

AN ABSTRACT OF THE THESIS OF

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Title: A COMPARISON OF MMPI PROFILES OF FOUR BENDER-GESTALT GROUPS

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The drawing style that people utilize to reproduce geometric designs relates to their personality. Closure difficulty and edging, two factors in drawing styles, were examined in the literature. Significant relationships to personality were found on several studies dealing with closure difficulty. Trends have been found for edging to occur more often in psychoneurotic populations but not to the point of significance.

The subjects consisted of psychiatric patients ranging in age from fifteen to sixty-five years, male or female, admitted to Osawatomie State Hospital. They were given the MMPI and the Bender-Gestalt Test. Subjects who met the criteria of valid MMPI profiles and had all nine figures drawn on the Bender-Gestalt Test were included in the sample. One hundred protocols were examined for closure difficulty and edge tendencies.

This study involved a comparison of the MMPI profiles of four Bender-Gestalt groups: Group 1 (No Closure Difficulty) compared with Group 2 (Closure Difficulty), and Group 3 (Non-edging) compared with

Group 4 (Edging). An ANOVA was employed to compare MMPI profiles of the four groups.

No significance was found between the MMPI profiles of Group 3 (Non-edging) and Group 4 (Edging). These results were consistent with other findings. There was significance on scale 0, Social Introversion on the MMPI between Group 1 (No Closure Difficulty) and Group 2 (Closure Difficulty). Though the results were significant statistically, the differences were not great enough to influence clinical interpretation.

A COMPARISON OF MMPI PROFILES OF
FOUR BENDER-GESTALT GROUPS

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CHAPTER 1

INTRODUCTION

Personality can be displayed through many different behaviors. The style that people utilize to draw or reproduce geometric designs is one such behavior which may reflect their personality characteristics. Two factors in drawing styles that will be examined to determine if they reflect personality characteristics are closure difficulty and edging. The placement of seven or more figures within one-half inch of any edges on the paper refers to edging (Hutt, 1950, 1969, 1977; Hutt & Brislin, 1960). This definition will be used in the current study. Hutt (1977) hypothesized that edging indicates anxiety and suggests an attempt to maintain control through the use of external support. Closure difficulty refers to the difficulty in joining parts which touch each other within a figure (or two adjacent figures), erasure at the point of joining, gaps, workover at the junction, or any overshooting of a point through a junction of two lines on a single design (Hutt, 1950, 1969, 1977; Hutt & Brislin, 1960; Hutt & Gibby, 1970). This definition will also be used in the current study. An example of closure difficulty would be when a reproduced circle had a gap, which would be a lack of junction and, therefore, closure difficulty. Closure difficulty is hypothesized to denote difficulty in interpersonal relationships (Hutt, 1950, 1969, 1977; Hutt & Brislin, 1960; Hutt & Gibby, 1970). The research on edging and closure difficulty has been examined mainly from the Bender Visual-

Motor Gestalt Test (BVMGT), which is a drawing test. The BVMGT will be used in the current study.

The BVMGT was originally developed by Bender (1938) as a maturational test for children, but she used both adults and children in her research on loss of function and organic brain defects, retardation, and to explore personality deviations. Bender adapted a set of nine designs from those which Wertheimer had developed for research in visual gestalt psychology. Billingslea (1948) described the designs as ". . . a set of geometric designs composed of lines, angles, and curves combined in a variety of relationships" (p. 1). On the premise that individuals reproduce the same designs differently, these differences in visual-motor perception are thought to be related to differences in individual personality. The interpretation of the design reproductions gives clues to behavior patterns or emotional development (Bender, 1938). The clues are from the style in which the designs are drawn. For example, were the reproductions drawn with gaps where the originals showed closure? Were all figures drawn within one-half inch of the margins of the page? Many variables, including closure difficulty and edging, were used in devising a scoring system.

Bender's research was concerned with consistency in such a scoring system. In her research, a psychotic population could not be distinguished from the psychoneurotic population, and sometimes the reproductions did not differ greatly from reproductions of normal subjects. She also cited problems of interpretation and validity of the BVMGT. Billingslea (1948), Kitay (1950), Pascal (1950), and Pascal & Suttell (1951) were similarly concerned with major problems of scoring, interpretation, and validation.

