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Keane's MMPI subscale for assessment of combat-related post-traumatic stress disorder : a comparison with non-combat related PTSD patients

Barbara A. Schmidt
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posttraumatic stress disorder: A comparison with non-combat
related PTSD patients**

Schmidt, Barbara A., M.S.

San Jose State University, 1990

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Ann Arbor, MI 48106

KEANE'S MMPI SUBSCALE FOR ASSESSMENT OF
COMBAT-RELATED POST-TRAUMATIC STRESS DISORDER:
A COMPARISON WITH NON-COMBAT RELATED PTSD PATIENTS

A Thesis

Presented to

The Faculty of the Department of Psychology

San Jose State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

by

Barbara A. Schmidt

May 1990

Keane's MMPI Subscale

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Keane's MMPI Subscale

Acknowledgment

This work is dedicated to my husband, Dr. K. Michael Schmidt, without whose encouragement and support I could never have finished my graduate work. He kept me going and revitalized my spirit whenever I needed it.

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Keane's MMPI Subscale For Assessment of
Combat-Related Post-Traumatic Stress Disorder:
A Comparison With Non-Combat Related PTSD Patients

Barbara A. Schmidt

San Jose State University

Running head: KEANE'S MMPI SUBSCALE

Abstract

Keane, Malloy, and Fairbank (1984) empirically developed a 49-item subscale of the Minnesota Multiphasic Personality Inventory (MMPI) for assessment of combat-related post-traumatic stress disorder (PTSD) in Vietnam veterans. Little has been done to assess civilian-related PTSD in such a manner. This study investigated the applicability of the Keane subscale to a group of civilian PTSD patients. Completed MMPI answer sheets were used to place 42 female and 18 male subjects in 3 groups of 20 each: PTSD, various psychiatric diagnoses, and control. Groups were matched for sex and age with the mean age being 38. A one-way analysis of variance of the 49-item subscale for the three groups revealed a significant difference between the three groups. Research on civilian trauma must be encouraged to create the tools for accurate diagnosis and treatment of non-military PTSD. Use of the MMPI by mental health professionals working with the civilian population should be supported.

Keane's MMPI Subscale for Assessment of
Combat-Related Post-Traumatic Stress Disorder:

A Comparison With Non-Combat-Related PTSD Patients

Far back in history there has existed descriptions of psychological distress resulting from combat. According to Keane, Wolfe, and Taylor (1987), Civil War terms included battle fatigue, soldier's heart, combat neurosis, and shell shock. After World War II, psychiatric terminology described the symptoms of anxiety, depression, sleep disruption, nightmares of combat events, guilt, and problems in controlling anger. Vietnam veterans have reported these same symptoms along with a wide range of interpersonal and relationship problems.

Since the early 1970s, clinical reports and empirical studies have documented the existence of a clinical syndrome in combat veterans that is classed among the anxiety disorders in the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R, 1987) as post-traumatic stress disorder (PTSD). The diagnostic criteria for this disorder are: (a) the person has experienced an event that is outside the range of usual human experience; (b) the traumatic event is persistently re-experienced; (c) there is persistent avoidance of stimuli associated with the trauma or

numbing of general responsiveness (not present before the trauma); and (e) the duration of the disturbance (symptoms in b,c, and d) is at least one month (see Appendix A for detail).

Symptoms of PTSD also occur in survivors of other tramata, such as motor vehicle accidents, sexual assault, death of a significant other (McCaffrey, Hickling, & Marrazo, 1989), and natural and man-made disasters (Keane et al, 1987; McFarlane, 1988). By means of clinical diagnostic assessment and an objective questionnaire, Green, Grace, and Gleser (1985) found that the most predictable symptoms among survivors one year after the Beverly Hills Supper Club fire of 1977 were those associated with stress disorders. They concluded that a person's individual disaster experience is a good predictor of future psychological functioning, allowing identification of individuals likely to require clinical intervention.

Lawson (1987) has referred to work-related post-traumatic stress reactions as "the hidden dimension." When a workplace injury results in only minor physical impairment or none at all (such as toxic exposure), the emotional impact of the incident may be overlooked by both the employee and the health care provider. According to

Lawson, recent literature has suggested that a variety of health hazards exist in the workplace that can be the setting for real or perceived life-threatening events. Any traumatic incident can erode the victim's feeling that the world is a safe and predictable place.

Viewpoints on PTSD differ. According to Lawson, "Soldiers leave war zones; flood waters retreat; attempts are made to protect sexual assault victims from the attacker; workers, however, return to the work site." In contrast, Fairbank, Keane, and Malloy (1983) express the view that for many Vietnam veterans the price of military service extends far beyond their time in uniform and for some the effects of traumatic combat events do not subside over time.

Platt and Husband (1987) are mental health practitioners involved in forensic work. They found that the average profile of their male motor vehicle accident subjects closely paralleled the Minnesota Multiphasic Personality Inventory (MMPI) profiles of Vietnam veterans with PTSD but with significantly lower scale elevations. Overall, their findings suggest that there is wide variety in MMPI profiles of patients who have experienced similar stressors and that there may not be a typical MMPI profile that characterizes PTSD motor vehicle accident victims

involved in litigation.

McCaffrey et al (1989) found that development of symptoms of PTSD appear to have no specific time constraints, some developing immediately after the traumatic event and others after a prolonged period of time has elapsed. Type, intensity, duration, and number of actual traumatic events are a few of the variables on which patients with PTSD may vary. Coping strategies and social support may also differ from patient to patient.

To aid in the psychological assessment and diagnosis of PTSD, Keane, Malloy, and Fairbank (1984) developed a scale of 49 items from the 400-item MMPI for the assessment of post-traumatic stress in Vietnam combat veterans (see Appendix B for detail of items). Cutoff scores were calculated for the F scale (66 T), depression scale (75 T), and schizophrenia scale (79 T) and those scoring above these scores on all three scales were classified as PTSD subjects. Koretzky and Rosenoer (1987) found this decision rule alone effective in identifying their alcoholic PTSD subjects. The subscale has been validated and cross-validated, and has effectively discriminated PTSD veterans from veterans with other psychological problems at the .001 level. Query, Megran, and McDonald (1986), Watson Kucala, and Manifold (1986), Cannon, Bell, Andrews, and

Finkelstein (1987), and Denny, Robinowitz, and Penk (1987) have corroborated these findings. The Veterans Administration has given official recognition to the value of the Keane MMPI PTSD subscale (Blanchard, Wittrock, Kolb, & Gerardi, 1988).

