

AN ABSTRACT OF THE THESIS OF

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Title: Relationship Between the MMPI Subtle-Obvious
Psychopathic Deviate Subscale and the Shipley
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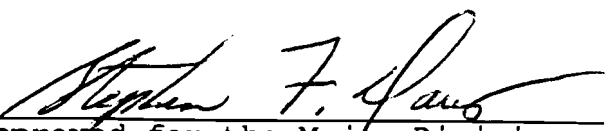
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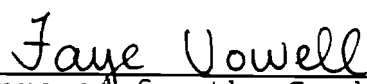
Cooper B. Holmes

The present study was conducted to determine the relationship between the Minnesota Multiphasic Personality Inventory's (MMPI) subtle-obvious (S-O) subscale and the Shipley Institute of Living Scale IQ (Shipley). A total of 90 participants were used. These participants consisted of individuals who were convicted of driving under the influence of alcohol (DUI) and were subsequently court ordered for a substance abuse evaluation at a midwestern mental health center. As part of the evaluation process, they were administered the MMPI and the Shipley. The participants' test scores were recorded from individual established files.

Three groups were established as levels of the independent variable; these included one in which S and O scores were normal and not more than 10 points different, one in which S scores were high ($T > 70$) and the O scores were normal ($T < 70$), and a final group of participants whose O scores were high ($T > 70$) and S scores were normal ($T < 70$). Intelligence quotient scores derived from the Shipley were used as the dependent variable.

A one-way analysis of variance (ANOVA) was performed, resulting in no significance between the IQ's of the three S-O groups. This finding was not consistent with previous research done on IQ and S-O endorsement patterns.


Approved for the Major Division


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RELATIONSHIP BETWEEN THE MMPI SUBTLE-OBVIOUS
PSYCHOPATHIC DEVIATE SUBSCALE AND THE SHIPLEY
INSTITUTE OF LIVING SCALE IQ

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the Division of
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Master of Science

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Amy Elizabeth Hawbaker
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CHAPTER I

INTRODUCTION

Personality characteristics and intelligence have long been of interest to those in the mental health profession. More specifically, the question as to what effect intelligence has on one's personality and vice versa, has been proposed numerous times while meeting a myriad of answers.

The Minnesota Multiphasic Personality Inventory (MMPI) (Hathaway & McKinley, 1943) is one of the most widely used measures of personality characteristics and is often used in conjunction with a variety of intelligence and ability measures. It is sometimes the case that not only are overall personality characteristics examined in this light but very specific characteristics are examined as well.

Review of the Literature

Wexner (1954) used college students in her study which examined the relationship between the Otis Self-Administering Tests of Mental Ability and nine of the MMPI's clinical scales. These scales were: Hypochondriasis (Hs), Depression (D), Hysteria (Hy), Psychopathic Deviate (Pd), Masculinity-Femininity (Mf), Paranoia (Pa), Psychasthenia (Pt), Schizophrenia (Sc), and Hypomania (Ma). The Social Introversion scale (Si), was developed after this study. The only significant correlation found was a positive one between

the Otis and the Pa scale.

When Israeli police recruits were used as subjects (Caspy, Reisler, & Mendelson, 1987), only low levels of correlation were found between four different measures of intelligence and 10 of the MMPI clinical scales. Yet when regression analysis was employed, it was found that as males' intelligence increased so did their Mf and Pa scale scores.

Using brain-damaged and schizophrenic subjects (Watson, Davis & McDermott, 1976), it was found that most of the correlations between the Wechsler Adult Intelligence Scale (WAIS) and the MMPI were significant and for the most part negative. The schizophrenic groups had most of the negative correlations while the brain damaged groups had a mixture of both positive and negative.

Brain-damaged, schizophrenic, neurotic, and alcoholic subjects were given the WAIS and MMPI (Holland & Watson, 1980). This study concluded that the WAIS and MMPI's validity and clinical scales are positively correlated and that their relationship is asymmetrical in that MMPI scores are most predictive of WAIS scores than vice versa. This conclusion was supported in a study using psychiatric inpatients (Berg, Ingersoll & Terry, 1985), which in addition found that MMPI profiles were better at predicting verbal skills than performance skills. Epileptic subjects who attempted suicide were compared to their counterparts who had not attempted suicide (Batzel & Dodrill, 1986) and it was

found that no difference existed between the groups in terms of WAIS scores and the MMPI's clinical and validity scales (L, F, and K). In an earlier study which used psychiatric inpatient individuals (Gaines & Morris, 1978), it was found that elevations on all the MMPI scales (except Ma scale) were negatively correlated with their full scale IQ as measured by the WAIS.