Billingslea (1948) was one of the first to attempt to develop an objective scoring system. It included 137 variables and required over 15 hours to score each set of designs or records. Closure difficulty, page cohesion which was similar to the definition of edging, and excessive workover were recorded. The population consisted of psychoneurotic and normal Army soldiers. The results were essentially negative; the two groups were indistinguishable, though Hutt (1945) stated that he was able to distinguish one group from the other. A possible reason is that the criteria for closure and edging for Billingslea were different than the criteria used by Hutt. Closure difficulty according to Billingslea was defined as the perceptual reproduction of the connected but not overlapped linear joints in a figure as its subparts. Erasure, overlapping and excessive workover were not included in the criteria for lack of closure which Hutt did include in his study (1945). Billingslea described edging ("page cohesion") as ". . . one third of one side of the sheet used," which is also similar to Hutt's definition. No requirement of drawing within one-half inch of the edges of the paper was made by Billingslea. Edging, closure difficulty, and excessive workover were found more often in the records of the psychoneurotic group. In his research, Billingslea decided that a reduction of variables be made, and that improved standardization and administrative techniques were necessary for future research.

Modifications of Billingslea's research was done a few years later by Guertin (1952). He initially used 60 variables; then, because of low frequency of occurrence, studied only 41. He used a factor analysis to obtain six clusters of categories. The procedure was considered too long and not practical for interpretation of the BVMGT. However, this

study is noteworthy because closure difficulty was present more frequently in the records of the emotionally disturbed or psychoneurotic population. Overlapping and crossing difficulties, qualities included in Hutt's definition of closure difficulty, were also present more often in the records of the psychoneurotic population.

Pascal and Suttell (1951) developed a more objective scoring system for the BVMGT, which has been used to separate groups with psychiatric diagnoses (Lonstein, 1954; Bowman & Deabler, 1956). Age was not found to affect scoring levels within the age range of 15 to 50 years. Others have not found the Pascal and Suttell scoring method able to differentiate psychotic from nonpsychotic populations (Blum & Nims, 1953; Tamkin, 1957; Posenthal & Imber, 1955; Keehn, 1957). Suspiciousness in individuals was suggested by Pascal and Suttell (1951) the occurrence of excessive workover. Closure difficulty in the research of Pascal and Suttell suggested possible hypomania. English & English (1958) stated: "Hypomania is a mild state of excitement, energy, impatience, and flightiness". No other authors have reported similar findings and no specific research has indicated a significant correlation between hypomania and closure difficulty.

Ogdon (1978) summarized hypotheses from other research concerning drawing tests, four hypotheses are listed about closure difficulty that represent personality:

1. Emotionally disturbed, neurotic conditions in adults and children (Billingslea, 1948; Byrd, 1956; Clawson, 1959 & 1962; Guertin, 1952; Hutt & Briskin, 1960; Hutt & Gibby, 1970; Koppitz, 1958);

2. Interpersonal relationships are difficult, perhaps fear-inducing in adults and children (Clawson, 1959 & 1962; Hutt, 1953 & 1968 [& 1977]; Hutt & Briskin, 1960; Hutt & Gibby, 1970);
3. Anxiety, hesitancy, self-doubt, and inability to complete tasks (Clawson, 1962; Halpern, 1951; Hutt & Gibby, 1970);
4. Possible hypomania (Pascal & Suttell, 1951) (Ogdon, 1978, p. 104).

The fourth hypothesis by Pascal and Suttell was discussed earlier in the chapter, and several of the research articles have also been examined.

