

# Differentiation of Psychopathology by Psychological Type

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*ENFP veterans appear less likely to be diagnosed with an anxiety disorder and less bothered by deficits in self-regard but more dramatic in presentation, more rebellious, and more likely to have made a suicide attempt. ISTP veterans are more rebellious, less affected by phobic symptoms, more likely to be diagnosed with posttraumatic stress disorder, and more likely to have difficulty living within societal standards.*

## Abstract

*Thirty-seven findings from a previous study were replicated after the addition of 68% more cases, the inclusion of extraverts, and some slight revisions in kinds of analyses. Compared to other veterans, ISTPs and INTPs were again found to score higher on a Rebelliousness factor derived from MMPI content scales, to score lower on a Phobic Symptoms scale, to be more likely to earn a diagnosis of combat-related posttraumatic stress disorder on DSM III-R/IV Axis I, and to be labeled "antisocial" and "avoidant" on Axis II. They also were more likely to have dropped out of school and to have been convicted of a crime unrelated to substance abuse than other veterans. The findings that INTPs had shorter job lengths and more marriages and that ISFPs were low on Rebelliousness, high on Psychological Distress and Phobic Symptoms, and less likely to receive an "antisocial" diagnosis were also replicated. Twelve earlier findings were not replicated, including the association between INFJs and receipt of a diagnosis in the "dramatic" group and between INTJs and a Major Depression diagnosis. Numerous new findings were reported, including a greater likelihood that ENFP participants had made one or more suicide attempts. A type-centric perspective was proposed in which the bipolar preference contrasts as well as preference effects and preference interaction effects on other variables are viewed as artifacts of more basic whole type dynamics. We concluded that the results of psychological type research might be valuable in developing "type fair" measures of psychopathology.*

In an earlier report (Otis & Louks, 1997), we considered the proposition that the basic architecture of personality contains latent faults that may manifest themselves in behavior and experience that, under suitable psychosocial stress, might be considered psychopathological by mental health professionals. Evidence from that report showed statistically significant associations between different introverted types and questionnaire measures of psychological dysfunction, case record indicators of disturbance, and diagnostic judgments. Clinical observations during

psychotherapy helped to create a rough picture of the manner in which different introverted types exhibit psychological disturbance. In the present article, a quasi-replication is presented that includes additional cases and extends the results to at least some extraverted types.

## Method

**Participants.** The participants were 265 male military veterans admitted to one section of a 917-bed

DVA Domiciliary, who requested or were referred for psychotherapy from the senior author. Patients come to this ambulatory extended care facility, located in a small community in southern Oregon, with a variety of psychological, social, and medical impairments. Most are middle-aged, unemployed, homeless, divorced, and have a history of psychological as well as substance abuse problems. For the current sample, the mean age was 46.9 ( $SD = 7.7$ ), with a range from 22 to 70. Most patients had more than one DSM III-R/IV Axis I diagnosis. Primary Axis I diagnoses included major depression (29.5%), other depression (24.6%), posttraumatic stress disorder (PTSD; 15.9%), anxiety disorder (11.0%), bipolar disorder (7.2%), schizophrenia (5.7%), and null (4.9%). Seventy percent had an additional diagnosis of some form of substance dependence or abuse. At least one suicide attempt had been made by 47.3% of the sample, and 28.5% had made more than one attempt. The largest difference, in relation to the earlier study, was an increase of 5.4% in "other depression." Axis II diagnoses included avoidant (29.3%), obsessive compulsive (19.4%), narcissistic (12.5%), borderline (8.0%), dependent (4.9%), and antisocial (6.5%). The largest difference in Axis II diagnoses compared to the earlier study was 5.3% for avoidant personality disorder. In terms of the personality disorder clusters, the distribution was 17% Cluster A (up 11%), 30% Cluster B (up 1%), and 52% Cluster C (down 6%).

**Procedure.** Shortly after admission, patients were given the Shipley Institute of Living Scale (Zachary, 1992) and the original form of the MMPI (Dahlstrom, Welsh, & Dahlstrom, 1972). Information from these sources, as well as a clinical interview of about 1-hour duration, were used to arrive at a DSM (III-R or IV) diagnosis by the section psychologist. Within a few sessions after beginning psychotherapy, patients were individually administered the MBTI. One hundred ninety-one patients completed Form F, and 74 completed Form G. Nearly all subjects affirmed the general accuracy of their type descriptions after reading the relevant sections of *Introduction to Type* (Myers, 1987) and *LifeTypes* (Hirsh & Kummerow, 1989). Values for the following variables were obtained from case records: length of longest job, number of marriages, length of longest marriage, arrest for any offense not related to substance abuse, major disciplinary action while living in the domiciliary, number of suicide attempts, history of early loss of a significant other, and history of violence in family of origin. For about 5% of the cases, the records were not absolutely clear on some of these variables, so a judgment was made based on the available information. Patients were also rated on a 3-point scale ("none, some, a lot") for degree of "conspicuous" anxiety (sweaty palms, foot or finger

tapping, body movement while seated, stammering, etc.) and "conspicuous" depression (e.g., tearfulness, sad countenance, lack of energy, "weighed down" carriage).

**Statistical Analyses.** Raw score data for 11 of the Wiggins Content Scales of the MMPI (Wiggins, 1966) were subjected to principal components factor analysis with varimax rotation. Unlike most scales of the MMPI, this set does not contain overlapping items and therefore does not create artificial correlations and "artifacts" (Coan, 1964) simply because they share identical content. The Religious Fundamentalism (REL) and Feminine Interests (FEM) scales were omitted from the analysis, because they share little variance with the other scales. Because only a small portion of the variance in the Phobias scale (PHO) was removed by the extracted factors, the set of *residualized* values for this scale (scores with the effects of the factors removed by regression) was retained as a separate scale.