MMPI studies of PTSD have focused on male Vietnam combat veterans, and the Keane subscale has generally been found useful for identifying the combat-related PTSD population. No such subscale exists for civilian-related PTSD populations. McCaffrey et al (1989) used the MMPI PTSD subscale on two groups of male and female civilian subjects who had experienced traumatic events (PTSD and non-PTSD), but found no statistically significant subscale score difference between the groups. They concluded that substantial differences exist between civilian-related and combat-related PTSD populations although nothing specific was cited.

This study utilized the MMPI results of three groups: male and female civilian PTSD subjects; male and female civilian subjects with various clinical diagnoses; and psychologically healthy male and female civilian subjects.

This study examined whether the Keane PTSD subscale would be effective in identifying a civilian PTSD group suffering from a variety of tramata. In addition, mean

profiles were calculated on the validity and clinical scale scores for the three groups to see how they would compare to the Keane (combat) and the McCaffrey (non-combat) studies.

Method

Subjects

Archival data were used in this study. Completed MMPI answer sheets were gathered from mental health professionals on 6 anonymous male and 14 female civilian subjects between the ages of 22 and 62, average being 38. Group #1 consisted of 20 subjects diagnosed as having post traumatic stress disorder (varied trauma origin, see Appendix C); group #2 consisted of 20 subjects with a variety of psychiatric diagnoses (non-PTSD); and group #3 consisted of 20 subjects with no psychiatric diagnoses. Subjects in the three groups were matched for sex and age with widest span being 5 years (see Appendix D).

Diagnosis for the three groups consisted of psychological testing, including the MMPI, plus a clinical interview by a licensed clinical psychologist. The PTSD and psychiatric group received at least one additional meeting with a licensed clinical psychologist.

The sample size and composition were determined by the resources available to the researcher.

Procedure

All completed MMPI answer sheets were transcribed by hand onto special answer sheets provided by Behaviordyne, Inc., of Palo Alto, California. This step was necessary for Behaviordyne to generate their special computerized clinical report designated as a 6B RO: 6, diagnostic report containing relevant personality and pathology information; B, brief form of the basic narrative report; RO, research option with a supplemental set of pages designed for the researcher who needs more numerical data than are provided with most standard reports (see Appendix D).

Results

Means and standard deviations for the 49-item Keane subscale are presented in Table 1. A one-way analysis of variance of the 49-item Keane subscale revealed a significant difference between the three groups ($F[2,57] = 12.89, p < .001$). To determine where the difference between these three groups lay, a series of planned comparisons was conducted (Keppel & Saufley, 1980). These comparisons revealed the mean score of the PTSD group to be significantly greater than the psychiatric group ($F[1,57] = 4.83, p < .05$), the psychiatric group significantly greater than the control group ($F[1,57] = 8.21, p < .01$), and the PTSD group significantly greater than the control group

Table 1

Means and Standard Deviations for PTSD, Psychiatric and Control Groups

Groups		<u>M</u>	<u>SD</u>
PTSD	(<u>N</u> =20)	15.50	10.90
Psychiatric	(<u>N</u> =20)	10.40	5.90
Control	(<u>N</u> =20)	3.75	2.60
TOTAL		<u>9.88</u>	<u>6.47</u>

25.64, $p < .001$).

The number of questions on the Keane subscale endorsed by the PTSD group ranged from 4 to 41, the psychiatric group from 2 to 22, and the control group from 1 to 10. Keane found that 30 was the optimal cutting score for separating out the PTSD group. Only three individuals in the PTSD group had scores exceeding that cutoff (36, 36, 41).

The mean T-score MMPI profiles for the three groups on the validity and clinical scales are shown in Figures 1 and 2. Mean T-scores on all scales fell within the normal range (T less than 70). These scores include the K correction. Keane (1984) reported that his PTSD group had a 2-point code of 8-2 (peaks on schizophrenia and depression). The PTSD group in this study had a 3-point code of 2-6-8 (peaks on depression, paranoia, and schizophrenia). Although the PTSD group differed considerably from the psychiatric group on the depression (2) scale ($F = 13.06$), little difference was found between the PTSD group and the psychiatric group on the paranoia (6) scale ($F = 1.33$) and on the schizophrenia (8) scale ($F = .08$).

Keane used cutoff scores of 66 on the F scale, 78 on the depression scale, and 79 on the schizophrenic scale and

Figure 1. Mean T score MMPI profiles for three subject groups on validity scales. (L = lie; F = validity; K = defensiveness.)

Figure 2. Mean T score MMPI profiles for three subject groups on clinical scales. (Hs = hypochondriasis; D = depression; Hy = hysteria; Pd = psychopathic deviate; Mf = masculinity-femininity; Pa = paranoia; Pt = psychasthenia; Sc = schizophrenia; Ma = hypomania; Si = social introversion.)

those scoring at or above those scores denoted the combat-related PTSD group. Few individual scores for the civilian-related PTSD group reached those cutoff scores (three on the F scale, four on depression, and two on schizophrenia).

There was no correlation between number of items endorsed on the Keane subscale and age in any of the groups. A correlation between number of items endorsed on the Keane subscale and sex was found to be significant at the .01 level in the psychiatric group (.5396) with males endorsing more subscale items.

Discussion

The findings of this study appear to indicate that the Keane subscale for combat-related PTSD did function as an efficient discriminator of civilian-related PTSD. This supports use of the MMPI as an assessment tool in the diagnosis and treatment of civilian-related PTSD.

Previous research has suggested that homogeneity of sample subjects is an important consideration, but this may have established an unnecessary limitation. Whereas Keane's subscale was developed on 200 male veterans, including 100 Vietnam veterans, who were victims of combat trauma, this study included male and female victims of wrongful arrest, molestation, assault, severe automobile accidents,

battering resulting in murder, hijacking, and other unusual tramata. Although subjects in this study did not endorse as many subscale items as Keane's subjects, the subscale did function to differentiate between the PTSD group and the psychiatric and control groups.

McCaffrey (1989) studied 5 male and 7 female PTSD subjects and 5 male and 9 female non-PTSD subjects who had been seen in a local group practice. Traumatic events in the PTSD group included 10 motor vehicle accidents, 1 boating accident, and 1 physical assault. Events in the non-PTSD group included 10 motor vehicle accidents and 4 physical assaults. Use of the Keane MMPI subscale and other combat-related assessment issues indicated substantial differences between the combat-related and civilian-related PTSD populations. He stated that studies are needed to delineate the similarities and differences between these two groups. The issue of homogeneity arises in this study where both groups have experienced traumatic events, but only one group fits the PTSD criteria. An exceptionally small sample size does cast some doubt on the outcome of this study. With such a homogeneous population a larger sample size would be required to rule out a type II error.

