPI and POS scales allowed comparison of self-control and maturity variables with the incidence and extent of behavior dependence.

The results, analyzed primarily through analysis of variance and rank-order correlation techniques, showed that, for males and females, levels of dependence (frequency x discomfort) decreased as potential legal and medical consequences of enactment increased in severity. Individuals who showed high dependence on nine of the ten behaviors (drug use was excluded because of low frequency) scored significantly lower, in general, than those who did not engage in the behaviors on the Self-control, Responsibility, and Socialization scales of the CPI, significantly higher on POS Factor III, Mankind in Control of Its Destiny versus Supernatural Power or Fate, and significantly lower, on the average, on POS Factor IV, Successful Planning and Organization. A positive and moderately strong relationship was found between high dependence on behavior and high dysfunction perceived as resulting from behavior enactment.

High dependence tobacco smokers were found, in general, to score significantly different from nonsmokers on CPI and POS scales, but not significantly different from high dependence overeaters, drinkers, or marijuana smokers on the same scales. A similar relationship was found for high dependence overeaters, drinkers, and marijuana users. A dependence syndrome was suggested by the findings, where undercontrolled and immature college students were seen as evidencing a generalized tendency toward dependence on

a number of behaviors at the same time. The dependence syndrome was offered as a concept worthy of further research.

Limitations of the research primarily came from the measurement methods employed and from the broad approach necessary to adequately cover the wide variety of behaviors under consideration.

INTRODUCTION

This study was designed to investigate selected personality correlates of a number of behaviors that are overindulged in by significant numbers of Americans. Over-eating, heavy smoking, drug abuse, problem drinking, and other examples of excessive behavior are all a part of modern society. For example, Cahalan (1970, p. 36) found through nationwide sampling procedures that nine percent of individuals over 21 years of age living in households in the continental United States were "problem drinkers," according to measurements on a combined index of problems related to drinking alcoholic beverages. Milbauer (1970) notes the "staggering" but unknown amount of money spent each year in this country on legal and illegal drugs. The number of Americans overweight by 20 percent or more has been estimated at 5,000,000 (Bruch, 1957), while Fletcher and Horn (1970) proposed that the 1969 per capita consumption of cigarettes for Americans over 18 years of age was 10.94 per day. These figures indicate rather widespread incidence of excessive behavior, where "excessive" is defined as a frequency high enough to be potentially harmful to the individual.

The primary question raised in this study is whether psychological differences among individuals with different patterns of overindulgence are primarily qualitative or more a matter of degree within similar categories. How does the overeater differ from the heavy smoker except for the behavior enacted? Are there common psychological characteristics across behaviors which, if better understood, might lead to more fruitful investigation in each area?

The literature dealing with high frequency behaviors is quite diverse. Not only is the literature divided according to subject area (e.g., drug abuse, smoking), but it also may be classified by method of approach taken in the course of investigation (e.g., learned behavior, personality manifestation, physiological aspects, deviant behavior). The selection of literature chosen for presentation here indicates such diversity and also provides a background for cross-behavioral research in the area of overindulgent behavior.

Drug Use

A portion of the general drug literature deals with definition of effects in the user. The syndrome associated with frequent use of drugs has long been termed drug addiction. The World Health Organization Expert Committee on Addiction-Producing Drugs began in 1952 to attempt

clarification of the term addiction. The Committee's primary goal was more exact specification of drug types, particularly of those types requiring international control. Continuing discussion of the concept led (in 1957) to the distinction between the terms habituation and addiction, and the subsequent (1964) dropping of both terms in favor of "drug dependence" (WHO Expert Committee on Addiction-Producing Drugs, 1964).

Drug dependence was defined by the Expert Committee as a state of physical or psychological dependence, or both, on a drug, that arose as a result of its continuous or intermittent use (1964, p. 9). Their definition of drug dependence requires a qualifying phrase specifying the type of dependence (e.g., drug dependence of the morphine type), implying that all of the physical and psychological effects common to a given drug must be taken into account (Eddy, et al., 1965, pp. 722-723).

In discussing the psychological aspects of drug dependence, a WHO Scientific Group (1964, p. 5) notes that

. . . all of these drugs have one effect in common. They are capable of creating a state of mind in certain individuals which is termed psychic dependence Indeed, it (the mental state) is the most powerful of all of the factors involved in chronic intoxication with psychotropic drugs. With certain types of drugs it may be the only factor involved, even in the most intense type of craving and perpetuation of compulsive abuse.

Chapple (1966) attests to the importance of psychic dependence. He makes a case for strong dependence on the euphoriant effects of drugs of the cannabis (marijuana) group, completely aside from the question of physical dependence. He has observed a number of cases where individuals would go to any lengths to obtain the drug, indicating that without it life is not the same (pp. 278-279).

Not only does "drug dependence of a certain type" refer to the characteristics of a particular drug, but the term also points up differences among drug users. Nowlis (1970) argues strongly for proper consideration of the interaction between drug and user. Individuals who become physically and psychologically dependent on morphine as a side effect of medical control of extreme pain do not as a rule return to such a dependent state after properly controlled withdrawal and reduction of pain. On the other hand, it is the rule rather than the exception that long standing addicts who are withdrawn in as humane a manner as possible still return to drug dependence in large numbers (p. 253).

Drugs, in Freedman's view, frequently produce "ego disruptions," or an agreeable holiday from reality (1968, p. 1281). The subjective nature of such effects is quite varied, not only among drugs but among individuals as well.

In noting the lack of knowledge concerning the part subjective effects play in dependence, Freedman calls for "extensive behavioral and subjective response profiles" for each group of drugs (1968, p. 1281).

Seevers (1968) presents a reinforcement framework for understanding drug dependence. Primary psychological dependence, according to Seevers, results from continued positive reinforcement associated with drug use (p. 1263). The phenomenon of dependence, however, is more general than just in the case of drugs. Seevers argues that

. . . such strong psychological dependence may develop to the mild stimulants, such as tobacco, caffeine-containing beverages, and betel, that withdrawal may create significant problems for the individual. In some instances it leads to real and distressing symptoms which are clearly of psychological rather than physical origin (p. 1263).

Seevers also makes a case for secondary psychological dependence (1968, p. 1266). Secondary dependence comes about as a result of avoidance conditioning associated with preventing aversive withdrawal symptoms. Secondary dependence may come to be more intense than primary dependence, particularly where withdrawal symptoms are severe and tolerance reduces the effects of positive reinforcement.

One of the salient characteristics appearing in much of the literature on the effects of drug use is the individuality of personal reaction. As seen above, a

number of writers consider the dependence that follows frequent drug use in essentially the same manner as do Eddy et al. (1965, p. 723):

Psychic dependence, while also related to pharmacological action, is more particularly a manifestation of the individual's reaction to the effects of a specific drug and varies with the individual as well as with the drug.

Many of the writers point to the lack of knowledge about the psychological and social functions served by drug use, and consider such functions at least as important as the pharmacological effects of the drug itself.

That drug use apparently serves a psychological or social purpose for certain individuals leads some drug investigators to consider other dysfunctional behaviors in the same light and to suggest the utility of a generalized concept of psychological dependence.

Drinking Alcoholic Beverages

The effects of alcohol on the user have long been highly desirable to a portion of the world's population and equally undesirable to another portion. The anesthetic and disinhibitory effects of certain quantities of alcohol bring on a generally agreeable state in many users, where troubles are forgotten and social intercourse becomes facilitated. On occasion, however, the agreeable state is followed, for some individuals, by a disagreeable return to reality as well as an unpleasant physical reaction the

morning after, For a portion of American society, the return to reality is particularly unpleasant, and escape is regularly sought through dependence on alcohol (Block, 1970).

Drinking behavior has been studied through several frameworks, each taking a somewhat different point of view in trying to understand the excessive consumption of alcohol. The disease approach to alcoholism is by far the oldest context for study. Early literature almost exclusively refers to alcoholism as a disease or illness, explaining its characteristics in terms of physiology, neuro-physiology, or genetics (Cahn, 1970). E. M. Jellinek is a widely known contemporary proponent of this general approach to alcoholism.

Chafetz, Blane and Hill (1970), in reviewing psychodynamic models of alcoholism, note that psychoanalytic writers generally disagree on the basic personality structure of the alcoholic. Similarly, sociological models of alcoholism differ in their emphases on particular aspects of the social and cultural environment deemed important in the etiology of excessive drinking (Cahn, 1970).

The tendency of many writers to view alcoholism as a unidimensional trait formed the basis for Wanberg and Knapp's program of multivariate research in alcoholism

(1970). They took issue with the conception of alcoholism as a continuum, with abstinence at one end and extreme alcoholism at the other, and devised a multidimensional model involving statistically independent patterns of alcoholism (p. 95). The ten patterns Wanberg and Knapp uncovered suggested differential treatment programs for each case, and significantly broadened the potential range of alcoholism research. They note that ". . . the time for putting 'alcoholics' in one group and comparing them with 'normals,' 'neurotics,' and the like is past. It may be that treating alcoholics as all alike may be the basis for much of the difficulty we have had in understanding the problem of alcoholism" (p. 95).

Building on the importance of understanding the reasons for differences in individual reactions, Haertzen, et al. (1970) argue that strong dependence on alcohol undoubtedly serves many of the same purposes as does strong dependence on opiates, marijuana, or barbiturates (pp. 124-125). These investigators attribute many of the alleged differences among the various dependencies to the effects of labeling and the language of addiction, particularly as frequency of use becomes sustained at a high level and self-concept is influenced by resulting interpersonal perception and communication.

Eating Beyond Normal Requirements

Individuals who are "overweight" may be defined as such from several points of view. The statistical definition of overweight relates to the frequency distribution of weights of humans and an arbitrarily defined boundary of normal and abnormal weight. For example, a person who weighs ten percent or more above his "ideal" weight is considered overweight in one definition (Bruch, 1957, p. 61).

The distinction between normal weight and overweight is more commonly made through socially and culturally determined perceptions. In American society the very heavy person is often ridiculed and at social disadvantage in many aspects of his life.

Eating habits that lead to or maintain a state of overweight, in many cases, have complex psychosocial correlates (Mayer, 1968, p. 93). Hamburger (1951) studied 18 obese patients through psychiatric interview and found multiple emotional meanings of overeating, among which were: ". . . in response to nonspecific emotional tensions; as a substitute gratification in reaction to intolerable life situations; as a symptom of underlying emotional illness, especially depressions and hysteria, (and) as a malignant addiction to food" (p. 498). At the same time, his review of the pertinent literature on obesity available

in 1951 failed to reveal any ". . . intrinsic metabolic, endocrinologic or central nervous system abnormality in the usual case" (p. 498).

In one of the most important books yet published on overweight, Hilde Bruch (1957) builds on the point of view that obesity is far from a uniform condition and that many types of obesity are tied to combinations of poorly understood physiological and psychological disturbances (p. 12). She finds that obesity is not necessarily bad, and is, in a number of cases, the balancing factor in a precarious adjustment to life (p. 13).

For purposes of analysis, Bruch (1957) divides obese people into three broad categories: (1) overweight individuals whose excess weight is a part of their "natural makeup," and who usually do not have weight-related psychological difficulties, (2) persons whose overeating is a defensive reaction to upsetting events, anxiety or depression, and (3) individuals for whom overweight is or was an intrinsic part of an abnormal developmental process. It is the last classification that receives most of Bruch's attention.

Much of Bruch's work in the field of obesity has been with children (1957, pp. 218-219). Her observations of the family circumstances of obese children led to the uncovering of several common characteristics. Families

in general, but particularly mothers, reinforced the dependence of their children on others for many things in daily life. From the children not dressing themselves to inactivity in games and the mothers answering questions put to their children, Bruch found that the ". . . inability to do things for themselves extended to practically every aspect of the children's daily life" (pp. 188-189). The resultant insecurity, coupled with parental overindulgence, frequently led to the situation where ". . . concern with size and weight, and the inability to tolerate frustration or delay in gratification seem to be the center, the very core, of their whole development" (pp. 190-218).

In a more recent study, Swanson and Dinello (1970) observed 25 severely obese individuals (exceeding ideal weight by at least 50 percent) before, during, and after prolonged periods of clinically controlled starvation. Their summary observation was that

. . . the severely obese person can be accurately viewed as a clinically habituated person. Food is used to such excess that it produces sedation, there is a compulsion to use it to excess, a tendency to continually increase the amount, a psychological dependence, detrimental effect on the person and his family, and behavioral changes when the customary intake of food is restricted (p. 121).

Further, they recommended that clinicians treating severe obesity take full advantage of multiple therapeutic techniques now being used to treat other addictions (p. 127).

General discussions of the psychological aspects of obesity very frequently include reference to Bruch's 1957 work discussed above. Mayer (1968), in discussing "The Psychology of Obesity" (pp. 92-99), used a number of Bruch's ideas throughout his section. Stunkard (1967), while mentioning Bruch, also reported evidence relating to socioeconomic factors in obesity, as well as evidence showing that high activity level is an important variable in curbing the appetite.

Mayer (1968) makes a good summary statement about the field of obesity by saying that ". . . not enough is yet known of all the psychological aspects of obesity to permit unqualified statements about them to be made in such a manner as to provide universal application in the particular" (p. 93). Such a state of minimal understanding has much in common with that found for the psychological aspects of drug and alcohol use.

Smoking Tobacco

Research into the use of tobacco, particularly in the form of cigarettes, has received recent extensive review (Bernstein, 1969; Smith, 1970; Royal College of Physicians, 1971). While Bernstein evaluated smoking modification research and Smith wrote a review of smoking and personality, the Royal College of Physicians presented

a review of a number of recently investigated factors associated with smoking behavior.

Bernstein (1969), in noting a shift since 1962 away from research attempting to relate smoking behavior with personality characteristics toward study of smoking modification techniques, presents a critical review of research literature since 1962 concerning attempts at modification. Sections of the review are pertinent to this investigation.

Bernstein claims (p. 419) that much of the current controversy regarding the maintenance of smoking behavior is due to a problem in semantics. The terms addiction and habituation each have implications for the course of treatment of the smoker, and may cause confusion if not examined carefully. If heavy smoking is termed an addiction, with its strong pharmacological overtones, then a quite different course toward cessation of smoking may be pursued than if the social and psychological implications of the term habituation form the central focus (p. 419). After examination of literature dealing with nicotine tolerance and withdrawal symptoms (e.g., Knapp, Bliss and Wells, 1963; Brown, 1963; Surgeon General's Advisory Committee, 1964), Bernstein concludes that ". . . cigarette smoking satisfies the World Health Organization's definition of habituation far better than it does that of addiction" (p. 420).

The Royal College of Physicians (1971) summarizes research dealing with "the smoking habit." A review of ten sources concerning personality differences between smokers and nonsmokers led to the summary statement that

. . . smokers tend to be impulsive, arousal-seeking, danger-loving risk-takers who are belligerent toward authority. They drink more tea, coffee, and alcohol, and are more prone to car accidents, divorce, and changing of jobs Claims that smokers tend to be more anxious, emotional, tense, and neurotic have not been substantiated (pp. 111-112).

