The Susceptibility of the Rorschach Inkblot Test to Malingering of Combat-Related PTSD

B. Christopher Frueh
Medical University of South Carolina
Ralph H. Johnson Veterans Affairs Medical Center
Charleston, SC

Bill N. Kinder
University of South Florida

The ability of subjects to alter their responses on the Rorschach and self-report measures to fake the symptoms of combat-related Posttraumatic Stress Disorder (PTSD) was investigated. Subjects were 40 White male undergraduates, randomly assigned to either a control or role-informed malingering group, and 20 White Vietnam veterans with PTSD. Subjects were administered the Rorschach, MMPI-2 validity scales, and Mississippi Scale for Combat-Related PTSD. Results indicated that malingerers were able to achieve scores similar to the PTSD patients on the Mississippi Scale and some Rorschach variables. However, they evidenced significant differences on the MMPI-2 validity scales and several important Rorschach variables. Malingerers typically gave responses that were overly dramatic and less complicated, less emotionally restrained, and indicated an exaggerated sense of impaired reality testing as compared to PTSD patients. Behavioral differences were also noted between the groups. Findings are discussed in the context of the study’s limitations and the practical detection of malingered PTSD in clinical settings.

A crucial step towards providing mental health care for America’s veterans suffering from combat-related Posttraumatic Stress Disorder (PTSD) is accurate psychological assessment of the nature of their problems. This process is complicated by the fact that those individuals diagnosed as suffering
from PTSD frequently stand to gain in the form of compensation or other benefits from the United States government (Atkinson, Henderson, Sparr, & Deale, 1982). Recently, there has been a growing awareness that malingered or factitious PTSD is indeed a problem that needs to be addressed by clinical assessment techniques (e.g., Fairbank, McCaffry, & Keane, 1985; Lacoursiere, 1993; Lees-Haley, 1989; Lynn & Belza, 1984; McCaffrey & Bellamy-Campbell, 1989; Sparr & Pankratz, 1983). This study attempted to evaluate the ability of informed malingerers to mimic the responses of an actual PTSD patient sample on several commonly used psychological tests, including the Rorschach Inkblot Test.

Factitious and malingered PTSD has been documented in the literature for several years. Several early reports note the increase of malingerering of many varieties of physical and mental disorders during wartime (Ossipov, 1944) and in military settings (Lorei, 1970; Rogers, 1990; Schretlen, 1988) where there is opportunity for secondary gain. In a more recent article, Sparr and Pankratz (1983) discuss five case histories of men who, although claiming to be Vietnam veterans suffering from PTSD symptomatology, were shown never to have been in Vietnam. The authors explain that "simulation is easy, since the symptoms described by DSM-III mostly reflect private phenomenology and since by definition the symptoms are caused by events now past" (p. 1018). They conclude their article by stressing the importance of verifying the military histories of patients. Lynn and Belza (1984) present 7 case histories of factitious or malingered PTSD that they found in a sample of 125 PTSD patients. They suggest that these phenomena have been around as long as PTSD itself and that they are, in fact, more common than has generally been assumed. They also urge clinicians to be sensitive to the possibility of malingering, to examine carefully the patient's military history via discharge papers (Form DD214), and to be sensitive to any observed contradictory behavior.

Complicating the assessment of malingered symptoms is the suggestion that overreporting of symptoms may actually be a common feature of PTSD (Hyer et al., 1988; Hyer, Fallon, Harrison, & Boudewyns, 1987; Hyer, Woods, Harrison, Boudewyns, & O'Leary, 1989; Orr et al., 1990). In one study, Hyer and colleagues (1988) administered the MMPI to 530 Vietnam-era veterans and found that a high number met the overreporting criteria for the subtle–obvious (S–O) items. In seeking to explain this, the authors note that many PTSD patients apply for a service-connected disability and that it would be unrealistic to think that this is not an influence on symptom response. However, they do not suggest that these veterans are not suffering from PTSD, but rather that overreporting may be an important part of the pathogenic state, indicating severe levels of psychopathology. This suggestion is also supported by the work of others (Orr et al., 1990).