Several qualities included in the definition of closure difficulty by Hutt also have several hypotheses for personality assessment. "Erasure in excess can denote anxiety and need for help (Allen, 1958; Gilbert, 1969; Jacks, 1969; Machover, 1949)" (Ogdon, 1978, p. 67). In the definition of closure difficulty, any erasure is counted if it occurred at the point of junction. Therefore, the case for anxiety would be stronger when the subject erases excessively since the definition for closure difficulty includes any erasure at the junctions. "Overlapping and crossing difficulty suggests emotional disturbances and neurotic conditions, particularly psychasthenia, in adults and children (Byrd, 1956; Guartin, 1952; Hutt, 1953; Hutt & Briskin, 1960; Hutt & Gibby, 1970; Koppitz, 1958; Story, 1960)" (Ogdon, 1978, p. 105). Psychasthenia "most nearly corresponds with anxiety reaction or with the obsessive-compulsive reaction of the Standard (Psychiatric) Nomenclature" (English & English, 1958, p. 416). Overshooting at the point of junction is very similar to overlapping and crossing difficulty in reproducing designs, which is not included in the hypotheses of closure difficulty. "Immature and insecure personalities in children and adults: has been seen in

adult alcoholics (Curnutt, 1953; Hammer, 1954; Hutt & Gibby, 1970; Koppitz, 1958; Story, 1960)" (Ogdon, 1978, p. 105), is also suggested by overlapping and crossing difficulties. "Excessive workover suggests neurotic, anxiety conditions (Billingslea, 1948; Gilbert, 1969)" (Ogdon, 1978, p. 105). Any workover is scored if it is at the point of junction, and so apparently, if the subject does workover to excess then the hypothesis is even stronger that neurotic, anxiety conditions are present. Excessive workover, which was earlier mentioned, also suggests suspiciousness by Pascal and Suttell (1951).

The second factor that will be addressed in the study is edging, or "use of margin". Edging ". . . refers to the placement of seven or more figures within one-half inch of any edges of the paper" (Hutt, 1950, 1969, 1977; Hutt & Briskin, 1960). Hutt hypothesized that edging indicates anxiety and suggests an attempt to maintain control through the use of external support. The more severe the anxiety the more likely all figures will be very close to the edge (Hutt, 1977). Among normal populations such as college students, only one instance was recorded in 80 subjects (Hutt, 1977). Hutt maintains that the hypothesis is weak due to the infrequent occurrence but that extreme edging should be given careful consideration.

For the current study, children will not be included as subjects. However, several research studies of the BVMGT which have included children as subjects are mentioned because of the importance of such studies in personality research. One such study was conducted in 1956 by Byrd. He evaluated 15 factors used by Hutt (1945, 1950) in Army research. The population consisted of 200 children who were judged to be in need of psychotherapy and 200 well-adjusted children who were

judged by at least two adults and extensive criteria. Six of these factors were found to significantly differentiate between the maladjusted and well-adjusted; one factor was closure difficulty. Closure difficulty was defined as ". . . difficulty in bringing the joining parts of a figure together, failure to connect, or by overlapping lines at points of connection," and was scored when two or more figures met the criteria (Byrd, 1956). Erasure was scored separately from closure difficulty, which Hutt included in his definition of closure difficulty.

Byrd (1956) supported the validity of the test factors selected from Hutt (1950) as indicators of personality adjustment. Closure difficulty occurred significantly less often in the records of well-adjusted children than in those of children needing psychotherapy. Use of margin could not discriminate between the two groups of children as neither group of children had use of margin present in their records. This is similar to the finding of Hutt; that edging ("use of margin") is found infrequently (Hutt, 1977).

Clawson (1959 & 1962) also used children in her research and found results similar to Hutt's (1950) though her definitions for closure difficulty and edging were different. Closure difficulty was found significantly more often in the clinic group than in the control group of school children. She defined difficulty with closure as:

- 1) Break in contour; 2) Runover at the point of juncture;
- 3) Slight separation of subparts; 4) Penetration of one subpart by another subpart; 5) Displacement of one subpart; and 6) Absorption by one subpart of the apex of another subpart.

Edging as Hutt noticed, was also found infrequently by Clawson. She divided the definition of edging into three parts; bottom tendency,

edge tendency, and top tendency which requires six or more figures within one-half inch of the edges on the paper. Edging, she found occurred more often in the records of children than adults. Workover, which was included in Hutt's definition of closure difficulty, was found more often in the control group of school children than in the clinic group.