All continuous variables were first analyzed using analysis of variance and then were subjected to salience analysis using *Random Sampler 2.0c* (Otis, 1999a), a computer program that uses Monte Carlo simulation of random distributions to test the hypothesis that the empirical results could have occurred by chance. For frequency data, *Random Sampler 2.0n* (Otis, 1999b) was used to compare empirical type tables for subjects having or not having a given attribute by simulating distributions of randomly created pairs of type tables (random distribution analysis).

**Salience Analysis.** In this procedure, the mean, median, mode, and variance on a variable for each given type are compared to the distributions of means, medians, modes, and variances obtained by taking a large number of random samples from the total pool of scores. First, the program determines the number of cases ( $N$ ) in the target subgroup. It then randomly selects  $N$  cases from all the available cases and computes the mean, median, mode, and variance for this one sample. This step is then repeated a large number of times. The proportions of the measures that fall above and below what was actually found for the target subgroup are then computed. These proportions represent the probability that, given the total distribution of scores, a value could be obtained by chance for the measure equal to or greater (or, conversely, equal to or less) than the empirical result for the subgroup. For example, if 95% of the means obtained by random sampling were less than the mean actually obtained for the subgroup, this mean value or a greater mean value might be expected by chance only 5 times out of 100 (i.e., the significance level is .05).

**Random Distribution Analysis.** This procedure is used to compare two category frequency arrays (e.g., type tables) and assess the probability that they could have come from the same parent population. It simulates the process of creating a set of type tables, given the total number of cases ( $N$ ) and a set of probabilities ( $p_1, p_2, p_3 \dots p_{16}$ ) that a case will be a member of each type. The probabilities are not equal (which would be the case if types were equally represented in the population) but biased in the direction of some standard to which we want to compare a given group. If one group is very large and considered representative of a given population, we might use its proportions as the standard. If neither group can be considered more representative of the population than the other, we might use the proportions obtained by pooling their frequencies for each category as our estimates of population probabilities.

Thus, if we wanted to compare a type table for a sample of 100 members of APT to the type table for the representative national sample, our  $N$  would be 100 and our set of probabilities would be the proportions of each type that appeared in the national sample. The program would start with one artificial "case" and use a probabilistic algorithm to assign it to a type; then it would continue applying the algorithm until all 100 cases were each assigned to a type. What this means is that, for any finite number of cases, the proportions would probably *not* equal the proportions in the vector of probabilities (but as the number of cases approaches infinity, the proportions will approach those values). If 1,000 type tables of size 100 are created in this way, there would be an array of 1,000 values for each type. Converted to a frequency distribution, this array constitutes a random probability distribution of values against which the empirically obtained value can be compared. It indicates the chances (in 1,000) that a value the size of the empirical value would be obtained if 100 cases were randomly selected from the national sample.

In the condition in which neither group can be considered a "standard," the program uses the pooled data to create one array of size  $N_1$  and one array of size  $N_2$ . Then it subtracts the respective values of  $N_2$  from those of  $N_1$  and considers the difference array to be "one instance" of the 1,000 or more instances it creates. The empirical difference between samples is then compared to a frequency array of differences to obtain the probability that it could have been obtained by chance.

## Results

Table 1 shows the distribution of MBTI types in a sample in comparison to the adult male subgroup of the representative national sample (Myers,

McCaulley, Quenk, & Hammer, 1998, p. 157). Random distribution analysis and chi square agree in finding six of the eight extraverted types to be underrepresented, and there is an overrepresentation of ISFJs, ISFPs, INFPs, and INTPs. When the national sample was considered to be definitive, random distribution analysis also found INFJs to be overrepresented. None of the differences between the original sample and the added cases were significant according to random distribution analysis. Thus, cases were being drawn into this data pool in a fashion that is not representative of the distribution of psychological types in the U.S. adult male population, but whatever processes were at work appeared to be relatively stable over time. The sample was 87.0% White, 4.5% African American, 3.0% Hispanic, 2.0% Native American, and 3.4% Other. About 75% of the African American participants showed a preference for sensing (vs. 55% for the total sample), but no other discernible associations with ethnicity could be found.

**MMPI Content Scales.** In the present analysis, three factors, accounting for 65% of the shared variance between scales, were extracted by factor analysis from the 11 Wiggins Content Scales: Psychological Distress, Rebelliousness, and Health Concerns. The Rebelliousness factor is virtually identical ( $r = .97$ ) to the factor of the same name extracted in the previous study. The factor loads the Authority Conflict, Hostility, Hypomania, Psychotic Symptoms, and Family Conflict content scales. It appears to tap a contentious "going against people" attitude characterized by distrust of authority, cynicism about the motives of others, resentment because of perceived injustice, and a tendency to be irritable, argumentative, and hotheaded. Rebelliousness scores showed a significant inverse relationship to age ( $r = -.18$ ), so the effect of the latter variable was removed via regression analysis, and residualized Rebelliousness scores were used in subsequent analyses.

As its name implies, the Health Concerns factor is loaded mainly by the Health Concerns and Organic Symptoms content scales and reflects the respondent's worry about the state of his bodily functioning and mental capabilities. Because of its significant correlation ( $r = -.18$ ) with Shipley IQ, residualized Health Concerns scores (with the effects of IQ removed) were used in subsequent analyses.