Including the previously mentioned studies, the research on the assessment of malingered or factitious PTSD has focused primarily on the MMPI. Fairbank and colleagues (1985) compared the MMPI profiles of 15 Vietnam
veterans with PTSD to the profiles of 15 well adjusted Vietnam veterans and 15 mental health professionals familiar with the diagnostic criteria for PTSD. The subjects in the two non-PTSD groups were instructed to fake its symptoms. A discriminant function analysis successfully classified over 90% of the subjects, supporting the author’s hypothesis that the MMPI and its PTSD subscale are valuable psychometric instruments for detection of factitious or malingered PTSD. This conclusion is further supported by a recent replication of this study (McCaffrey & Bellamy-Campbell, 1989) and by other research supporting the use of the MMPI to assess a respondent’s test-taking attitude in situations where there is a secondary gain for exaggerated psychiatric symptoms (Schretlen, 1988; Walters, 1988). In another recent study, Roman, Tuley, Villanueva, and Mitchell (1990) examined the MMPI profiles of 353 forensic psychiatric patients with a variety of diagnoses and found that traditional cutoff scores for the L, F, K, and O-S scales were of questionable use for differentiating between deliberate attempts to deceive and acute psychopathology. Yet, the authors did conclude that the MMPI can be a valuable tool for differentiating malingerers from those with genuine psychiatric disturbances.

The conclusion that the MMPI can detect malingering is not equivo-
cally accepted by all. Lees-Haley (1989) found that untrained subjects, given no details of the Diagnostic and Statistical Manual of Mental Disorders (3rd ed., rev. [DSM-III-R]; American Psychiatric Association, 1987) criteria, could easily fake PTSD in response to a civilian “accident” on the PTSD subscale of the MMPI. Their results showed that only 48% of the subjects would have been correctly classified as not having the disorder. This is the only data arguing against the efficacy of the MMPI to detect faked symptoms, and it may be of limited value because it does not deal with combat veterans. But it does suggest that a relatively structured approach, such as the MMPI, may be vulnerable to being faked because the items are often quite face valid. Further support for this was provided by Smith, Frueh, and Reynolds (1992), who examined the psychological assessment data on 94 combat veterans being evaluated for combat-related PTSD at a VA hospital. The veterans were grouped based on a conservative $F - K$ (raw score) $> 13$ cutoff point, with 25 veterans in the category suggestive of exaggeration and 69 veterans in the category of valid responding. Results indicated that those veterans with exaggerated $F - K$ indices scored significantly higher on other self-report measures (e.g., Beck Depression Inventory, Dissociative Experiences Scale, and Mississippi Scale for Combat-Related PTSD). The authors conclude that self-report scales may be vulnerable to simulation and that all should be interpreted with caution when there are elevations of the $F - K$ index, and that the use of tests whose meanings are less obvious to the respondent, such as the Rorschach, should be considered.

Unfortunately, most of the research involving the use of the Rorschach for detecting malingering has focused primarily on schizophrenia. Thus, the
existing literature is of limited value for the specific issue of malingered PTSD. However, a brief review of this literature may be a valuable means for examining research methodology and will provide a context for the current study. The first Rorschach studies of malingered PTSD were conducted by Fosberg (1938; 1941; 1943). He used a repeated administration design, where subjects took the Rorschach under four different instructions. He found no significant differences across conditions and therefore concluded that the Rorschach could not be faked. However, his work has been criticized by Cronbach (1949) on statistical grounds. Other studies (Benton, 1945; Carp & Shavzin, 1950; Easton & Feigenbaum, 1967) using repeated measurement designs have been similarly flawed and have also reached different conclusions.

This led to a shift in the research paradigm, moving away from repeated administrations of the Rorschach. Bash (1978) used a multicell design and compared the Rorschach protocols of different groups, with results showing that malingerers differed from the other groups only in terms of card rejection, decreased $P$, and decreased $F\%$. In another methodological advance, Albert, Fox, and Kahn (1980) taught subjects the relevant diagnostic aspects of psychosis and then administered the Rorschach with instructions to fake bad. They compared the protocols of these role-informed fakers to those of a control group, a patient group, and an uninformed faker group. Their results gave further support to the notion that the Rorschach is vulnerable to the conscious strategies of those attempting to appear emotionally disturbed. Meisner (1988) used a similar paradigm to study the ability of informed fakers to malinger depression on the Rorschach. His results showed that the fakers exhibited an increase in morbid responses ($MOR$) and blood content ($Bl$) and a reduced number of total responses ($R$), but that no determinants were significantly affected. This data suggests the Rorschach is not particularly susceptible to malingered depression.

Continuing in this methodological vein, Perry and Kinder (1992) used undergraduate subjects to investigate the susceptibility of the Rorschach to malinger of schizophrenia, using the Exner Comprehensive System for both administration and scoring. They gave subjects in an experimental group a brief description of the symptoms of schizophrenia and instructed them to respond to the Rorschach as though they were currently experiencing this disorder, but not to let the examiner know this. Subjects in a control group received standard instructions. Because past studies had found consistent differences in the number of responses ($R$), the authors attempted to control these differences in their study by restricting their analyses to only the first or second responses to each card, depending upon statistical differences between the groups. Their results showed that experimental subjects did give evidence of disordered thinking, (e.g., elevations on $SCZI$ and $WSUM6$), inaccurate perceptions (elevated $X-\%$, decreased $P$ and $X+\%$), and interpersonal ineptness (e.g., elevated $M-\$). Thus, the subjects asked to do so were able to alter their responses on the Rorschach in a manner
suggestive of schizophrenia, indicating that the Rorschach may be susceptible to faking.