There is insufficient empirically based assessment regarding civilian-related forms of PTSD. Most of the

research in the area of PTSD is and has been done in Veterans Administration Hospitals or with veteran populations. Researchers in civilian-related PTSD seldom have large populations with which to work but must make use of the small number of casualties surviving a natural or man-made disaster, casualties whom they are able to interview. The October 1989 earthquake in the California Bay Area presented an opportunity for such research.

Most difficult is the search for data on traumatic experiences that have been assessed in a like manner. In the search for MMPI answer sheets to be used in this study, it became clear that this tool is not widely used in the civilian sector. Of the 33 people contacted regarding this study, only three areas were found where the MMPI is being given: workers compensation legal cases (J. Wojciechowski, personal communication, October 5, 1989); with criminals (J. Missett staff, personal communication, November 11, 1989); and at a local women's hospital (S. Waldum, personal communication, October 31, 1989). None of these sources were able to be of help.

V. Rozyngo (personal communication, October 31, 1989) forwarded a copy of the program information for The Fifth Annual Meeting of the Society for Traumatic Stress Studies

(1989). The diversity of civilian-related trauma becomes evident when looking at the topics covered by workshops, panels and discussion groups. Examples of the topics include concentration camp survivors, children exposed to catastrophic violence at school, adult incest survivors, adult and child sexual abuse victims, suicide in the high trauma police environment, torture victims, victims of rape, survivors of homicide, and families of missing children. Studies of trauma-specific groups may be the next step in determining similarities and differences in these PTSD subgroups.

Penk, Keane, Robinowitz, Fowler, Bell, & Finkelstein (1988) have suggested the likelihood that each form of trauma may require its own clinical research. Denny et al (1987) have suggested that trauma-specific measures may have to be developed, measures similar to those for measuring combat trauma. Within the civilian-related PTSD category there may exist subgroups that would produce significantly different results such as personal/nature, expected/unexpected, self/other. Use of the MMPI in the civilian population would aid in the identification of persons at risk for developing symptoms of PTSD.

Information provided in Behaviordyne MMPI reports

includes additional factors and scales. Tondow (in press) has been working on a predictive equation for use with civilian-related PTSD. Existing factors and scales generated from the MMPI may be better for use on the civilian population than those items included in the Keane subscale. Utilizing this study's subject pool Tondow found that 19 of the 20 PTSD subjects had a score ≥ 43 on "feeling sorry for self" (scale 33), a score ≤ 47 on "sadism" (scale 119), and a score ≤ 48 on "control of others" (scale 136). All three conditions must be met for the differential formula to apply.

Civilian-related PTSD deserves the attention of researchers. Accurate diagnosis is important for treatment and preventive measures to alleviate the disabling symptoms of stress disorders. Mental health professionals working with PTSD patients should be encouraged to administer the MMPI as part of the assessment and treatment process. Information must be reduced to a manageable subscale, high point scales, or combination of scales, and the work done with Vietnam veterans should serve as a model. Combat and civilian experiences may be different, but the end result is still suffering.

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as measures of post-traumatic stress disorder.

(Available from Charles Watson, Ph.D., Associate
Chief of Staff for Research, VA Medical Center, St.
Cloud, Minnesota 56301.)

Appendix A

Diagnostic criteria for 309.89 Post-traumatic

Stress Disorder

- A. The person has experienced an event that is outside the range of usual human experience and that would be markedly distressing to almost anyone, e.g., serious threat to one's life or physical integrity; serious threat or harm to one's children, spouse, or other close relatives and friends; sudden destruction of one's home or community; or seeing another person who has recently been, or is being, seriously injured or killed as the result of an accident or physical violence.
- B. The traumatic event is persistently reexperienced in at least one of the following ways:
 - (1) recurrent and intrusive distressing recollections of the event (in young children, repetitive play in which themes or aspects of the trauma are expressed)
 - (2) recurrent distressing dreams of the event
 - (3) sudden acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative [flashback] episodes, even those that occur upon awakening or when intoxicated)
 - (4) intense psychological distress at exposure to events

that symbolize or resemble an aspect of the traumatic event, including anniversaries of the trauma

- C. Persistent avoidance of stimuli associated with the trauma or numbing of general responsiveness (not present before the trauma), as indicated by at least three of the following:
- (1) efforts to avoid thoughts or feelings associated with the trauma
 - (2) efforts to avoid activities or situations that arouse recollections of the trauma
 - (3) inability to recall an important aspect of the trauma (psychogenic amnesia)
 - (4) markedly diminished interest in significant activities (in young children, loss of recently acquired developmental skills such as toilet training or language skills)
 - (5) feeling of detachment or estrangement from others
 - (6) restricted range of affect, e.g., unable to have loving feelings
 - (7) sense of a foreshortened future, e.g., does not expect to have a career, marriage, or children, or a long life
- D. Persistent symptoms of increased arousal (not present

before the trauma), as indicated by at least two of the following:

- (1) difficulty falling or staying asleep
- (2) irritability or outbursts of anger
- (3) difficulty concentrating
- (4) hypervigilance
- (5) exaggerated startle response
- (6) physiologic reactivity upon exposure to events that symbolize or resemble an aspect of the traumatic event (e.g., a woman who was raped in an elevator breaks out in a sweat when entering any elevator)

E. Duration of the disturbance (symptoms in B,C, and D) of at least one month.

Specify delayed onset if the onset of symptoms was at least six months after the trauma.

Appendix B

PTSD Subscale-Keane, Malloy, Fairbank

MMPI - Form R (400 items)

- * 2. I have a good appetite.
- * 3. I wake up fresh and rested most mornings.
- * 8. My daily life is full of things that keep me interested.
- 15. Once in a while I think of things too bad to talk about.
- 16. I am sure I get a raw deal from life.
- 22. At times I have fits of laughing and crying that I cannot control.
- 24. No one seems to understand me.
- 31. I have nightmares every few nights.
- 32. I find it hard to keep my mind on a task or job.
- 33. I have had very peculiar and strange experiences.
- 39. At times I feel like smashing things.
- 40. Most any time I would rather sit and daydream than to do anything else.
- 43. My sleep is fitful and disturbed.
- * 57. I am a good mixer.
- 61. I have not lived the right kind of life.
- 67. I wish I could be as happy as others seem to be.
- 72. I am troubled by discomfort in the pit of my stomach

every few days or oftener.

- 76. Most of the time I feel blue.
- * 88. I usually feel that life is worth while.
- 94. I do many things which I regret afterwards (I regret things more or more often than others seem to).
- 97. At times I have a strong urge to do something harmful or shocking.
- 104. I don't seem to care what happens to me.
- 106. Much of the time I feel as if I have done something wrong or evil.
- * 107. I am happy most of the time.
- 114. Often I feel as if there were a tight band about my head.
- * 137. I believe that my home life is as pleasant as that of most people I know.
- 139. Sometimes I feel as if I must injure either myself or someone else.
- 147. I have often lost out on things because I couldn't make up my mind soon enough.
- * 152. Most nights I go to sleep without thoughts or ideas bothering me.
- 156. I have had periods in which I carried on activities without knowing later what I had been doing.
- 182. I am afraid of losing my mind.