Smith (1970) presents a more extensive analysis of smoking and personality. In a review of empirical findings covering seven areas of smoking-personality interaction, he maintains that six conclusions are justified by the literature (pp. 57-59):

- (1) Smokers are more extraverted than non-smokers (twenty-two of twenty-five studies show significant findings).
- (2) Smokers have more antisocial tendencies than nonsmokers (twenty-seven of thirty-two analyses give significant results).
- (3) More information is needed . . . but it appears that smokers are more externally oriented than nonsmokers (all five studies indicate a positive relationship between smoking and external orientation).
- (4) Additional verification is needed, but it appears that smokers are more impulsive than nonsmokers (seven out of ten analyses show positive results).
- (5) Although more evidence is needed, there is some support for the hypothesis that smokers have stronger oral needs than

nonsmokers (three of four studies yield positive association, with one of these having a very small sample).

- (6) Although the evidence suggests that smokers have poorer mental health than nonsmokers, more information is needed to confirm that suggestion, and additional work is needed to define more precisely the specific aspects of mental health on which smokers and nonsmokers differ.

A point of departure for presenting theoretical dimensions of smoking behavior may be found in Hunt and Matarazzo's concept of habit (1970, pp. 65-90). This well known term is given extensive treatment in the context of applying learning mechanisms to smoking behavior.

Habit, as defined by Hunt and Matarazzo, is "a fixed behavior pattern overlearned to the point of becoming automatic and marked by decreasing awareness and increasing dependence on secondary, rather than primary, reinforcement" (p. 67). By pointing up low awareness and the importance of secondary reinforcement, Hunt and Matarazzo accentuate their concern with the maintenance of a behavior pattern (whether smoking or not) rather than with its acquisition. They do not deny the importance of primary reinforcement, and its attendant awareness levels, in acquiring new behavior patterns, but point out that much of man's activity consists of emitting already learned behaviors rather than acquiring new ones (p. 69).

In contrast with Hunt and Matarazzo, Tomkins (1966, 1968) places emphasis on the manipulation of positive and negative affect through smoking behavior and on the characteristics of smoking addiction. Although Tomkins' habitual smoker seems much the same as that of Hunt and Matarazzo, the negative affect and addictive smokers receive more of Tomkins' theoretical attention.

Tomkins' postulated chain of responses occurring in smoking addiction shows the effects of his affect management orientation:

- (1) There is awareness of the absence of tobacco in many nonsmoking occasions.
- (2) Such awareness instigates negative affect, for which there is also awareness.
- (3) The expectation is that smoking and only smoking will reduce the negative affect.
- (4) Under such circumstances, it is expected that smoking and only smoking will produce positive affect.
- (5) Negative affect increases as abstinence from smoking is maintained.
- (6) Expectations about the above course of events are invariably confirmed (1966, pp. 41-42).

In fewer words, Tomkins says that ". . . the major dynamic is the pull of intense suffering which can only be reduced by taking a cigarette" (p. 44).

In addition to the purported importance of over-learning, awareness, and affect management in smoking

behavior, McKennell (1968) proposes the importance of attitudinal set toward smoking. For classification purposes, he proposes two types of smokers, the "dissonant" smoker or one who says he wants to give up smoking, and the "consonant" smoker, who indicates no desire to quit (1968, p. 151).

According to McKennell's analysis of British survey data, dissonant smokers, or those who want to stop smoking, are more strongly addicted to smoking (according to a need/addiction index) than are consonant smokers (p. 152). Although he suggests that most exsmokers are "recruited" from the consonant smoker class (p. 153), McKennell gives little consideration to the strong likelihood that all smokers began their smoking careers as consonant smokers, and that any change in wanting to quit should manifest itself in either a successful (exsmoker) or unsuccessful (dissonant smoker) attempt to do so. There should, therefore, be little surprise at his finding that dissonant smokers are more addicted than consonant smokers.

Whether smoking behavior is an overlearned response, is enacted in the service of enhancing or reducing affect, is performed with or without a desire to stop the behavior, or is seen through some other point of view, it must be considered as highly complex, as embedded in a wide variety of habit patterns and social situations (Hochbaum, 1965;

McKennell, 1970). Neither understanding nor control of the acquisition or maintenance of the behavior seems imminent.

When major components of the particular behaviors are abstracted, smoking, drinking, overeating, and drug taking have a number of features in common. Each is a pattern of responses involving the introduction of a substance into the body on a more or less regular basis. Each behavior is characterized by a relatively high frequency of overindulgence in American society and each may cause physical damage to the user ranging from minimal to terminal.

At the same time it must be noted that each of the behaviors discussed above involves a substance with different physiological effects on the user. The physiological meaning of ingesting large, rich meals on a regular basis, for example, must surely be different from that of daily intoxication from marijuana. The difficulty of controlling such effects across behaviors, however, and the complex social and psychological embeddedness of behaviors involving these substances preclude consideration of physiological effects in this study.

While differences in physiological effects among behaviors are evident, the psychological aspects of high

frequency usage of tobacco, drugs, food, and alcohol do have common characteristics.

Although this investigation is aimed at examining such hypothesized similarities, common observation not infrequently reveals similar patterns of craving for a cigarette, a drink, a donut or a "joint" of marijuana. The behavioral dependence exhibited is many times incomprehensible to the uninitiated observer. The lack of self-control, as well as seeming inability to delay the gratification obtainable from behavioral enactment, are apparent in the usual case of such behaviors. As Milkauer (1970) put it

. . . with drugs, as with alcohol, cigarettes, or food, the addict cannot simply get up in the morning and say, "I will never take this substance again" or "I will break my habit today." In every case, the initial will to stop must be there, but the individual usually must do battle with himself every minute of every day for years (p. 82).

The present study was designed around common questions raised in the literature presented above. Persistent smoking, drinking, overeating, and drug taking were each, in turn, seen to be the subject of considerable investigation and conjecture. The terms addiction, dependence, craving and habit were intermixed with theoretical efforts and empirical findings. The lack of understanding in each area, particularly of psychological concomitants of behavioral experience, was apparent.

The cross-behavioral approach to investigating psychological dependence as used in this study has received comment in the literature. Pittman (1967) proposes some disadvantages of combining research efforts in drug addiction and alcoholism. He observes (p. 338) that

. . . since the key concept in both appears to be that of psychological dependence on the agent, we can ask why the logical next steps are not taken. . . . In our study of addictions why not include obesity (food addicts), smoking (cigarette addicts), nymphomania (sex addicts), certain ulcer and coronary cases (work addicts), and frequent attenders of church (religious addicts)?

His reply is that consideration of all addictions in the same theoretical scheme is not a proper base for answering important questions as to when a particular dependency is functional or dysfunctional for personality structure or society (p. 338). Pittman summarizes his argument against combined research or theoretical efforts by saying that ". . . given the infancy of research and treatment in both drug addiction and alcohol . . . these phenomena should not be theoretically united when the empirical basis for such a marriage is so weak" (1967, p. 338).

Pittman's article drew opposition from Popham, DeLint, and Schmidt (1968). Their points of disagreement with Pittman, in favor of cross-behavioral research, include:

- (1) The dissimilarities between alcoholism and drug dependencies cited by Pittman are valid but irrelevant to the argument that separate agencies should handle each problem area.
- (2) Differences within populations of problem drinkers or drug abusers are certainly as great as differences between such groups.
- (3) While there may be financial or organizational reasons not to combine research efforts across several behaviors, there is no theoretical reason not to combine.
- (4) There are strong reasons why, contrary to Pittman's argument, researchers and clinicians would not be misdirected in their efforts, among which are: mixed addictions are often encountered in alcoholics, the use of psychoactive drugs in the treatment of alcoholism is becoming more common, more effective treatment comes from dealing with the total person, and cross-behavioral comparisons would more likely provide meaningful etiological clues in each area (1968, pp. 25-26).

These authors make the general point that the consideration of more than one dependent behavior is valuable, because a broader perspective is achieved and advantages similar to those obtained from a cross-cultural approach accrue to such methods.

Following the line of reasoning of Popham et al. (1968), the effort placed in this study is directed toward developing a broad picture of psychological dependence, based on the examination of a number of behaviors rather than just a few. The focus is on the incidence, inter-relationships, and selected personality correlates of psychological dependence. The intent is not to show the

development, maintenance, or control of dependencies, but to shed light on common points raised in the literature and to uncover relationships that might be used as stepping stones to further research.

Specific areas of concern to be dealt with include operational definition and relative incidence of behavior dependence for a number of behaviors, relationship between high dependence on one behavior and high dependence on one or more other behaviors, age and sex differences in dependence, and perception of dysfunction as related to level of dependence.

Beyond the incidence and distribution of psychological dependence, self-control in the behavior-dependent individual will be examined. As presented above, Smith (1970) reviewed evidence suggesting that smokers are more impulsive than nonsmokers. Does this imply that smokers have less self-control than nonsmokers? How do personality constructs such as self-control and socialization relate to psychological dependence, as manifested in smoking and other behaviors? These questions and the class of relationships dealing with dependence and control will be treated in the investigation that follows.

Freedman (1968) called for "extensive behavioral and subjective response profiles" for groups of drugs. Generalizing from this idea, minimum initial dependence

profiles, involving age, sex, self-control, and dysfunction perception, will be attempted for a number of behaviors. Comparisons of high dependence profiles across behaviors will be undertaken in order to assess similarities and differences, as suggested for problem drinkers and drug abusers by Popham et al. (1968).

Each of the parts of the analysis that follows will be primarily exploratory in nature rather than supportive of hypothesis or theory. A step toward uncovering relationships is to be taken through this investigation, a step toward drawing together different behavior patterns through the common element of psychological dependence.

METHOD

Data gathered to explore the concept of psychological dependence were obtained through a self-report, paper and pencil instrument comprising three parts: the Behavior Dependence Inventory, three scales from the California Psychological Inventory, and the Personal Opinion Survey (see Appendix A). Description and rationale for inclusion of each section in the instrument will be given below, followed by descriptions of the subject sample and administration procedures for the instrument.

Behavior Dependence Inventory

In investigating psychological dependence, it is first necessary to specify the methods for determining its incidence and intensity. The operational definition of dependence used in this study was developed through a search of the literature and through a pilot study based in previous research.

Tomkins (1966) discussed smoking addiction as related to affect management. He proposed that the major dynamic in smoking addiction is reduction of negative affect and that, if one is addicted to smoking, there is no way of giving it up without suffering (p. 47). Tomkins further assumed that the process of becoming addicted

involves a graded scale of suffering at deprivation and implied that degrees of addiction were directly related to degrees of suffering or discomfort experienced when the behavior in question was not available to the individual (1966, pp. 44-45).

Cahalan (1970), in his national investigation of problem drinking, defined dependence on alcohol in terms of respondents' reports that its psychological effects were very helpful in alleviating depression or nervousness, or in escaping from everyday problems (p. 29). In the survey, the circumstance of giving up drinking altogether was posed (Cahalan, Cisin and Crossley, 1969, p. 241) and the respondent was asked ". . . how much do you think you would miss it -- a lot, some, a little, or not at all?"

Veldman and Bown (1969) studied personality correlates of smoking in over 2,000 University of Texas college students. The definition of a smoker used in the study was based on one item of autobiographical information, whether or not the student checked the item "smoke cigarettes every day" (p. 111). Not only was the smoker-nonsmoker dichotomy made using this frequency-based item, but Veldman and Bown also felt safe in assuming habituation from a positive response (p. 111).

The method used in this study for measuring dependence involved a composite indicator and followed the

suggestions of Veldman and Bown, Cahalan, and Tomkins. Frequency of enactment of a behavior was scaled in five steps, from "very frequently" to "never." Discomfort at being unable to engage in a behavior when one wanted to was scaled in four steps, from "very uncomfortable" to "not uncomfortable," and excluded the category "do not engage in." The combination of high frequency of enactment and strong discomfort at deprivation defined the high point on the scale of psychological dependence, as used in this investigation.

The use of frequency and discomfort in measuring dependence has occurred in several research efforts dealing with smoking behavior. The Center for Research on Smoking and Health (1969) produced a series of questionnaires using the combined measure, in association with Tomkins' affect-related smoking typology. The instrument was used with fairly large college samples in 1967 and 1968, and "commitment" to a wide range of behaviors was assessed through the combination of frequency of enactment and discomfort at deprivation (Center for Research on Smoking and Health, 1969, Parts V and VII).

The frequency-discomfort measure of dependence was augmented by a questionnaire to determine the degree to which the individual felt that the frequency with which he engaged in each of the behaviors was against his own

best interests. Through such a method, the individual's perception of the dysfunctional aspects of his own behavior was tapped.

The behaviors for which data were gathered were determined through a pilot study using a college sample (N=52). The initial selection of behaviors for the pilot study resulted from the smoking research mentioned above, in which this author participated. The original list included 27 behaviors for which there was some evidence of overindulgence in a college population. The behaviors ranged from smoking tobacco and overeating to drinking coffee and philosophic contemplation (Center for Research on Smoking and Health, 1969, Part V).

The pilot study allowed not only a final pretest of the method for measuring dependence, but an analysis of behavior frequency in the population to be sampled and a selection of 10 of the 27 behaviors to be included in the final data-gathering instrument. The behaviors selected were:

watching TV or movies
talking with friends
day dreaming
taking physical risks
engaging in sexual
behavior

eating beyond normal
requirements
smoking tobacco
drinking alcoholic
beverages
smoking marijuana
taking drugs for non-
medical reasons

A balance between substance- and nonsubstance-oriented behaviors was sought, as well as inclusion of both traditional

behaviors of excess and behaviors of high frequency in a college population. Three sections, then, comprised the Behavior Dependence Inventory: frequency, discomfort at deprivation, and perception of dysfunction.

California Psychological Inventory

In order to assess the aspects of personality dealing with self-control and maturity, a number of personality inventories were examined. The California Psychological Inventory (CPI) proved promising and was selected because three of its 18 scales could be used directly to serve the purpose of this study.

The CPI is a 480-item, self-report inventory that was first published in 1956 (Gough, 1957). Since that time its 18 scales have proved valid indicators, through a number of empirical studies, of a broad range of personality variables (Gough, 1957; Buros, 1965). The three scales chosen for use, Self-control, Responsibility, and Socialization, include 133 true-false items. High and low scorers are described by Gough (1957, p. 12) as follows:

High--Self-control

(50 items)

Calm, patient, practical, slow, self-denying, inhibited, thoughtful, and deliberate, as being strict and thorough in their own work and in their expectations for others; and as being honest and conscientious.

Low--Self-control

Impulsive, shrewd, excitable, irritable, self-centered and uninhibited; as being aggressive and assertive; and as over-emphasizing personal pleasure and self-gain.