In the current study, closure difficulty and edging will be examined in the BVMGT records. The relationship of personality traits to these two factors will be compared using the Minnesota Multiphasic Personality Inventory (MMPI).

The MMPI is a self-report inventory published by Hathaway and McKinley (1943). In the 1930's and 1940's, the MMPI was designed to diagnose different categories of mental illnesses. Originally there were only eight clinical scales that were designed to individually indicate by elevation what diagnosis would be given to the individual. Two more scales were added to the clinical scales, and four validity scales were also added to measure the subject's test-taking attitude. The 14th scale (? scale) records the number of items not answered and for this study only records with less than 10 blank items were included. It was soon discovered that more than one scale could be elevated and that the diagnostic approach was too limited. Interpretations were expanded to include behavior, attitudes, thought patterns, and strengths. The scales were then interpreted by the height of the elevations of the scales to differentiate the intensity of behavior and thinking (Duckworth, 1979).

A search of the literature for the MMPI used in conjunction with the two factors of closure difficulty and edge tendencies on the BVMGT reveal few studies. Tamkin (1957) used both the MMPI and the BVMGT to

differentiate unsuccessfully organic from psychiatric populations. No trends or specific use of closure difficulty or edging were reported. The conclusion of the study (Tamkin, 1957) was that the scoring method was of little value.

The MMPI was used in conjunction with edge tendencies in the Memory-For-Designs (MFD), a drawing test used to determine the presence of brain damage. Edgers were compared with non-edgers on their MMPI profiles in two sample populations, including criminal subjects and psychiatric inpatients (Holmes, Persinger, & Busenbark, 1981). A two-by-thirteen analysis of variance (two factors of edging and non-edging compared with the thirteen scales of the MMPI) revealed no significance between edgers and non-edgers. The definition for edger was:

. . . a person whose Memory-For-Designs drawings were all drawn in the top one-third of the page, the bottom one-third of the page, or along the side of the page such that no figure extended beyond the mid-point of the page (p. 406).

It was hypothesized that personality traits are not reflected in drawing style. The authors of the MFD (Graham & Kendall, 1960) agree that their test does not reflect personality characteristics.

Two studies have examined the relationship between personality traits and edging or closure difficulty using the MFD (Persinger & Holmes, 1978 & 1979).

Closure difficulty was defined as any lack of junction, erasure, or overshooting a point of junction of two lines of a single design (Persinger & Holmes, 1978, pp. 344-345).

One of the results was significant and discussion about more stringent definitions were indicated. Since the MFD and the BVMGT are similar,

the question was asked if the MFD could possess projective qualities. A technique of analyzing responses for personality characteristics is how projective is used (English & English, 1958).

In summary, most studies showed trends in closure difficulty occurring in records of psychoneurotic subjects but not to the point of significance. Closure difficulty has also been documented as more likely to reflect the personality traits of difficulty in interpersonal relationships and fearfulness of intimate relationships, that it represents emotionally disturbed, neurotic conditions, and specifically indicates anxiety. The research on the MFD in respect to closure difficulty raises doubts to the efficacy of a drawing test reflecting personality traits. Perhaps stringent operational definitions are required for significant results for closure difficulty on the MFD, and perhaps cannot be generalized to the BVMGT.

Edge tendencies, from the research, have no significance in reflecting personality characteristics. The infrequent occurrence of edge tendencies has made it difficult to determine if it does indeed reflect anxiety. The trends are also weaker in adults than in children for edging to occur. Only in psychiatric inpatient populations does it occur with any frequency. Hutt hypothesized that extreme edging should be given careful consideration and that the case was much weaker for edging reflecting personality characteristics on the BVMGT.