- 217. I frequently find myself worrying about something.
- 241. I dream frequently about things that are best kept to myself.
- 286. I am never happier than when alone.
- 303. I am so touchy on some subjects that I can't talk about them.
- 314. Once in a while I think of things too bad to talk about.
- 323. I have had very peculiar and strange experiences.
- 326. At times I have fits of laughing and crying that I cannot control.
- 336. I easily become impatient with people.
- 338. I have certainly had more than my share of things to worry about.
- 339. Most of the time I wish I were dead.
- 349. I have strange and peculiar thoughts.
- 350. I hear strange things when I am alone.
- 358. Bad words, often terrible words, come into my mind and I cannot get rid of them.
- 359. Sometimes some unimportant thought will run through my mind and bother me for days.
- 366. Even when I am with people I feel lonely much of the time.
- 372. I have sometimes felt that difficulties were piling

up so high that I could not overcome them.

376. It makes me feel like a failure when I hear of the success of someone I know well.

389. Whenever possible I avoid being in a crowd.

(All items were endorsed as true except where designated by an asterisk).

Appendix C
Trauma Origins

- * Truck hit car, seriously injured.
- * Assaulted by a group of boys.
- * Jeep accident - one passenger died.
- * Palestinian hijacking.
- * Assaulted at work by inmate.
- * Injured in a pursuit.
- * Truck hit car - daughter almost died.
- * Battered woman who killed husband.
- * Molested.
- * Hit in crosswalk
- * Auto accident - 75% of body burned.
- * Wrongful arrest.
- * Someone threw self in front of train - these were crew.
- * Falsely accused of child molestation.
- * Several years of deliberate work harassment.
- * Son repeatedly sexually abused.
- * Wrongful arrest - jail.

Appendix D

Age and sex of groups

<u>PTSD</u>		<u>Psychiatric</u>		<u>Control</u>	
Female	51	Female	50	Female	52
Female	25	Female	25	Female	25
Female	22	Female	23	Female	22
Female	39	Female	39	Female	39
Female	36	Female	34	Female	37
Male	40	Male	40	Male	40
Female	58	Female	53	Female	57
Female	29	Female	30	Female	29
Female	50	Female	48	Female	48
Female	18	Female	19	Female	20
Female	62	Female	64	Female	59
Male	41	Male	41	Male	42
Female	25	Female	27	Female	25
Female	36	Female	35	Female	38
Female	42	Female	41	Female	42
Male	36	Male	36	Male	36
Male	37	Male	37	Male	38
Male	41	Male	41	Male	39
Male	48	Male	49	Male	48
Female	30	Female	32	Female	28

Keane's MMPI Subscale

32

Appendix E

Behaviordyne Psychdiagnostic laboratory Report

*Behaviordyne Psychodiagnostic
Laboratory Report*

Account: 2561
Subject: 478644524
Date: 12/01/88

Sex: Male
Age: 39

Report: 6

Options: BF,RO,CI,SS
Inventory: MMPI

This is a short clinical report for psychodiagnosis. It is sent only to professionals who are licensed for the independent practice of psychodiagnosis and psychotherapy. This is the briefest form (option BF) within the type of report that we have just described.

This is a Behaviordyne, Incorporated report. It is a professional consultation composed by computer, following a method designed by a psychiatrist and a clinical psychologist. Like any report based on an inventory, this is subject to error. No decision should be made from this report alone, but only from consideration of the case history and all the available evidence.

Analysis of this kind can be done from any of several psychological inventories. In this case, the inventory completed and submitted for analysis was the Minnesota Multiphasic Personality Inventory.

PROFILE

Account 2561 Subject 478644524 [Male,39]

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The "T" points on this profile are true T scores normalized to the Finney sample of 2,000 normal men and women. The scores are corrected to reduce the factor of anxiety or social desirability, and the effects of response set for rare (possibly random) answers.

The "M" points are the Minnesota Standard scores. They are not true T scores, but are the regular, non-normalized MMPI scores. The "X" points represent both an "M" and a "T" at the same location.

The Mf score is based on scores by subjects of the same sex as this subject.

He does not give a consistently favorable nor a consistently unfavorable picture of himself. He tells us some good things and some bad things about himself. He is slow to admit little flaws in himself, as judged by rather perfectionistic moral standards. He tends to make some claim to perfection of moral character.

Whenever emotional problems arise in him, they can loom over his view of the world. At such times his ability to think things through becomes impaired. He tends to withdraw into himself, and he loses interest in other people and his work. This puts a limitation on his ability to be successful in his work and to deal with the problems of living.

----- DIAGNOSTIC IMPRESSION -----

Categorizing a person with a diagnostic label must never be done from the results of psychological testing alone, nor from the reports of other laboratory tests alone. In making your diagnostic assessment of this subject, you will rely upon the careful history that you have taken, and upon the clinical observations that you have made of the subject during the interview, as well as the laboratory results.

Insofar as we can judge from our analysis of the psychological testing alone, the DSM-III diagnostic label most likely to fit this subject best is:

301.40 Compulsive personality disorder, submissive type. A personality trait disorder, coded on Axis II. These are consistent, methodical people who like to follow a routine in their work. They like to obey rules. Reaction formation is their main defense mechanism.

Other DSM-III diagnostic labels which may be worth considering are as follows; they are ordered according to the likelihood of application to this subject, regardless of whether they fall on Axis I or Axis II:

V71.09 No psychiatric diagnosis. This individual falls within normal limits.

799.90 Diagnosis deferred. Questionable validity of test. Despite anything else that may show up, people in this group show some signs that they may have distorted their answers in the direction of looking good. For this reason, we cannot put the usual degree of confidence in the findings.

He is not a candidate for intensive psychotherapy of the kind that aims at self-understanding.

He is not looking for counseling or social casework, either.