The Psychological Distress factor loads mainly on the Social Problems, Poor Morale, and Depression content scales and correlates ( $r = .67$ ) with the factor of the same name from the previous study. High scorers endorse items having to do with experiences of guilt, unworthiness, failure, worry, despair, lack of self-esteem and self-confidence, embarrassment, and feelings of being misunderstood. The emphasis seems to be on the social self and its vicissitudes

**Table 1. Type Distribution of the Patient Sample and  
SRTT Comparison to Male Population Norms From the 1998 MBTI Manual.**  
*N* = 265    + = 1% of *N*    *I* = Selection Ratio Index    \**p*<.05    \*\**p*<.01    \*\*\**p*<.001

The Sixteen Complete Types				Dichotomous Preferences		
ISTJ <i>n</i> = 44 (16.6%) <i>I</i> = 0.86 +++++ +++++ +++++ ++	ISFJ <i>n</i> = 29 (10.9%) <i>I</i> = 1.73** +++++ +++++ +	INFJ <i>n</i> = 10 (3.8%) <i>I</i> = 1.88 ++++	INTJ <i>n</i> = 12 (4.5%) <i>I</i> = 0.94 +++++	E 35 (13.2%) *** <i>I</i> =0.29 I 230 (86.8%) *** <i>I</i> =1.59	S 145 (54.7%) ** <i>I</i> =0.85 N 120 (45.3%) ** <i>I</i> =1.27	T 128 (48.3%) *** <i>I</i> =0.70 F 137 (51.7%) *** <i>I</i> =1.65
ISTP <i>n</i> = 26 (9.8%) <i>I</i> = 1.13 +++++ +++++	ISFP <i>n</i> = 33 (12.5%) <i>I</i> = 5.33** +++++ +++++ +++	INFP <i>n</i> = 45 (17.0%) <i>I</i> = 3.77** +++++ +++++ +++++ ++	INTP <i>n</i> = 31 (11.7%) <i>I</i> = 1.80** +++++ +++++ ++	Pairs and Temperaments		
ESTP <i>n</i> = 0 (0.0%) <i>I</i> = 0.00**	ESFP <i>n</i> = 3 (1.1%) <i>I</i> = 0.28** +	ENFP <i>n</i> = 11 (4.2%) <i>I</i> = 0.69 ++++	ENTP <i>n</i> = 7 (2.6%) <i>I</i> = 0.40** +++	IJ 95 (35.8%) <i>I</i> =1.10 IP 135 (50.9%) *** <i>I</i> =2.31 EP 21 ( 7.9%) *** <i>I</i> =0.35 EJ 14 ( 5.3%) *** <i>I</i> =0.23	ST 76 (28.7%) *** <i>I</i> =0.61 SF 69 (26.0%) ** <i>I</i> =1.50 NF 68 (25.7%) *** <i>I</i> =1.83 NT 52 (19.6%) <i>I</i> =0.91	SJ 83 (31.3%) *** <i>I</i> =0.72 SP 62 (23.4%) <i>I</i> =1.10 NP 94 (35.5%) *** <i>I</i> =1.50 NJ 26 ( 9.8%) <i>I</i> =0.83
ESTJ <i>n</i> = 6 (2.3%) <i>I</i> = 0.18** ++	ESFJ <i>n</i> = 4 (1.5%) <i>I</i> = 0.32** ++	ENFJ <i>n</i> = 2 (0.8%) <i>I</i> = 0.50 +	ENTJ <i>n</i> = 2 (0.8%) <i>I</i> = 0.22** +	TJ 64 (24.2%) *** <i>I</i> =0.60 TP 64 (24.2%) <i>I</i> =0.86 FP 92 (34.7%) *** <i>I</i> =2.06 FJ 45 (17.0%) <i>I</i> =1.17	IN 98 (37.0%) *** <i>I</i> =2.07 EN 22 ( 8.3%) *** <i>I</i> =0.47 IS 132 (49.8%) *** <i>I</i> =1.36 ES 13 ( 4.9%) *** <i>I</i> =0.18	ET 15 ( 5.7%) *** <i>I</i> =0.19 EF 20 ( 7.5%) *** <i>I</i> =0.47 IF 117 (44.2%) *** <i>I</i> =2.91 IT 113 (42.6%) <i>I</i> =1.08

Jungian Types (E)			Jungian Types (I)			Dominant Types					
<i>n</i>	%	<i>Index</i>	<i>n</i>	%	<i>Index</i>	<i>n</i>	%	<i>Index</i>			
E-TJ	8	3.0	n.a.	I-TP	57	21.5	n.a.	Dt. T	65	24.5	n.a.
E-FJ	6	2.3	n.a.	I-FP	78	29.4	n.a.	Dt. F	84	31.7	n.a.
ES-P	3	1.1	n.a.	IS-J	73	27.5	n.a.	Dt. S	76	28.7	n.a.
EN-P	18	6.8	n.a.	IN-J	22	8.3	n.a.	Dt. N	40	15.1	n.a.

*Gerald D. Otis  
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**Table 2. Psychological Type by Diagnosis Matrix.**

Type	PTSD	Anxiety	Axis I		Depression R	Anti	Axis II		Drama
			Bipolar	Anxiety R			Avoid	OBC	
ISTJ			-			-	+	+	-
ISFJ						-	-		+
INFJ	-								
INTJ				+				+	
ISTP	+					+	+		
ISFP						-			
INFP		+		+	-			-	
INTP	+					+	+	-	
ESFP				-					+
ENFP	-			-			-		+
ENTP		-		-		+	-		
ESTJ							-		
ESFJ		-		-			-		
ENFJ			+						
ENTJ									

*Note.* PTSD = Posttraumatic stress disorder (combat-related); Anxiety = Anxiety Disorder; Bipolar = Bipolar disorder; Anxiety R = Conspicuous Anxiety Rating; Depression R = Depression Rating; Anti = Antisocial personality disorder; Avoid = Avoidant personality disorder; OBC = Obsessive-Compulsive personality disorder; Drama = one of the following personality disorders: histrionic, narcissistic, borderline.

**Table 3. Life History Variables and Psychological Type.**

Type	School Drop-Out	Job Length	Never Married	Number of Marriages	Time Wed	Crime	Discipline Problem	Suicide Attempt
ISTJ		+						
ISFJ			-		+			
INFJ					-			
INTJ	-		+					
ISTP	+					+	+	
ISFP					-		-	
INFP								
INTP	+	+		+		+	+	
ESFP								
ENFP						-		+
ENTP						-		
ESTJ						-	-	
ESFJ	-				+			
ENFJ					+			
ENTJ		+						

when it is not supported by the person's environment. The effect of age on Psychological Distress scores ( $r = -.12$ ) was also eliminated by regression, and residualized scores were used in subsequent analyses.