High--Responsibility

(42 items)

Planful, responsible, thorough, progressive, capable, dignified and independent; as being conscientious and dependable; resourceful and efficient and as being alert to ethical and moral issues.

Low--Responsibility

Immature, moody, lazy, awkward, changeable, and disbelieving; as being influenced by personal bias, spite, and dogmatism; and as uncontrolled and impulsive in behavior.

High--Socialization

(54 items)

Serious, honest, industrious, modest, obliging, sincere, and steady; as being conscientious and responsible; and as being self-denying and conforming,

Low--Socialization

Defensive, demanding, opinionated, resentful, stubborn, headstrong, rebellious, and un dependable; as being guileful and deceitful in dealing with others; and as given to excess, exhibition, and ostentation in their behavior.

(Several of the 133 items are counted in more than one scale.)

Use of these three particular CPI scales was supported by four factor analytic studies undertaken on CPI response data. Each of the four studies, Mitchell and Pierce-Jones (1960), Crites et al. (1961), Nichols and Schnell (1963), and Schludermann and Schludermann (1970), independently produced factor structures where the three CPI scales appeared together in a single factor.

In general, the findings showed Self-control to be the most characteristic scale in the factor (factor loadings ranged from .83 to .92), while Responsibility and

Socialization fell slightly lower. Mitchell and Pierce-Jones (1960) indicated that Self-control could well be considered a pure measure of the factor in question, and could be used by itself to account for most of the variance in the factor (p. 455). Information from the CPI Manual (Gough, 1957), however, indicates that a broader base for interpretation results from interscale comparisons. Gough (1957, p. 33) found correlation coefficients among the three scales ranging from .45 to .52.

The three scales, taken as representative of the factor, have been described as measures of adjustment by conformity (Mitchell and Pierce-Jones, 1960) and as suggestive of a "general psychological maturity" (Nichols and Schnell, 1963, pp. 231-232). In the present investigation, Self-control, Responsibility and Socialization scale scores were used in this broad sense to reflect levels of maturity and adjustment in individuals with varying patterns of behavior dependence. Individually, the three scales were used as elements in the descriptive profile developed for each behavior pattern, and were included in the analysis of cross-behavior interactions.

Personal Opinion Survey

The concept of self-control has received fairly widespread attention during the last 15 years. Much of this attention has focused on the work of Julian Rotter and

his colleagues, and on their investigation of the experience of control (see, for example, Rotter, Seeman and Liverant, 1962; Lefcourt, 1966). The internal-external dimensions of control were explored in these studies where an individual was said to be internally controlled if he viewed events in the world around him as being under his personal control, as contrasted with the externally controlled individual who perceived events as unrelated to his own efforts (Rotter, 1966).

Rotter et al. (1962) published the Internal-External Control of Reinforcement Scale (I-E Scale) as an instrument for ascertaining the individual's perceived locus of control. The scale was developed in the context of Social Learning Theory and was designed to probe for a generalized expectancy of internal or external control of social reinforcement (Rotter, 1966).

Coan (1968) viewed the experience of control with a wider perspective. He found the evidence for a "single broad dimension of experienced control" unconvincing and proceeded to examine a looser, more inclusive concept of control, focusing on three broad areas: external events, personal characteristics, and the body (1968, Part 6, pp. 7, 9). The Personal Opinion Survey (POS) that came out of his work was constructed of a wide variety of items, covering many aspects of life. Items were stated in both

the first-person and third-person, so as to tap a subject's orientation to his own capacity for control and to that of people in general.

In its initial form the 130-item POS was administered to 525 psychology students, in order that independent dimensions of control could be sought through factor analysis. Eighteen factors were extracted and rotated to an oblique solution approximating simple structure (Coan, 1968, Part 6, p. 17). Seven of the 18 factors had a sufficient number of highly loaded items for reliable measurement and were retained for use.

Fairchild (1971) undertook refinement of the initial version of the Personal Opinion Survey. Through development of new items for each of the factors on an a priori basis, and subsequent item analysis, she produced an expanded pool of items that was then subjected to factor analysis. Coan's original seven factors emerged from her oblique rotation, each strengthened by additional items. The resulting 120 items constitute the final form of the POS. Coan (1968, Part 6, pp. 17-18) interpreted the Personal Opinion Survey's seven factors as follows:

- (I) Achievement through Conscientious Effort; Items having high loadings reflect the view that, in general, one can accomplish many things in the academic, social, or physical realm if one tries hard enough.

- (II) Personal Confidence in Ability to Achieve Mastery:
High scorers indicate personal confidence in ability to accomplish tasks of an intellectual nature.
- (III) Capacity of Mankind to Control its Destiny vs. Supernatural Power or Fate;
Items relate to the ability of man to build a desirable society, perhaps without war.
- (IV) Successful Planning and Organization:
High scorers see themselves as successful at self-control in the realm of work.
- (V) Self-control over Internal Processes vs. Lack of Self-control:
Items relate to the control over somatic, affective, and cognitive processes.
- (VI) Control over Large-scale Social and Political Events:
The high scorer sees societal processes as within his control and within the control of people in general.
- (VII) Control in Immediate Social Interaction:
High scorers indicate personal confidence in their ability to secure desired reactions from other people.

While Rotter's I-E Scale focuses on a generalized dimension of control, and emphasizes external events, Coan's Personal Opinion Survey encompasses a variety of essentially unrelated circumstances of control (Fairchild, 1971, found POS factor intercorrelations of .30 or less in all cases). The POS's broad scope of conceptualization was valuable in an exploratory study such as the present one, inasmuch as the relationship between psychological dependence and the experience of control is so poorly understood.

While Coan has not developed normative data or published his Personal Opinion Survey to date (items appear in Fairchild, 1971), research has been carried out with its use. Stone (1971) studied dimensions of control as related to level of aspiration and time orientation. Pommer (1971) related experience of control to the extent and circumstances of marijuana use. Adesso (1971) found overweight women to be significantly lacking in ability to control planning and organization activities (Coan's Factor IV). Correlational analysis in Adesso's study gave support to Fairchild's (1971) finding that POS factors are essentially uncorrelated with each other.

Interpreted scores from the Personal Opinion Survey contributed to the profiles of behavior dependence used in this study. Comparisons across behaviors were facilitated by the wide range of experience of control situations probed through use of the POS. The Personal Opinion Survey, in concert with the California Psychological Inventory scales, provided a strong backdrop of self-control and maturity for the cross-behavioral study of psychological dependence.

The Sample

The questionnaire in final form contained three California Psychological Inventory scales, questions about age, sex, college grade point average and college major,

the Behavior Dependence Inventory, and the Personal Opinion Survey (see Appendix A). It was administered primarily to college freshmen and sophomores taking introductory psychology courses at The University of Arizona during the Spring and Fall of 1970. Because the questionnaire took 30 to 45 minutes to fill out, instructions to the subjects requested that they take the questionnaire home and return it the next day, rather than fill it out in class. In every case, the voluntary nature of participation in the experiment was discussed (see instructions in Appendix A). The study was explained to the subjects and the anonymity of the questionnaire was stressed. The importance of a complete and frank response was emphasized, as well as the importance of careful reading and following of instructions.

Six hundred eighty one usable questionnaires were gathered (approximately a 75 percent return rate), and data from them were transferred to IBM punch cards for handling on the University of Arizona's CDC 6400 computer. Preliminary analysis revealed 304 male and 377 female respondents, where 67.8 percent of the males and 74.0 percent of the females were 21 years of age or under.

RESULTS

In order to delineate the concept of behavior dependence, a means for summarizing its occurrence was necessary. To accomplish this task, the frequency and discomfort categories (see Appendix A) were cross-classified as follows:

Table 1. Levels of dependence as defined by frequency of enactment and discomfort at deprivation.

Discomfort at Deprivation	Frequency of Enactment					
	Very Frequently 4	Fairly Frequently 3	Occasionally 2	Seldom 1	Never 0	
Very uncomfortable	4	6	5	4	3	8
Somewhat uncomfortable	3	5	4	3	2	8
Slightly uncomfortable	2	4	3	2	1	8
Not uncomfortable	1	7	7	7	7	8
Do not engage in	0	8	8	8	8	8

The numbers from one to six in the body of the matrix form an ordinal scale for measuring dependence, as defined in this study. Category seven is conceptually distinct from categories one through six and eight, in that the behavior is enacted with varying frequency but with no discomfort at deprivation. Category eight designates zero frequency of enactment. Tables 2 and 3 give frequencies of male and female subjects indicating various levels of dependence for the several behaviors.

The means, standard deviations, and numbers of items for the three scales of the California Psychological Inventory are given in Table 4. Normative data from Gough (1957) are presented for comparison purposes.

In a like manner, results obtained for the seven scales of the Personal Opinion Survey (POS) are presented in Table 5. Other investigators using the POS, including Coan, its author, have not published normative data for comparison with that of the present study.

For the 18 combinations of males and females on nine behaviors, only five of them show any meaningful relationship between age group and high dependence versus low dependence (4, 5, 6 versus 1, 2, 3, on dependence scale). The percentage figures show that as age increases, dependence decreases for males on watching television and for females for day dreaming. Older groups of both males and

Table 2. Frequency and percent distribution of dependence for males on ten behaviors (N=304).

	Dependence Level								% of Total Male Sample in Four Categories			
	1	2	3	4	5	6	7	8	1,2,3	4,5,6	7	8
TV*	3	36	55	63	33	29	85	0	30.9	41.1	28.0	-
Talking with friends	1	34	48	67	64	41	48	1	27.3	56.6	15.8	0.3
Day dreaming	15	42	38	37	19	14	127	12	31.3	23.0	41.8	3.9
Physical risks	10	30	12	17	4	5	168	58	17.1	8.6	55.3	19.1
Sex	11	38	66	68	40	26	26	29	37.8	44.1	8.6	9.5
Overeating	9	42	33	20	6	6	148	40	27.6	10.5	48.7	13.2
Tobacco	6	12	17	11	21	17	50	170	11.5	16.1	16.4	55.9
Alcohol	3	44	33	15	8	4	137	60	26.3	8.9	45.1	19.7
Marijuana	3	16	10	11	13	3	81	167	9.5	8.9	26.6	54.9
Pills and drugs	3	8	2	1	2	0	46	242	4.3	1.0	15.1	79.6

*For ease of presentation, only partial wordings for the behaviors are used. For complete headings, see Appendix A.

Table 3. Frequency and percent distribution of dependence for females on ten behaviors (N=377).

	Dependence Level								% of Total Female Sample in Four Categories			
	1	2	3	4	5	6	7	8	1,2,3	4,5,6	7	8
TV	11	26	76	77	54	27	106	0	30.0	42.0	28.1	-
Talking with friends	0	31	57	92	73	80	42	2	23.3	65.0	11.1	0.5
Day dreaming	9	73	51	54	16	18	147	9	35.3	23.3	39.0	2.4
Physical risks	9	20	10	2	1	1	196	138	10.3	1.1	52.0	36.6
Sex	16	51	61	59	50	15	51	74	34.0	32.9	13.5	19.6
Overeating	13	53	61	32	12	8	167	31	33.7	13.8	44.3	8.2
Tobacco	3	6	13	11	17	31	57	239	5.8	15.6	15.1	63.4
Alcohol	3	30	22	13	4	5	193	107	14.6	5.8	51.2	28.4
Marijuana	5	16	7	11	1	3	53	281	7.4	4.0	14.1	74.5
Pills and drugs	1	8	5	2	2	2	36	321	3.7	1.6	9.5	85.1

Table 4. Means, standard deviations, and numbers of items for three scales of the California Psychological Inventory.

		Self-control (Sc)		Responsibility (Re)		Socialization (So)	
		M	F	M	F	M	F
Present study (Male N = 304, Female N = 377)	M	23.4	25.0	25.8	27.5	33.6	37.4
	SD	7.5	7.6	5.1	4.9	5.8	6.0
Gough (1957) High school students (Male N = 3572, Female N = 4056)	M	25.3	27.6	26.7	30.0	36.3	39.4
	SD	8.0	8.5	5.7	5.2	6.0	5.6
Gough (1957) College students (Male N = 680, Female N = 2210)	M	29.2	30.8	31.5	33.3	37.5	39.5
	SD	7.1	7.4	4.7	4.1	5.2	5.0
Number of Items per Scale		50		42		54	

Table 5. Means, standard deviations, and number of items per scale for the Personal Opinion Survey.

	Male (N=304)		Female (N=377)		Number of Items on Scale
	M	SD	M	SD	
I. Achievement through conscientious effort	8.43	2.52	8.62	2.53	12
II. Personal mastery	9.50	3.33	7.09	3.29	16
III. Mankind control of destiny vs. supernatural power	10.61	3.69	8.68	3.60	17
IV. Successful planning and organization	12.57	4.84	13.05	4.73	22
V. Control over internal processes	11.30	3.44	9.45	3.63	19
VI. Control over political and social events	13.94	4.52	13.45	4.47	20
VII. Control in immediate social interaction	7.79	3.35	7.13	3.43	14

Table 6. Percentage in high dependence categories by age group for five sex-behavior combinations.

	Male TV % High Depen.	Female Day dream % High Depen.	Male Sex % High Depen.	Female Sex % High Depen.	Male Tobacco % High Depen.
18 and below	67.1	46.1	41.8	44.2	48.1
19 - 23	57.6	35.8	54.1	46.2	57.1
24 and over	37.8	19.2	71.7	63.8	72.7
χ^2 p value	.01	.05	.01	.05	N.S.
N	219	221	249	252	84
Tau C	-.22	-.17	.24	.14	.20

females appear to be more dependent on sex than younger groups, and in a similar manner, male smokers of tobacco show increasing dependence with age. For the other behaviors, distributions of dependence shown in Tables 2 and 3 may be assumed to be unaffected by age.

One of the most important issues raised in this study is the relationship between psychological dependence on behavior and the experience of control. Study of the literature in several areas of behavior dependence (such as Smith, 1970 and Milbauer, 1970) led this author to expect that individuals evidencing high behavior dependence would have lower self-control scale scores than those not engaging in the behavior. Evidence relating to this expectation is presented in Tables 7 through 15.

Each table presents the results of a series of one way analyses of variance, relating categories of dependence on a particular behavior with control scale score means. For those analyses that resulted in significant F ratios, differences between means for the high dependence and no frequency groups were tested for significance using the least significant difference method (Li, 1964). Those differences found significant are indicated by an asterisk in Tables 7 through 15. Frequency counts in the various categories of dependence, as shown in Tables 2 and 3, may aid in the interpretation of these analyses.

Table 7. Means and results of analysis of variance for ten control variables and four levels of dependence on watching television.