The following are Minnesota Standard Scores for the scales indicated:

L= 60 F= 53 K= 62 HsK= 53 D= 57 Hy= 65 PdK= 49
Mf= 66 Pa= 50 PtK= 58 ScK= 50 MaK= 44 Si= 57 ?= 42

Tests for Psychosis:

Criterion:	Psychotic	Indeterminate	Nonpsychotic
Meehl-Dahlstrom		*	
Taulbee-Sisson			*
ScK-Ptk Method			*
Elevation of Sx			*
Two Point Code			*
Elevation of ScK			*
Goldberg Method			*
Elevation of Pa			*
Finney Method			*
	---	---	---
	0	1	8

Psychotic Point Count = 1
(9+P) - N

Rankings of the eight MMPI Clinical Scales, with the formula corrections:

	TFAT	AT	FAT	T
Highest:	Hy (3) = 58.4	PtK (7) = 59.3	PtK (7) = 59.2	Hy (3) = 57.8
Second:	PtK (7) = 53.9	Hy (3) = 59.3	Hy (3) = 59.0	D (2) = 49.7
Third:	D (2) = 53.5	D (2) = 57.2	D (2) = 57.4	PtK (7) = 48.6
Fourth:	HsK (1) = 48.6	Pa (6) = 50.5	HsK (1) = 49.7	HsK (1) = 47.4
Fifth:	Pa (6) = 47.0	HsK (1) = 50.3	Pa (6) = 49.3	Pa (6) = 44.7
Sixth:	ScK (8) = 44.3	ScK (8) = 49.3	ScK (8) = 46.5	PdK (4) = 42.1
Seventh:	PdK (4) = 43.1	PdK (4) = 46.2	PdK (4) = 44.1	ScK (8) = 42.0
Lowest:	MaK (9) = 36.4	MaK (9) = 39.2	MaK (9) = 37.6	MaK (9) = 35.2
Two Pt. Codes:	(3,7)	(7,3)	(7,3)	(3,2)

Mis-mark and/or blank count: 3
Addiction Band Number: 0 (High=5,Low=0)
Alcoholism Band Number: 1 (High=5,Low=0)

Factor Scores:

A: Anxiety, Compliance	37.1	<	-----	X=====	>
B: Boldness, Response Bias	38.8	<	-X-----	=====	>
C: Compulsivity	56.5	<	-----	=====X--	>
D: Disability, Expression of Emotions	56.8	<	-----	==X=====	>
E: Enmity, Hostility	51.9	<	-----X=	=====	>
Z: Extrapunitiveness	42.7	<	X-----	=====	>
Y: Intrapunitiveness	61.5	<	-----	=====X--	>
X: Extraversion vs. Intraversion	39.9	<	---X=====	=====	>
Strength Factor	46.7	<	-----X=	=====	>
Speed Factor	37.5	<	X-----	=====	>
Punitive Factor	53.0	<	-----	X=====	>
Comparative Intrapunitive Factor	63.3	<	-----	=====X-	>

Tests for Psychosis:

Meehl-Dahlstrom: Beta = -2.0 Delta = -9.9 Welsh = 1.1
 Band Number = 3 Selection Rule = 3

Taulbee-Sisson: 13 P 14 N 15 P 16 N 17 P 18 N 19 N 24 N 26 N 34 N
 35 P 36 N 39 N 75 P 76 N 78 N Count = 11

Derived Scores:

Neurotic Index	1	<	-----	====X----	>
Hysteria Score	48.7	<	-X-----	=====	>
Adjusted Hysteria Score	47.3				
Hysterical Index	1	<	-----X==	=====	>
Denial Index	10	<	-----	X=====	>
Average Dependency Score	51.3	<	-----	=====X--	>
Oral Aggression Average	42.9	<	---X=====	=====	>
Bitterness Index	50.3	<	-----	=X=====	>
General Hostility Average	48.9	<	-----X=	=====	>
Masculinity Score	45.8	<	-----X=	=====	>
Responsibility Average	55.7	<	-----	X=====	>
Average Creativity Score	47.4	<	---X=====	=====	>
Rigid Compulsive Character Average	57.7	<	-----	=====X--	>
Counseling Prediction Score	84	<	-----X=	=====	>
Futile Activity Element	43.8	<	---X=====	=====	>
Masochism Element	50.6	<	-----	=====X--	>
Creativity Element	40.9	<	--X-----	=====	>
Resiliency Element	37.9	<	-X-----	=====	>
Psychological Mindedness Element	46.7	<	---X=====	=====	>
Listening Element	47.2	<	-----	X=====	>
Ambition Element	52.8	<	-----X=	=====	>
N-P Element	55.0	<	-----	=====X--	>
Seven Element Total	320	<	---X=====	=====	>
Eight Element Total	375	<	-----X=	=====	>
Psychotherapy Character Score	46.9	<	-----X=	=====	>
Successful Sociopath Band	1	<	-----	X=====	>
Narcissism Average	49.4	<	-----X=	=====	>
Experimental Score "A"	54.6				
Experimental Score "B"	- .13				

