A Comparison of Three Measures of Stimulation Seeking

John L. Kasten
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A COMPARISON OF THREE MEASURES OF STIMULATION SEEKING

by

John L. Kasten

A Thesis
Submitted to the
Faculty of The Graduate College in partial fulfillment
of the
Degree of Master of Arts

Western Michigan University
Kalamazoo, Michigan
April 1971
A COMPARISON OF THREE MEASURES OF STIMULATION SEEKING

John L. Kasten, M.A.
Western Michigan University, 1971

An attempt was made to determine the comparability and construct validity of three instruments: the Sensation Seeking Scale (Zuckerman, Kolin, Price & Zoob, 1964); the Change Seeker Index (Garlington & Shimota, 1964); and the Similes Preference Inventory (Pearson & Maddi, 1966). These instruments, and a measure of drug use which was constructed by the investigator, were administered to 52 college students and 23 high school students. Product-moment correlations were calculated among these instruments and between each instrument and age, sex, marital status and amount of education. Several sets of partial correlations were also calculated.

A substantial correlation was found between the scores on the Sensation Seeking Scale (SSS) and the Change Seeker Index (CSI). The correlations between scores on these scales and scores on the Similes Preference Inventory (SPI) were substantially lower. Support was found for the construct validity of the SSS and the CSI, but not for the SPI.
MASTERS THESIS

KASTEN, John L., 1947-
A COMPARISON OF THREE MEASURES OF
STIMULATION SEEKING.

Western Michigan University, M.A., 1971
Psychology, general

University Microfilms, A XEROX Company, Ann Arbor, Michigan

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ACKNOWLEDGEMENTS

I am grateful for advice and assistance of professors Bradley Huiitema, Malcolm Robertson and Chris Koronakos. Professor Huiitema, my primary advisor, was especially helpful, although my thanks also go out to all of the faculty and students of the Department of Psychology with whom I worked so fruitfully. My special thanks go to Dr. Marvin Zuckerman of the University of Delaware, who sent several useful manuscripts to me; to the faculty members who allowed me to administer questionnaires to their classes; and especially to my wife, Marjorie, whose assistance and encouragement during the last phase of this work were essential.

John L. Kasten
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INTRODUCTION

For many years, psychology was dominated by instinct theories and drive theories which assumed that the ultimate goal of behavior was to reduce tension or stimulation to a minimum. More recently, Fiske and Maddi (1961) have incorporated the neuropsychological research of Hebb (1949, 1955), Berlyne (1960), and others into a conceptual framework which stresses the importance of an optimum level of stimulation. This viewpoint seems to be especially useful insofar as it is also capable of explaining such previously troublesome phenomena as exploratory behavior, alternation behavior, play, curiosity, and sensory deprivation.

Fiske and Maddi (1961) have proposed a preliminary set of concepts and propositions which they believe will aid in the understanding of the rather broad range of research topics which their book also presents. In its most simplified manner, their position is that "for each stage in an organism's sleep-wakefulness cycle, there is a characteristic or normal level of activation (p. 38)," and that organisms tend to behave such that this optimal level is maintained. Thus an organism whose activation level at a given time differs from its normal level will tend to emit behavior which will increase or decrease activation to that level.
Activation is defined as a "basic dimension referring to the common core in such variables as alertness, attentiveness, tension, and subjective excitement (p. 14)." That is, activation is assumed to be that state of the nervous system which accounts for the above phenomena. Arousal refers to the somatic effects of activation, such as changes in circulation, respiration and muscular tension. Fiske and Maddi have effected a useful simplification in their use of the concept of variation. Variation subsumes novelty, complexity, unexpectedness, and any spatial or temporal changes. This at least partially alleviates the traditional problem of attempting to define and distinguish these different varieties of variation.

A basic part of their conceptual system is their distinction between two basic conditions of organisms: those in which specific motivation, such as hunger and thirst, exist; and those in which there are no pressing demands on the organism, either from tissue needs, external threat, or imposed tasks. It is this second condition which is emphasized by Fiske and Maddi, although the specific motivation condition is also held to be compatible with their framework.

One outgrowth of this conceptual outlook was the attempt to measure the strength and nature of a proposed need for variation, which would yield individual differences. The first attempts at this task were
made using adaptations of the Thematic Apperception Test, a widely-used projective technique in which subjects (Ss) write brief stories about pictures which they have been shown. In this work (e.g., Maddi, Charlens, Maddi, & Smith, 1962) the Ss were allowed four minutes for story composition after each 20-second exposure of a series of four slides. Scores of one, zero and negative one were given for the presence of examples of novel, doubtful and unrelated imagery, respectively. Specific novelty-related categories such as Wishes, Unusual Role Designations and Introduced Characters were also scored. The results tended to support the conceptualizations of Fiske and Maddi and to support the construct validity of a tendency to seek or produce variation, but this technique had several disadvantages. As with most projective techniques, the reliabilities were low by usual psychometric standards, and the tests were also cumbersome to administer and to score (Pearson & Maddi, 1966, p. 301). Therefore several researchers set out to develop shorter, more convenient, and more reliable scales to measure the tendency or need to seek variation.

**Change Seeker Index**

One of these new scales was the Change Seeker Index (Garlington & Shimota, 1964), which was designed to measure "behavior which acts to control the amount
and kind of stimulus input a given organism receives (p. 919)." A preliminary questionnaire of 211 items was constructed by using items from existing personality questionnaires and augmenting these with some new items. After administering this questionnaire, the best items were chosen and the current 95-item true-false questionnaire was administered to several hundred students, teachers and psychiatric patients for further evaluation.

The sample yielded a split-half reliability of .85 (corrected to .92 using the Spearman-Brown formula). The authors also reported a small but significant negative correlation for a smaller sample of female school teachers. In addition, CSI scores and IQ scores were not found to be correlated for the sample of psychiatric patients.

Acker and McReynolds (1967) administered six instruments to their sample of 104 college students. They reported a correlation of .62 between CSI scores and Sensation Seeking Scale scores and concluded that these two scales (as well as the Obscure Figures Test and the Stimulus Seeking Maze Test) measured the same variable, which they described as a stated preference for novelty.

The only other published study on the CSI (McCarroll, Mitchell, Carpenter, & Anderson, 1967) which is relevant to this study was a comparison of two similar
scales with the CSI. This study used one group of pre-freshman students and one group of undergraduates. It was found that the mean CSI scores for each sex were significantly higher in this study than in the original research by Garlington and Shimota (1964). Furthermore, the undergraduates scored significantly higher than the pre-freshmen, and the males scored significantly higher than the females. Finally, the CSI was found to correlate significantly with both other scales.

Similes Preference Inventory

A rather different approach was used in constructing the Similes Preference Inventory (Pearson & Maddi, 1966). The authors of the SPI intentionally avoided the use of a self-descriptive test on the grounds that such tests are too vulnerable to influence by inadequate memory and dishonest report. Therefore the authors used items in which the beginning of a familiar simile is followed by one each of the following five classes of endings: usual, substitutive, remote, opposite, and nonsense. Preference for the five classes of endings were empirically determined in order to serve as a basis for the scoring of the test. According to Pearson and Maddi, one can use a five-point scale; or score each usual or substitutive response as zero, and score responses from any other class as one.
Whereas the other two scales used in this study attempt to measure a rather general characteristic, the SPI was developed for a more specific purpose. Fiske and Maddi (1961) hypothesized three different forms of the need for variety: desire for novelty, which is passive; curiosity, which is active and exteroceptive (that is, refers to stimulation from sources external to the body); and novelty of production, which is active and interoceptive (that is, refers to internally produced stimulation). The SFI was developed to measure this last form of the need for variety.

Pearson and Maddi (1966) reported a test-retest reliability coefficient of .61, which they described as "moderate, but adequate (p. 306)." They also reported that the correlations between SPI scores and the social desirability of the items were not significant. Also, the scores did not differ significantly by sex. However, there was a significant correlation between SPI scores and TAT scores (using the modified TAT scoring of Maddi, et al., 1962). Because of differences between the means of samples which differed in education, the authors hypothesized that education tends to increase scores on the SPI because it decreases the proportion of experiences which can still be novel, and because it disposes one to the use of cognitive processes.

In a study by Uribe and McReynolds (1967), the
A rather comprehensive, but generally unsuccessful attempt was made by Kish and Donnenwerth (1969b) to demonstrate support for the construct validity of the SPI. Three groups of Ss were used: hospitalized alcoholics, hospitalized chronic schizophrenics, and college students. The mean SPI score for alcoholics did not differ significantly from the mean SPI score for schizophrenics. Since the two groups did not differ in age or education either, they were pooled before performing
the other analyses. No significant relationships were found between SPI scores and: OPT scores, Sensation Seeking Scale scores, any of the Minnesota Multiphasic Personality Inventory (MMPI) scales, Kuder Preference Record scores, General Aptitude Test Battery (GATB) scores, and American College Test (ACT) scores. Age and educational level were not significantly related in the three groups of Ss, but the mean SPI score for the college students was significantly higher than that of the patient groups. Kish and Donnenwerth also reported narrow ranges, low means, and high positive skewness in the distribution of the SPI scores. They hypothesized that their results may have been affected by a set to respond as if well-adjusted on the part of the patient groups.