			Low Dependence (1,2,3)	High Dependence (4,5,6)	No Discomfort (7)	Do Not Engage In (8)	F	p ^a
CPI	1 (Sc)	M	24.26	21.52	25.29		7.58*	.001
		F	25.16	23.43	27.17		8.10*	.001
	2 (Re)	M	26.48	24.52	27.07		7.85*	.001
		F	27.65	26.75	28.40		3.72*	.05
	3 (So)	M	33.45	33.26	34.13		0.59	
		F	37.69	37.11	37.42		0.31	
POS	1	M	8.35	8.34	8.72		0.68	
		F	8.42	8.81	8.54		0.84	
	2	M	9.82	8.86	10.12		4.34*	.05
		F	7.20	6.80	7.40		1.15	
	3	M	10.84	10.85	10.01		1.56	
		F	8.96	8.64	8.44		0.57	
	4	M	13.09	12.14	12.62		1.04	
		F	13.36	12.66	13.28		0.92	
	5	M	11.43	10.60	12.18		5.56*	.01
		F	9.57	8.87	10.19		4.37*	.05
	6	M	14.33	13.03	14.86		4.75*	.01
		F	13.35	13.35	13.71		0.24	
	7	M	8.03	7.63	7.74		0.39	
		F	6.99	7.23	7.11		0.17	

Table 7. (Continued).

		Low Depend- ence (1,2,3)	High Depend- ence (4,5,6)	No Discom- fort (7)	Do Not Engage In (8)	F	p ^a
CPI Total	M	84.18	79.30	86.49		6.47*	.01
(1+2+3)	F	90.50	87.28	92.98		4.80*	.01
Males N =		94	125	85			
Females N =		113	158	106			

a. Asterisk indicates that high dependence vs. do-not-engage-in difference is significant at the same p level as the analysis of variance.

Table 8. Means and results of analysis of variance for ten control variables and four levels of dependence on talking with friends.

			Low Dependence (1,2,3)	High Dependence (4,5,6)	No Discomfort (7)	Do Not Engage In (8)	F	p
CPI	1	M	25.30	22.04	25.08		7.00*	.001
		F	26.73	24.02	26.98		6.01	.01
	2	M	25.82	25.49	27.10		1.95	
		F	27.43	27.46	27.68		0.04	
	3	M	34.17	33.35	33.27		0.63	
		F	36.97	37.92	35.09		4.48*	.05
POS	1	M	8.22	8.39	9.04		1.76	
		F	8.42	8.77	8.16		1.45	
	2	M	9.98	9.27	9.55		1.28	
		F	7.02	6.94	8.02		2.04	
	3	M	10.46	10.97	9.63		2.61	
		F	8.48	8.78	8.52		0.27	
	4	M	12.55	12.47	12.94		0.18	
		F	13.52	13.02	12.23		1.11	
	5	M	11.19	11.14	12.02		1.30	
		F	9.53	9.47	9.14		0.19	
	6	M	13.07	13.95	15.39		4.13*	.05
		F	12.81	13.64	13.73		1.21	
	7	M	7.10	8.24	7.35		3.86	.05
		F	6.33	7.33	7.61		3.27	.05

Table 8. (Continued)

		Low Dependence (1,2,3)	High Dependence (4,5,6)	No Discomfort (7)	Do Not Engage In (8)	F	p ^a
CPI Total	M	85.29	80.88	85.45		3.30	.05
(1+2+3)	F	91.13	89.41	89.75		0.42	
Male N =		83	172	49			
Female N =		88	245	44			

a. Asterisk indicates that high dependence vs. do-not-engage-in difference is significant at the same p level as the analysis of variance.

Table 9. Means and results of analysis of variance for ten control variables and four levels of dependence on day dreaming.

			Low Dependence (1,2,3)	High Dependence (4,5,6)	No Discomfort (7)	Do Not Engage In (8)	F	p ^a
CPI	Sc	M	23.79	20.51	24.41	28.00	6.10*	.001
		F	23.71	22.56	27.23	31.56	11.84*	.001
	Re	M	26.17	24.31	26.24	27.83	2.93*	.05
		F	27.02	26.45	28.40	29.22	3.85	.01
	So	M	34.44	31.67	33.87	34.92	3.57	.05
		F	37.37	36.14	38.01	38.89	2.00	
POS	1	M	8.15	8.11	8.82	9.50	2.63	.05
		F	8.45	8.32	8.94	8.78	1.41	
	2	M	9.11	9.59	9.73	9.67	0.68	
		F	7.15	6.88	7.23	5.89	0.63	
	3	M	10.71	10.61	10.65	8.75	1.03	
		F	9.26	9.01	8.05	7.00	3.62	.05
	4	M	12.31	10.94	13.60	13.50	5.03	.01
		F	12.53	12.05	13.97	15.44	4.59	.01
	5	M	11.29	10.03	11.97	11.67	5.00	.01
		F	9.36	8.36	9.95	13.22	7.14*	.001
	6	M	14.04	12.73	14.37	15.42	2.56	
		F	13.66	12.80	13.75	12.00	1.27	
	7	M	7.81	6.94	8.20	8.75	2.49	
		F	7.08	6.75	7.36	7.78	0.70	

Table 9. (Continued)

		Low Dependence (1,2,3)	High Dependence (4,5,6)	No Discomfort (7)	Do Not Engage In (8)	F	p ^a
CPI Total	M	84.40	76.50	84.52	90.75	6.30	.001
(1+2+3)	F	88.09	85.15	93.65	99.67	8.33	.001
Male N =		95	70	127	12		
Female N =		133	88	147	9		

a. Asterisk indicates that high dependence vs. do-not-engage-in difference is significant at the same p level as the analysis of variance.

Table 10. Means and results of analysis of variance for ten control variables and four levels of dependence on physical risks.

			Low Dependence (1,2,3)	High Dependence (4,5,6)	No Discomfort (7)	Do Not Engage In (8)	F	p ^a
CPI	1	M	19.71	19.96	23.99	26.64	10.98*	.001
		F	19.82	18.50	24.11	27.92	16.75	.001
	2	M	23.85	23.62	26.54	26.84	6.26	.001
		F	25.36	19.75	27.32	28.54	8.39*	.001
	3	M	32.23	32.54	33.88	34.28	1.64	
		F	34.72	23.25	37.51	38.33	12.08*	.001
POS	1	M	8.67	8.69	8.45	8.14	0.51	
		F	8.72	6.75	8.60	8.67	0.77	
	2	M	9.83	10.08	9.74	8.28	3.43*	.05
		F	7.31	7.50	7.63	6.25	4.99	.01
	3	M	11.04	10.00	10.60	10.53	0.48	
		F	8.67	9.50	9.12	8.03	2.60	.05
	4	M	11.64	11.42	12.57	13.91	2.66*	.05
		F	11.36	6.00	13.01	13.76	5.92*	.001
	5	M	11.04	11.00	11.27	11.72	0.46	
		F	9.15	7.25	9.36	9.72	0.88	
	6	M	13.25	14.23	14.08	14.05	0.50	
		F	12.95	8.75	13.90	13.09	2.63*	.05
	7	M	8.17	7.58	7.99	6.93	1.75	
		F	6.74	5.50	7.54	6.70	2.16	

Table 10. (Continued)

		Low Dependence (1,2,3)	High Dependence (4,5,6)	No Discomfort (7)	Do Not Engage In (8)	F	p ^a
CPI Total	M	75.79	76.12	84.33	87.76	8.63*	.001
(1+2+3)	F	79.90	61.50	88.93	94.79	16.72*	.001
Males N =		52	26	168	58		
Females N =		39	4	196	138		

a. Asterisk indicates that high dependence vs. do-not-engage-in difference is significant at the same p level as the analysis of variance.

Table 11. Means and results of analysis of variance for ten control variables and four levels of dependence on sexual behavior.

			Low Dependence (1,2,3)	High Dependence (4,5,6)	No Discomfort (7)	Do Not Engage In (8)	F	p ^a
CPI	1	M	23.42	22.15	27.54	25.62	4.92	.01
		F	23.70	24.84	26.57	26.45	2.97	.05
	2	M	25.68	25.28	27.77	27.34	2.76*	.05
		F	26.73	27.06	27.75	29.28	4.80*	.01
	3	M	33.39	32.66	35.96	36.21	4.71*	.01
		F	36.95	36.49	36.73	40.01	6.32*	.001
POS	1	M	8.32	8.37	9.50	8.38	1.67	
		F	8.20	8.65	8.35	9.49	4.41*	.01
	2	M	9.57	9.31	11.35	8.48	3.84	.01
		F	6.90	7.24	7.67	6.76	1.01	
	3	M	10.57	11.17	9.35	9.34	3.26*	.05
		F	8.60	9.44	8.51	7.65	4.04*	.01
	4	M	11.80	12.56	14.19	14.17	3.06	.05
		F	12.61	13.22	12.75	13.72	0.98	
	5	M	11.17	11.44	11.73	10.76	0.50	
		F	9.18	9.22	9.69	10.14	1.36	
	6	M	13.77	14.16	13.69	13.90	0.19	
		F	12.55	13.73	13.90	14.24	2.86	.05
	7	M	7.39	8.50	8.00	5.86	6.07*	.001
		F	7.05	7.56	7.27	6.42	1.78	

Table 11. (Continued)

		Low Dependence (1,2,3)	High Dependence (4,5,6)	No Discomfort (7)	Do Not Engage In (8)	F	p ^a
CPI Total	M	82.49	80.09	91.27	89.17	6.15	.001
(1+2+3)	F	87.38	88.40	91.04	95.74	5.64*	.001
Male N =		115	134	26	29		
Female N =		128	124	51	74		

a. Asterisk indicates that high dependence vs. do-not-engage-in difference is significant at the same p level as the analysis of variance.

Table 12. Means and results of analysis of variance for ten control variables and four levels of dependence on food.

			Low Dependence (1,2,3)	High Dependence (4,5,6)	No Discomfort (7)	Do Not Engage In (8)	F	p ^a
CPI	1	M	22.29	20.75	23.98	25.88	3.81*	.01
		F	23.86	22.79	25.88	28.65	5.83*	
	2	M	25.31	24.69	26.33	26.05	1.35	.001
		F	27.25	26.65	27.89	27.61	0.97	
	3	M	34.64	32.97	33.31	32.67	1.46	2.17
		F	38.23	36.06	37.36	36.10	2.17	
POS	1	M	8.13	9.06	8.41	8.75	1.28	.05
		F	8.56	8.46	8.61	9.16	0.56	
	2	M	9.19	8.69	9.80	9.75	1.35	
		F	6.91	6.23	7.53	6.87	2.35	
	3	M	10.46	10.25	10.82	10.43	0.34	
		F	8.63	9.13	8.76	7.68	1.12	
	4	M	12.18	11.69	12.80	13.20	0.88	
		F	12.84	11.44	13.66	13.23	3.08	
	5	M	10.98	10.94	11.32	12.18	1.23	
		F	9.09	8.33	9.89	10.39	3.66*	
	6	M	13.40	13.19	14.32	14.30	1.12	
		F	13.43	12.63	13.86	12.77	1.28	
	7	M	7.55	8.28	7.91	7.45	0.57	
		F	6.56	7.35	7.38	7.71	1.85	

Table 12. (Continued)

		Low Dependence (1,2,3)	High Dependence (4,5,6)	No Discomfort (7)	Do Not Engage In (8)	F	p ^a
CPI Total	M	82.24	78.41	83.62	84.60	1.27	
(1+2+3)	F	89.34	85.50	91.13	92.35	2.21	
Males N =		85	32	148	40		
Females N =		127	52	167	31		

a. Asterisk indicates that high dependence vs. do-not-engage-in difference is significant at the same p level as the analysis of variance.

Table 13. Means and results of analysis of variance for ten control variables and four levels of dependence on tobacco.

			Low Dependence (1,2,3)	High Dependence (4,5,6)	No Discomfort (7)	Do Not Engage In (8)	F	p ^a
CPI	1	M	22.51	20.86	21.74	24.84	5.16*	.01
		F	23.32	23.17	23.47	25.97	3.69*	.05
	2	M	24.60	24.65	25.22	26.62	3.26*	.05
		F	27.36	25.03	26.30	28.38	9.20*	.001
	3	M	32.77	30.31	33.34	34.72	8.11*	.001
		F	34.55	33.58	36.16	38.85	17.00*	.001
POS	1	M	8.23	7.82	8.16	8.76	2.22	
		F	8.23	8.37	8.42	8.76	0.73	
	2	M	9.03	9.71	9.92	9.42	0.60	
		F	7.09	7.07	6.82	7.15	0.15	
	3	M	11.31	11.76	11.46	9.89	5.25*	.01
		F	9.86	9.80	9.61	8.07	6.52*	.001
	4	M	10.51	11.96	12.04	13.32	4.03	.01
		F	12.77	11.69	11.93	13.67	4.17*	.05
	5	M	10.43	10.88	11.42	11.56	1.32	
		F	10.05	8.69	8.86	9.72	2.01	
	6	M	14.31	13.78	13.22	14.13	0.62	
		F	14.82	12.58	12.16	13.85	3.75*	.05
	7	M	7.86	8.41	8.48	7.39	2.11	
		F	8.27	7.46	6.93	6.99	1.20	

Table 13. (Continued)

		Low Dependence (1,2,3)	High Dependence (4,5,6)	No Discomfort (7)	Do Not Engage In (8)	F	p ^a
CPI Total	M	79.89	75.82	80.30	86.18	7.64*	.001
(1+2+3)	F	85.23	81.78	85.93	93.20	12.69*	.001
Males N =		35	49	50	170		
Females N =		22	59	57	239		

a. Asterisk indicates that high dependence vs. do-not-engage-in difference is significant at the same p level as the analysis of variance.

Table 14. Means and results of analysis of variance for ten control variables and four levels of dependence on alcohol.

			Low Depend- ence (1,2,3)	High Depend- ence (4,5,6)	No Discom- fort (7)	Do Not Engage In (8)	F	p ^a
CPI	1	M	22.06	19.37	23.18	27.60	10.72*	.001
		F	24.24	20.14	24.54	27.22	6.86*	.001
	2	M	24.88	22.67	25.96	28.27	9.94*	.001
		F	26.91	25.73	27.11	28.79	4.20*	.01
	3	M	33.13	30.37	33.51	35.68	5.75*	.001
		F	36.18	35.23	36.84	39.37	6.37	.001
POS	1	M	8.06	9.04	8.28	9.07	2.55	
		F	7.84	8.59	8.54	9.15	3.51	.05
	2	M	9.76	8.48	9.66	9.27	1.22	
		F	6.40	6.09	7.36	7.15	1.95	
	3	M	11.09	10.15	11.23	8.77	7.29	.001
		F	9.98	10.59	8.92	7.19	11.83*	.001
	4	M	12.51	11.11	12.73	12.92	0.97	
		F	12.33	11.55	13.05	13.71	1.87	
	5	M	11.31	10.85	11.09	11.93	0.99	
		F	9.02	8.09	9.53	9.79	1.65	
	6	M	13.30	12.93	14.17	14.75	1.76	
		F	13.53	12.09	13.61	13.41	0.77	
	7	M	8.21	8.15	7.71	7.23	1.11	
		F	7.27	6.77	7.35	6.73	0.85	

Table 14. (Continued)

		Low Dependence (1,2,3)	High Dependence (4,5,6)	No Discomfort (7)	Do Not Engage In (8)	F	p ^a
CPI Total	M	80.06	72.41	82.66	91.55	13.17*	.001
(1+2+3)	F	87.33	81.09	88.49	95.39	8.90*	.001
Males N =		80	27	137	60		
Females N =		55	22	193	107		

a. Asterisk indicates that high dependence vs. do-not-engage-in difference is significant at the same p level as the analysis of variance.