Prison inmates (Panton, 1960) were found to differ significantly in terms of MMPI profiles and the Revised Beta Examination. Superior and bright normal groups tended to have elevations on Pd and Ma scales while average and dull normal groups yielded elevations on the D and Pd scales. Significant negative correlations between the WAIS digit Span and the L, Mf, Sc, and Ma scales were found with both psychiatric and prison subjects (Ruff, Templer, Ayers & Barthlow, 1977) while the same was true for the Beta Revised and the F, Pt, Sc, and Ma scales on convicted murders (Holcomb, Adams, Ponder & Anderson, 1984). Individuals who have sexually assaulted children, however, were found to show no difference between the WAIS-R and MMPI scales (Hall, 1989).

In looking at specific MMPI scales (Winfield, 1953), it was found that male neuropsychiatric subjects who scored high on the Mf scale also scored high on the Weschler-Bellevue. The other scales which were examined (Hy, D, Hs, and Pd) showed no significance. When male substance abusers

(Cernovsky, 1985) were used in similar study, which focused only on the Mf scale, Winfield's conclusions were supported. Female substance abusers (Cernovsky, 1986) were found to score lower on the Mf scale if the WAIS IQ was high. In general, it appears that feminine interests are associated with higher intelligence.

Scales F and D from the MMPI were compared to the WAIS in two studies using psychiatric inpatients. Muloney, Duvall and Friesen (1980), while examining only scale F, found that as intelligence increased F scale scores decreased. In a study which focused only on scale D, it was found that this scale had a nonsignificant relationship to the WAIS (Correll, 1985). Terry and Berg (1984) found Si and Pd scales to interact with each other in terms of the WAIS Picture Arrangement subtest. The psychiatric inpatients' Picture Arrangement scores were negatively related to the Si scores but only if an elevated Pd was present. A positive relationship was present when the Pd scores were low. This seems to support the asymmetrical relationship of the WAIS and MMPI as established by Holland and Watson (1980) and Berg, Ingersoll and Terry (1985). Subscales from the MMPI which assess organicity, (Caudality [Ca], Organicity [Org], and Psychiatric-Organic [P-O]), were found to be negatively correlated with the WAIS when using outpatient psychiatric individuals as subjects, most of whom were diagnosed with an alcohol problem (Horton, Timmons & Golden, 1982).

Weiner and his colleagues (Wiener, 1948) were responsible for developing the subtle and obvious (S, O) keys for certain scales of the MMPI (D, Hy, Pd, Pa, and Ma). These keys are intended to measure an individual's test-taking attitude and his or her conscious or unconscious tendency to distort the results in a favorable or unfavorable manner. They are also intended to differentiate between normal and abnormal populations. Weiner felt that the obvious keys would best identify characteristics within a normal population. Weiner reported that the subtle and obvious keys are similar to the K scale developed by Hathaway and Meehl, in that they are intended to aid in interpreting test validity. He felt, though, that his keys would be of more benefit since they were devised for separate scales (D, Hy, Pd, Pa, and Ma) and the K scale were intended to be used as an overall indicator.

A number of postulates were presented by Weiner, one of which was that people with high intelligence will have relatively equal S and O scores and those with low intelligence will have higher O than S scores. This conclusion was a result of specific intelligence scores, as measured by the Unit Scales of Aptitudes or the Otis Self-Administering Tests of Mental Ability, being compared to the individual's S and O scores. Forty subjects were used for the high intelligence group and 29 subjects were used for the low intelligence group. Pertinent information such as

type of subjects used was not provided. Wiener (1948) stressed that his findings only suggested possible relationships and rigid statistical analysis was not used. He concluded by recommending further research in this and other areas of the S and O keys.

Since the original study, two other studies have been conducted which focused on S and O item endorsement pattern and intelligence. Dubinsky (1983) used 171 college freshmen who during their routine entrance requirements took the MMPI and Scholastic Aptitude Test (SAT). She analyzed S and O scores on all five scales (D, Hy, Pd, Pa, and Ma) and the verbal section of the SAT with a trend analysis and a Pearson product-moment correlation coefficient (r). The results indicated that high intelligence subjects endorsed more S items than low intelligence subjects. This was true more often for women than men, and women of high intelligence scored less O items than their low intelligence counterparts. This O item finding was not significant for men.