Scale	Raw	T	AT	FAT	TFAT	Definition
1 Du	16	44.9	63.3	66.4	55.7	Amount of Dependency Urge
2 Da	10	41.5	54.3	55.5	48.5	Dependency in Action
3 Rd	6	49.6	54.3	54.5	52.1	Repression of Dependency
4 Tco	56	67.1	63.0	61.8	64.5	Basic Trust, Confidence, and Optimism
5 Di	6	38.0	49.0	50.2	44.1	Discouragement
6 Rdi	30	52.8	38.8	38.7	45.7	Repression of Discouragement
7 Anx	8	38.0	49.0	50.5	44.3	Anxiety
8 Bit	12	44.2	62.8	63.8	54.0	Bitterness
9 Dmd	4	32.4	37.9	36.4	34.4	Demandingness
10 Ord	28	59.2	57.8	58.2	58.7	Orderliness
11 Sbt	14	41.6	52.0	54.2	47.9	Seeking Being Told what to do
12 Rbt	6	34.5	40.2	38.6	36.6	Resisting Being Told what to do
13 Arh	6	38.9	51.2	52.1	45.5	Amount of Resentment/Hostility
14 Bs	6	38.5	49.2	50.3	44.4	Blaming Self
15 Bo	2	36.7	44.2	42.8	39.7	Blaming Others
16 Ts	12	41.8	57.6	59.9	50.9	Taking Things Out on Self
17 Tto	6	33.0	38.6	37.3	35.2	Taking Things Out on Others
18 Rfa	16	51.8	60.6	61.2	55.5	Reaction Formation against Aggression
19 Poh	6	41.9	50.5	49.2	45.6	Projection of Hostility
20 Soh	10	37.2	45.8	46.9	42.1	Suppression and Outbursts of Hostility
21 Uah	8	38.3	44.6	46.0	42.1	Unconscious Acting-out of Hostility
22 Cas	37	46.5	40.0	39.8	43.2	Controllingness and Sadism
23 Uas	12	55.8	64.5	65.3	60.6	Unconscious Acting-out of Sex
24 Iaf	14	41.4	50.1	51.5	46.5	Impotence and Frigidity
25 Pro	8	33.9	40.1	39.1	36.5	Promiscuity
26 Dth	8	48.4	63.4	64.8	56.6	Doing things the hard way
27 Cwo	18	33.4	36.4	37.6	35.5	Concern with What People Think
28 Pm	8	38.8	49.1	48.4	43.6	Psychopathic Manipulation
29 Gf	12	45.8	62.7	64.4	55.1	Guilt Feelings
30 Cons	36	69.3	64.5	66.2	67.8	Conscience
31 Wl	38	60.3	49.5	50.2	55.3	Warmth
32 Amb	36	58.0	45.4	44.8	51.4	Ambition
33 Ss	4	34.8	41.8	43.2	39.0	Feeling Sorry for Self
34 Dpm	12	44.8	65.2	67.2	56.0	Dependent Masochism (getting rejected)
35 Btp	2	28.5	31.6	30.3	29.4	Behaving to get Punished
36 Rep	22	52.9	50.7	51.9	52.4	Repression
37 Den	20	56.9	46.9	46.0	51.5	Denial
38 Pjt	2	44.0	54.2	52.8	48.4	Projection
39 Rf	20	62.3	65.5	66.0	64.1	Reaction Formation
40 Conv	4	33.9	40.4	41.1	37.5	Conversion
41 Ppr	14	44.6	57.2	59.0	51.8	Psychophysiological Reaction
42 Paf	8	38.8	50.7	52.0	45.4	Phobias and Fears
43 Com	6	41.9	51.4	52.1	47.0	Compulsion
44 Wao	12	40.7	54.4	56.7	48.7	Worry and Obsession
45 Psy	6	44.4	62.9	62.3	53.4	Psychosis
46 L	14	63.1	59.5	58.5	60.8	Lie
47 F	8	46.0	55.9	55.9	50.9	Validity
48 K	38	61.9	53.0	51.9	56.9	Correction
49 Hs	6	40.7	48.6	48.4	44.5	Hypochondriasis
50 HsK	25	47.4	50.3	49.7	48.6	Hypochondriasis with K correction
51 DO	10	39.6	49.2	49.3	44.5	Depression, Obvious
52 DS	29	66.8	62.2	62.4	64.6	Depression, Subtle
53 D	39	49.7	57.2	57.4	53.5	Depression
54 HyAd	14	48.6	61.3	61.3	54.9	Hysteria Admission
55 HyDn	35	61.9	54.2	53.7	57.8	Hysteria Denial

Scale	Raw	T	AT	FAT	TFAT	Definition
56 Hy	49	57.8	59.3	59.0	58.4	Hysteria
57 Pd	22	37.6	44.0	42.0	39.8	Psychopathic Deviate
58 Pdk	37	42.1	46.2	44.1	43.1	Psychopathic Deviate with K correction
59 Mfm	57	59.4	62.0	63.8	61.6	Masculinity-femininity, Male
60 PaO	0	33.8	40.3	38.2	36.0	Paranoia, Obvious
61 PaS	16	55.6	53.4	53.2	54.4	Paranoia, Subtle
62 Pa	16	44.7	50.5	49.3	47.0	Paranoia
63 Pt	16	41.8	60.9	62.4	52.1	Psychasthenia
64 PtK	54	48.6	59.3	59.2	53.9	Psychasthenia with K correction
65 Sc	6	32.6	37.3	32.8	32.7	Schizophrenia
66 ScK	44	42.0	49.3	46.5	44.3	Schizophrenia with K correction
67 Ma	21	33.6	38.3	36.9	35.3	Hypomania
68 MaK	29	35.2	39.2	37.6	36.4	Hypomania with K correction
69 Si	62	53.9	63.6	64.4	59.2	Social Introversion
70 A	14	41.8	60.6	62.9	52.4	Welsh's first factor: Anxiety
71 R	38	58.2	55.5	55.5	56.9	Welsh's second factor: Repression
72 Sd	39	45.9	47.2	48.9	47.4	Sex Difference
73 Es	89	50.1	38.5	37.9	44.0	Ego Strength
74 Fm	28	45.0	53.0	54.0	49.5	Female Masochism
75 Ul	121	72.2	70.6	70.9	71.6	Ulcer Personality
76 Ba	101	65.9	59.7	62.8	64.4	Teamwork in Competition
77 Cr	116	55.1	36.0	35.7	45.4	Conversion Reaction and Denial
78 Sx	16	48.2	41.8	41.0	44.6	Correction for Schizophrenia Scale
79 PaV	9	34.3	41.0	39.7	37.0	Parole Violation
80 Ec	15	33.8	39.7	37.9	35.8	Escape from Prison
81 C	32	48.8	55.9	55.4	52.1	Welsh's third factor: Control
82 B	44	35.8	42.4	42.6	39.2	Response Bias (tendency to say "true")
83 Ph	8	51.0	60.4	61.1	56.1	Phobia [manifest content]
84 Al	85	53.5	56.7	56.2	54.8	Alcoholism (Finney)
85 To	48	56.0	44.5	45.4	50.7	Tolerance
86 Mp	28	53.3	47.9	45.9	49.6	Positive Malinger (fake-good)
87 Rbw	20	34.6	37.2	37.4	36.0	Response Bias
88 Sdw	32	49.3	48.0	47.3	48.3	Social Desirability
89 Em	10	50.6	58.4	59.9	55.3	Embarrassment [manifest content]
90 Gu	0	35.3	42.1	42.8	39.0	Guilt [manifest content]
91 Reb	14	46.3	51.1	50.5	48.4	Rebellion [manifest content]
92 Sub	22	63.4	60.2	61.3	62.3	Submission [manifest content]
93 Ac	30	54.6	41.9	43.1	48.8	Achievement by Conformity
94 Ai	20	47.6	38.6	39.5	43.6	Achievement by Independence
95 Cs	22	48.3	39.9	39.8	44.1	Capacity for Status
96 Dom	18	46.1	36.2	36.0	41.0	Dominance
97 Ie	86	50.6	35.0	35.9	43.2	Intellectual Efficiency
98 Re	32	52.1	44.5	46.0	49.1	Responsibility
99 So	28	52.8	43.3	44.7	48.8	Socialization
100 Sy	25	38.1	30.8	30.4	34.3	Sociability
101 Wb	78	62.8	53.3	54.5	58.7	Well Being (not faking bad)
102 Sp	34	53.6	45.1	44.6	49.1	Social Participation
103 Sa	12	42.3	37.1	36.8	39.6	Self Acceptance
104 Scn	40	65.8	59.2	59.6	62.7	Self Control
105 Py	8	50.9	42.7	42.5	46.7	Psychological Mindedness
106 Gi	12	65.3	60.2	59.0	62.2	Good Impression
108 Fe	10	40.6	42.8	44.2	42.4	Femininity
109 Cm	2	51.1	47.4	47.8	49.5	Commonality (absence of rare answers)
110 Ob	6	44.1	57.2	58.9	51.5	Obsessive Worry [manifest content]
111 N	6	50.0	55.0	55.4	52.7	Narcissism