Table 15. Means and results of analysis of variance for ten control variables and four levels of dependence on marijuana.

			Low Depend- ence (1,2,3)	High Depend- ence (4,5,6)	No Discom- fort (7)	Do Not Engage In (8)	F	p ^a
CPI	1	M	21.79	21.56	22.01	24.69	3.66*	.05
		F	19.21	20.60	23.02	26.19	11.22	.001
	2	M	25.00	22.59	24.46	27.18	10.86*	.001
		F	25.14	23.33	24.70	28.46	16.49*	.001
	3	M	32.62	30.74	31.68	35.09	9.77*	.001
		F	34.32	31.13	35.09	38.43	14.14*	.001
POS	1	M	7.38	8.04	8.23	8.80	3.34	.05
		F	7.75	8.07	8.43	8.77	1.72	
	2	M	9.34	10.33	9.46	9.43	0.62	
		F	7.32	7.40	7.38	6.99	0.30	
	3	M	11.76	12.26	11.56	9.69	8.55*	.001
		F	10.64	9.13	10.08	8.20	7.42	.001
	4	M	10.21	11.67	11.73	13.53	5.87	.001
		F	11.93	10.13	12.09	13.49	3.88	.001
	5	M	10.69	11.56	10.64	11.68	2.02	
		F	7.82	9.27	8.87	9.73	2.87	.05
	6	M	14.28	13.00	13.51	14.25	0.96	
		F	13.71	13.13	13.00	13.53	0.26	
	7	M	7.86	8.11	8.22	7.51	0.93	
		F	7.39	7.67	8.04	6.90	1.81	

Table 15. (Continued)

		Low Dependence (1,2,3)	High Dependence (4,5,6)	No Discomfort (7)	Do Not Engage In (8)	F	p ^a
CPI Total	M	79.41	74.89	78.15	86.96	10.57*	.001
(1+2+3)	F	78.68	75.07	82.81	93.08	20.39*	.001
Males N =		29	27	81	167		
Females N =		28	15	53	281		

Tables 7 and 8 involve just three groups, as both behaviors, watching television and talking with friends, were engaged in by all subjects. The data for females given in Table 10, physical risks, should be interpreted with caution, if not disregarded entirely, because of the small sample size. No table was prepared for the tenth behavior, pills or drugs, because of the small number of individuals in the high dependence category.

The relationship between behavior dependence and perception of dysfunction is the focus of the correlational analysis shown in Table 16. Both dependence and dysfunction involve ordinal scales, as they are defined in this study. Since ordinal measurement rules out the use of Pearson's r , Kendall's Tau C was chosen as a rank-order correlation method (described in Blalock, 1960, pp. 319-324). In comparing two ordinal variables, if the values of one are put in ascending order, then Tau C is a measure of the degree to which corresponding values of the other variable are in proper (ascending) order, using a pair-by-pair comparison (Blalock, 1960, p. 321). Values for Tau C range from +1.0 to -1.0, and in general are lower than those that would be found for Spearman's r on the same data. Tau C gives equal weight to all pairs of scores, rather than accentuating extreme scores, as does Spearman's r (Blalock, 1960, p. 321). Because ordinal measurement is

Table 16. Kendall's Tau C (rank-order measure of association) relating dependence with perception of dysfunction.

	Males			Females		
	τ_c	Z	N ^a	τ_c	Z	N ^a
TV movies	.120	2.19 ^b	219	.238	4.92 ^c	271
Talking with friends	.116	2.47 ^b	255	.094	2.20 ^b	333
Day dreaming	.263	4.17 ^c	165	.275	5.06 ^c	221
Physical risks	.316	3.50 ^c	77	.205	-1.69	40
Sex	.062	1.48	246	-.078	1.74	249
Overeating	.294	3.85 ^c	114	.336	5.44 ^c	175
Tobacco	.501	5.41 ^c	82	.294	-3.22 ^c	79
Alcohol	.349	4.49 ^c	105	.248	-2.71 ^c	75
Marijuana	.105	0.98	56	.036	0.31	43
Drugs or pills	.021	0.10	16	-.040	-0.22	20

a. Dependence categories 1 through 6 are included in these tabulations.

b. $p < .05$.

c. $p < .01$.

involved, Tau C cannot be interpreted in terms of the percent of variance explained by the relationship.

Information useful for drawing comparisons among behaviors is presented in Table 17. This table and those that follow were prepared using four behaviors as a focus: overeating, smoking tobacco, drinking alcoholic beverages, and smoking marijuana. Analysis of these four behaviors served to reduce the scope of the investigation and to focus on those behaviors that appear so prominently in the literature.

A series of analyses of variance was carried out to describe differences among the four behavior groups. Earlier results presented in Tables 12 through 15 show that differences in control scale mean scores among dependence levels for the four behaviors are most pronounced for the three CPI scales, Self-control, Responsibility, and Socialization. Eighteen of the 24 comparisons between high dependence and no frequency groups show a significant difference, and in each case, the high dependence group has the lower mean score. Just as Tables 12 through 15 show differences among dependence groups within a given behavior, Table 17 was prepared to show differences among four behaviors within the high dependence group. The analyses were made to discover if the variance among

Table 17. Means and analysis of variance results for comparing four dependent groups of males and females on three experience of control variables.*

	Overeating	Smoking Tobacco	Drinking Alcohol	Smoking Marijuana	F	p
CPI						
Sc M	19.63	21.07	20.55	22.07	0.39	N.S.
F	23.01	24.53	18.25	21.00	2.59	N.S.
Re M	25.42	25.46	21.91	22.13	1.92	N.S.
F	27.75	26.03	25.50	24.25	1.53	N.S.
So M	34.26	30.86	31.00	31.33	1.44	N.S.
F	37.56	34.95	34.33	33.75	1.73	N.S.
Males N =	19	28	11	15		
Females N =	36	38	12	8		

*Groups exclude individuals with high dependence on more than one of the four behaviors.

behavior groups was larger or smaller than the variance within each group.

The final analyses relate to the incidence of dependence on nine behaviors, given dependence on the tenth. Behaviors used for classification were overeating, smoking tobacco, drinking alcoholic beverages, and smoking marijuana. Males and females who showed high dependence on each of these behaviors were examined with reference to their dependence on other behaviors.

Tables 18 and 19 present data for the four dependent groups, as well as for the total male and female samples. Although Blalock (1960) warns against computing percentages where the base is less than 50, such computations were made for gross comparison purposes. It is felt that a cautious interpretation may be made where large differences exist among percentages; e.g., males dependent on alcohol appear to be more likely to take physical risks than the male sample as a whole.

Table 18. Frequency and percent distribution of dependence for males in four dependent groups.

	N=32 Food		N=49 Tobacco		N=27 Alcohol		N=27 Marijuana		Total Male Sample (N=304) Indicating Dependence	
	N	%	N	%	N	%	N	%	N	%
TV	17	53.1	21	42.9	18	66.7	11	40.7	125	41.1
Talking with friends	21	65.6	32	65.3	24	88.9	16	59.3	172	56.6
Day dreaming	7	21.9	7	14.3	9	33.3	9	33.3	70	23.0
Physical risks	5	15.6	4	8.2	7	25.9	4	14.8	26	8.6
Sexual behavior	21	65.6	35	71.4	20	74.1	12	44.4	134	44.1
Overeating	32	100.0	8	16.3	6	22.2	4	14.8	32	10.5
Tobacco	9	28.1	49	100.0	10	37.0	10	37.0	49	16.1
Alcohol	6	18.8	11	22.4	27	100.0	5	18.5	27	8.9
Marijuana	3	9.4	8	16.3	7	25.9	27	100.0	27	8.9
Pills or drugs	0	0.0	2	4.1	3	11.1	3	11.1	3	1.0

Table 19. Frequency and percent distribution of dependence for females in four dependent groups.

	Dependence On								Total Female Sample N=377	
	N=52 Food		N=59 Tobacco		N=22 Alcohol		N=15 Marijuana		Indicating Dependence	
	N	%	N	%	N	%	N	%	N	%
TV	34	65.4	29	49.2	14	63.6	8	53.3	158	42.0
Talking with friends	38	73.1	34	57.6	19	86.4	12	80.0	245	65.0
Day dreaming	16	30.8	17	28.8	7	31.8	7	46.7	88	23.3
Physical risks	1	1.9	3	5.1	0	0.0	1	6.7	4	1.1
Sexual behavior	19	36.5	25	42.4	13	59.1	6	40.0	124	32.9
Overeating	52	100.0	13	22.0	6	27.3	1	6.7	52	13.8
Tobacco	13	25.0	59	100.0	6	27.3	6	40.0	59	15.6
Alcohol	6	11.5	6	10.2	22	100.0	1	6.7	22	5.8
Marijuana	1	1.9	6	10.2	1	4.5	15	100.0	15	4.0
Pills or drugs	1	1.9	2	3.4	2	9.1	2	13.3	6	1.6

DISCUSSION

The distribution of psychological dependence, as manifested in ten behaviors, may be examined through comparisons made with data shown in Tables 2 and 3. The incidence of dependence and percents of sample in four dependence categories show that, in general, as one proceeds from the top of the list of behaviors to the bottom, frequency and dependence decrease. Behaviors toward the bottom of the list (alcohol, marijuana, and drugs) may reflect a spuriously low incidence because of their legal and medical implications, as well as because of the influence of social desirability on self-report. Moreover, these behaviors involve substances being taken into the body, the awareness of which may provide for more accurate estimation of potentially dysfunctional consequences.

Except for watching television and day dreaming, sex differences appear in the percents of sample in the several dependence categories (Table 2 and 3). Males show significantly higher levels of dependence (chi square values, all significant at or beyond the .05 level) on physical risks, sexual behavior, alcohol, and marijuana, while females show higher dependence (differences not statistically significant) on talking with friends and

eating beyond normal requirements. The observed sex differences in levels of dependence support the stereotyped image of young college students: males as smoking, drinking, and sexually active individuals likely to take risks at a whim, and females as persons concerned with weight and appearance, and very talkative and socially active.

In a sample where 63 percent of the males and 71.5 percent of the females are under the legal age of 21 years, it is interesting to observe that 80 percent of the males and 72 percent of the females say they drink alcoholic beverages and about one half of the males and one quarter of the females indicate some frequency of smoking marijuana.

The means of scores obtained from the present sample (Table 4) on the Self-control, Responsibility and Socialization scales of the California Psychological Inventory (CPI) are, without exception, lower than Gough's 1957 normative data. Since there seem to be no differences between the current test administration procedures and those deemed acceptable by Gough (1957), explanation for the differences must come from elsewhere. The likelihood of chance differences of almost one standard deviation in every case seems minimal (present sample versus Gough's college sample). Can the reductions in mean scores be attributed to a changed social milieu where an unstructured and under-controlled reaction to the environment is more valued, to

other changes associated with the passing of 13 years, or to some unknown factors? Some combination seems most likely.

The mean scale scores for the Personal Opinion Survey (Table 5) show significant sex differences (t tests, p less than .001 in all cases) for Factors II, III, and V. Coan (1968, p. 27) and Fairchild (1971, p. 54) found that men reported greater experienced control than women on Factors II, III, and V, a finding which directly coincides with that of the present study. As mentioned above, appropriate comparisons with the present POS data, other than that just mentioned, are unavailable at this writing.

The results of the analyses of variance among dependence categories (Tables 7 through 15) bear on one of the primary questions raised in this study--how does the experience of control relate to psychological dependence. The tables present control scale score means, F ratios, significance levels, and the results of tests comparing two pre-selected sets of means.

Since 198 F ratios were computed, and some of them are undoubtedly statistically significant because of chance factors alone, patterns of significance should be examined. Of the analyses of variance carried out for the CPI data, 43 of a possible 54 analyses (male and female for each of three scales for each of nine behaviors) are significant at or beyond the .05 level. Moreover, of the 43 significant

relationships, 34 show a significant difference between the means of the high dependence groups (or no discomfort groups for watching TV and talking with friends) and those not engaging in the behavior.

While the specific figures in the preceding paragraph involve error from several sources (e.g., small sample size in some cases, measurement error, effects of social desirability), the strong pattern of significant findings, particularly with differences among means all in the same direction, provides good support for an inverse relationship between behavior dependence and the self-control/maturity variables. Such evidence supports the findings reviewed by Smith (1970) on tobacco smokers, is in agreement with Bruch's (1957) observations of the obese, and is in concurrence with Milbauer's (1971) statements about drug abusers.

The Self-control scale of the CPI shows the strongest and most consistent relationship with dependence. Significant differences in the same direction are obtained for males and females for all nine behaviors on this scale. The Responsibility and Socialization scales demonstrate significance with a number of behaviors and are essentially the same in numbers of significant F ratios.

From Gough's scale descriptions (see above pp. 29-30) then, the individual who indicates a combination of

relatively high frequency of behavior enactment and high discomfort at deprivation is seen as more impulsive, self-centered, immature, and undercontrolled, and as more likely to over-emphasize personal pleasure and self-gain. The person who does not engage in the behaviors included in this study, on the other hand, is more likely to be seen as patient, practical, capable, and thorough, and as being self-denying and conforming.

The issue of social desirability as a potential alternative explanation for some of the findings in this study should be discussed at this point. Crowne and Marlowe (1964), in studying response style and motivational factors in testing, stated that social desirability accounts for a portion of the test-response variance in most personality tests now in use. The social desirability scale they developed was based on the supposition that ". . . a person brings to the test situation a habitual pattern or style of evaluating himself and that items appropriate to self-evaluation will tend to call forth responses reflecting his particular style" (p. 195). The issue generally comes down to whether an individual responds to a test item in a certain way because it puts him in a good light, because item content elicits a particular response, or because of some combination of these influences.

Inasmuch as there were no attempts to control for social desirability in the present study, its potential effects should be examined. The data gathering instruments used for this investigation contain questions that have some self-evaluative aspects, and hence are potentially susceptible to being answered in a socially desirable manner. However, the primary groups of interest are those showing high dependence and low self-control, both requiring endorsement, in some cases, of socially undesirable items. While it is true that both groups have this endorsement in common, and may be partially related for this reason, agreement with an undesirable statement implies one of two things: (1) that the statement is true about the individual and that social desirability motivation is irrelevant or at least not strong enough to alter the answer, or (2) that there is some motivation to present a bad picture of oneself, with the resultant change of an otherwise false answer to true. The second alternative seems very implausible for the majority of cases, leaving the irrelevancy, or at least reduced importance, of social desirability in responses of high dependence-low control individuals. However, differences between high dependence-low control and low dependence-high control groups may be inflated due to social desirability effects in responses of the latter group. In any case, the fact remains that

whatever effects of social desirability are present in this study are essentially uncontrolled and must be considered a source of error variance.