Residualized Rebelliousness scores (i.e., with effects of age removed) showed a significant relationship to T-F ( $p = .006$ ) and J-P ( $p = .011$ ). The E-I by T-F interaction was also significant, as was the E-I by S-N interaction ( $p = .009$ ). Salience analysis revealed that these results were caused by high scores produced by ISTPs, INTPs, and ENFPs and low scores produced by ISFJs and ESTJs. The results for the three introverted types were the same as in the previous study. About 10% of the variance in Rebelliousness factor scores could be attributed to type preferences and their interactions.

Analyses of variance of the scores on the Authority Conflict Scale revealed significant effects from E-I ( $p = .032$ ), J-P ( $p = .001$ ), and the E-I by J-P interaction ( $p = .031$ ). Salience analysis ascribed these effects to high scores by ISTPs and INTPs and low scores by ISFJs, ENTPs, and ESTJs.

On the age-adjusted Manifest Hostility Scale, analysis of variance revealed significant effects caused by E-I ( $p = .044$ ), T-F ( $p = .040$ ), and J-P ( $p = .001$ ). Salience analysis found that ISTPs tended to produce high scores, whereas ISFJs, ENTPs, and ESTJs tended to generate low scores on this scale.

The Hypomania Scale produced no significant findings with analysis of variance, but salience analysis found INTPs to be higher than expected and ESTJs lower than expected by random sampling.

The Psychotic Symptoms Scale yielded significant effects from E-I ( $p = .004$ ), T-F ( $p = .002$ ), and J-P ( $p = .001$ ) by analysis of variance. Salience analysis found the effects to be caused by high scores from ISTPs and low scores from ISFJs, INFJs, ESTJs, and ESFJs.

Analysis of variance on Family Conflict scores showed significant effects from E-I ( $p = .004$ ) and J-P ( $p = .020$ ). Salience analysis found this to be the result of higher scores produced by ISTPs and INTPs, with lower scores coming from ISFJs, INTJs, ISFPs, and ENTPs.

Psychological Distress scores yielded significant effects from E-I ( $p = .000$ ) and T-F ( $p = .028$ ) in the analysis of variance, with no significant interaction effects. Salience analysis showed that six of the extraverted types had mean scores significantly lower than expected from random sampling, but only ISFP was significantly higher than expected. The significant T-F effect and the salience of the ISFPs in producing this effect were found in the earlier analysis. About 25% of the variance in Psychological Distress factor scores could be attributed to type preferences and their interactions.

The Social Problems component of Psychological Distress yielded significant effects from E-I ( $p = .000$ ) and J-P ( $p = .016$ ) in the analysis of variance. Six of the seven extraverted types were inclined to produce lower scores when analyzed by salience analysis, whereas ISTPs and ISFPs produced higher scores than expected by chance.

The Low Morale component of Psychological Distress was significantly affected by E-I ( $p = .000$ ), J-P ( $p = .030$ ), and the E-I by S-N interaction ( $p = .026$ ), according to analysis of variance. Salience analysis found these effects to be caused by the lower than expected scores by ENTPs, ESTJs, and ESFJs.

The Depression component of Psychological Distress showed significant effects from E-I ( $p = .000$ ), J-P ( $p = .000$ ), and the E-I by S-N interaction ( $p = .023$ ). By salience analysis, these results were caused by the higher than expected scores by ISTPs and ISFPs and the lower than expected scores produced by ENTPs, ESTJs, and ENFJs.

The Health Concerns factor is new to this study (previously, it contributed to the Psychological Distress factor) and produced no significant results when the residualized scores (i.e., with effects of IQ removed) were subjected to analysis of variance. However, salience analysis found significantly lower than expected scores for INFJs and significantly higher scores than expected for ISFPs and ESFJs. Type preferences and their interactions accounted for only about 5% of the total variance in Health Concerns factor scores.

Both the Health Concerns Scale (HEA) and the Organic Symptoms Scale (ORG) were significantly attributable to E-I ( $p = .040$  and  $.008$ , respectively) and J-P ( $p = .038$  and  $.000$ , respectively), according to analysis of variance. In addition, Organic Symptoms showed a marginally significant effect from S-N ( $p = .059$ ). Salience analysis determined that high Health Concerns Scale scores were caused by ISFJs, ISFPs, and INFJs, whereas low scores were caused by INFJs, ESFJs, and ENFJs. Organic Symptoms scores were high for ISTPs and ISFPs, whereas low scores characterized the ESFJs.

The Phobic Symptoms Scale contributed about equally to all three factors but still retained a lot of unique variance after the factors were extracted. The part of the score variance shared with other content scales was significantly affected by E-I ( $p = .000$ ), and this was revealed in the significant salience analysis findings for six of the seven extraverted types. The unique part of the scale revealed significant effects from E-I ( $p = .000$ ) and T-F ( $p = .051$ ) in the analysis of variance. Salience analysis showed these effects to be caused by the influence of four types: ISTPs and INTPs produced lower scores than would be expected, whereas ISFPs and ESFPs scored higher than would be expected on the basis of random sampling.

The ISFP result was anticipated by the earlier study, as were the results for ISTPs and INTPs.

**Type and Diagnosis.** Four diagnostic features on Axis I were examined using random distribution analysis: presence or absence of combat-related PTSD, an anxiety disorder other than combat-related PTSD, major depression, and bipolar disorder. As in the previous report, ISTPs and INTPs were more likely than expected to receive a diagnosis of combat-related PTSD. (See Table 2.) In addition, both INFJs and ENFPs were less likely to receive a combat-related PTSD diagnosis. For the anxiety disorder dichotomy, INFPs were more likely to earn this label than would be expected on the basis of random sampling, as had been found previously, whereas ENTPs and ESFJs were less likely to attain this distinction. Bipolar disorder was more likely than expected by random sampling in ENFJs but less likely in ISTJs. None of the types were significantly different than expected on the major depression diagnosis. INTJs approached an acceptable significance level, whereas they were significantly higher in the first analysis.