In the current study, the BVMGT records will be scored for closure difficulty and edge tendencies. The results will be classified into four different groups: Group 1 (Closure), Group 2 (Closure difficulty), Group 3 (Non-edging), and Group 4 (Edging). The T scores on the thirteen scales of the MMPI (L, F, K, and the ten clinical scales) will

be recorded for each of the groups and compared with the same scales of the MMPI for opposite groups; Group 1 (Closure) vs. Group 2 (Closure difficulty) and Group 3 (Non-edging) vs. Group 4 (Edging).

range of scores

patients' scores

norms was 100:

CHAPTER 2

METHOD

Subjects

The sample for this study was selected, using a table of random numbers, from the psychological files of psychiatric patients admitted to Osawatomie State Hospital. The total number of subjects was 100; 32 females and 68 males. All patients were selected by the presence or absence of closure difficulty and edge tendencies in their Bender Visual-Motor Gestalt Test (BVMGT) protocols. There were 25 patients in each of these four groups, selected from the two characteristics in all combinations: a) closure difficulty & edge tendencies; b) closure difficulty & no edge tendencies; c) no closure difficulty & edge tendencies; and d) no difficulty with closure & no edge tendencies. In the first group, the subjects consisted of 16 females and 9 males ranging in age from 15 to 55 years who had closure difficulty but no edge tendencies. The subjects in the second group, consisted of 9 females and 16 males ranging in age from 15 to 55 years who had closure difficulty but no edge tendencies on the BVMGT. One female and 24 males ranging in age from 15 to 39 years who had no closure difficulty with edge tendencies present made up the third group. In the last group of subjects, there were 6 females and 19 males ranging in age from 15 to 56 years who had no difficulty with closure and had no edge tendencies. There was a total of 50 patients who had no closure difficulty present and also 50 who did have it present. Group 1 is defined as those who have no

difficulty with closure and, therefore, have closure present. Group 2 is defined as those who have no difficulty with closure (or closure difficulty). There was also a total of 50 patients with no edge tendencies and 50 patients who had edge tendencies present. Group 3 is defined as those who have no edge tendencies present. Lastly, Group 4 is defined as those who do have edge tendencies present.

Apparatus

Each patient completed the Bender Visual-Motor Gestalt Test (Bender, 1938), a visual-motor test that was used as a screening instrument for organicity and was also utilized to study personality traits. Only the full view administration of the BVMGT was scored and recorded. The full view is when patients were instructed to copy the designs, with no time limit on exposure of the cards. No time limit was given for the subject to finish reproducing the design. There are nine designs on the BVMGT and only those protocols with all nine were included in the study.

Each patient completed the short form of the Minnesota Multiphasic Personality Inventory (MMPI) containing 399 items. Subjects are asked to decide and mark whether the statements are "true" or "false." Patients were instructed to make some answer on each item and to leave as few blanks as possible.

The patients completed the MMPI and the BVMGT within a few days of each other. They completed the tests during their evaluation, usually during the first two weeks after their admission dates. The tests were given by a staff psychologist or the psychometrist.

Procedure

The data were collected from psychological files for 1977 through August of 1982. Only files that include a full view of the BVMGT and a

valid MMPI were scored and recorded. The cut off points for a valid MMPI were a T score less than 71 on scales L or K, or if the T score on the F scales was less than 100. Those profiles with more than 10 on scale 7 were also excluded.

A higher T score on the F scale was used since some psychotics score higher on this scale. These procedures were adopted from Holmes, Persinger, & Busenbark (1981). As the data were collected, the subjects were classified, from the BVMGT records, as either edgers or non-edgers and whether closure difficulty was present. An edger was defined earlier as a person who drew seven or more figures within one-half inch of any edges of the paper. Closure difficulty was defined as any lack of junction, erasure, workover, or overshooting a point of junction of two lines of a single design. Both definitions were essentially from Hutt (1977). The figures on which closure difficulties can occur are; A, 2, 4, 7, and 8. No more than two closure difficulties were counted on any one figure, except on figure 2 where two closure difficulties were counted as one, and closure difficulties of three or more were counted as a raw score of two (Hutt, 1977). The maximum number of closure problems per protocol was 10.

A subject with a raw score of two or less was considered to have no difficulty with closure. A non-edger was classified when less than seven figures were within one-half inch of any edge of the paper. The thirteen scales of the MMPI (L, F, K, and the 10 clinical scales) were recorded and classified into groups: Group 1 (Closure), Group 2 (Closure Difficulty), Group 3 (Non-edging), and Group 4 (Edging).