While roughly 80 percent of the analyses of variance were significant for the CPI data, one third (42 of 126) were significant using the POS data. Twenty-one of the 42 significant POS scale relationships showed significant differences between the high dependence and no frequency groups. It may be observed that the pattern of differences among means for the POS scales within each analysis group is not nearly as consistent as that apparent for the CPI scale.

Such inconsistent patterns reflect, in part, the broad interpretation Coan (1968) gives to the experience of control, particularly in comparison with CPI scale interpretations. He points out that experience of control has many facets and that a highly controlled individual who benefits from a non-indulgent way of life may also be closed to new experiences and may miss much of the richness in life. The undercontrolled, impulsive individual, on the other hand, while most likely suffering the consequences of dysfunctional behavior dependence, may be more open to new experiences and spontaneous pleasures. Such a base for interpretation must be kept in mind when POS scale scores are related to behavior dependence.

A significant relationship between behavior dependence and POS factor scores happens most frequently for Factors III and IV (10 out of a possible 18 for each factor). All ten significant relationships for Factor III involve higher means for the higher dependence groups, when compared with the no frequency categories. These dependence groups, as indicated by their higher mean scores, tend to reject supernatural power in favor of human control of events and fate. It is reasonable to infer that individuals who frequently engage in sexual behavior, smoking, drinking, and the use of marijuana, when compared with abstainers, would be much more likely to reject the importance of religion in their daily lives, as well as the Protestant ethic of avoidance of vice. In this society, a strict upbringing is usually associated both with stronger religious belief and less likelihood of indulgence of any kind.

In just as consistent a manner, but in the opposite direction, high dependence groups tend to score lower than no frequency groups on Factor IV. Such lower scores imply less control in the realm of work, planning and organization, a finding very much in line with intuitive reasoning about dependence and control.

When an individual indicates that he very frequently engages in a behavior and would be very uncomfortable

if unable to enact it when he desired to, the question arises as to whether this situation causes him problems. Some high frequency behaviors are dysfunctional primarily because of the direct effects of high frequency enactment, such as consuming alcohol. Other frequent behaviors, such as watching television, may become dysfunctional because their enactment precludes more functional or goal-directed activities, such as studying. In either event, the question of perception of dysfunction, given dependence on behavior, bears examination.

Kendall's Tau C, a rank-order measure of association, was employed to probe the relationship between dependence and dysfunction. Hays (1963, pp. 642-643) describes Tau C as a measure of the "tendency toward monotonicity" of a relationship. In a monotone-increasing relationship, an increase in X is accompanied by an increase in Y.

The values for Tau C presented in Table 16 reflect moderate relationships for the most part between dependence and dysfunction. Among those measures of association with significant Z values, day dreaming, overeating, smoking tobacco, and consuming alcohol have Tau C values over .200 (arbitrarily chosen). Tau C also exceeds .200 on watching television for females and on taking physical risks for males. Low and/or non-significant relationships

between dependence and perception of dysfunction obtain for the other behaviors. The failure to find any meaningful relationship between dependence on smoking marijuana and perceived dysfunction is consistent with Goode's (1970, p. 309) argument for marijuana use as primarily recreational, with relatively little harm to the individual. Although there are exceptions, in general a moderate relationship may be said to exist between level of behavior dependence and level of dysfunction perceived as resulting from behavior enactment.

The association between dependence on behavior and perceived dysfunction is strongest for male tobacco smokers (.501), male drinkers (.349), and female overeaters (.336). Such findings point up one of the overriding questions posed in this study: what are the dynamics that underlie dependence on dysfunctional behavior. Smoking tobacco, drinking alcoholic beverages, and eating beyond normal requirements all involve the regular ingestion of particular substances, and perhaps bring questions to the mind of the user about physical health, physical appearance, or undesirable style of life. But in spite of recognition of actual or potential adverse consequences, high frequency usage of these substances continues. Further research will be necessary to understand a situation such as that of an individual who smokes cigarettes very

frequently and feels very uncomfortable when unable to smoke, yet reports at the same time that the frequency of his smoking is against his best interests to a large degree.

For purposes of cross-behavioral analysis of dependence and control, the number of behaviors given consideration was reduced from ten to four; eating beyond normal requirements, smoking tobacco, drinking alcoholic beverages, and smoking marijuana. Four groups of males and females were constituted of those individuals indicating four, five, or six on the dependence scale for each behavior.

Table 17 presents the results of six analyses of variance among the four behavior groups on three CPI scales. Popham et al. (1968) surmised that differences within populations of dependent drinkers and drug takers must be at least as great as differences between such groups. The present findings support this contention, in that none of the six F ratios in Table 17 attains or exceeds the .05 level of significance. These results, then, indicate that there are no significant differences among the four behavior groups on the CPI scales.

In comparison, it may be recalled that of the 24 high dependence group means (for the four behaviors) appearing in Tables 12 through 15, 18 of them were significantly lower (at or beyond the .05 level) than their

counterpart no frequency group means. These results taken together give support to the idea that, for the four behaviors, high dependence groups are essentially together in scoring lower than no frequency groups on the three CPI scales. Similar differences in POS scale means for the four behavior groups are not as frequent as for the CPI data. Also, it may be observed that overeaters are least consistent with the pattern just described.

Information concerning multiple dependencies for individuals dependent on food, tobacco, alcohol, or marijuana is given in Tables 18 and 19. Percentage figures are based on the total number of individuals indicating dependence on food, tobacco, alcohol, or marijuana, as shown at the top of the columns. Table 18 shows, for example, that 53 percent of the males dependent on food are also dependent on watching television. Similarly, females who are dependent on tobacco, as a group, have a higher proportion of dependence on marijuana than any of the other female groups or of the total female sample (Table 19, 10.2 percent compared to 1.9, 4.5 and 4.0 percent).

It should be noted that, in general, the selected behavior dependence groups (food, tobacco, alcohol, and marijuana) exhibit higher proportions of dependence on the other behaviors, when compared with the total male or female samples. For males, the relationships between

TV--alcohol, talking--alcohol, day dreaming--tobacco, and sexual behavior for food, tobacco, and alcohol are all higher in proportion than would be expected, when compared with the total male sample. For females, those dependent on tobacco have a somewhat smaller proportion of their group dependent on talking with friends than do other dependence groups and the total female sample. This finding is in keeping with Smith's (1970) conclusion that smokers have more antisocial tendencies than nonsmokers.

Implications of the last two analyses may be examined together. In one case, no significant difference was found among overeaters, smokers, drinkers, and marijuana users on three control scale variables. In the other case, individuals indicating relatively high dependence on one of the four behaviors, with few exceptions, showed higher levels of dependence on the other nine behaviors, when compared with the total samples. Taken together, these findings suggest a dependence syndrome, with undercontrolled, immature individuals frequently engaging in a variety of dysfunctional behaviors and indicating high discomfort when the behaviors are unavailable, in spite of recognizing the dysfunctional aspects of high frequency enactment.

The dependence syndrome concept is presented as a collection of initial findings worthy of further research. Freedman (1968, p. 1282) alluded to such a syndrome by

asking ". . . does a single dose of alcohol carry a differential dependence liability compared with a single dose of marijuana?" He felt that the answer was closer to no than to yes and that the subjective effects of many substance-oriented behaviors might be similar in nature. Stewart and Livson (1966) observed that ". . . the consensus of experience has by now clearly shown that addictions are not isolated habits but expressions of pervasive personality tendencies" (p. 229). The results of the present study follow in the same vein as these observations and give support to a generalized concept of dysfunctional behavior dependence, at least within the limitations of the current method and sample. Generalizability and refinement of the concept await further research.

The final discussion of results centers around a summary statement of findings for each of the behaviors receiving primary attention in this study: eating beyond normal requirements, smoking tobacco, drinking alcoholic beverages, and smoking marijuana. Descriptions using control variables are based only on those differences in mean score found statistically significant through the least significant difference method. Data supporting the descriptions are shown in Tables 2, 3, 12 through 15, 18, and 19.

Eating Beyond Normal Requirements

High dependence on eating (beyond normal requirements) characterizes 10.5 percent of the male sample and 13.8 percent of the female sample. As with all of the behaviors to be described below, high dependence on eating is associated with lower Self-control scale scores, when compared with other dependence groups. As might be predicted intuitively, the female high dependence group showed the least self-control over internal somatic, affective, and cognitive processes (POS Factor V) of any of the dependence categories for this scale. For both males and females, as dependence on overeating increases, so does the amount of perceived dysfunction resulting from the behavior.

Adesso (1971) studied POS experience of control variables, among other things, for overweight, normal weight, and underweight females. He found that the overweight group, when compared with the others, scored significantly lower on POS Factor IV, Successful Planning and Organization. If high frequency-high discomfort overeating is equated with overweight, Adesso's finding is replicated in the present study. The analysis of variance ($p < .05$) shows that the no frequency (never overeat) group scores highest on this factor, with the dependent groups scoring lower, in proportion to the indicated dependence level.

In describing other dependencies, males dependent on overeating have a noticeably higher percentage of dependence on TV, sexual behavior, tobacco, and alcohol than the total male sample. Female overeaters, as a group, have a noticeably higher percentage of dependence on watching TV, talking with friends, day dreaming, and smoking tobacco. Those dependent on overeating seem, overall, to be more dependent on other behaviors than might be expected by chance.

Smoking Tobacco

More than half of the males and females do not smoke (55.9 percent and 63.4 percent, respectively). On the other hand, about one-sixth of the total sample indicates high dependence on smoking tobacco. High dependence male and female smokers have lower scores, on the average, for the Self-control, Responsibility, and Socialization scales than do nonsmokers. Stewart and Livson (1966) found similar results on the CPI Socialization scale for an older, noncollege sample. Both smoker and nonsmoker means were higher than those of the present sample, as would be expected of an older (30 to 40 years) population. The differences between smokers and nonsmokers, however, were of the same magnitude and direction as those of the present study.

Both male and female high dependence smokers, in comparison with nonsmokers, indicate more belief in mankind's control of its destiny as contrasted with supernatural power or fate. Female dependent smokers exhibit less ability in planning and organization and indicate less feeling of control of political and social events occurring around them.

Among all behaviors, the relationship between dependence and perceived dysfunction is the strongest for smoking tobacco. As mentioned in the introduction, McKennell (1968) found dissonant smokers, or those who want to stop smoking, more strongly addicted to smoking tobacco than consonant smokers. If the converse is true, that is, if the strongly addicted group can be expected to include more smokers wanting to quit, then the current finding of smoking dependence being associated with dysfunction perception is even more anomalous; the strongly dependent smoker who currently smokes quite frequently would most desire to stop smoking and would most likely see his behavior as dysfunctional. Could it be that anti-smoking publicity campaigns of the United States Surgeon General's Office and the American Cancer Society have had their effect on the desire but not the ability to stop smoking?

Males dependent on smoking tobacco, as a group, have noticeably higher percentages of dependence on sex,

alcohol, and marijuana, when compared with the total male sample. Similar differences occur for female high dependence smokers on sexual behavior, overeating, alcohol, and marijuana. Dependence on these behaviors seems to be interlinked and more likely to happen in the same individual than chance would indicate. There is some indication, for males as a group, that as age increases so does dependence on smoking tobacco.

Drinking Alcoholic Beverages

More than three-quarters of the total sample consumes alcoholic beverages with at least minimum frequency. However, only 8.9 percent of the males and 5.8 percent of the females are in the high dependence categories for this behavior.

High dependence drinkers of both sexes score significantly lower than nondrinkers on the Self-control and Responsibility scales, and males score lower on the Socialization scale. The means for the general maturity index are similarly significantly different for the two groups. Williams (1968) studied psychological needs of college males in a social drinking setting and found that after four ounces of alcohol had been consumed, the subjects described themselves (through the Heilbrun need scales) as more self-centered, impulsive, erratic, changeable, and less inhibited. These tendencies increased as

more alcohol was consumed. Intake of alcohol, in the present study, was ascertained through self-report rather than direct measurement, but similar personality characteristics were found. It is reasonable to assume that the present subjects were not under the influence of alcohol when they filled out the research questionnaire. Therefore, similarities with Williams' findings, obtained under the influence of alcohol, lend support to the validity of the current measurement methods.

Data from the present study also indicate that high dependence female drinkers score higher than non-drinkers on POS Factor III, belief that mankind controls its own fate. Males and females in the high dependence categories are likely to perceive more dysfunction emanating from their behavior frequency than those in the low dependence categories.

When compared with the total male sample, males dependent on alcohol, as a group, indicate higher percentages of dependence on TV, talking with friends, physical risk, sex, overeating, tobacco, and marijuana. The heavy college drinker, with low self-control and maturity scores, shows high dependence on a variety of other behaviors. Except for physical risks and marijuana, female high dependence drinkers show the same patterns of higher percentage of dependence on other behaviors.

Smoking Other than Tobacco--Marijuana

Approximately half of the males and one-quarter of the females indicate some frequency of smoking marijuana. The percentages of the high dependence categories (male 8.9 percent; females 4.0 percent) are similar to those found for alcohol. Goode (1970, pp. 32-33) reviewed several sources of incidence data for marijuana smoking. A 1969 Gallup poll of a representative college sample showed that 25 percent of the males and 18 percent of the females had tried marijuana at least once. Thirty percent of the males and 20 percent of the females in a small upstate New York college in 1968 had used marijuana at least once. In all cases reported, males were more likely to smoke marijuana than were females.

High dependence marijuana users score significantly lower on the Self-control, Responsibility, and Socialization scales than nonusers. Almost exactly the same CPI scale score means and differences resulted from a study of male undergraduate marijuana users and nonusers carried out by Hogan et al. (1970). Frequent users and principled nonusers of marijuana were found to be significantly different on the Responsibility and Socialization scales in the same direction and with the same magnitude as the dependent and no frequency groups in the present study.

Compared to nonusers, males showing high dependence on marijuana indicate significantly stronger belief in mankind's ability to control its destiny and consequently stronger rejection of supernatural power (POS Factor III). Females show a similar, but nonsignificant trend in the same direction. In the same manner, Pommer (1971) was able to differentiate between users and nonusers of marijuana on POS Factor III. Goode (1970, p. 42) found strong evidence in favor of the marijuana user's lack of belief in supernatural power: "The average potsmoker is highly unlikely to be religious in a traditional sense. He is less likely to claim religious affiliation, attend religious services, believe in traditional dogma, or participate in any way, with any of the formal religious bodies." Acceptance by the user of the illegal nature of marijuana possession and consumption is undoubtedly antithetical to traditional religious moralistic teachings.