The same classifications were used for Axis II diagnoses (personality disorders) as in the previous report, i.e., antisocial, dramatic (Cluster B without antisocial), avoidant, and obsessive compulsive. It was again found, using random distribution analysis, that ISTPs and INTPs were more likely than chance to be called "antisocial." ENTPs joined this group from the ranks of the extraverts. ISTJs, ISFJs, and ISFPs were all less likely than expected on the basis of chance to be termed "antisocial." ISTJs, ISTPs, and INTPs were all more likely than chance to be deemed "avoidant," whereas ENFPs, ENTPs, ESTJs, and ESFJs were not likely to receive that diagnosis. For the obsessive-compulsive diagnosis, ISTJs and INTJs were more likely than expected on the basis of random sampling, whereas INFPs and INTPs were less likely than expected, the same as in the earlier analysis, with the exception of the INTJs. ISTJs were not likely to get a diagnosis in the "dramatic" category, whereas ISFJs were and ESFPs and ENFPs joined them. INFJs did not stand out on the dramatic cluster as they did in the earlier analysis, and ISFPs did not produce their earlier "unlikely" status on this variable, although the results were in the same directions.

On the clinician ratings of conspicuous anxiety (adjusted for age and IQ), the analysis of variance produced only a significant effect for E-I ( $p = .000$ ). With salience analysis, INTJs and INFPs had higher average scores than would be expected on a random basis, whereas ESFPs, ENFPs, ENTPs, and ESFJs all had lower average scores than expected. In the analysis of variance, there were no significant results for the conspicuous depression ratings, whereas

with salience analysis, only INFPs had average scores lower than expected on the basis of random sampling.

**Case Record Variables.** Duration of longest job and number of marriages were significantly correlated with age, so the linear effects of age were eliminated by regression. Duration of longest marriage was significantly related to both age and IQ, requiring the use of residualized values for it as well. The remaining case record variables were analyzed in their original state. Analysis of variance for length of longest job produced a significant effect for E-I ( $p = .001$ ) but no significant effects for number of marriages. Analysis of variance on the marital duration variable produced significant effects for E-I  $\times$  T-F ( $p = .012$ ), S-N  $\times$  T-F ( $p = .008$ ), E-I  $\times$  J-P ( $p = .049$ ), S-N  $\times$  J-P ( $p = .036$ ), and T-F  $\times$  J-P ( $p = .036$ ).

The results of the salience analysis or random distribution analysis of these variables (depending upon whether they were continuous measures or frequencies of occurrence) are shown in Table 3. It can be seen that the earlier findings for INTPs were all supported: Relative to other veterans, they had shorter job durations, more marriages, a higher probability of being arrested for a nonsubstance-abuse crime, and a greater likelihood of being considered a disciplinary problem in the treatment facility. ESFJs and ENTJs replaced ISFJs at the high end of the job duration variable, but ISTJs retained their earlier status. E\_FJs joined ISFJs in having longer marriages, whereas INFPs and INFJs tended to have shorter marriages. INTJs captured the distinction of being more likely to never have been married from the ISTPs (who had it in the earlier analysis), whereas ISFJs emerged as being most likely to have been married. ISTPs, like INTPs, were more likely to drop out of school, to be arrested for nonsubstance-abuse crimes, and to be considered disciplinary problems in the Domiciliary. ESTJs were unlikely to have either crime or disciplinary problems, and INTJs and ESFJs were unlikely to drop out of school relative to the rate at which other types did so. EN\_Ps were less likely to be arrested for a nonsubstance-abuse crime, and ISFPs retained their low likelihood of being regarded as disciplinary problems. ENFPs were the only type to have a detectable likelihood, greater than other types, of having made at least one suicide attempt.

## Discussion

As in the earlier analysis, the results of this study, with a larger group of veteran patients and inclusion of the few extraverts who managed to get sorted into this cohort, are consistent with the hypothesis that different psychological types manifest their psychological dysfunction in different ways. Comparing the

overall results for introverts to the earlier analysis, there were 37 replicated (or nondegraded) associations between a type and a dependent measure, 12 associations from the previous analysis that were not replicated, and 3 that were "close." All but one of the findings using more sophisticated levels of measurement (i.e., the factor scores) were replicated. There were 33 significant associations for the extraverts. However, the numbers in three of the extraverted types were so small that it is difficult to place too much confidence in their stability (even though the statistics consider sample size).

We agree with Mitchell (2000) in viewing the types as the basic units of analysis in type research. In fact, the types, as experiential-behavioral systems each following a particular set of rules or laws, can be viewed as *creating* the preferences. The bipolar contrasts of the type preferences, like the factors that emerge in R-technique factor analysis, are explanatory concepts advanced to account for *inter*-individual differences and are based on observed covariations of object attributes that run through the population. They do not necessarily reflect functional relationships *within* individuals, our use of terms like extraversion, intuition, etc., notwithstanding (which is not to say that there are no practical uses for such terms). That is, the distinctions we use to *identify* types emerge from consideration of the full range of contrasts in behavior and experience that characterize human beings, but these distinctions are not the sets of internal rules or laws themselves. Identification or discovery of the internal regularities requires *within-type* research and an expanded and differentiated conceptual vocabulary. The kinds of concepts that are needed are ones that link membership in a type to intrapsychic parameters in domains like motivation, emotion, learning, planning, perception, mechanisms of self-monitoring and self-regulation, etc. If this view is correct, then analysis of variance really may not be an appropriate method for analyzing type data, because it assumes that simple preferences and the interaction of preferences sum to influence a dependent measure. The type-centric position would view simple preference effects and less than four-way interaction terms as being artifacts of type effects. Both kinds of analysis were included in the present paper for the readers' consideration of this difference in perspective.