Another piece of research on instructional set (Lieberman, 1968) may be of help in clarifying the above results. Half of Lieberman's Ss were instructed to "fake adjustment" in responding on the SPI, and the other half were instructed to "fake creativity" on the SPI. There were no significant cross-sex differences, but the mean for the creativity-faking group was very significantly greater than the mean for the adjustment-faking group. Almost 90% of the endings chosen by the adjustment group were either the "usual," or very similar "substitute" endings, which do not contribute to the SPI score when the scale is scored in the way which
Furthermore, the mean of the adjustment group is very close to the means of Kish's and Donnenwerth's (1969b) institutionalized alcoholics and schizophrenics.

Lieberman criticized the SFI for posing an "unreal problem" to the S. He contends that S's answer depends too much upon S's mood or whim at the time of the test. He suggests that the use of his "fake creativity" instructions would probably produce a better measure of the variable which the SFI is designed to measure. He also suggests that,

Perhaps the best measure of tendency toward variety on the SFI is the distribution of the various endings which S has chosen; the S with the greatest tendency being the one who most closely approximates choosing a fifth of the endings (p. 97).

**Sensation Seeking Scale**

The third scale with which this research deals is the Sensation Seeking Scale (Zuckerman, Kolin, Price and Zoob, 1964). It is a forced-choice self-report questionnaire which was designed to measure the general factor involved in seeking an Optimal Level of Stimulation (OLS). Factor analysis of a preliminary 50-item questionnaire produced the 34-item scale which was described in the original study in 1964. Later, a study by Farley (1967) suggested that the Sensation Seeking Scale (SSS) might include more than the one
general factor. Zuckerman and Link (1968) rotated the factors obtained from the analysis of the original 1964 sample. Their results indicated that there might be four additional scales, although only two of these were clearly identifiable in females. It was concluded that Forms I and II of the SSS did not include enough items sampling these additional factors.

Additional items were written and administered to another sample of undergraduate college students (Zuckerman, 1969a). Factor analysis indicated that the general factor was similar enough to the original general factor from Form II (1964) that the original factor items should be retained in the new Form IV. Four additional factors were found in all groups. These factors were tentatively named Thrill and Adventure Seeking (TA), Experience Seeking (ES), Disinhibition (Dis), and Boredom Susceptibility (BS). Only the last factor, Boredom Susceptibility, was not clearly consistent in structure and reliable across sexes.

Zuckerman and his colleagues have presented data on the reliability of the SSS using a variety of populations. Zuckerman (1969a) reports corrected odd-even reliabilities for each factor on Form IV. The coefficients for the BS scale from different populations ranged from .36 to .75, while all of the other factors yielded coefficients of at least .68, most of the coefficients exceeding .75. This same report also recorded
significant correlations between the five scales in Form IV. Zuckerman, Keary, Trustman and Fischer (1969) reported test-retest reliabilities for the individual scales ranging from .62 to .97, split-half reliabilities ranging from .66 to .66 (except for the BS scale, which scored .36 to .75), and factor reliabilities ranging from .75 to .95 (except for the BS scale, which correlated only .37).

In contrast to the CSI and the SFI, the SSS has stimulated a substantial amount of research covering a rather wide range of topics. Several investigators have correlated SSS scores with age. Kish and Busse (1966), in a very careful analysis, found significant negative correlations between age and SSS scores, even with educational level held constant. Blackburn (1969) obtained very similar results, but McCarroll, et al. (1967) reported that the scores from their older sample were significantly higher than those from their younger sample.

Various measures of intelligence and aptitude have also been related to SSS scores. Blackburn (1969) found a correlation of .19 between SSS scores and Wechsler Adult Intelligence Scale scores. This result was not significant. Kish and Busse (1968) however, found a highly significant correlation between the SSS and several of the scales on the GATB. Essentially, there seems to be no consensus yet regarding the relationship
between ability and the SSS.

However, Kish and Busse (1968) did present an analysis which may bear upon several of the above issues. While finding a highly significant correlation between the SSS and the G scale of the GATB, they also found a significant correlation between G and educational level, but a positive, but nonsignificant correlation between the SSS and educational level. In order to clarify these relationships, they performed partial correlations with these three variables. The partial correlation for SSS and educational level (with G held constant) was only .03, whereas the correlation for SSS and G (with educational level held constant) was .29. Thus Kish and Busse suggest that other significant correlations between SSS and educational level may be attributed to high correlations between educational level and IQ. Furthermore, they hypothesize that differences among mean SSS scores for different age groups are probably the result of a complex of age-related variables.

Differences between the sexes in sensation seeking tendencies have been studied on several different occasions. The original study (Zuckerman, et al., 1964) found no sex differences on the General SS scale (Form II). A more recent study using Form IV (Zuckerman, et al., 1969) found a consistent tendency for males to score higher than females. The differ-
ences on the General scale were significant in two of their samples, and nearly significant in a third. Most of the other scales also showed significant male-female differences in the same direction.

Researchers seem to have been particularly interested in the implications of sensation seeking for personality theory. Thus Kish and Busse (1968) have hypothesized that if the individual tends to maintain a particular preferred level of stimulation over significant periods of time, "the individual optimal level should constitute a meaningful descriptive and analytic personality trait (p. 633)." Zuckerman, et al. (1969) further state that "evidence has been accumulating which indicated that the SSS is related to a characteristic type of personality (p. 1)."

Much of this research has concerned relationships between the SSS and such instruments as the FMPI (Blackburn, 1969; Kish & Busse, 1969; Zuckerman, et al., 1966), the Eysenck Personality Inventory (Farley, 1967; Farley & Farley, 1967), the 16PF (Gorman, 1970), and the Gough and Heilbrun Adjective Check List and the EPPS (Zuckerman & Link, 1968). This research has supported several theoretically-derived hypotheses; especially the hypothesis by Quay (1965) that psychopaths tend to be high sensation seekers. Other research using the Strong Vocational Interest Blank and the Kuder Preference Record (Kish & Donnenwerth, 1969a) demonstrated that
sensation seeking is a component of certain interest patterns as well. In general, while this body of research relating the SSS to measures of personality has rather little direct relevance to many of the issues considered in this research, it does substantially add to the accumulating evidence establishing construct validity for the SSS. In this respect, the results of the above-mentioned class of research do bear upon the present research insofar as it has aided in establishing the SSS as a criterion against which other similar scales can be measured.

One of the original intended uses of the SSS was as a predictor of responses to sensory deprivation (SD). So far, none of the research (Hocking & Robertson, 1969; Smith & Myers, 1966) has shown conclusive evidence that the SSS can predict responses to SD. However, another study (Zuckerman, Schultz & Hopkins, 1967) clearly demonstrated that scores on the SSS were highly correlated with volunteering for SD and hypnosis experiments.

Finally, the report on Form IV of the SSS (Zuckerman, 1969a) claimed that the S3 factor "might be termed a 'hippie' factor. Its essence is 'experience for its own sake' (p. 2),' and claimed that the S3 factor was particularly related to what might be termed "social hedonism," and expresses tendencies toward activities such as drinking, sexual behavior and gambling. Another study, by Zuckerman, Neary and Frustman (1969) reported
that high scorers on the SSS were significantly higher than low scorers in drug use, cigarette smoking (females only), sexual experience, and drinking. Males who were high on the S-S scored more cigarettes than low scorers, but the difference was not significant. High scoring males also tended to drink more coffee, but this difference did not reach statistical significance either. Zuckerman, Keary and Brustman (1969) also reported that the mean S-S score for drug users was significantly higher than the mean of the general population of which they were a part.

Summary

Thus, while these three scales share a common theoretical base and seem to deal with the measurement of essentially the same construct, there are also differences between them. The Change Seeker Index (CSI) is a self-report questionnaire of true-false form which is designed to measure an individual's preference in quality and quantity of stimulus input. The very small amount of research on the CSI indicates that males score higher than females, that the CSI correlates significantly with several other similar scales, and that no conclusion can be drawn on the basis of the available data to clarify the effects of age on CSI scores.

The Similes Preference Inventory (SPI) differs
significantly in format, and has stimulated slightly more research. This research yielded significant correlations between the SPI and the Obscure Figures Test, and between the SPI and two alleged measures of creativity, but in another study the SPI was not found to be correlated with OFT scores, nor with age, education, MMPI scores, ACT scores, GAT scores or scores on the Kuder Preference Record. Some data also suggest that instructional set may play an important role in affecting SPI scores.

In terms of format and content, the Sensation Seeking Scale (SSS) closely resembles the CSI. But, in contrast to the other two scales, the SSS has been involved in a considerable amount of research. Age and sex seem to affect SSS scores, although the nature of the relationships are not yet clear. Research with various personality scales indicates that Sensation Seeking is high in psychopaths and is also related to individuals' interest patterns. While there are conflicting data on the relationship of the SSS scores and education, and on the ability of the SSS to predict responses to sensory deprivation, other data relate SSS scores to intelligence, drug use, cigarette smoking, sexual experience, and drinking.

The basic intent of this study was to evaluate these three scales in terms of their comparability. The great similarity of the authors' descriptions of
the variables their scales were designed to measure led to the assumption that they measured essentially the same construct. Thus it was expected that scores on each scale would be highly correlated with scores on the other scales, and that the relationships between each scale and several other variables would be rather consistent among the three.