Scale	Raw	T	AT	FAT	TFAT	Definition
112 W2	43	36.2	41.4	41.8	39.0	Warmth
113 Dem	0	44.4	50.2	50.5	47.5	Demanding [manifest content]
114 Id	10	55.5	49.4	48.4	51.9	Inner Direction
115 Stb	6	44.4	46.2	45.8	45.1	Stubbornness [manifest content]
116 An	4	39.8	40.4	39.9	39.8	Anal Personality
119 Sad	0	42.6	47.2	46.0	44.3	Sadistic
120 Or	2	53.1	53.3	53.6	53.4	Orderliness
122 RepX	0	42.9	46.4	45.5	44.2	Hysterical Repression
123 H	81	55.8	53.1	52.5	54.1	Hostility
124 Ody	4	42.0	40.9	41.4	41.7	Optimistic Dependency
125 PVi	32	42.3	53.3	54.8	48.6	Pharisaical Virtue
126 Ap	43	47.9	48.1	49.7	48.8	Acceptance of Passivity
127 Ef1	14	39.1	48.3	50.1	44.6	Eichman Factor 1: Anxiety
128 Ef2	32	64.7	64.6	64.4	64.5	Eichman Factor 2: Repression
129 Ef3	4	38.3	44.3	43.7	41.0	Eichman Factor 3: Somatic preoccupation
130 Ef4	2	30.0	34.7	30.2	30.1	Eichman Factor 4: Acting-out of impulses
131 Rdc	35	60.3	52.7	51.8	56.0	Repression Dissociation Character
132 Mfem	55	49.3	50.8	52.5	50.9	Femininity [Mf' + Mf1]
133 Mhom	2	49.3	55.2	54.4	51.8	Identification Problem [Mf2]
134 Dy	14	35.4	42.7	44.0	39.7	Dependency
136 Cto	0	42.6	47.2	47.2	44.9	Control of Others
137 Mff	63	62.1	62.8	65.1	63.6	Masculinity-femininity, Female
138 Su	2	30.8	30.9	30.5	30.6	Suicide
139 Ad	36	46.9	57.3	56.4	51.7	Addiction
140 Wm	10	32.8	38.2	37.6	35.2	Warmth
141 Shx	20	33.8	39.2	37.8	35.8	Showoff, Exhibitionist
142 Dm	52	46.0	46.1	46.9	46.5	Dominates
143 Rbl	26	35.1	40.2	39.8	37.5	Rebellious
144 Qs	72	64.4	56.5	57.0	60.7	Quietly Stubborn
145 Ev	32	65.8	60.6	59.7	62.8	Evades
146 Shm	26	49.7	58.0	58.7	54.2	Shame
147 Frm	70	52.8	36.7	37.5	45.1	Firm
148 Sso	71	58.1	41.4	41.9	50.0	Stingy with Self and Others
149 Ncs	32	45.3	54.3	53.9	49.6	Narcissistic, Self-centered
150 Umm	24	32.8	38.7	38.4	35.6	Unscrupulous, Manipulates, Maneuvers
151 Wdn	30	53.3	59.7	59.5	56.4	Withdrawn
152 Rgd	72	63.3	58.7	60.9	62.1	Rigidity
153 Cus	8	28.9	28.0	28.2	28.6	Cruel, Unkind, Sadistic
154 Spr	26	57.5	54.7	55.1	56.3	Sullen, Passively Resentful
155 Hfs	14	44.0	60.0	60.8	52.4	Hurt Feelings, Sensitive
156 Imp	6	34.4	41.3	39.6	37.0	Impulsive
157 Rih	12	51.4	63.5	62.2	56.8	Rambling, Incoherent
158 Rts	6	37.1	46.6	45.0	41.1	Reality Testing Shaky
159 Osm	76	68.6	67.1	68.4	68.5	Orderly and Systematic
160 Ibo	16	43.0	58.3	57.9	50.5	Influenced by Others
161 AMA	47	51.2	53.9	52.6	51.9	Alcoholism (MacAndrew)
162 AvA	84	58.1	60.3	61.5	59.8	Alcoholic versus Addict
163 AHS	85	59.2	52.0	51.9	55.5	Alcoholism (Hoyt & Sedlacek)
164 AHP	92	45.3	64.5	66.3	55.8	Alcoholism (Hampton)
165 AHm	54	48.1	49.5	49.1	48.6	Alcoholism (Holmes)
166 Ant	22	44.5	45.7	44.9	44.7	Antisocial

D1	10	39	31	Subjective Depression
D2	14	48	47	Psychomotor Retardation
D3	6	43	42	Physical Malfunctioning
D4	0	38	30	Mental Dullness
D5	0	38	30	Brooding
Hy1	8	53	55	Denial of Social Anxiety
Hy2	17	55	57	Need for Affection
Hy3	4	40	33	Lassitude - Malaise
Hy4	6	46	44	Somatic Complaints
Hy5	10	60	61	Inhibition of Aggression
Pd1	0	39	33	Familial Discord
Pd2	10	54	51	Authority Problems
Pd3	16	53	53	Social Imperturbability
Pd4A	10	48	42	Social Alienation
Pd4B	4	42	30	Self-Alienation
Pa1	2	45	42	Persecutory Ideas
Pa2	2	41	22	Poignancy
Pa3	12	53	50	Naivete
Sc1A	2	43	38	Social Alienation
Sc1B	0	36	32	Emotional Alienation
Sc2A	0	40	24	Lack of Ego Mastery, Cognitive
Sc2B	0	37	26	Lack of Ego Mastery, Conative
Sc2C	2	46	36	Lack of Ego Mastery, Defective Inhibition
Sc3	2	43	36	Bizarre Sensory Experiences
Ma1	0	39	32	Amorality
Ma2	8	47	28	Psychomotor Acceleration
Ma3	4	41	44	Imperturbability
Ma4	4	48	34	Ego Inflation

HARRIS-LINGOES

Reported Scores:
 - Behaviordyne Raw
 - Standardized to
 "Random Sample"
 Norms
 - Standardized to
 "Selected Sample"
 Norms

Mf1	8	45	Narcissism - Hypersensitivity
Mf2	7	50	Stereotypic Feminine Interests
Mf3	8	58	Denial of Stereotypic Masculine Interes
Mf4	4	46	Heterosexual Discomfort - Passivity
Mf5	8	55	Introspective - Critical
Mf6	18	77	Socially Retiring
Si1	16	49	Inferiority - Personal Discomfort
Si2	6	43	Discomfort with Others
Si3	24	63	Staid - Rigid Personality
Si4	0	28	Hypersensitivity
Si5	6	39	Distrust
Si6	4	52	Physical - Somatic Concerns