Looking at the results of the 20 analyses of variance on the continuous variables, the E-I contrast affected 13 dependent variables and entered into interactions in 7 instances. The magnitude of the simple effect frequently was greater for E-I than for the other contrasts, and its effect is the closest we come to finding an uncomplicated preference effect (most pronounced for the Psychological Distress variables). The J-P contrast produced 9 simple effects and

entered into interactions in 4 cases. Thus, the results suggest that the "attitudes" (E-I and J-P) are important influences on behavior by themselves as well as through their effects in modulating the "functions" (S-N and T-F).

**Introverted Thinking Types.** The findings were most well defined and consistent for the introverted thinking types. The high Rebelliousness appears to be paired with average to low Psychological Distress and Phobic Symptoms, suggesting an impassioned defense of their autonomy, with relatively little fear or anxiety to exert a moderating influence on judgment. They appear to begin their defiant ways early in life (Roberds-Baxter & Baxter, 1994, as cited in Myers et al., 1998), dropping out of school in order to follow their own adventurous and self-directed inclinations. The psychological characteristics of these two types may work well for them if they happen to be exposed to combat (see Dalton, Aubuchon, Tom, Pederson, & McFarland, 1993, Otis & Louks, 1997), although they may "pay the price" later by delayed-onset PTSD. In civilian life, their disinclination to allow someone else to direct their actions, a "to hell with consequences" devotion to their principles, and a lack of concern about personal injury can make it difficult to sustain viable relationships in the workplace, at home, or in a facility like the Domiciliary.

ISTPs were significantly high on all of the Rebelliousness components except one, Hypomania. INTPs were missing the hostility and psychotic symptoms of their ISTP cousins but had a penchant for restlessness and ideational hyperactivity that the ISTPs lacked. ISTPs appeared to experience more disruption in their interpersonal relations and a greater sense of guilt, unworthiness, and lack of self-esteem than did INTPs. They also appeared to feel there was something wrong with their mental abilities. ISTPs often left the Domiciliary impulsively when they felt they had not made rapid enough concrete progress in reducing their subjective distress. INTPs, unlike ISTPs, appeared to persist, despite past failure, in trying to find something they were seeking in relationships with the opposite sex. Their difficulties in intimate relationships were noted earlier by Marioles, Strickert, and Hammer (1996). On the other hand, they may simply have been acting out of their sense of honor ("make an honest woman of her"), whereas the ISTPs took a more cavalier approach ("love 'em and leave 'em").

It may seem illogical that these individuals can be deemed "principled" at the same time that they are likely to be called "antisocial" and to have so much trouble with the law. Principled, as used here, refers to *personal* standards for measuring, regulating, or guiding conduct, not necessarily to conventional social standards. As personal constructs about self



in relation to the social world, these concepts are embedded in the peculiarities of a person's life experiences. The concepts and sentiments that are formed, the ways the individual divides the world of people and social structures, reflects this idiosyncrasy. The particular subset of I\_TPs being considered here did not, for the most part, develop in environments that optimized the robustness of their concepts, sentiments, or internal "maps" of society. In fact, there were many aspects of their environments that had imposed constraints on their ability to obtain and process relevant information.

A vignette from a case history may be illustrative. A young INTP, from a home with an abusive stepfather, was angry and disillusioned with his superiors in the army for having allowed a clearly mentally disturbed comrade to commit suicide in Vietnam. He felt betrayed by "the politicians" for inadequate prior evaluation of U.S. involvement in the war and by the American people for their failure to support the troops. He also felt he had been unjustly treated after his return home, because the army imprisoned him as an "example" of what would happen to soldiers who used drugs in Vietnam, thus ending his dream of a military career. (The practice was soon abandoned because of the magnitude of the problem, but the patient still had to serve out his sentence.) After his discharge from the army, he was living with a rag-tag group of drug-abusing street waifs. Their rent was coming due, they were hungry but had no food in the house, and they had no money. The others fretted about what to do but could not come up with a plan that would gain them the necessary funds within the given time frame. The INTP regarded the others as friends but as not having the requisite skills and strength of character to pull off any daring feat. Deciding to take matters into his own hands, he robbed a bank at gunpoint. He arrived home with the needed funds and repeated the scenario, as necessary, never being apprehended.

Twenty-five years later, he explained that the gun was always empty and that he would have preferred "taking the bullet" himself rather than having an innocent person get injured. He said he never robbed any establishment that he thought did not have insurance coverage. He trusted his physical prowess, his ability to read the dangers in a situation quickly, and his ability to control his emotionality when under stress (so as not to hurt anyone or get caught himself), i.e., he regarded himself as the person best suited for the job. He took for granted that stealing was improper but implicitly made the judgment that obligation to friends when they are in need was more important than allegiance to a nonsituated moral principle imposed by (he assumed from his limited but salient personal experience) hypocritical authorities he did not respect. That is, his principles were

reserved for members of a personal "in group" and did not extend to "straight society."

Thus, given his assumptions, he implemented the principles of the "hero" on a local level: loyalty, minimization of harm to innocents, self-sacrifice in the interests of group survival, gallantry, boldness, and conviction. However, the quality of his perception and judgment were degraded by a number of factors. Lack of representation of competent and ethical individuals in his particular sample of authority figures led to an unrefined and negatively biased concept of them. His relative isolation from the larger social system and lack of knowledge of sources of help that might be available constrained the alternatives he saw as possible. His assumption that he was not and could not become a part of that larger society and his distrust of its representatives led him to view it much like the enemy he had been fighting recently. He did not appreciate the value of conventional social sentiments and was too accustomed to relying solely on his own assessment of a situation (not seeking advice), too willing to experiment with his identity while disregarding the importance of reputation. And his aptitude for making facts conform to theory via the "Procrustean method" justified an expedient solution to a problem.