Since sex differences had been demonstrated so often in the past, it was hypothesized that males would score higher than females. It was also hypothesized that "stimulation seeking" (as the construct will be named herein) would correlate highly with a measure of drug use. The content and theoretical basis of the scales make this an obvious hypothesis even without the preliminary empirical findings of Zuckerman, Neary, and Brustman (1969). In this same vein, it was hypothesized that Zuckerman's 'hippie' scale, the ES scale of the SSS, would correlate especially highly with the SFI, since the SFI was specifically designed to measure the tendency to actively produce internal stimulation.

On a largely theoretical basis, it was hypothesized that single people would tend to score higher on stimulation seeking than married people. There are several factors which might contribute to this effect. Low stimulation seekers might tend to marry more or marry earlier, the change from single life to the
generally-believed more stable and responsible married state might decrease one's stimulation seeking, or some or all of the scales might be biased with respect to marital status.

Finally, based on animal data from Kish (1966), and on hypotheses by Kish and Busse (1968) and Zucker- man (1969b), it was hypothesized that a nonlinear relationship between stimulation seeking and age would be found. Stimulation seeking was hypothesized to increase to a maximum in adolescence or early adulthood and decrease thereafter.

While these specific hypotheses may have theoretical significance by themselves, their major purpose was to provide some specific foci for the evaluation of the comparability of these scales. It is hoped that these data will help to clarify the usage of these scales and add to the accumulating evidence on their construct validity.
METHOD

Subjects

Two groups of students in residence at Western Michigan University during the summer of 1970 participated as subjects (Ss). One group of 25 Ss was taken from the Behavioral Sciences Institute (BSI), which is a summer program for a rather select group of high school students. In this group there were 11 males and 12 females. The average age was 16.5, the average number of years of education was 11, and all Ss were single.

The second group was composed of 52 undergraduate and graduate students who were in Psychology and Sociology courses. This group contained 32 males and 20 females. The average age was 23, the average number of years of education was 15, and 20 of these Ss were married.

The questionnaires were administered to the Ss in their class. Students were not required to participate and only two declined to do so.

Instruments

Each S responded to a series of six separate questionnaires which were stapled together. This series of questionnaires appears in the Appendix.
Three of the questionnaires were the previously-described CSI, SFI and SSS. The version of the SSS used was the most recent version, Form IV.

The fourth instrument was a request for S's name, sex, age, marital status, number of years of education and college major. In the space below these questions the S was asked to sign an authorization permitting the experimenter (E) to see that S's college entrance examination scores.

The fifth instrument was the "Drug Use Questionnaire," which was constructed by the E in order to obtain a quantitative measure of the nature and extent of each S's drug use. A previous study (Zuckerman, Neary and Brustman, 1969) had used a similar drug experience inventory, but it weighted a given frequency of usage of one drug the same as the same frequency of usage of any other drug listed. The Drug Use Questionnaire (DQ) used in this study weighted frequency of use according to a rough rank-ordering of the potency and overall level of use of the drugs. For instance, a higher score is assigned to four experiences with LSD or opium than to four experiences with marijuana. The rationale for this is that there is probably a difference on one or more underlying psychological variables between a person who has smoked some marijuana and a person who has used more powerful hallucinogens or opiates to a similar extent.
The DQ was therefore assumed to be a better measure of drug use than the previous simple inventory.

The sixth instrument, also constructed by the E, provided a measure of the tendency to volunteer for an experimental program intended to investigate differences between drug-induced states and similar states induced by other means. Ss could score up to three points by volunteering for treatment groups of different kinds.

In order to be able to evaluate any possible effects of the order of administration of the questionnaires, sets of questionnaires were stapled together in several orders. The instrument which asked for names, ages and other demographic data always came first. The SSS, OSI and SPI always were administered in succession, but the order within the block of three was randomized. The DQ and Volunteering Scale were then placed in all possible combinations before and after the block of stimulation seeking scales.

**Procedure**

In each class to which the questionnaires were administered, the class's professor introduced the E, who then informed the students that anyone who wished could decline to participate. The Ss were then told that:
These questionnaires measure attitude, interests and preferences. They are not designed to measure adjustment. Therefore, there are no correct or incorrect answers. Please answer these questionnaires continuously from the front to the back, and do not spend too much time on any one question. Before you actually begin, please read carefully the instructions on the cover sheet. Most of you will probably finish in about an hour.

Most Ss did finish in about an hour, though a few needed as much as 30 minutes more or less.
RESULTS

In order to evaluate the effects of the sequence in which the Ss responded to the instruments, one-way analyses of variance were performed for the six different sequences. These demonstrated that the sequence of administration of the scales had no effect on the scores.

Split-half reliability coefficients were calculated for each of the scales. These coefficients were then corrected using the Spearman-Brown formula. These coefficients are presented in Table 1.

<table>
<thead>
<tr>
<th>Scale</th>
<th>SSS-T</th>
<th>SSS-G</th>
<th>CSI</th>
<th>SPI</th>
<th>DQ</th>
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<tbody>
<tr>
<td>Coefficients</td>
<td>.82</td>
<td>.66</td>
<td>.84</td>
<td>.95</td>
<td>.96</td>
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</tbody>
</table>

Pearson product-moment correlation coefficients were calculated for each pair of variables in each group. These are shown in Table 2 and in Table 3. Two different SSS scores were used. The G scale (SSS-G) is supposed to measure the general factor in stimulation seeking. The total score on the SSS (SSS-T) is simply a sum of the responses which contribute to the scores on any of the scales.

Several notes are also necessary on the SPI.

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Since the authors claimed that it could either be scored dichotomously or on a five-point scale, the E scored it both ways. Since both distributions were skewed, the scores were normalized. Although no example of the use of the five-point scoring was found in the literature, this method was chosen to be used in this work, because it yielded a higher reliability coefficient and a more normal distribution than the previously-used method.

These correlation coefficients in Table 2 and Table 3 were corrected for attenuation so that they would more closely reflect the true degree of relationship, undiminished by the imperfect reliabilities of the instruments. These corrected correlation coefficients are presented in Table 4 and in Table 5. Determination of statistical significance for corrected correlations is inappropriate, so this information is not shown. The scales were moderately to highly correlated, although inconsistencies did appear between the groups and within certain variables. This will be discussed in greater detail later.

The overall means of the variables in each group were compared, and the differences tested by t-tests. The means, t's and significance are presented in Table 6. Statistically significant differences were found between the groups except on the SSS-T.
### TABLE 2

**WBU: Correlation Coefficients (Raw)**

<table>
<thead>
<tr>
<th>Sex</th>
<th>Age</th>
<th>Mat</th>
<th>Edu</th>
<th>DQ</th>
<th>SSS-T</th>
<th>SSS-G</th>
<th>CSI</th>
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<td>Age</td>
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<td> </td>
<td> </td>
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<tr>
<td>Mat</td>
<td>0.02</td>
<td>-0.53**</td>
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<td> </td>
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<tr>
<td>Edu</td>
<td>0.05</td>
<td>0.59**</td>
<td>-0.24</td>
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<tr>
<td>DQ</td>
<td>0.29*</td>
<td>-0.29*</td>
<td>0.28*</td>
<td>-0.26</td>
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<td>-0.12</td>
<td>0.04</td>
<td>-0.17</td>
<td>0.41**</td>
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<td>SSS-G</td>
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<td>-0.01</td>
<td>-0.22</td>
<td>0.32*</td>
<td>0.53**</td>
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<td>CSI</td>
<td>0.01</td>
<td>-0.14</td>
<td>0.05</td>
<td>-0.12</td>
<td>0.36**</td>
<td>0.64**</td>
<td>0.56**</td>
</tr>
<tr>
<td>SFI</td>
<td>0.09</td>
<td>-0.36**</td>
<td>0.16</td>
<td>-0.42**</td>
<td>0.19</td>
<td>0.51</td>
<td>0.26</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.03</td>
</tr>
</tbody>
</table>

*p < .05
**p < .01

### TABLE 3

**BSI: Correlation Coefficients (Raw)**

<table>
<thead>
<tr>
<th>Sex</th>
<th>Age</th>
<th>Mat</th>
<th>Edu</th>
<th>DQ</th>
<th>SSS-T</th>
<th>SSS-G</th>
<th>CSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-0.27</td>
<td> </td>
<td> </td>
<td> </td>
<td> </td>
<td> </td>
<td> </td>
</tr>
<tr>
<td>Mat</td>
<td>0.01</td>
<td>-0.23</td>
<td> </td>
<td> </td>
<td> </td>
<td> </td>
<td> </td>
</tr>
<tr>
<td>Edu</td>
<td>0.08</td>
<td>-0.13</td>
<td>0.02</td>
<td> </td>
<td> </td>
<td> </td>
<td> </td>
</tr>
<tr>
<td>DQ</td>
<td>0.22</td>
<td>-0.34</td>
<td>-0.10</td>
<td>0.28</td>
<td> </td>
<td> </td>
<td> </td>
</tr>
<tr>
<td>SSS-T</td>
<td>0.37</td>
<td>-0.58**</td>
<td>0.01</td>
<td>0.11</td>
<td>0.78**</td>
<td> </td>
<td> </td>
</tr>
<tr>
<td>SSS-G</td>
<td>0.42*</td>
<td>-0.42*</td>
<td>-0.05</td>
<td>0.03</td>
<td>0.61**</td>
<td>0.67**</td>
<td> </td>
</tr>
<tr>
<td>CSI</td>
<td>-0.27</td>
<td>-0.11</td>
<td>0.13</td>
<td>0.41*</td>
<td>0.45*</td>
<td>0.27</td>
<td>0.28</td>
</tr>
<tr>
<td>SFI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05
**p < .01