High dependence male marijuana smokers compare favorably with the total male sample in distribution of high dependence on other behaviors. Only two notable exceptions, higher percentages of dependence on tobacco and alcohol, appear in the list. Discussion of the female distribution of dependence on other behaviors is not appropriate with such a small sample size (N=15) as a base for comparison.

Comparisons among behavior profiles, as proposed in the introduction, may be made in a straightforward manner. The four behaviors are very much alike in mean scores on several control variables. In every case where a significant relationship is shown to exist, the high dependence groups score lower, on the average, than the no frequency groups, except for POS Factor III, where scores are consistently higher for the dependence groups. No meaningful sex differences are apparent. Only with male smokers is age related to differences in dependence level.

For the total sample, overeating and drinking are alike in being more frequently enacted than tobacco or marijuana smoking. Whereas females more frequently overeat, males more frequently smoke tobacco, drink alcoholic beverages, and smoke marijuana. The same sex differences hold for percentages of the total sample indicating high dependence on these behaviors.

Examination of other behavior dependencies of individuals who indicate high dependence on one of the four behaviors reveals generally higher percentages of high dependence on other behaviors than the total male or female samples. Such a pattern indicates that behavior dependence tends to generalize across behaviors within given individuals, as suggested earlier, rather than being focused in one particular behavior. Also, particular

comparisons, such as sex differences in dependent drinkers on their probability of taking physical risks, suggest themselves for further research and possible corroboration of present findings.

Limitations in the present investigation come primarily from the methods of measurement employed in gathering the data. In order to explore dependence and control in a variety of situations, to isolate dependent groups for cross-behavioral comparisons, and to develop adequate data on the incidence of dependence, it was necessary to secure a large sample of subjects. Because of widely varying frequencies of enactment within the sample, unequal, and, in a few cases, small subsample sizes resulted. Small and unequal sample sizes tend to increase the probability of Type II errors (Li, 1964), those errors of acceptance of false hypotheses.

It must be noted too, that the categories for frequency, discomfort, and dysfunction response are stated in general terms, rather than in terms specific to each of the behaviors. That is, all "very frequently" responses to smoking tobacco undoubtedly do not indicate the same absolute frequency of smoking. Such categories, though, are necessary for exploratory multi-behavioral research, and are exact enough for meaningful comparisons with other variables.

The sample used in this exploratory study was not expected to yield, and did not yield, large proportions of subjects highly dependent on the use of particular substances. Where dependence is very high, clinical or legal intervention has usually taken place, and the population under consideration is redefined accordingly. Also, the primary concern in this investigation was study of the experience of dependence and control in "normal" individuals. Populations other than those found in colleges, however, must be studied in further research efforts.

Additional research should be undertaken to refine and expand the relationships found in this study. The concept of dependence, as related to frequency of enactment and discomfort at deprivation, needs further investigation in contexts other than self-reporting with pencil and paper. Other methods of measurement, or refined self-reporting methods, must be designed to control for the effects of social desirability as much as possible.

The generalized concept of dysfunctional behavior dependence, which received support in the present investigation, should be tested for relevance as behavior dysfunction more closely approaches actual clinical or legal intervention. When research methods become more refined and data more conclusive, discriminant analysis may appropriately be used to attempt classification of actual or

potential dependence groups by personality variables. Longitudinal research on dependence relationships among behaviors might prove helpful in understanding the development and maintenance of psychological dependence on behavior.

The results of the current study may be summarized. Evidence developed in this investigation gives support to a relationship between behavior dependence, as defined in terms of frequency and discomfort, and certain aspects of the experience of control. More specifically, individuals who indicate high dependence on behavior score significantly lower, on the average, than those who do not engage in the behavior, on three California Psychological Inventory scales, Self-control, Responsibility, and Socialization. A similar difference among means is found when the three CPI scales are combined.

In a similar manner, those who are dependent on a behavior, when compared with those who do not engage in the behavior, score significantly higher, in a number of cases, on Personal Opinion Survey Factor III, Mankind in Control of Its Destiny versus Supernatural Power or Fate, and significantly lower, on the average, on Personal Opinion Survey Factor IV, Successful Planning and Organization. Based on a number of behaviors, there appears to be a moderate relationship between high dependence on behavior

and high perceived dysfunction as a result of engaging in the behavior.

Four substance-oriented behaviors, eating beyond normal requirements, smoking tobacco, drinking alcoholic beverages, and smoking marijuana, appear to have features in common. Even though, for each behavior, high dependence groups score significantly different from no frequency groups on several of the control variables, no evidence was found to support overall significant differences among the behaviors on selected control scale means. This finding suggests a dependence syndrome, involving a generalized concept of dysfunctional behavior dependence.

Finally, when high dependence groups for the four behaviors are examined, it is found that, in general, they indicate a higher percentage of high dependence on engaging in sexual behavior, eating beyond normal requirements, smoking tobacco, drinking alcoholic beverages, and smoking marijuana than is found for the total male and female samples. That these behaviors seem linked together through the common element of psychological dependence, may prove useful as a guide to future research.

APPENDIX A

QUESTIONNAIRE

The questionnaires presented here are designed to gather information about the processes of psychological dependence on behaviors of various types. The information requested is related to your personal experience and should reflect your own point of view, not that of other people you may know.

All information gathered by these questionnaires will remain confidential and in no way will be tied to your name. Each form is to be anonymous and your participation in responding to these questionnaires is voluntary. Either responding to the questionnaires or choosing not to respond will in no way affect your grade. Your assistance, however, will be greatly appreciated and will aid in understanding an important and interesting psychological concept.

It is important to read the directions on each form carefully in order to be certain what is asked of you. A candid and truthful response is hoped for in each case as all answers will immediately be transferred to data cards and in no way will reflect on you personally. Since the wide variety of human experience makes any answer possible, no answer is "right" or "wrong." But all answers should be a true reflection of the way you really are.

Thank you for your assistance
Donald S. Ijams
Department of Psychology
University of Arizona
Tucson, Arizona

This section contains a series of statements. Read each one, decide how you feel about it, and then clearly mark your answer in the space provided. If you agree with a statement, or feel that it is true about you, answer TRUE. If you disagree with a statement, or feel that it is not true about you, answer FALSE. Be sure to answer either TRUE or FALSE for every statement, even if you have to guess at some.

Place an X in the box to indicate either TRUE (T) or FALSE (F)

- | | | | |
|---|---|---|---|
| 1. A person needs to "show off" a little now and then. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 2. I often feel that I made a wrong choice in my occupation. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 3. There's no use in doing things for people; you only find that you get it in the neck in the long run. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 4. A person who doesn't vote is not a good citizen. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 5. I have had very peculiar and strange experiences. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 6. When a person "pads" his income tax report so as to get out of some of his taxes, it is just as bad as stealing money from the government. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 7. It's a good thing to know people in the right places so you can get traffic tags, and such things, taken care of. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 8. I am often said to be hotheaded. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 9. When I was going to school I played hooky quite often. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 10. I sometimes pretend to know more than I really do. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 11. It's no use worrying my head about public affairs; I can't do anything about them anyhow. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 12. Sometimes I feel like smashing things. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 13. Most people would tell a lie if they could gain by it. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 14. When someone does me a wrong I feel I should pay him back if I can, just for the principle of the thing. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 15. Every family owes it to the city to keep their sidewalks cleared in the winter and their lawn mowed in the summer. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 16. I think I would enjoy having authority over other people. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 17. I find it hard to keep my mind on a task or job. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 18. I have sometimes stayed away from another person because I feared doing or saying something that I might regret afterwards. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 19. I liked school. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 20. I think Lincoln was greater than Washington. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 21. Sometimes I feel like swearing. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |
| 22. Maybe some minority groups do get rough treatment, but it's no business of mine. | <table border="1"><tr><td>T</td><td>F</td></tr></table> | T | F |
| T | F | | |

23. We ought to worry about our own country and let the rest of the world take care of itself.
24. When I get bored I like to stir up some excitement.
25. I like to boast about my achievements every now and then.
26. I must admit I often try to get my own way regardless of what others may want.
27. As long as a person votes every four years, he has done his duty as a citizen.
28. Sometimes I think of things too bad to talk about.
29. I would do almost anything on a dare.
30. With things going as they are, its pretty hard to keep up hope of amounting to something.
31. I like to be the center of attention.
32. I would like to see a bullfight in Spain.
33. I am fascinated by fire.
34. School teachers complain a lot about their pay, but it seems to me that they get as much as they deserve.
35. At times I feel like picking a fist fight with someone.
36. Sometimes I have the same dream over and over.
37. I do not always tell the truth.
38. I was a slow learner in school.
39. I think I am stricter about right and wrong than most people.
40. I do not dread seeing a doctor about a sickness or injury.
41. I think I would like to drive a racing car.
42. I fall in and out of love rather easily.
43. I seldom or never have dizzy spells.
44. It is all right to get around the law if you don't actually break it.
45. I am somewhat afraid of the dark.
46. I would like to wear expensive clothes.
47. I consider a matter from every standpoint before I make a decision.
48. I have strange and peculiar thoughts.
49. I hardly ever get excited or thrilled.
50. Every citizen should take the time to find out about national affairs, even if it means giving up some personal pleasures.
51. My parents have often disapproved of my friends.
52. My home life was always happy.

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53. I often act on the spur of the moment without stopping to think.

T	F
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54. My way of doing things is apt to be misunderstood by others.

T	F
---	---

55. I never make judgments about people until I am sure of the facts.

T	F
---	---

56. Most people are secretly pleased when someone else gets into trouble.

T	F
---	---

57. When I work on a committee I like to take charge of things.

T	F
---	---

58. My parents have generally let me make my own decisions.

T	F
---	---

59. I would rather go without something than ask for a favor.

T	F
---	---

60. Sometimes I feel as if I must injure either myself or someone else.

T	F
---	---

61. I have had more than my share of things to worry about.

T	F
---	---

62. I often do whatever makes me feel cheerful here and now,
even at the cost of some distant goal.

T	F
---	---

63. I can remember "playing sick" to get out of something.

T	F
---	---

64. When I meet a stranger I often think that he is better than I am.

T	F
---	---

65. I would be ashamed not to use my privilege of voting.

T	F
---	---

66. I think I would like to fight in a boxing match sometime.

T	F
---	---

67. Before I do something I try to consider how my friends
will react to it.

T	F
---	---

68. I enjoy a race or game better when I bet on it.

T	F
---	---

69. I have often found people jealous of my good ideas, just because
they had not thought of them first.

T	F
---	---

70. I like to go to parties and other affairs where there is
lots of loud fun.

T	F
---	---

71. I very much like hunting.

T	F
---	---

72. I have frequently found myself, when alone, pondering such
abstract problems as freewill, evil, etc.

T	F
---	---

73. I have never been in trouble with the law.

T	F
---	---

74. It makes me angry when I hear of someone who has been wrongly
prevented from voting.

T	F
---	---

75. In school I was sometimes sent to the principal for cutting up.

T	F
---	---

76. People have a real duty to take care of their aged parents,
even if it means making some pretty big sacrifices.

T	F
---	---

77. I keep out of trouble at all costs.

T	F
---	---

78. I am apt to show off in some way if I get the chance.

T	F
---	---

79. We ought to pay our elected officials better than we do.

T	F
---	---

80. I can honestly say that I do not really mind paying my taxes
because I feel that's one of the things I can do for what
I get from the community.

T	F
---	---

81. I am often bothered by useless thoughts which keep running
through my mind.

T	F
---	---

82. Most of the time I feel happy.

T	F
---	---
83. I must admit that I have a bad temper, once I get angry.

T	F
---	---
84. I like large noisy parties.

T	F
---	---
85. When prices are high you can't blame a person for getting all he can while the getting is good.

T	F
---	---
86. I often feel as though I have done something wrong or wicked.

T	F
---	---
87. We ought to let Europe get out of its own mess; it made its bed, let it lie in it.

T	F
---	---
88. I am a better talker than a listener.

T	F
---	---
89. Sometimes I rather enjoy going against the rules and doing things I'm not supposed to.

T	F
---	---
90. I have very few quarrels with members of my family.

T	F
---	---
91. If I get too much change in a store, I always give it back.

T	F
---	---
92. I like to read about science.

T	F
---	---
93. It is hard for me to act natural when I am with new people.

T	F
---	---
94. I have never done anything dangerous for the thrill of it.

T	F
---	---
95. As a youngster I was suspended from school one or more times for cutting up.

T	F
---	---
96. I used to like it very much when one of my papers was read to the class in school.

T	F
---	---
97. I feel that I have often been punished without cause.

T	F
---	---
98. I would like to be an actor on the stage or in the movies.

T	F
---	---
99. At times I have a strong urge to do something harmful or shocking.

T	F
---	---
100. I often get feelings like crawling, burning, tingling, or "going to sleep" in different parts of my body.

T	F
---	---
101. Police cars should be especially marked so that you can always see them coming.

T	F
---	---
102. I have often gone against my parents' wishes.

T	F
---	---
103. I often think about how I look and what impression I am making upon others.

T	F
---	---
104. I have never done any heavy drinking.

T	F
---	---
105. I find it easy to "drop" or "break with" a friend.

T	F
---	---
106. I get nervous when I have to ask someone for a job.

T	F
---	---
107. Sometimes I used to feel that I would like to leave home.

T	F
---	---
108. I never worry about my looks.

T	F
---	---
109. I have been in trouble one or more times because of my sex behavior.

T	F
---	---
110. I go out of my way to meet trouble rather than try to escape it.

T	F
---	---
111. My home life was always very pleasant.

T	F
---	---

- 112. I seem to do things that I regret more often than other people do.

T	F
---	---
- 113. My table manners are not quite as good at home as when I am out in company.

T	F
---	---
- 114. It is pretty easy for people to win arguments with me.

T	F
---	---
- 115. I know who is responsible for most of my troubles.

T	F
---	---
- 116. I get pretty discouraged with the law when a smart lawyer gets a criminal free.

T	F
---	---
- 117. I have used alcohol excessively.

T	F
---	---
- 118. Even when I have gotten into trouble I was usually trying to do the right thing.

T	F
---	---
- 119. It is very important to me to have enough friends and social life.

T	F
---	---
- 120. I have sometimes wanted to run away from home.

T	F
---	---
- 121. Life usually hands me a pretty raw deal.

T	F
---	---
- 122. People often talk about me behind my back.

T	F
---	---
- 123. I would never play cards (poker) with a stranger.

T	F
---	---
- 124. I don't think I'm quite as happy as others seem to be.

T	F
---	---
- 125. I used to steal sometimes when I was a youngster.

T	F
---	---
- 126. My home as a child was less peaceful and quiet than those of most other people.

T	F
---	---
- 127. Even the idea of giving a talk in public makes me afraid.