Fowler (1984) correlated IQ scores from the Shipley Institute of Living Scale and S-O scores on all five scales using 161 psychiatric inpatients. He hypothesized that as intelligence increased so would S item endorsements. Overall he found this to be the case with most significance on the scales Pd and Pa.

The limited research that has been done in this area contradicts Wiener's (1948) finding that equal S and O scores

correspond to high intelligence but does support the idea that low intelligence corresponds with a high O score. Since Wiener developed the S and O keys very little research has been conducted which examines S-O item endorsement and intelligence. Further investigation is needed. Relating S-O endorsement and intelligence in a way different from that used in Wiener's study also seems appropriate. He first established intelligence categories then compared them to S and O scores. Subsequent research (Holland & Watson, 1980; Terry & Berg, 1984; Berg et al., 1985) has concluded that MMPI and intelligence scores have an asymmetrical relationship in that personality characteristics are better at predicting IQ than vice versa. The results of the present study will help clarify the relationship between intelligence level and patterns of S-O endorsement.

CHAPTER 2

METHOD

Participants

The participants for this study consisted of men and women 18 years of age or older who had been convicted of driving under the influence of alcohol (DUI) and were court-ordered for a substance abuse evaluation at a mental health center in a small midwestern town. Previously obtained scores from 90 participants were used and broken down into three groups consisting of 30 participants each. Permission to obtain these scores and pertinent demographic information was granted by the mental health center.

Instruments

Two tests were used for the study. The Minnesota Multiphasic Personality Inventory (MMPI) was used to assess personality characteristics, specifically, the Subtle (S) and Obvious (O) scores from the Psychopathic Deviate (Pd) scale. The results from the MMPI were taken from The Marks Adult MMPI Report, a computer generated interpretation. The Shipley Institute of Living Scale (Shipley, 1939) was used to assess intelligence. This test had been hand scored.

The present study was designed to examine S and O endorsement patterns (equal S-O, high S, and high O) and then compare these patterns to IQ derived from the Shipley. Research indicates (Walters, Greene, & Jeffrey, 1984; Hill,

Steinhauer, & Zubin, 1986) that there is a relationship between alcoholism and high Pd scale scores. For that reason, the present study used only the Pd scale rather than the other scales for which Wiener designed the S-O scale.

Procedure

Individuals who had been convicted of a DUI and had been referred to the mental health center were administered the MMPI and Shipley in a group testing situation. These tests were routinely administered at the mental health center when a substance abuse evaluation was required. Scores from these previously administered tests were obtained from the participant's files. A total of 30 individuals comprised each group of equal S and O scores, high S scores, and high O scores on the S-O Pd subscale. Only those participants with T scores between 40 and 70 non-inclusive for S and O, and with a difference no more than 10 points were used for the equal group. The second group had high S scores (T > 70) while the O scores were normal (T < 70), and the final group had high O scores (T > 70) while the S scores were normal (T < 70). The Shipley IQ scores were recorded for those who met the criteria for S and O group assignment. In addition to recording the participant's S-O and Shipley scores, their age and gender were noted. The participant's identity was not recorded.

Statistical Design

A one-way ANOVA was used to analyze the data. The independent variable was S-O classification. The dependent variable was the Shipley score for each participant.

CHAPTER 3

RESULTS

The purpose of this study was to determine the relationship between the MMPI Subtle-Obvious scores on the Pd scale and the Shipley Institute of Living Scale IQ. The independent variable was the three subtle-obvious groupings while the dependent variable was IQ derived from the Shipley Institute of Living Scale. Table 1 presents the characteristics of the study's participants.

Table 1

Participant Characteristics

	<u>Equal S-O</u>	<u>High S</u>	<u>High O</u>
M S Score	55.33	73.93	77.67
<u>SD</u>	6.19	5.04	7.94
M O Score	55.87	52.37	57.53
<u>SD</u>	11.23	8.05	6.75
M IQ	93.67	100.47	93.03
<u>SD</u>	14.07	12.31	13.10
M Age	29.43	26.47	26.27
<u>SD</u>	10.46	6.47	10.18
Total Female	6	10	7
Total Male	24	20	23
Total Sample	30	30	30