SERKOWNEK

Reported Scores:
 - Behaviordyne Raw
 - Standardized to
 Serkownek's Norms

SOC	26	59	Social Maladjustment
DEP	6	43	Depression
FEM	17	49	Feminine Interests
MOR	8	42	Poor Morale
REL	16	55	Religious Fundamentalism
AUT	10	39	Authority Conflict
PSY	6	42	Psychoticism
ORG	8	47	Organic Symptoms
FAM	4	43	Family Problems
HOS	6	37	Manifest Hostility
PHO	20	61	Phobias
HYP	22	49	Hypomania
HEA	8	48	Poor Health

WIGGINS CONTENT

Reported Scores:
 - Behaviordyne Raw
 - Standardized to
 Wiggins' Norms

1-T	51-T	101-T	151-F	201-T	251-F	301-F	351-F	401-T	451-T	501-T	551-F
2-T	52-F	102-T	152-T	202-F	252-F	302-T	352-F	402-F	452-F	502-T	552-F
3-T	53-F	103-T	153-T	203-F	253-*	303-F	353-F	403-T	453-T	503-T	553-F
4-F	54-T	104-F	154-T	204-F	254-F	304-T	354-F	404-F	454-F	504-F	554-T
5-T	55-T	105-T	155-T	205-F	255-F	305-F	355-F	405-T	455-T	505-F	555-F
6-F	56-F	106-F	156-F	206-F	256-F	306-T	356-F	406-F	456-F	506-F	556-T
7-T	57-T	107-T	157-F	207-T	257-T	307-F	357-F	407-T	457-F	507-F	557-F
8-T	58-T	108-F	158-F	208-F	258-T	308-T	358-F	408-T	458-F	508-T	558-F
9-T	59-F	109-F	159-F	209-F	259-F	309-T	359-F	409-T	459-F	509-T	559-F
10-F	60-T	110-F	160-F	210-F	260-T	310-T	360-F	410-F	460-T	510-F	560-F
11-F	61-F	111-T	161-F	211-F	261-T	311-F	361-F	411-F	461-T	511-F	561-T
12-T	62-F	112-F	162-T	212-F	262-F	312-F	362-F	412-T	462-T	512-F	562-F
13-F	63-T	113-T	163-T	213-F	263-*	313-T	363-F	413-F	463-F	513-F	563-T
14-F	64-T	114-F	164-F	214-F	264-F	314-F	364-F	414-T	464-T	514-F	564-T
15-F	65-T	115-T	165-F	215-F	265-F	315-F	365-F	415-F	465-T	515-T	565-F
16-F	66-F	116-F	166-T	216-F	266-F	316-F	366-F	416-T	466-T	516-T	566-F
17-T	67-F	117-F	167-F	217-F	267-T	317-F	367-F	417-F	467-F	517-F	
18-T	68-T	118-T	168-F	218-F	268-F	318-T	368-F	418-F	468-F	518-F	
19-F	69-F	119-F	169-T	219-T	269-F	319-T	369-F	419-F	469-F	519-F	
20-T	70-T	120-F	170-F	220-T	270-F	320-T	370-T	420-F	470-F	520-T	
21-F	71-T	121-F	171-T	221-F	271-F	321-F	371-F	421-F	471-T	521-T	
22-F	72-F	122-T	172-F	222-F	272-T	322-T	372-T	422-F	472-F	522-F	
23-F	73-T	123-F	173-T	223-F	273-F	323-F	373-T	423-T	473-T	523-F	
24-F	74-F	124-F	174-T	224-F	274-T	324-F	374-T	424-F	474-T	524-T	
25-F	75-T	125-F	175-F	225-F	275-F	325-F	375-F	425-F	475-T	525-F	
26-F	76-F	126-F	176-F	226-F	276-T	326-F	376-T	426-F	476-F	526-F	
27-F	77-F	127-T	177-T	227-F	277-F	327-T	377-F	427-F	477-T	527-T	
28-F	78-F	128-F	178-T	228-T	278-F	328-F	378-F	428-F	478-T	528-T	
29-F	79-F	129-F	179-F	229-F	279-F	329-T	379-T	429-F	479-T	529-T	
30-T	80-F	130-T	180-F	230-F	280-F	330-T	380-T	430-T	480-F	530-F	
31-F	81-T	131-F	181-F	231-T	281-T	331-F	381-F	431-F	481-T	531-F	
32-F	82-F	132-F	182-F	232-F	282-F	332-F	382-T	432-F	482-T	532-F	
33-F	83-T	133-T	183-F	233-F	283-T	333-F	383-F	433-F	483-T	533-T	
34-T	84-F	134-T	184-F	234-F	284-F	334-F	384-F	434-T	484-F	534-F	
35-F	85-F	135-F	185-F	235-T	285-T	335-F	385-F	435-F	485-F	535-F	
36-F	86-F	136-F	186-F	236-F	286-F	336-F	386-F	436-T	486-T	536-F	
37-T	87-F	137-T	187-T	237-T	287-T	337-F	387-F	437-F	487-F	537-F	
38-F	88-T	138-F	188-F	238-T	288-F	338-F	388-F	438-F	488-F	538-F	
39-F	89-F	139-F	189-F	239-F	289-T	339-F	389-F	439-T	489-T	539-T	
40-F	90-T	140-F	190-T	240-F	290-F	340-T	390-F	440-T	490-F	540-T	
41-F	91-F	141-F	191-F	241-F	291-F	341-F	391-F	441-F	491-F	541-F	
42-F	92-F	142-F	192-T	242-T	292-F	342-F	392-F	442-F	492-T	542-T	
43-F	93-F	143-F	193-T	243-T	293-F	343-T	393-F	443-F	493-T	543-F	
44-F	94-F	144-F	194-F	244-F	294-T	344-F	394-F	444-F	494-T	544-F	
45-F	95-F	145-F	195-T	245-F	295-T	345-F	395-F	445-T	495-T	545-F	
46-T	96-T	146-F	196-T	246-F	296-F	346-F	396-F	446-F	496-T	546-F	
47-F	97-F	147-F	197-F	247-F	297-F	347-T	397-T	447-T	497-T	547-F	
48-F	98-T	148-F	198-T	248-F	298-F	348-F	398-F	448-F	498-T	548-T	
49-F	99-F	149-F	199-T	249-T	299-F	349-F	399-T	449-T	499-F	549-F	
50-F	100-F	150-T	200-F	250-F	300-*	350-F	400-T	450-F	500-F	550-T	

* Means the item was blank or double marked.