**Introverted Feeling Types.** Anxiety appears to be prominent in the clinical features of both ISFPs and INFPs, but it seems to be experienced differently. ISFPs were again found to have significantly higher scores on the Psychological Distress factor and two of its components, reinforcing the hypothesis that they have a generally negative self-image, feel inadequate, and feel like failures. Their high Phobic Symptoms scores point to a lot of irrational fears, and their higher scores on the Health Concerns factor imply that they may be inclined to perceive the source of their discomfort in the body (including the brain) rather than in the mind. Their high stress reactivity had been noted in Shelton (1996). They continued to have a low probability of being considered antisocial and a low probability of becoming a disciplinary problem in the facility, suggesting the controlling effect of social timidity on their behavior. ISFPs presented themselves in a shy, self-effacing manner, were inclined to try to please others, but often bemoaned their inadequacies and portrayed themselves as hopeless.

As in the earlier study, INFPs were more likely to present with an anxiety disorder and had higher anxiety ratings (but lower depression ratings) than would be expected from random sampling. Their anxiety was not likely to be controlled by obsessive-compulsive structuring or phobic symptoms but was more likely to be played out in intimate relationships. The anxiety of the INFP was more likely to be

conspicuously observable by others, but it did not appear to degrade the person's conscious self-regard or confidence in his abilities, as it did in the ISFPs. INFPs focused some attention on bodily functioning but not as broadly as the ISFPs appeared to do, with their high scores on all aspects of the Health Concerns factor. INFPs took readily to psychotherapy and were confidently (and at times overconfidently) psychologically minded. They could be very critical of others who did not hold the same ideals and would sometimes try cunningly to sabotage the efforts of persons they disliked. They often had humanistic ideals but would get involved in situations in which they compromised such ideals and then became despairing of their ultimate worth and doubtful of their adequacy.

**Introverted Sensing Types.** The conventionality and propriety of the "super-dependables" appeared to be somewhat overshadowed by that of the ESJs in this analysis. ISFJs were once more distinguished by low Rebelliousness (i.e., they were inclined to be conforming and accepting of authority), and they were found to have significantly longer marriages and also a low probability of never having been married. The tendency for high Psychological Distress scores vanished in the larger sample, as did the finding of greater stability on the job and less likelihood of having been arrested for a non-substance-abuse crime. They were less likely to present with an avoidant or antisocial personality disorder pattern and more likely to be labeled with one of the "dramatic" personality disorders. Clinically, these patients continued to be seen as tidy, compliant, and conscientious in work assignments and psychotherapy, tended to overidealize their therapists, easily voiced their distress, and were inclined to generate negative interpretations of dreams, their possible motives, and their future possibilities.

ISTJs maintained their higher probability of being considered obsessive compulsive and lower probability of earning one of the "dramatic" personality disorder labels. This probably reflects their emphasis on organization, planning, self-discipline, and emotional control. In addition, they were found to be less likely to be labeled with a bipolar disorder and antisocial personality disorder and more likely to be deemed avoidant. The significantly longer job lengths from the earlier study remained in the larger sample, whereas the finding of fewer marriages was not replicated. They were likely to suggest termination of treatment when they felt they had a handle on their problems (sometimes prematurely).

**Introverted Intuitive Types.** Data for the INFJ patients pointed more toward what is *unlikely* than to what is likely for them. They did not seem to pay

much attention to organic maladies, did not endorse questionnaire items suggesting psychosis, and they were unlikely to be diagnosed with PTSD. They were inclined to have shorter marriages, and they continued to show a flair for the dramatic, albeit not as strongly ( $p = .081$ ) as earlier results suggested. Clinically, they were very attuned to the feelings of others, often felt misunderstood, and frequently had a quiet kind of idealism that they sought to realize in some way (but not always being able to find a practical way to do it). At times, when events either supported or challenged their ardent commitment to certain humanistic values, they became quite emotionally demonstrative.

INTJs showed only a trend ( $p = .067$ ) toward a greater likelihood of being diagnosed with major depression. Added, in the current analysis, were significantly greater conspicuous anxiety, a higher probability of receiving an obsessive-compulsive personality disorder diagnosis, and a greater likelihood of staying in school to graduation, fewer endorsed family conflict items, and a higher probability of never having been married. Clinically, they seemed overly serious, intellectual (liking to attain clarity about concepts), and felt alienated from almost everyone.

**Extraverted Thinking Types.** ESTJs were accepting of authority and did not feel compelled to challenge it in society as a whole or in the limited context of the Domiciliary. They experienced little subjective distress and were not inclined to use avoidant defensive styles. They usually came to the Domiciliary because of some event that had disrupted their lives (loss of spouse or job) or because of alcohol addiction. As patients, they tended to focus on their goals and move through the system without a hitch. Four of the six ESTJs were in the upper quartile of IQ scores on the Shipley, and the older ones had had quite responsible administrative jobs in the past. They definitely wanted to control the process and outcomes of treatment and figured out means to get around any bureaucratic obstacles placed in their way.

The two ENTJs in the sample did not stand out in the pattern of their results. They experienced less subjective distress and held jobs longer than most of the other types. Both patients came to the Domiciliary because of alcohol problems and, like the ESTJs, did not stay in treatment very long.

**Extraverted Feeling Types.** ESFJs experienced relatively little subjective distress and little family conflict, and they were inclined to downplay their health concerns. They were neither conspicuously anxious nor likely to receive an anxiety disorder diagnosis, and they did not rely on avoidant defenses. Reflecting the value ESFJs tend to place on security and stability, they were inclined to stay in school

until graduation, have relatively long marriages, and stick with one employer for greater lengths of time than most other types. Chronic problems in passionate relationships leading to substance abuse, suicide attempts, and/or some other complication brought all four cases to the treatment facility. The two ENFJs were both diagnosed with bipolar disorder and were married for longer periods than were most patients.

**Extraverted Sensing Types.** There were no ESTPs in the sample. The three ESFPs scored significantly lower on the Psychological Distress Scale but higher on the unique Phobic Symptoms Scale. They were not seen as anxious and were unlikely to get an anxiety disorder diagnosis. However, they were more inclined to have a personality disorder in the "dramatic" group and were more likely to be diagnosed with bipolar disorder.