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### TABLE 4
**WNU: Correlation Coefficients (Corrected)**

<table>
<thead>
<tr>
<th></th>
<th>Sex</th>
<th>Age</th>
<th>Mat</th>
<th>Edu</th>
<th>DQ</th>
<th>SSS-T</th>
<th>SSS-G</th>
<th>CSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mat</td>
<td>.02</td>
<td>-.53</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edu</td>
<td>.05</td>
<td>.59</td>
<td>-.24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DQ</td>
<td>.30</td>
<td>-.30</td>
<td>.29</td>
<td>-.27</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSS-T</td>
<td>.19</td>
<td>-.24</td>
<td>-.04</td>
<td>-.19</td>
<td>.46</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSS-G</td>
<td>.21</td>
<td>-.17</td>
<td>-.01</td>
<td>-.27</td>
<td>.40</td>
<td>1.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSI</td>
<td>.01</td>
<td>-.15</td>
<td>.05</td>
<td>-.13</td>
<td>.40</td>
<td>.76</td>
<td>.75</td>
<td></td>
</tr>
<tr>
<td>SFI</td>
<td>.09</td>
<td>-.37</td>
<td>.16</td>
<td>-.43</td>
<td>.20</td>
<td>.35</td>
<td>.32</td>
<td>-.03</td>
</tr>
</tbody>
</table>

### TABLE 5
**BSI: Correlation Coefficients (Corrected)**

<table>
<thead>
<tr>
<th></th>
<th>Sex</th>
<th>Age</th>
<th>Edu</th>
<th>DQ</th>
<th>SSS-T</th>
<th>SSS-G</th>
<th>CSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edu</td>
<td>.01</td>
<td>.23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DQ</td>
<td>-.08</td>
<td>-.13</td>
<td>.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSS-T</td>
<td>.24</td>
<td>-.37</td>
<td>-.11</td>
<td>.31</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSS-G</td>
<td>.45</td>
<td>-.71</td>
<td>.01</td>
<td>.14</td>
<td>1.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSI</td>
<td>.46</td>
<td>-.46</td>
<td>-.05</td>
<td>.03</td>
<td>.73</td>
<td>.89</td>
<td></td>
</tr>
<tr>
<td>SFI</td>
<td>-.28</td>
<td>-.11</td>
<td>.13</td>
<td>.43</td>
<td>.51</td>
<td>.34</td>
<td>.31</td>
</tr>
</tbody>
</table>
### TABLE 6

Differences in Means: WMU and BSI

<table>
<thead>
<tr>
<th>Variable</th>
<th>WMU Means</th>
<th>BSI Means</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>DQ</td>
<td>5.65</td>
<td>4.00</td>
<td>2.66**</td>
</tr>
<tr>
<td>SSS-T</td>
<td>42.77</td>
<td>42.65</td>
<td>.24</td>
</tr>
<tr>
<td>SSS-G</td>
<td>13.92</td>
<td>15.39</td>
<td>-5.88**</td>
</tr>
<tr>
<td>CSI</td>
<td>57.10</td>
<td>62.22</td>
<td>-7.42**</td>
</tr>
<tr>
<td>SPI</td>
<td>1.37</td>
<td>1.80</td>
<td>-6.14**</td>
</tr>
</tbody>
</table>

**p<.01

### TABLE 7

Means by Sex: WMU

<table>
<thead>
<tr>
<th></th>
<th>DQ</th>
<th>SSS-T</th>
<th>SSS-G</th>
<th>CSI</th>
<th>SPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>8.00</td>
<td>43.91</td>
<td>14.41</td>
<td>57.19</td>
<td>1.28</td>
</tr>
<tr>
<td>Female</td>
<td>1.90</td>
<td>40.95</td>
<td>13.15</td>
<td>56.95</td>
<td>1.52</td>
</tr>
<tr>
<td>t</td>
<td>7.62**</td>
<td>4.29**</td>
<td>4.50**</td>
<td>.40</td>
<td>-2.00</td>
</tr>
</tbody>
</table>

**p<.01

### TABLE 8

Means by Sex: BSI

<table>
<thead>
<tr>
<th></th>
<th>DQ</th>
<th>SSS-T</th>
<th>SSS-G</th>
<th>CSI</th>
<th>SPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>3.09</td>
<td>44.64</td>
<td>16.45</td>
<td>66.82</td>
<td>1.52</td>
</tr>
<tr>
<td>Female</td>
<td>4.83</td>
<td>40.83</td>
<td>14.42</td>
<td>56.00</td>
<td>2.06</td>
</tr>
<tr>
<td>t</td>
<td>-.41</td>
<td>2.63*</td>
<td>4.51**</td>
<td>5.16**</td>
<td>-3.18**</td>
</tr>
</tbody>
</table>

*p<.05

**p<.01

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Means within each group were also compared by sex (See Table 7 and Table 8). Again, differences appear between the groups. In general, males did score significantly higher in stimulation seeking, although this was not the case for the CSI and the SPI in the WMU group, nor for the DQ in the BSI group.

Within the WMU group, the means were also compared by marital status. (Marital status was an irrelevant variable in the BSI group, since all the Ss in the group were single.) These data, shown in Table 9, revealed that single Ss scored significantly higher on the SPI and the DQ, but not on the other scales.

### TABLE 9

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>DQ</th>
<th>SSS-T</th>
<th>SSS-G</th>
<th>CSI</th>
<th>SPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>25.65</td>
<td>2.00</td>
<td>43.15</td>
<td>15.95</td>
<td>56.35</td>
<td>1.11</td>
</tr>
<tr>
<td>Single</td>
<td>21.47</td>
<td>7.94</td>
<td>42.53</td>
<td>13.91</td>
<td>57.56</td>
<td>1.53</td>
</tr>
</tbody>
</table>

\[ t = -2.20^* \quad 5.65^{**} \quad .13 \quad .14 \quad 1.10 \quad 3.90^{**} \]

\[ ^*p<.05 \quad ^{**}p<.01 \]

In order to clarify the effects of marital status, partial correlation coefficients were computed for the scales holding age constant. These partial correlation coefficients were computed using the corrected zero-order correlations, and therefore are
themselves corrected for attenuation. These coefficients, and the corresponding raw coefficients are shown in Table 10. In general, these correlations differ little from the corresponding zero-order coefficients.

**Table 10**

Partial Correlation Coefficients: Scales vs. Marital Status

<table>
<thead>
<tr>
<th></th>
<th>DQ</th>
<th>SSS-T</th>
<th>SSS-G</th>
<th>CSI</th>
<th>SI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw</td>
<td>.16</td>
<td>-.18</td>
<td>-.09</td>
<td>-.02</td>
<td>.04</td>
</tr>
<tr>
<td>Corrected</td>
<td>.16</td>
<td>-.21</td>
<td>-.12</td>
<td>-.04</td>
<td>-.05</td>
</tr>
</tbody>
</table>

+Age held constant

Several partial correlation coefficients for the WMU group were computed between scales, holding constant age, sex, marital status and amount of education (Table 11). These same operations were carried out for the BSI group (Table 12), except that these partial correlations hold constant only age, sex and education.

**Table 11**

Raw Partial Correlation Coefficients: WMU

<table>
<thead>
<tr>
<th></th>
<th>SSS-T</th>
<th>SSS-G</th>
<th>CSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSS-G</td>
<td>.83**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSI</td>
<td>.65**</td>
<td>.56**</td>
<td></td>
</tr>
<tr>
<td>SI</td>
<td>.28</td>
<td>.20</td>
<td>-.11</td>
</tr>
</tbody>
</table>

+Age, education, sex and marital status held constant.

**Table 12**

Raw Partial Correlation Coefficients: BSI

<table>
<thead>
<tr>
<th></th>
<th>SSS-T</th>
<th>SSS-G</th>
<th>CSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSS-G</td>
<td>.75**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSI</td>
<td>.52*</td>
<td>.52*</td>
<td></td>
</tr>
<tr>
<td>SPI</td>
<td>.55*</td>
<td>.39</td>
<td>.44</td>
</tr>
</tbody>
</table>

+Age, education and sex held constant.

*p<.05

*p<.01

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Both of these same sets of partial correlations were also calculated from the disattenuated zero-order correlations. These corrected partial correlations are presented in Table 13 (WHU) and in Table 14 (BSI). Again, significance levels are not presented for these corrected coefficients. In both groups, the disattenuated correlation coefficient between SSS-G and SSS-T is greater than one. This is not an altogether unusual occurrence in dealing with disattenuated correlations, and has probably resulted from reliabilities which were somewhat too low.