Ninety participants comprised the total sample (67 males and 23 females). Each of the three groups had 30 participants per cell. There were 24 males in the equal S-O group with a mean age of 30.46 ($SD = 10.97$). There were six females in the equal S-O group with a mean age of 25.33 ($SD = 6.61$). The overall mean age of the participants in this group was 29.43 ($SD = 10.46$). There were 20 males in the high S group with a mean age of 25.90 ($SD = 6.40$). There were 10 females in the high S group with a mean age of 27.60 ($SD = 6.50$). The overall mean age of the participants in this group was 26.47 ($SD = 6.47$). There were 23 males in the high O group with a mean age of 26.91 ($SD = 10.95$). There were seven females in the high O group with a mean age of 24.14 ($SD = 6.76$). The overall mean age of participants in this group was 26.27 ($SD = 10.18$). The mean age of the three groups combined was 27.89 ($SD = 9.99$), and the mean age of all female participants was 26.00 ($SD = 6.60$). The mean age of all male participants was 28.21 ($SD = 10.13$).

The mean IQ for the equal S-O group was 93.67 ($SD = 14.07$). Male participants in the equal S-O group had a mean IQ of 94.17 ($SD = 14.41$). Female participants in the equal S-O group had a mean IQ of 91.67 ($SD = 10.92$). The mean IQ for the high S group was 100.47 ($SD = 12.31$). Male participants in the high S group had a mean IQ of 101.25 ($SD = 12.60$). Female participants in the high S group had a mean IQ of 98.90 ($SD = 11.07$). The mean IQ for the high O

group was 93.03 (SD = 13.10). Male participants in the high O group had a mean IQ of 91.13 (SD = 12.73). Female participants in the high O group had a mean IQ of 99.29 (SD = 11.27). The mean IQ for all participants was 95.72 (SD = 13.46). Male participants had a combined mean IQ of 95.52 (SD = 11.84). Female participants had a combined mean IQ of 96.62 (SD = 15.26).

A one-way ANOVA was performed. The obtained F statistic failed to show significance at the .05 alpha level. That is, there was no significance difference between the three S-O groups in terms of their IQ. Results of the ANOVA can be found in Table 2.

Table 2

ANOVA Summary Table for Subtle-Obvious Groups

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Between	1018.96	2	509.48	2.93	.0585
Within	15111.10	87	173.69		
Total	16130.06	89			

In summary, the ANOVA revealed no significance. The implications of this result are discussed in Chapter 4.

CHAPTER 4

DISCUSSION

The results of the present study suggest that no differences exist between the three subtle-obvious item endorsement groups in terms of their IQ. In other words, the data suggest that an individual's IQ is independent of his or her manner of S-O item endorsement. This contradicts the findings of Wiener (1948) whose study suggested that those with high IQ's will have equal S-O scores and those with low IQ's will have higher O than S scores. Also it does not support Dubinsky (1983) and Fowler (1984) who found that as IQ increases, so does subtle item endorsement.

One reason why the present study contradicts previous research may be due to participant differences. Clearly, college students, psychiatric inpatients, and DUI individuals possess varying unknown degrees of similarities and differences. Another possibility for the contradiction may lie within the instrument used to measure IQ. The Shipley, which primarily assesses an individual's verbal abilities, may be too narrow in scope. The participants in the present study were not assessed in terms of, for example, their mathematical ability, manual performance ability, or ability to analyze abstract sentences. It may be that this limited aspect inherent within the Shipley resulted in an intelligence assessment which was not completely accurate.

In addition to these possibilities, the fact that the present study's findings only apply to the Pd scale may have been a hindrance. Wiener devised the S-O keys for the D, Hy, Pa, and Ma scales in addition to the Pd scale. Had these scales been examined in the same manner of the Pd scale, different results may have occurred.

For the clinician who uses the MMPI's S-O scales, it is important that she or he be aware of the discrepancies between studies of S-O endorsement patterns and intelligence. Previous research indicates that higher intelligence is not reflected in relatively equal S-O scores but rather high S scores. The present study, while using only the Pd scale, does not support the finding that higher intelligence is reflected in a high S score. It would be erroneous at this point in S-O research for the clinician to make judgments of an individual's intelligence based on their S-O score. It would also not be prudent to predict individual's S-O endorsement pattern based on their intelligence.

Further research into the relationship between intelligence and subtle-obvious item endorsement seems necessary. For instance, it would be valuable if a study was conducted involving the WAIS-R, which gives a more accurate assessment of intelligence. Also, examining the other subscales (D, Hy, Pa, and Ma) of Wiener's supplementary scale and using DUI individuals as participants may produce findings different from the present study. In addition to

these suggestions, it may be beneficial to incorporate the MMPI 2 in studies similar to that of Wiener, Dubinsky, Fowler and the present study.

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