T	F
---	---
- 128. As a youngster in school I used to give the teacher lots of trouble.

T	F
---	---
- 129. If the pay was right I would like to travel with a circus or carnival.

T	F
---	---
- 130. I never cared much for school.

T	F
---	---
- 131. The members of my family were always very close to each other.

T	F
---	---
- 132. My parents never really understood me.

T	F
---	---
- 133. A person is better off if he doesn't trust anyone.

T	F
---	---

Your age (at last birthday): Place underlined number of answer here.

1. 17 or under 2. 18 3. 19 4. 20 5. 21 6. 22 7. 23 8. 24 or over - - - _____

Sex:

1. Male 2. Female - - - - - _____

Most recent college cumulative grade point average:
 (use the University of Arizona grading system, where A is 1, B is 2, etc.) - - - _____

Write your grade average in the following manner: if for example your average is 2.57, then you would write $\frac{2.}{7}$ in the spaces at the right. _____

Major subject or college: _____

This section (this page and the two that follow) requires particularly careful reading. You are asked to examine your experience, as best you can, in relation to certain behaviors. The instructions must be applied to each behavior in turn. Remember that no one will know who you are from this form, so try to give a true picture of yourself. In certain cases, it may be helpful to read the instructions again when you are not sure. Please take your time and answer carefully.

In terms of recent experience, please indicate, as best you can, how often you engage in each of the activities listed below. (It is important to indicate how often you actually engage in each of the behaviors, not how often you think about doing so but for some reason do not.)

	<u>Best Approximation of Current Frequency</u>					Place <u>Number</u> of answer here
	(4) Very Frequently	(3) Fairly Frequently	(2) Occa- sionally	(1) Seldom	(0) Never	↓
Watching TV or Movies; Listening to Radio, Records	4	3	2	1	0	_____
Talking with Friends (socializing, gossiping, "shooting the breeze", etc.)	4	3	2	1	0	_____
Day Dreaming ("Lost in thought", fantasy)	4	3	2	1	0	_____
Taking Physical Risks	4	3	2	1	0	_____
Engaging in Sexual Behavior	4	3	2	1	0	_____
Eating (beyond normal requirements)	4	3	2	1	0	_____
Smoking Tobacco (cigarettes, cigars, pipes, etc.)	4	3	2	1	0	_____
Drinking Alcoholic Beverages	4	3	2	1	0	_____
Smoking Other than Tobacco (marijuana, for example)	4	3	2	1	0	_____
Taking Pills or Drugs (of any type not listed above; for <u>other</u> than medicinal reasons)	4	3	2	1	0	_____

Based on your recent experience, check below the degree to which you would feel uncomfortable if you were unable to engage in each behavior. If you do not engage in some of the behaviors, please indicate this by writing a "0" in the answer column. For the others, however, imagine that you want to engage in the behavior and that for some reason you are prevented from doing so. Do you feel uncomfortable? How much so? Indicate below the general level of this discomfort. Do not indicate how uncomfortable the behavior would make you feel but only your best estimate of how uncomfortable you would feel if you were unable to engage in the behavior when you wanted to.

If for some reason I were prevented from engaging in the behavior when I wanted to I would feel:

	Very Uncom- fortable	Somewhat Uncom- fortable	Slightly Uncom- fortable	Not Uncom- fortable	Do Not Engage In	Place <u>number</u> of answer here ↓
Watching TV or Movies; Listening to Radio, Records	4	3	2	1	0	_____
Talking with Friends (socializing, gossiping, "shooting the breeze", etc.)	4	3	2	1	0	_____
Day Dreaming ("Lost in thought", fantasy)	4	3	2	1	0	_____
Taking Physical Risks	4	3	2	1	0	_____
Engaging in Sexual Behavior	4	3	2	1	0	_____
Eating (beyond normal requirements)	4	3	2	1	0	_____
Smoking Tobacco (cigarettes, cigars, pipes, etc.)	4	3	2	1	0	_____
Drinking Alcoholic Beverages	4	3	2	1	0	_____
Smoking Other than Tobacco (marijuana, for example)	4	3	2	1	0	_____
Taking Pills or Drugs (of any type not listed above; for <u>other</u> than medicinal reasons)	4	3	2	1	0	_____

To what degree is the frequency that you presently engage in each of these behaviors not in your best interest? Sometimes people characteristically overindulge in one kind of behavior or another which ultimately causes them problems. In your opinion, how much do you presently overindulge in each of the behaviors below (in terms of frequency)?

The FREQUENCY of this behavior is against my best interests to:

	A Large Degree	A Moderate Degree	A Slight Degree	Frequency Not Against Best Interests	Do Not Engage In	Place Number of answer here ↓
Watching TV of Movies; Listening to Radio, Records	4	3	2	1	0	_____
Talking with Friends (socializing, gossiping, "shooting the breeze", etc.)	4	3	2	1	0	_____
Day Dreaming ("Lost in thought", fantasy)	4	3	2	1	0	_____
Taking Physical Risks	4	3	2	1	0	_____
Engaging in Sexual Behavior	4	3	2	1	0	_____
Eating (beyond normal requirements)	4	3	2	1	0	_____
Smoking Tobacco (cigarettes, cigars, pipes, etc.)	4	3	2	1	0	_____
Drinking Alcoholic Beverages	4	3	2	1	0	_____
Smoking Other than Tobacco (marijuana, for example)	4	3	2	1	0	_____
Taking Pills or Drugs (of any type not listed above; for <u>other</u> than medicinal reasons)	4	3	2	1	0	_____

The following statements are opinions about people and life in general. You will probably feel that some are true while others are false. Some of the statements are about your own feelings about yourself, or matters of health. There are no absolutely known "right" or "wrong" answers to the general statements, and only you know the answers to the personal statements, but we are asking for your opinion about all the statements.

Please mark T or F (true or false) to the right of each statement. We hope you will answer as honestly as you can. In some cases you may find it difficult to make a decision, but please mark your opinion for all the statements.

Place an X in the box to indicate either TRUE (T) or FALSE (F)

- 1. Everybody can and should decide for himself what is right and wrong.

T	F
---	---
- 2. No matter how hard I try, there are some things I'll never get the hang of.

T	F
---	---
- 3. We should worry less about God's will and fate, and more about what we can do about our problems.

T	F
---	---
- 4. I do a lot of things without much planning or organization.

T	F
---	---
- 5. I almost always understand why I feel and react as I do.

T	F
---	---
- 6. There is nothing I can do as an individual that will affect major political events.

T	F
---	---
- 7. I think I could be a successful salesman.

T	F
---	---
- 8. Everyone is responsible for what he is as well as for what he does.

T	F
---	---
- 9. If I had enough time and the right tools, I could figure out how almost any machine is put together and how it works.

T	F
---	---
- 10. My life is in the hands of a divine power who insures that things happen for my own good even if I don't understand them at the time.

T	F
---	---
- 11. I usually plan my work carefully before I start it.

T	F
---	---
- 12. I have sometimes felt that difficulties were piling up so high that I could not overcome them.

T	F
---	---
- 13. The individual in this country has much influence on political and social decisions, though many people don't seem to realize it.

T	F
---	---
- 14. I'm shy with people till I get to know them.

T	F
---	---
- 15. Anyone who is willing to devote enough time and effort to it can attain a position of leadership or authority.

T	F
---	---
- 16. I find it very difficult to understand scientific ideas.

T	F
---	---
- 17. Men working and thinking together can build a just society without supernatural help.

T	F
---	---
- 18. I am usually rather disorganized, and I really should try to get better organized.

T	F
---	---
- 19. I seldom cry.

T	F
---	---

POS _____

20. It is difficult for people to have much control over the things politicians do in office.
21. I can often change a person's mind by discussing things.
22. If one wants to badly enough, he can overcome almost any obstacle in the path of academic success.
23. If I had enough time and the right books to refer to, I could understand any kind of scientific theory.
24. Man cannot be trusted to manage his own affairs without some kind of supernatural guidance.
25. I like to schedule my time, so that I can get the important things done.
26. I sometimes have trouble with my muscles twitching or tightening up.
27. There is plenty I can do about what is happening in the world today.
28. Anyone who is willing to work hard can be successful.
29. I never was very good at things like card games and chess.
30. History can teach us more about how to solve our problems than religion can.
31. I don't think I have much influence on other people.
32. I often have trouble organizing my work as much as I need to in order to get anything done.
33. I can hide my feelings very well.
34. Even at the local level, it's difficult for one person to influence political decisions.
35. If I see that people are uncomfortable, I can usually put them at ease.
36. No matter how she looks to begin with, almost any woman can make herself attractive by proper attention to her hair, skin, and clothing.
37. I've seldom been stumped by any intellectual problem I really wanted to solve.
38. Society will always be imperfect because man is imperfect.
39. I like to have everything in order.
40. At times, I have been so angry that I just couldn't help doing or saying things I wouldn't ordinarily do or say.
41. I like to discuss local and national affairs with others, for I feel that everyone's opinion counts.
42. I can never think of good conversational come-backs until long after I need them.
43. Anyone can learn how to interact with people and have good friends.
44. I have more trouble with numbers or arithmetic problems than I do with most other things I try to figure out.
45. Our increasing technology should someday enable us to control natural phenomena like the weather.

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- 46. My desk is usually a mess.

T	F
---	---
- 47. I don't let things bother me the way some people do.

T	F
---	---
- 48. Trying to change the social or political system is a waste of energy -- you might as well try to fit into it.

T	F
---	---
- 49. If I want to talk to someone I haven't met, I introduce myself and start a conversation.

T	F
---	---
- 50. If one just follows his own convictions he can get people to respect and admire him.

T	F
---	---
- 51. If I had the time, I could figure out the solution to almost any kind of puzzle.

T	F
---	---
- 52. In our scientific and medical research, we must be careful not to go against God-given laws of life and death.

T	F
---	---
- 53. I try to live by the motto "A place for everything and everything in its place."

T	F
---	---
- 54. Sometimes an idea runs through my mind and I can't stop thinking about it no matter how hard I try.

T	F
---	---
- 55. As a member of our society, I want to participate as fully in its decision-making processes as I can.

T	F
---	---
- 56. I'm more of a follower than a leader.

T	F
---	---
- 57. People can stay healthy all the time by getting the right food, sleep, and exercise.

T	F
---	---
- 58. When I have a mechanical problem to solve, I usually ask someone to help me with it.

T	F
---	---
- 59. If there is a supernatural power, it is not interested in the needs and wishes of individual human beings.

T	F
---	---
- 60. I've changed my mind too often about what career I wanted to go into.

T	F
---	---
- 61. I almost always keep good control of my emotions.

T	F
---	---
- 62. The people who work voluntarily for political parties accomplish little more than to keep themselves busy.

T	F
---	---
- 63. Friends often come to me to "cry on my shoulder" and get my advice.

T	F
---	---
- 64. Anyone can break any bad habit if he wants to badly enough.

T	F
---	---
- 65. I think I could get good grades in any subject in college if I studied hard enough.

T	F
---	---
- 66. There is a law of just retribution that rewards and punishes us according to what we deserve.

T	F
---	---
- 67. Frequently I make a list before I go shopping.

T	F
---	---
- 68. My moods swing back and forth a lot from high to low.

T	F
---	---
- 69. If he is sincerely concerned, any individual can have some real influence on national and world events.

T	F
---	---
- 70. I hate to walk into a room full of people.

T	F
---	---
- 71. If you try hard enough, you can make anybody like you.

T	F
---	---

72. I've often wished that teachers or lecturers would slow down so that I could keep up with them.
73. What the world needs is more tolerance and reason and less blind faith.
74. Living on a schedule bothers me.
75. I seldom have trouble with muscle spasms or cramps.
76. One vote for President could make no difference in a country the size of the United States.
77. I envy people who are poised and at ease in social situations.
78. I think I could accomplish almost anything I wanted to if I tried hard enough.
79. Our problems can only be solved by a return to traditional religious principles.
80. I can nearly always finish the projects I start.
81. I often have trouble getting to sleep at night.
82. If I really worked at it, I could be an expert chess player.
83. People could make their individual opinions about national affairs count for much more if they'd just take the time and effort to write their elected officials.
84. I've never been very good at "small talk."
85. When I'm being shown how to do something, I often have a lot of trouble learning.
86. Scientific knowledge is the key to mankind's destiny.
87. I am often late for appointments.
88. I'm seldom bothered by headaches.
89. I don't worry much about social problems like poverty and air pollution, because there's nothing I can do about them.
90. People usually do as they please, no matter what I say.
91. If I had time, I could figure out the answer to almost any mathematical reasoning problem.
92. Fate plays a greater part in our lives than most people seem to realize.
93. I make it a point to pay bills as soon as I get them.
94. Sometimes I worry a lot about something that is not really important.
95. My individual influence may be small, but I can still have definite influence on important political events by voting, writing letters, and participating in organizations.
96. I stay out of many conversations because I don't really understand what's being talked about.
97. I often have to read things over several times before I fully understand them.

T	F
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- 98. When scientists have gained enough knowledge, we shall be able to control the future biological evolution of the species.

T	F
---	---
- 99. I don't plan ahead very much.

T	F
---	---
- 100. It takes a lot to hurt my feelings.

T	F
---	---
- 101. I feel increasingly helpless in the face of what is happening in the world today.

T	F
---	---
- 102. Even if I wanted to, I don't think I could ever be a really good athlete.

T	F
---	---
- 103. It would be nice if wars could be prevented, but I think it's probably impossible.

T	F
---	---
- 104. I get annoyed by people who are always late.

T	F
---	---
- 105. I don't like to waste time feeling sorry for myself.

T	F
---	---
- 106. In the realm of international affairs, most of us have absolutely no control over what happens.

T	F
---	---
- 107. The idea that our lives are controlled by some kind of predestination is sheer nonsense.

T	F
---	---
- 108. I'm often inclined to put off until tomorrow what I could do today.

T	F
---	---
- 109. I know how to relax for a few minutes when I'm getting tense and then go back to the grind.

T	F
---	---
- 110. Talking politics accomplishes nothing but to get people angry at each other.

T	F
---	---
- 111. I nearly always know where to find my belongings when I need them.

T	F
---	---
- 112. I seldom have nightmares.

T	F
---	---
- 113. It would be a good thing if more people got involved in politics.

T	F
---	---
- 114. I've sometimes had to hunt for half a day for something I knew I had put away somewhere.

T	F
---	---
- 115. When I'm upset over something, I usually know why and what to do about it.

T	F
---	---
- 116. It's a waste of time and effort for people to get stirred up over political and military decisions they can't control.

T	F
---	---
- 117. On some days, I seem to waste all my time and do not accomplish anything worthwhile.

T	F
---	---
- 118. When I feel strongly about some issue that affects society, I think it's my duty to let people know how I feel.

T	F
---	---
- 119. In general, I do things deliberately, not impulsively.

T	F
---	---
- 120. I wish that I didn't forget things so often.

T	F
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