**TABLE 13**

Corrected Partial Correlation Coefficients: WHU

<table>
<thead>
<tr>
<th></th>
<th>SSS-T</th>
<th>SSS-G</th>
<th>CSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSS-G</td>
<td>1.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSI</td>
<td>0.79</td>
<td>0.78</td>
<td></td>
</tr>
<tr>
<td>SSI</td>
<td>0.26</td>
<td>0.20</td>
<td>-0.07</td>
</tr>
</tbody>
</table>

*Age, education, sex and marital status held constant.*

**TABLE 14**

Corrected Partial Correlation Coefficients: BSI

<table>
<thead>
<tr>
<th></th>
<th>SSS-T</th>
<th>SSS-G</th>
<th>CSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSS-G</td>
<td>1.29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSI</td>
<td>0.67</td>
<td>0.67</td>
<td></td>
</tr>
<tr>
<td>SSI</td>
<td>0.52</td>
<td>0.54</td>
<td>0.47</td>
</tr>
</tbody>
</table>

*Age, education and sex held constant.*

Finally, an attempt was made to determine whether there was a nonlinear relationship between the
stimulation seeking scales and age. No clear decision on this could be made merely by inspecting the scatter plots, and the correlations from the groups were in some cases higher than the correlations obtained by pooling the groups. In order to take advantage of the full range of Ss' ages, the groups were pooled and eta (the correlation ratio) was compared to the correlation coefficient. Only for the CSI was the obtained \( F(5,66) \) from the linearity test statistically significant. The \( F \) for SSS-T was 1.96 and the \( F \) for the SPI was only .37.

The correlation of the ES scale of the SSS and the SPI was .40 (corrected to .49) for the WMU group. The coefficient for the same scores from the BSI group was .71 (corrected to .87). These coefficients from both groups were statistically significant (\( p < .01 \)).
DISCUSSION

The reliabilities of the instruments in this study are generally comparable to those found in other work. The reliability coefficient for the CSI is somewhat lower than the one reported in the original article (.84 compared to .92) by Garlington and Shimota (1964).

The reliabilities for the SPI from this sample are far higher for both scoring methods than the original figure of .61 (Pearson and Maddi, 1966). However, since they reported a test-retest reliability, the figures are difficult to compare. There is no question, however, that the five-point scoring yielded a higher reliability than the original dichotomous method.

The coefficient for the SSS-G reported here is somewhat lower than previously-reported reliabilities. On the other hand, the reliability of the SSS-T (which has not been used in previous research) is higher than most of the coefficients reported for any of the subscales in previous studies. Since more items are included in the SSS-T score, this is quite reasonable, but no less important. The relatively small number of items in each of the SSS's five subscales is probably one of the chief disadvantages of the instrument. It is therefore suggested that the total SSS score be
considered as a reasonable measure of generalized stimulation seeking. Furthermore, SSS-T, and SSS-G were quite highly correlated.

Before discussing the intercorrelations substantively, an examination of several interpretive problems is necessary. The most important factor in interpretation is probably the range restriction on several variables in the BSI group. All but one S in this group was either 16 or 17 years of age, and nearly every one was a junior in high school. Thus any correlation involving these two variables is very questionable. In addition, the entrance requirements for the program in which they were studying produced a very homogeneous group in terms of intelligence and achievement; variables which were not measured in this study. (The original intention was to obtain a measure of IQ or achievement, but this proved not to be feasible.) Since data from Kish and Susse (1968) indicate that intelligence may be at least as potent a variable as age, sex, or education, there are probably very few correlations from the BSI group which can be interpreted without uncertainty. The small size of this group exacerbates this problem. Thus the data from the WMU group will be emphasized.

A further problem in both groups is the fact that within any relatively large correlation matrix, at least some correlations (5% for the .05 level of sig-
nificance) can be expected to be high enough to be statistically significant merely because of sampling error, even if all the population correlations were equal to zero. Thus whether any one coefficient is statistically significant or not is difficult to determine with certainty. Fortunately, groups of coefficients and consistency of coefficients for a given variable are more important in this case than the degree of uncertainty about any one coefficient.

In both groups, the correlations between the SSS and the CSI are quite high. In addition, the correlations between the CSI and the DQ, and between the SSS and the DQ are rather high in the WMU group. These same coefficients do not even reach statistical significance in the ESI group. The correlations between each of these three scales and the SPI in the WMU group are much lower than those among the first three scales. Only with the SSS-T is the SPI correlated at a statistically significant level. The SPI was not highly or consistently correlated with the other scales in the ESI group, either. Further reference will be made to these relationships later.

For the WMU group, there are substantial positive correlations between the DQ and all but one of the stimulation seeking scales. The situation is different for the ESI group, where only one correlation is significant. However, the distribution of
scores on the DQ is definitely not normal in either group. In fact, the distributions were nearly J-shaped, although the BSI distribution was more severely skewed. Probably, the correlations are lower because of this non-normality. There were so many scores of zero that the Spearman rank-order correlation coefficients which were computed were nearly comparable to the Pearson coefficients, in most cases.

Of course, false reporting, especially underreporting, is another possible defect in the DQ data. This was probably not a problem in the WMU group because the proportion of Ss who reported drug use was at about the level one would expect for such a population. However, since less than 25% of the BSI group reported drug use, one can justifiably harbor greater suspicions about the accuracy of the scores from that group. Thus the relationship between stimulation seeking and drug use has not been fully established, but enough evidence is presented that further research is certainly warranted. It is suggested, however, that items be added to the DQ which would increase the sensitivity of the scale at the lower end. The effect of this change should be to reduce the high proportion of zero scores and produce a distribution of DQ scores with more variability and less skew.

The hypothesis that the ES scale of the SSS would be positively correlated with the SPI was certainly
supported for both groups. This tends to support the authors' statements regarding the constructs measured by these scales.

The means in Table 6 demonstrate the rather great differences between the two groups. The SSI group means were significantly higher for the CSI, the SSI and the SSS-G. Yet there was no significant difference on SSS-T scores. This was probably partially because of the inconsistent correlations of the Dis scale of the SSS with the other subscales on that instrument. The means for the BSI group were higher than the means for the WMU group on every scale except for the Dis scale. The WMU mean on this scale was so much higher than the BSI mean, that these differences "cancelled out," leaving the SSS-T means nearly equal. Were this scale not included in the SSS-T means, the difference is quite large and in the same direction as for the other stimulation scales.

Zuckerman (1969a) states that the Disinhibition (Dis) scale consists of items which reflect the "Playboy philosophy" and deal with such topics as gambling, heavy drinking and sexual attitudes. Perusal of these items would suggest to many people (especially younger people) that teenagers will score low on this scale irrespective of their overall levels of stimulation seeking. The means for the BSI group would certainly
tend to support this hypothesis. It might be added that on the basis of content, the SSS and the CSI would both be inappropriate instruments for use with pre-high school populations.

The fact that the WHU mean for the DQ was higher than the BSI mean in spite of positive correlations between the DQ and the stimulation seeking scales need cause little confusion. First, because of youth, the BSI Ss have had less opportunity to experiment with drugs. Second, drugs are probably more easily available at universities than in high school. The fact that a much smaller proportion of the BSI group than the WHU group reported drug use lends credence to these hypotheses.

In comparing the means for males and females in the WHU group, males were found to have scored significantly higher on the SSS, but not on the CSI and SPI. Since it was noticed that the males were significantly older than the females, some partial correlation coefficients in which age had been held constant were examined. These coefficients did not indicate that the mean differences were likely to have been greatly affected by age.

The above findings are quite consistent with previous findings regarding sex differences for the SSS and the SPI. It is becoming increasingly safe to make the assertions that males score higher on the
SSS, and that there are no significant differences between the sexes on the SPI. However, the absence of any apparent relation between the CSI and sex in this group does not agree with the previous finding (McCarroll, et al., 1967) that males score significantly higher than females. It appears that there is simply a need for more research on this heretofore relatively neglected instrument.

For the BSI group males again scored significantly higher on the CSI and significantly lower on the SPI. This is consistent with the results from the WMU sample for the SSS, and the difference for the SPI is in the same direction. (It should also be added that the difference for the WMU group narrowly missed reaching statistical significance.) One possible explanation for the CSI results might be that sex and age interact rather strongly. This is plausible insofar as the McCarroll, et al. (1967) study used Ss considerably younger than the WMU Ss, but only slightly older than the BSI Ss. Thus it may be that males score higher than females only among the very young. This inconsistency might also be related to the issue of content. In fact, the E did notice that the BSI group seemed to experience much more difficulty (in terms of asking questions, writing comments on the questionnaires and general frustration with the task) than did the WMU group. Their assertions that ques-
tions "didn't make sense" to them may have contained more validity than the E was inclined to believe at the time.

Single V / K U Ss scored significantly higher than married Ss on the DQ and the SFI. However, the mean age of married Ss was significantly higher than the mean age for singles. Since this age difference had been anticipated, partial correlation coefficients had been computed between each scale and marital status with age held constant. None of these were statistically significant. Thus in spite of the two mean differences, the hypothesis that marital status affects stimulation seeking must be rejected for this group. However, in light of the two significant t tests and the fact that the sample is quite small, further research on this variable would be desirable.

In the WNU group, the partial correlations of the scales holding constant age, sex, marital status and education differed very little from the corresponding zero-order correlations. The same pairs of scales were statistically significant in both cases. Since two of the variables held constant were positively correlated with the scales, and the other two were negatively correlated with the scales, it was to be expected that the two pairs of variables would affect each other to a large extent and thereby produce partials very similar to the original zero-order
4 0

r's. Thus these three scales seem to respond rather similarly to the aggregated effects of these four variables. What remains to be demonstrated is the effect of intelligence on this picture.