The data were analyzed in a 2X13 analysis of variance; the thirteen scales on the MMPI (L, F, K, and the ten clinical scales) of Group 1

(Closure) were compared with the same thirteen scales on the MMPI of Group 2 (Closure Difficulty). In another 2X13 analysis of variance; the thirteen scales on the MMPI in the records of Group 3 (Non-edging) compared with the same scales on the MMPI of Group 4 (Edging).

CHAPTER 3

RESULTS

The 13 scales of the MMPI (L, F, K, and the 10 clinical scales) of Group 3 (Edgers) vs. Group 4 (Non-edgers) constituted a 2X13 ANOVA which revealed no significant difference on any of the 13 scales comparing edgers and non-edgers. Group 3 consisted of those patients who had no edge tendencies in their BVMGT protocols. Group 4 consisted of those patients who had edge tendencies present in their Bender Visual-Motor Gestalt Test (BVMGT) protocols. The results of this analysis show that psychiatric inpatients on the 13 scales of the MMPI who were classified as non-edgers did not differ when compared on the same scales of edgers. See Table 3 for a complete listing of the means, standard deviations, and the F-values on each of the 13 scales of the MMPI.

The 13 scales of the MMPI of those with Group 1 (Closure) vs. Group 2 (Closure Difficulty) were compared in a 2X13 ANOVA which revealed significance on scale 0, Social Introversion [$F(1,98) = 4.28, p < .05$]. The mean T score for Group 1 was 58.46 and a mean T score for Group 2 was 54.18. The standard deviation of Group 1 was 10.89 while Group 2 had a slightly lower value of 9.76. See Table 2 for the means, standard deviations, and the F-values on each of the 13 scales on the MMPI.

There was a significant difference on scale 0 between the T scores of those who have closure difficulty and those who do not. The other 12 scales revealed no significant differences comparing the T scores of those with closure difficulty and those who had no difficulty with closure.

Table 1 presents the ANOVA summary of patients with closure and closure difficulty on scale 0 of the MMPI. The F-value on the scale 0 of the MMPI is larger than the tabled F (1,98)-value of 4.00, $p < .05$ level of significance. There was a significant difference between those that have closure and those who had closure difficulty in their BVMGT records as measured by scale 0 of the MMPI.

Table 1
ANOVA Summary of Patients With Closure (Group 1) and
Closure Difficulty (Group 2) On Scale 0 of the MMPI
(N = 50/group)

Source of Variation	Sum of Squares	df	Mean Squares	F
Between groups	457.9375	1	457.9375	4.2807*
Within groups	10483.8750	98	106.9783	
Total	10941.8125	99		

*Significant at the .05 level.

Table 2
 Patients With Closure (Group 1) & Closure Difficulty (Group 2)
 MMPI T Scores of 13 Scales
 Means & Standard Deviations
 (N = 50/group)

Scale		Mean	Standard Deviation	F*
L	Group 1	51.82	7.55	.41
	Group 2	53.02	10.97	
F	Group 1	67.22	13.99	.29
	Group 2	68.76	14.73	
K	Group 1	48.74	8.41	.10
	Group 2	49.36	11.18	
1	Group 1	57.66	12.92	.17
	Group 2	58.72	12.64	
2	Group 1	66.64	14.18	2.54
	Group 2	62.10	14.29	
3	Group 1	58.58	10.28	.00
	Group 2	58.48	10.87	
4	Group 1	73.90	14.92	2.33
	Group 2	69.78	11.90	
5	Group 1	57.20	10.27	.03
	Group 2	57.54	8.91	
6	Group 1	64.94	14.70	.46
	Group 2	66.82	12.86	
7	Group 1	65.52	15.21	.33
	Group 2	63.84	14.04	
8	Group 1	70.54	18.27	.14
	Group 2	69.00	17.17	
9	Group 1	64.08	12.97	1.68
	Group 2	67.44	12.91	
0	Group 1	58.46	10.89	4.28*
	Group 2	54.18	9.76	

*Significant at the .05 level

Table 3
 Patients With Non-edging (Group 3) & Edging (Group 4)