**Extraverted Intuitive Types.** EN\_Ps demonstrated less psychological distress, lower conspicuous anxiety, and less likelihood of obtaining an avoidant personality disorder than would be expected on the basis of random sampling. ENTPs were, in addition, less likely to be diagnosed with an anxiety disorder and more likely to be diagnosed with an antisocial personality disorder (even though they were less likely to be arrested for a nonsubstance-abuse crime). Clinically, the ENTPs seemed to act in a rather self-centered, pretentious, and overly confident fashion that turned others against them. They frequently got into debates or arguments with their peers and were surprised when, not taking into account the background or sensitivities of their interlocutor, the person would take offense at something they were "just considering." They were often unwilling to focus on the specific steps needed to achieve their goals and seemed to trust that they could improvise when the time came and find some shortcut to what they believed was their due.

The ENFPs had a lower probability of being diagnosed with PTSD and a higher probability of being diagnosed with one of the dramatic personality disorders than would be expected on the basis of chance. They obtained higher Rebelliousness scores than expected but apparently did so by having substantial (but not outstanding) scores on several of the scales making up the Rebelliousness composite. They were also the only type that showed a significantly higher probability of having made at least one suicide attempt than would be expected by random selection of cases. This finding is interesting in light of previous research that found INFPs more inclined than other types to suicidal ideation in college students (Komosin, 1992; Street & Kromrey, 1994). In the present study of nonstudents, there were no more INFPs in the suicide attempters group than would be

expected on the basis of chance.

The pattern of findings in ENFPs suggests a moderate amount of anger, authority conflict, and family conflict apparently without guilt and despair or loss of self-esteem (or at least without an inclination to report it). That is, in a type that is ordinarily quite emotionally expressive, desirous of affirmation from others, and interpersonally empathic and skillful, there appears to be considerable resentment and defiance but little associated subjective distress or anxiety. Yet these individuals were very likely to have attempted to kill themselves. This subset of ENFPs seems to share some features with the patients mentioned by Ronningstam and Maltzberger (1998), who viewed each suicide attempt in their three case studies as "a failed effort to avoid facing a major shameful defeat, loss, or narcissistic injury" (p. 267). Citing Schore (1994), Ronningstam and Maltzberger considered their patients to have a defect in affect regulation that would, if it were not defective, moderate grandiose fantasy, excitement, and narcissistic rage and shame. When a narcissistic injury occurred, they were prone to attack and try to destroy the betraying self in a fit of rage.

In a case from the present cohort, a man of considerable intellect had developed an inflated sense of his powers of intuition, supported, in many instances, by what would appear to be chance encounters with certain people and by his proficiency in games such as chess. He abandoned his graduate study in one of the social sciences at a well known university just short of the doctorate when he "froze" during his orals. In his early adulthood, he frequented the intellectual, artistic, and cultural haunts of New York City as well as its many gaming rooms. He would have a "hunch" about the motivations, relationships, past history, or short-range destiny of some person he did not know, strike up a conversation with the person, and frequently find that his intuitive hypothesis was supported. He sometimes used his "gift" to impress girls and amaze friends, but he never used it for material gain or in a malevolent manner (as far as could be determined by interviews and observations by many people over a period of years).

He got married relatively late in life and had two children whom he adored. Although there were some areas of conflict in the marriage, he loved his wife and believed that she was totally devoted to him. Until, that is, she announced she was having an affair and wanted a divorce after 8 years of marriage. The patient was dumbfounded, made two suicide attempts, and spent several years in a state hospital before he was transferred to the Domiciliary. He looked depressed, even without speaking a word, and most of the staff regarded him as a "keeper." In talking with him, however, it was observed that he was not anxious, did not berate himself for inadequacies

or mistakes in judgment (as is usually the case in depression), and continued to rely strongly on his intuition. He did feel bewildered at what had happened and could not "figure out" how he had erred but assumed he had overlooked something. It soon became evident that he had considerable anger toward his ex-wife, and he at times vented it in letters filled with cutting and sarcastic remarks. She responded in kind, emphasizing his lack of consideration for her and the children when he attempted suicide "in the house," and she used access to the children as her trump card.

He became hooked on the weekly half-hour therapy sessions through dream analysis, which played to his intuitive preference. But in the interpretive process, every opportunity was taken to point out and demonstrate the virtues of paying attention to the evidence (sensing) and analyzing it carefully (thinking) while simultaneously supporting what he called his "good stuff" (intuition). Eventually, the patient discovered that he could figuratively kill off the offending self (or at least its overblown aspect) while leaving the body intact. Since he was discharged 7 years ago, he has developed a circle of interesting friends, produced a radio talk show in a distant city, taught chess to youngsters, and won a professional tournament himself.

Introversion has frequently been found to be associated with measures of maladjustment (Myers & McCaulley, 1985), and introverts are more prone to blame themselves for their discomfort (Myers et al., 1998). Indeed, in this study of military veteran patients requesting or being referred for psychotherapy, the majority was introverted and a few extraverts produced lower scores on most questionnaire measures of psychopathology. However, it could be that many findings of this sort are artifacts in the conceptions of psychological disturbance and of the item pools that test developers have used to assess psychopathology. The phenomenon may not be limited to introversion either, if we consider ISTJs, who had no distinguishing features in the questionnaire domain and INTJs and INFPs, who were relatively poorly defined. This would suggest that the framers of the MMPI had certain kinds of introverts in mind when they developed their item pool, did not give as much consideration to the ways extraverts may manifest their pathology, and could have benefited from experience or consultation with representatives of all psychological types. One of the contributions MBTI research may make to the psychopathology and psychotherapy fields could be in pointing to the direction for creation of measures of psychopathology that are "type fair" and cover the whole range of ways in which individuals may reveal their psychological disturbances. Such an enterprise would have to be mindful of the different "levels" of things that can

be assessed (e.g., mental processes or products vs. overt actions) as well as the different social and goal-oriented contexts in which the behavior or experience might be exhibited.

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