This same general pattern also held true for the partials for the BSI group, in which age, sex and education were held constant. The discrepancies were somewhat greater, but since partial coefficients ultimately depend upon zero-order coefficients, there is little more to be said about the coefficients from this group beyond the statement that they tend to indicate positive correlations between most of the scales.

Even though excellent theoretical grounds exist, only one scale, the CSI, seemed to demonstrate significant nonlinearity with respect to age. This is certainly not enough evidence to confirm the nonlinearity hypothesis. However, considering the fragmentary evidence scattered in the literature and the theoretical basis, it is hoped that more research on the relationship will be done. Furthermore, it is hypothesized that a larger sample with greater variability in age (and ideally, other variables as well) would more clearly demonstrate a nonlinear relationship. In fact, it seems surprising that a sample such as this would have yielded even one significant F.

Overall, the magnitude and consistency of the relationships between the SSS and the CSI strongly
support the comparability and construct validity of these two scales. It also seems clear that the total score on the SSS (SSS-T) is a useful and valid measure of stimulation seeking, especially since this score involves more items than the score for SSS-G (or any of the other subscales). These subscales (other than SSS-G) cannot be evaluated quite so favorably. The BS scale yields low and inconsistent reliabilities and is not stable across the sexes. In addition to the Bis scale's previously-mentioned problems, it correlated lower and much less consistently with all the other scales and subscales. The other two subscales were intermediate and probably possess much more potential usefulness. Perhaps more work on them can increase the usefulness of all of these subscales. Meanwhile, the relatively "proven" SSS-T and SSS-G can be used with somewhat more confidence.

One difference in content between the CSI and the SSS deserves mention. The items on the CSI tend to require introspection about likes and dislikes, attitudes and preferences of a rather abstract nature. The SSS items ask more often about specific actions and behaviors. The more specific nature of the SSS items tends to lend itself to the hypothesis that SSS scores might more accurately reflect a respondent's actual behavior. It is at least a welcome change from vague, unspecific questionnaire items requiring
more interpretation. On the other hand, the close relationship of the scores from these scales may indicate that the two approaches to item construction may be essentially equivalent.

The addition of the SPI to this comparison certainly complicates matters. Correlations between the SSS-T and the SJI were rather consistently positive and statistically significant. But, although the correlations of SPI with SSS-G were all positive, none were significant. And the correlations of the SPI with the CSI were neither significant nor consistent in sign. Furthermore, the SJI correlated higher than the other scales with education, and was the only scale to correlate negatively with sex (in the BSI group only). Since the SPI was constructed to measure only a specific aspect of stimulation seeking, while the other two scales were meant to measure the overall level, one could expect some difference.

One could expect that the SPI would not correlate as highly with the CSI and the SSS as the latter would correlate with each other. This is the case. However, considering the high correlations between the CSI and the SSS, one would expect the correlation of the SPI with the SSS to be similar to the correlation of the SPI with the CSI. Yet this is not the case for the WHU group, the correlations from which should be more representative than those from the
BSI group.

In sum, these data are certainly not sufficient to draw the conclusion that the SPI and the CSI are comparable. The conclusion that the SPI and the SSS are comparable is only slightly less suspect. The previous failure of Kish and Donnenwerth (1969) to demonstrate construct validity for this scale, as well as the telling criticisms by these researchers and by Lieberman (1968) on response set problems further supports the conclusion that support for the construct validity of the SPI must await further research.

It is interesting to note that several studies on these scales have been performed with college students as Ss. Nevertheless, the scores on the scales and the relative effects of such variables as sex have varied from college to college. There has been some speculation that "region" or "culture" might be an important variable. It seems clear that the content of these scales is such that effects could be expected from variables such as "culture" or socioeconomic status.

Finally further research in this field could benefit from any or all of the following: (a) use of the total SSS score; (b) use of both methods of scoring for the SPI; (c) use of some sort of specific instructions for the SFI, such as Lieberman's (1968)
"fake creativity" instructions; (d) use of a sample covering ages from the teens to at least "middle age"; (e) use of an improved version of the Drug Use Questionnaire; (f) use of behavioral or behaviorally-oriented measures (such as volunteering) as criteria against which to compare these scales; (g) extensive analysis of the relationship between intelligence and stimulation seeking; (h) analysis of variables such as socioeconomic status, race, and region.
All information which you record on these pages will be held strictly confidential. The experimenter who administers these questionnaires to you will be the only person who ever sees these data in connection with your names. Your names are necessary only because the Admissions Office needs them in order to provide us with your ACT scores. The admissions office will have access only to the information sheet on which your name will be written.

Immediately after the experimenter leaves here he will separate the information sheets from the questionnaires and send the information sheets to Admissions. When the information sheets are returned, he will record the data on a separate sheet bearing only the number in the upper right-hand corner of the page. Then the information sheets will be destroyed, as will these questionnaires after the data has been recorded. At no time will there exist a list which matches your name with the corresponding number on your questionnaire.
General Information

1. Name ____________________________
   Last               First

2. Sex (Circle one) Male    Female

3. Age _____

4. Marital status (Circle one) Single  Married  Divorced

5. Number of years of education _____

6. College major ____________________________

I hereby authorize Western Michigan University to release to this experimenter my scores on the ACT.

(signed)______________________________________

Eng  Math  S.S.  N.S.

□  □  □  □
Record your reactions to the following statements by responding True or False (T or F) immediately to the left of the number of the statement.

1. I think a strong will power is a more valuable gift than a well-informed imagination.

2. I like to read newspaper accounts of murders and other forms of violence.

3. I like to conform to custom and to avoid doing things that people I respect might consider unconventional.

4. I would like to see a bullfight in Spain.

5. I would prefer to spend vacations in this country, where you know you can get a good holiday than in foreign lands that are colorful and "different."

6. I often take pleasure in certain non-conforming attitudes and behaviors.

7. In general, I would prefer a job with a modest salary, but guaranteed security rather than one with large, but uncertain earnings.

8. I like to feel free to do what I want to do.

9. I like to follow instructions and to do what is expected of me.

10. Because I become bored easily, I need plenty of excitement, stimulation, and fun.

11. I like to complete a single job or task at a time before taking on others.

12. I like to be independent of others in deciding what I want to do.

13. I am well described as a meditative person, given to finding my own solutions instead of acting on conventional rules.


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

16. I can be friendly with people who do things which I consider wrong.

17. I tend to act impulsively.

18. I like to do routine work using a good piece of machinery or apparatus.

19. People view me as a quite unpredictable person.

20. I think society should be quicker to adopt new customs and throw aside old habits and mere traditions.

21. I prefer to spend most of my leisure hours with my family.
22. In traveling abroad I would rather go on an organized tour than plan for myself the places I will visit.

23. I like to have lots of lively people around me.

24. I like to move about the country and to live in different places.

25. I feel that what this world needs is more steady and "solid" citizens rather than "idealists" with plans for a better world.

26. I like to dabble in a number of different hobbies and interests.

27. I like to avoid situations where I am expected to do things in a conventional way.

28. I like to have my life arranged so that it runs smoothly and without much change in my plans.

29. I like to continue doing the same old things rather than to try new and different things.

30. I would like to hunt lions in Africa.

31. I find myself bored by most tasks after a short time.

32. I believe that it is not a good idea to think too much.

33. I always follow the rule: business before pleasure.

34. I enjoy gambling for small stakes.

35. Nearly always I have a craving for more excitement.

36. I enjoy doing "daring," foolhardy things "just for fun."

37. I see myself as an efficient, businesslike person.

38. I like to wear clothing that will attract attention.

39. I cannot keep my mind on one thing for any length of time.

40. I enjoy arguing even if the issue isn't very important.

41. It bothers me if people think I am being too unconventional or odd.

42. I see myself as a practical person.

43. I never take medicine on my own, without a doctor's ordering it.

44. From time to time I like to get completely away from work and anything that reminds me of it.
45. At times I have been very anxious to get away from my family.
46. My parents have often disapproved of my friends.
47. There are several areas in which I am prone to doing things quite unexpectedly.
48. I would prefer to be a steady and dependable worker than a brilliant but unstable one.
49. In going places, eating, working, etc., I seem to go in a very deliberate, methodical fashion rather than rush from one thing to another.
50. It annoys me to have to wait for someone.
51. I get mad easily and then get over it soon.
52. I find it hard to keep my mind on a task or job unless it is terribly interesting.
53. For me planning one's activities well in advance is very likely to take most of the fun out of life.
54. I like to go to parties and other affairs where there is lots of loud fun.
55. I enjoy lots of social activity.
56. I enjoy thinking up unusual or different ideas to explain everyday events.
57. I seek out fun and enjoyment.
58. I like to experience novelty and change in my daily routine.
59. I like a job that offers change, variety, and travel, even if it involves some danger.
60. In my job I appreciate constant change in the type of work to be done.
61. I have the wanderlust and am never happy unless I am roaming or travelling about.
62. I have periods of such great restlessness that I cannot sit long in a chair.
63. I like to travel and see the country.
64. I like to plan out my activities in advance, and then follow the plan.
65. I like to be the center of attention in a group.
66. When I get bored I like to stir up some excitement.
67. I experience periods of boredom with respect to my job.
68. I admire a person who has a strong sense of duty to the things he believes in more than a person who is brilliantly intelligent and creative.
69. I like a job that is steady enough for me to become expert at it rather than one that constantly challenges me.