MMPI T Scores of 13 Scales

Means & Standard Deviations
 (N = 50/group)

Scale		Mean	Standard Deviation	F*
L	Group 3	52.78	9.29	.15
	Group 4	52.06	9.56	
F	Group 3	68.06	13.44	.00
	Group 4	67.92	15.28	
K	Group 3	47.58	10.08	2.26
	Group 4	50.52	9.49	
1	Group 3	56.92	12.33	1.00
	Group 4	59.42	13.11	
2	Group 3	65.40	13.82	.51
	Group 4	63.34	14.93	
3	Group 3	58.44	9.34	.01
	Group 4	58.62	11.69	
4	Group 3	74.28	14.42	3.30
	Group 4	69.40	12.58	
5	Group 3	56.20	8.55	1.50
	Group 4	58.54	10.44	
6	Group 3	65.04	13.66	.37
	Group 4	66.72	13.97	
7	Group 3	65.48	13.24	.30
	Group 4	63.88	15.92	
8	Group 3	69.94	17.62	.02
	Group 4	69.42	17.85	
9	Group 3	66.54	11.24	.36
	Group 4	64.98	14.60	
0	Group 3	57.08	10.27	.52
	Group 4	55.56	10.80	

*Note an $F(1,98) > 4.00$, $p < .05$, was needed for significance.

CHAPTER 4

DISCUSSION

The data indicated that using the T scores on the MMPI for comparison of edging and non-edging showed no significant relationship. Edging was demonstrated to be more prevalent in psychiatric than non-psychiatric adult populations, as reported by the literature. Approximately 1500 files which included both a BVMGT protocol and MMPI profile were examined; fifty edgers were found. These data further supported the literature which suggests an infrequency of edging. Excluded from the study were approximately ten "edgers" whose MMPI profiles were invalidated due to a T score higher than 110 points on the F scale. Any MMPI profile with a T score above 100 on the F scale was excluded from this study. Edgers were defined as those who made use of the margin to reproduce at least seven BVMGT figures within one-half inch of the edge. No subject drew seven figures on the right side of the paper within one-half inch of the edge. One clinical interpretation for drawing on the left side of the paper is that the subjects experience uncertainty and apprehension (Machover, 1949). Apparently many of the edgers experience uncertainty and apprehension though it is unknown whether this is statistically true, from the current study. Edgers and non-edgers were not distinguishable by their clinical or validity MMPI scales, as demonstrated in the current study.

Since the results were not significant between edgers and non-edgers, perhaps a tightening of an operational definition of edging,

for example, all nine BVMGT figure reproductions being drawn within one-half inch of any margin on the paper, would be valuable. If anxiety is the trait projected by the edger, perhaps the MMPI would detect this same trait by statistical significance if an extreme "edger" definition is used.

There was a significant difference ($p < .05$) on scale 0 (Social Introversion) of the MMPI between Group 1 (Closure) and Group 2 (Closure Difficulty). The means of both Groups 1 and 2 were in the "normal" range of 45 to 60 T score points (Duckworth, 1979). It is not unusual for a subject in a psychiatric population to have some scales within this range. The clinical interpretation of scoring within the normal range on scale 0 would indicate that these people enjoy having people about them as well as being alone. Since Group 1 (Closure) scored significantly higher than Group 2 (Closure Difficulty) on scale 0, this might mean they prefer to be alone more than the other group, since an elevation indicates a preference for being alone (Duckworth, 1979). However, since both means are within the same range of 45 to 60 T scores, both have the same clinical interpretation. Even though there is a statistically significant difference, the practical implication is that no difference is made clinically from the interpretation of the MMPI (Duckworth, 1979).

Since, for practical purposes, the T scores on the MMPI did not differ between Group 1 (Closure) and Group 2 (Closure Difficulty), perhaps a tightening of an operational definition would also prove valuable interpretatively. For example, since there are separate interpretations for erasure and workover exclude them. Count closure difficulty as overshooting and gapping with measureable guidelines.

Persinger & Holmes (1978) used a deviation in lack of junction over 1 millimeter long to be scored as closure difficulty, which would be more objective and less influenced by examiner bias.

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