70. I like to finish any job or task that I begin.

71. I feel better when I give in and avoid a fight, than I would if I tried to have my own way.

72. I don't like things to be uncertain and unpredictable.

73. I am known as a hard and steady worker.

74. I would like the job of a foreign correspondent for a newspaper.

75. I used to feel sometimes that I would like to leave home.

76. I find my interests change quite rapidly.

77. I am continually seeking new ideas and experiences.

78. I like continually changing activities.

79. I get a lot of bright ideas about all sorts of things -- too many to put into practice.

80. I like being amidst a great deal of excitement and bustle.

81. I feel a person just can't be too careful.

82. I try to avoid any work which involves patient persistence.

83. Quite often I get "all steamed up" about a project, but then lose interest in it.

84. I would rather drive 5 miles under the speed limit than 5 miles over it.

85. Most people bore me.

86. I like to find myself in new situations where I can explore all the possibilities.

87. I much prefer familiar people and places.

88. When things get boring, I like to find some new and unfamiliar experience.

89. If I don't like something, I let people know about it.

90. I prefer a routine way of life to an unpredictable one full of change.

91. I feel that people should avoid behavior or situations that will call undue attention to themselves.

92. I am quite content with my life as I am now living it.
93. I would like to be absent from work (school) more often than I actually am.

94. Sometimes I wanted to leave home, just to explore the world.

95. My life is full of change because I make it so.
Instructions: Listed below are many familiar expressions. There are five endings for each one. For every item, choose the one ending that you LIKE the best, the one you prefer better than all the others. Indicate the letter that corresponds to your choice by circling it. There are no right and wrong answers on this test. We are interested in your preference. So be sure to mark the ending that YOU LIKE THE BEST. Work rapidly and do not spend too much time on any one item. Be sure to complete all four pages of expressions.

1. Limp as
   a. a dish
   b. a lump
   c. a busted blimp
   d. a towel
   e. a rag

2. Sharp as
   a. a pin
   b. a swordfish
   c. a ball
   d. a harp
   e. a tack

3. Snug as
   a. a bird in the nest
   b. a bow in the snow
   c. a fish in a dish
   d. a crook in a nook
   e. a bug in a rug

4. Straight as
   a. a ruler
   b. a stickpin
   c. a pig's tail
   d. an arrow
   e. a freight

5. Slippery as
   a. slumber
   b. soup
   c. mud
   d. a bone
   e. a drip

6. Dry as
   a. a stone
   b. a fly's eye
   c. a drought
   d. a bone
   e. a drip

7. Busy as
   a. a bee
   b. a beam
   c. an ant
   d. a siesta
   e. a tizzy

8. Slow as
   a. a greyhound
   b. a slipper
   c. a turtle
   d. a slug
   e. a caterpillar

9. Sweet as
   a. starch
   b. sherbert
   c. a lemon
   d. ice cream
   e. sugar

10. Fit as
    a. a violin
    b. a muddle
    c. a corset
    d. a fiddle
    e. a griddle

11. Green as
    a. a ghost
    b. a gremlin's grin
    c. leaves
    d. grass
    e. a golf green

12. Hot as
    a. an oven
    b. Hades
    c. Alaska
    d. a botfly
    e. hotcakes

13. Wise as
    a. a wizard
    b. a sage
    c. an owl
    d. a size
    e. a mole

14. Brown as
    a. a bear
    b. a brine
    c. a beacon
    d. bark
    e. bat bristle

15. Timid as
    a. a doe
    b. a bull
    c. a turtle
    d. a mouse
    e. a trip

16. Smart as
    a. an ox
    b. a fox
    c. a smuggler
    d. a smelt
    e. a wolf

17. Tired as
    a. a hound
    b. a dog
    c. a trickle
    d. a tie
    e. a bee

18. White as
    a. fright
    b. snow
    c. whip
    d. soot
    e. flour
19. Quick like
   a. a turtle
   b. a cloud
   c. a bunny
   d. quicksand
   e. a rabbit

20. Cool as
   a. a curtain rod
   b. a cucumber
   c. a pool
   d. crushed ice
   e. cooked onions

21. Light as
   a. a feather
   b. a boulder
   c. a lizard's lick
   d. a lever
   e. foam

22. Dumb as
   a. a cow
   b. a dunce
   c. a crumb
   d. a fox
   e. an ox

23. Black as
   a. a vulture
   b. coal
   c. tar
   d. a beetle's blink
   e. bleach

24. Sloppy as
   a. a pig
   b. a poppy
   c. a hog
   d. a slob
   e. a cat

25. Swim like
   a. a stone
   b. a swan
   c. a fish
   d. a tadpole
   e. a sickle

26. Cuddly as
   a. a lamb
   b. a wasp
   c. a puppy
   d. a cocoon
   e. a fuddy duddy

27. Solid as
   a. a sole
   b. a slab
   c. a rock
   d. a boulder
   e. a fluff

28. Silent as
   a. a ghost
   b. a mouse
   c. the CIA
   d. a silo
   e. the surf

29. Grin like
   a. a gremlin
   b. a gizzard
   c. a grump
   d. an elf
   e. a Cheshire cat

30. Thin as
   a. a tight rope
   b. a cane
   c. a beanpole
   d. a thicket
   e. a thumb

31. Tight as
   a. a knot
   b. a miser
   c. a tax collector
   d. a loop
   e. tiddleywinks

32. Tough as
   a. nails
   b. a brick
   c. a teamster
   d. a noodle
   e. a tulip

33. Rich as
   a. a king
   b. a bank
   c. a slum
   d. a ditch
   e. a Rockefeller

34. Smooth as
   a. a slipper
   b. glass
   c. silk
   d. a steamer
   e. gravel

35. Blue as
   a. the sea
   b. a blush
   c. a blotter
   d. a blast
   e. a sky

36. Happy as
   a. a harp
   b. a hiccup
   c. a bird
   d. a lark
   e. a loss

37. Dead as
   a. a duffel bag
   b. a dirge
   c. the twist
   d. a doorknob
   e. a doornail

38. Red as
   a. a ripple
   b. milk
   c. a rose
   d. a ripe raspberry
   e. blood

39. Stubborn as
   a. a donkey
   b. a mule
   c. stubble
   d. a stovepipe
   e. putty

40. Contented as
   a. a calf
   b. a calcified cat
   c. a caboose
   d. CORE
   e. a cow

41. Brave as
   a. a bunny
   b. a beet
   c. the brazen
   d. a tiger
   e. a lion

42. Wide as
   a. the sky
   b. a wire
   c. the ocean
   d. the tide
   e. a wigwam
43. Poor as
   a. a pauper
   b. church mice
   c. a bum
   d. a pickle
   e. Fort Knox

44. Hungry as
   a. an ant
   b. a hunter
   c. a hat
   d. a pig
   e. a horse

45. Speed like
   a. a jet
   b. Sputnik
   c. a spud
   d. a snail
   e. the devil

46. Grow like
   a. a boy
   b. gristle
   c. a rock
   d. grass
   e. a weed

47. Tall as
   a. a tomato
   b. a forest
   c. a tree
   d. timber
   e. tennis

48. Crazy as
   a. a loon
   b. a daisy
   c. a kook
   d. a cop
   e. a nut

49. Drink like
   a. a sot
   b. a fish
   c. a drumstick
   d. a banker
   e. a drunkard

50. Roar like
   a. a lion
   b. the rapids
   c. a bore
   d. a beast
   e. a rabbit

51. Loud as
   a. a cloud
   b. a lute
   c. a lion
   d. a foghorn
   e. a pin

52. Crooked as
   a. a mile
   b. a smook
   c. a pin
   d. a stick
   e. a creek

53. Fat as
   a. a hog
   b. a funnel
   c. a factory
   d. a cane
   e. a pig

54. Sour as
   a. a lemon
   b. a grapefruit
   c. ice cream
   d. saurkraut
   e. a tower
DIRECTIONS: Each of the items below contains two choices, A and B. Please indicate which of the choices most describes your likes or the way you feel. In some cases you may find items in which both choices describe your likes or feelings. Please choose the one which better describes your likes or feelings. In some cases you may find items in which you do not like either choice. In these cases mark the choice you dislike least. Do not leave any items blank.

It is important you respond to all items with only one choice, A or B. We are interested only in your likes or feelings, not in how others feel about these things or how one is supposed to feel. There are no right or wrong answers as in other kinds of tests. Be frank and give your honest appraisal of yourself.

1. A. I dislike the sensations one gets when flying.  
   B. I enjoy many of the rides in amusement parks.

2. A. I would like a job which would require a lot of traveling.  
   B. I would prefer a job in one location.

3. A. I would like to hitchhike across the country.  
   B. Hitchhiking is too dangerous a way to travel.

4. A. I do not find gambling worth the risk.  
   B. I like to gamble for money.

5. A. I can't wait to get into the indoors on a cold day.  
   B. I am invigorated by a brisk, cold day.

6. A. I like "wild" uninhibited parties.  
   B. I prefer quiet parties with good conversation.

7. A. I can't stand watching a movie that I've seen before.  
   B. There are some movies I enjoy seeing a second or even a third time.

8. A. Using "four letter words" in public is vulgar and inconsiderate of the feelings of others.  
   B. I sometimes use "four letter words" to express my feelings or to shock someone.

9. A. I find a certain pleasure in routine kinds of work.  
   B. Although it is sometimes necessary, I usually dislike routine kinds of work.

10. A. I often wish I could be a mountain climber.  
    B. I can't understand people who risk their necks climbing mountains.

11. A. I dislike all body odors.  
    B. I like some of the earthy body smells.
12. A. I get bored seeing the same old faces.
   B. I like the comfortable familiarity of everyday friends.

13. A. I like to dress in unusual styles.
   B. I tend to dress conservatively.

14. A. I am only interested in traveling in civilized parts of the world.
   B. I would like to travel to strange, out of the way places like the upper Amazon or Antarctica.

15. A. I like to explore a strange city or section of town by myself, even if it means getting lost.
   B. I prefer a guide when I am in a place I don't know well.

16. A. I dislike people who do or say things just to shock or upset others.
   B. When you can predict almost everything a person will do and say he or she must be a bore.

17. A. I usually don't enjoy a movie or play where I can predict what will happen in advance.
   B. I don't mind watching a movie or play where I can predict what will happen in advance.

18. A. I have tried marijuana or would like to.
   B. I would never smoke marijuana.

19. A. I would not like to try any drug which might produce strange and dangerous effects on me.
   B. I would like to try some of the new drugs that produce hallucinations.

20. A. I would prefer living in an ideal society where everyone is safe, secure and happy.
   B. I would have preferred living in the unsettled days of our history.

21. A. A sensible person avoids activities that are dangerous.
   B. I sometimes like to do things that are a little frightening.

22. A. I dislike "swingers".
   B. I enjoy the company of real "swingers".

23. A. I find that stimulants make me uncomfortable.
   B. I often like to get high (drinking liquor or smoking marijuana).

24. A. A person should change jobs from time to time simply to avoid getting into a rut.
   B. A person should find a job which is fairly satisfying to him and stick with it.

25. A. I order the dishes with which I am familiar, so as to avoid disappointment and unpleasantsness.
   B. I like to try new foods that I have never tasted before.
26. A. In a good sexual relationship people never get bored with each other.  
   B. It's normal to get bored after a time with the same sexual partner.  

27. A. I enjoy looking at home movies or travel slides.  
   B. Looking at someone's home movies or travel slides bores me tremendously.  

28. A. I like to try new brands on the chance of finding something different or better.  
   B. I stick to the brands I know are reliable.  

29. A. I would like to take up the sport of water-skiing.  
   B. I would not like to take up water-skiing.  

30. A. Most adultery happens because of sheer boredom.  
   B. Adultery is almost always the sign of a sick marriage.  

31. A. I would like to try surf-board riding.  
   B. I would not like to try surf-board riding.  

32. A. I find people who disagree with my beliefs more stimulating than people who agree with me.  
   B. I don't like to argue with people whose beliefs are sharply divergent from mine, since such arguments are never resolved.  

33. A. I would like to take off on a trip with no pre-planned or definite routes, or timetable.  
   B. When I go on a trip I like to plan my route and timetable fairly carefully.  

34. A. I would like to take off on a trip with no pre-planned or definite routes, or timetable.  
   B. When I go on a trip I like to plan my route and timetable fairly carefully.  

35. A. I would not like to learn to fly an airplane.  
   B. I would like to learn to fly an airplane.  

36. A. Most beards are unsightly.  
   B. I like to see men wearing beards.  

37. A. I would like to go scuba diving.  
   B. I prefer the surface of the water to the depths.  

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

39. A. I prefer modern jazz or classical music to more popular or light classical music.  
   B. I prefer popular or light classical music to modern jazz or classical music.  

40. A. I like to drive in open convertibles.  
   B. I do not like to drive in open convertibles.  

41. A. I would like to have the experience of being hypnotized.  
   B. I would not like to be hypnotized.
42. A. The most important goal of life is to live it to the fullest and experience as much of it as you can.
   B. The most important goal of life is to find peace and happiness.

43. A. I would like to try parachute jumping.
   B. I would never want to try jumping out of a plane with or without a parachute.

44. A. I enter cold water gradually giving myself time to get used to it.
   B. I like to dive or jump right into the ocean or a cold pool.

45. A. I do not like the irregularity and discord of most modern music.
   B. I like to listen to new and unusual kinds of music.

46. A. I prefer friends who are excitingly unpredictable.
   B. I prefer friends who are reliable and predictable.

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

48. A. When I go on a vacation I prefer the comfort of a good room and bed.
   B. When I go on a vacation I would prefer the change of camping out.

49. A. When I go in an ocean or lake I like to stay close to shore.
   B. Sometimes I like to swim far out from the shore.

50. A. I often enjoy flouting irrational authority.
   B. I am generally respectful of lawful authority.

51. A. The essence of good art is in its clarity, symmetry of form and harmony of colors.
   B. I often find beauty in the "clashing" colors and irregular forms of modern paintings.

52. A. I enjoy spending time in the familiar surroundings of home.
   B. I get very restless if I have to stay around home for any length of time.

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

54. A. I like to date members of the opposite sex who are physically exciting.
   B. I like to date members of the opposite sex who share my values.

55. A. Heavy drinking usually ruins a party because some people get loud and boisterous.
   B. Keeping the drinks full is the key to a good party.

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

57. A. The worst social sin is to be rude.
   B. The worst social sin is to be a bore.
58. A. I look forward to a good night of rest after a long day.
B. I wish I didn't have to waste so much of a day sleeping.

59. A. A person should have considerable sexual experience before marriage.
B. It's better if two married persons begin their sexual experience with each other.

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

61. A. I like people who are sharp and witty even if they do sometimes insult others.
B. I dislike people who have their fun at the expense of hurting the feelings of others.

62. A. Almost everything enjoyable is illegal or immoral.
B. The most enjoyable things are perfectly legal and moral.

63. A. A good painting should shock or jolt the senses.
B. A good painting should give one a feeling of peace and security.

64. A. There is altogether too much portrayal of sex in movies.
B. I enjoy watching many of the "sexy" scenes in movies.

65. A. I do not enjoy discussions where people get so "heated up" they end up insulting each other.
B. I enjoy a heated intellectual argument even if people sometimes get upset.

66. A. I feel best after taking a couple of drinks.
B. Something is wrong with people who need liquor to feel good.

67. A. People who ride motorcycles must have some kind of an unconscious need to hurt themselves.
B. I would like to drive or ride on a motorcycle.

68. A. People should dress according to some standards of taste, neatness and style.
B. People should dress in individual ways even if the effects are sometimes strange.

69. A. Sailing long distances in small sailing crafts is foolhardy.
B. I would like to sail a long distance in a small but seaworthy sailing craft.

70. A. I have no patience with dull or boring persons.
B. I find something interesting in almost every person I talk with.

71. A. Skiing fast down a high mountain slope is a good way to end up on crutches.
B. I think I would enjoy the sensations of skiing very fast down a high mountain slope.

72. A. I prefer people who are calm and even tempered.
B. I prefer people who are emotionally expressive even if they are a bit unstable.
Drug Use Questionnaire

For each question, please circle the appropriate response category. Any information divulged on this questionnaire will be held absolutely confidential.

1. I have used some form of drug at least once.
   a. Yes (If you answer Yes, go directly to #3)
   b. No (If you answer No, go on to #2)

2. I intend to try some drug at some future time.
   a. Yes (Stop; do not continue)
   b. No (Stop; do not continue)

3. I have used the following drugs approximately the indicated number of times:

   Marijuana       1-5   6-20   over 20
   Hashish         1-5   6-20   over 20
   Amphetamines    1-5   6-15   over 15
   Barbiturates    1-3   4-8   over 8
   Opium           1-3   4-8   over 8
   LSD             1     2-5   over 5
   Mescaline       1-2   3-6   over 6
   Psilocybin      1     2-4   over 4
   STP             1     2-4   over 4
   DMT             1     2-4   over 4
   THC             1     2-4   over 4
   Heroin          1     2-6   over 4
   Other           1-3   4-8   over 8

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Another experimental program is also being carried out for which volunteers will be needed during approximately the next four months. If you might be willing to participate, indicate this below and write in your address at the bottom. The experimental sessions will be scheduled at your convenience and will be strictly and professionally controlled and supervised.

The experiment will involve a comparison of the reactions of subjects to small, controlled doses of a hallucinogenic drug (not LSD), with the reactions of subjects to a drug-like state induced by safe, non-chemical means. Subjects are needed for the drug group, for the non-chemical group, and for a group which will undergo both treatments on separate occasions.

**Drug group**

___ I will volunteer.

___ I might participate. Contact me later.

___ I will not volunteer.

**Non-chemical group**

___ I will volunteer.

___ I might participate. Contact me later.

___ I will not volunteer.

**Both-treatment group**

___ I will volunteer.

___ I might participate. Contact me later.

___ I will not volunteer.
REFERENCES


McCarroll, J. E., Mitchell, K. M., Carpenter, R. J.


Zuckerman, M. A new form (IV) of the sensation seeking scale. Unpublished manuscript, University of Delaware, 1969.(a)