In working towards a conclusion that can be reached from all of the contrasting data reported previously, Perry and Kinder (1998) in their review of the literature stated that:

The literature suggests that Rorschach scores can be altered by conditions external to the subject and/or volitionally by the subject. At this time, however, the results are extremely inconsistent and no reliable pattern of responses in a protocol that would indicate the presence of malingering has been identified. (p. 53)

The data on this instrument regarding the diagnosis and assessment of PTSD are currently quite limited, but recent years have seen an increased interest in the use of the Rorschach with Vietnam veterans (Frank, 1992). In a controversial single case study, Salley and Teiling (1984) examined the Rorschach protocol of a Vietnam veteran with a history of dissociated rage attacks. Analysis of formal scoring revealed extensive use of color-shading determinants, indicative of painful affect, while content analysis revealed dissociative themes and preoccupation with wounded, mutilated, and damaged percepts. Another study (van der Kolk & Ducey, 1989) compared the Rorschach protocols of 13 Vietnam veterans with PTSD to 11 matched combat controls and found several striking differences between the two groups. First, the PTSD subjects appear to have more difficulty modulating their affective experience. They either responded to affective stimuli with an intensity that would only be appropriate to the traumatic event itself, or they hardly reacted at all. Second, the PTSD subjects had a greater number of inanimate movement (m) responses, indicating a sense of situationally related helplessness. And finally, the authors noted that the PTSD subjects demonstrated a heavy reliance on conventional form quality. Unfortunately, the value of this study is limited by the fact that it is unclear which system was used to score the Rorschach (although Exner is mentioned) and by the fact that the authors do not list descriptive statistics. However, this investigation does provide valuable initial evidence that Rorschach protocols of PTSD patients differ from matched combat controls.

Two other Rorschach studies have been recently published, presenting structural summary data from Rorschach protocols of hospitalized PTSD patients (Hartman et al., 1990; Swanson, Blount, & Bruno, 1990). Their results suggest that patients suffering from PTSD exhibit impaired reality testing, ineffective coping strategies, high levels of situational stress, elevated Suicide Constellations, a simplistic and defensive approach to the environment, a preference to avoid emotionally laden situations, and pessimistic expectations. Surprisingly, in terms of content analysis, they found no clear trends of combat-related percepts involving blood, mutilation, anatomy, or other aggressive and morbid themes. Nor was the Depression Index elevated. However, the value of these findings may be limited because
comparison groups were not used in either study. The results may be related to the subjects' inpatient status and the general effects of psychological disturbance rather than specific effects of PTSD.

Finally, several studies have supported the efficacy of the Rorschach with populations showing features of PTSD. One study found that the Rorschach was able to differentiate between individuals who had experienced traumatic loss in childhood and a control group (Cerney, 1990), whereas another successfully discriminated between sexually abused girls and a comparison group of nonabused girls (Leifer, Shapiro, Martone, & Kassem, 1991). It has also been found that dissociative patients show a characteristic pattern on the Rorschach (Armstrong & Loewenstein, 1990). Thus, although no single clear pattern has emerged, the Rorschach has shown potential utility in the assessment of PTSD, but its use in the assessment of malingered PTSD has not been previously examined.

This study was conducted to evaluate the ability of role-informed malingerers to alter their Rorschach protocols so as to mimic those of Vietnam veterans diagnosed with combat-related PTSD, utilizing the methodological advances discussed in the literature. Malingerers were expected to be able to significantly alter their protocols, but not in a manner completely consistent with the protocols produced by the actual PTSD subjects. Based on previous studies, it was expected that malingerers would give fewer responses, produce more dramatic content, rely less on pure form determinants, make greater use of color determinants, and show greater evidence of thought disturbance and depression than the patient and control groups. In addition, the experimental groups were expected to show differences on the validity indices of the MMPI-2, with malingerers scoring in a direction suggestive of exaggerated symptomatology, followed by PTSD patients and then controls. Based on theoretical constructs, it was also hypothesized that the PTSD patients would show greater difficulty with managing stress and utilizing coping skills than would malingerers and controls. Because the Mississippi Scale for Combat-Related PTSD is generally quite face valid, the PTSD patients and malingerers were expected to achieve equivalent scores, indicating PTSD symptoms, with controls showing no evidence of PTSD on this measure.

METHODS

Subjects

Undergraduate sample. Forty White male volunteers were recruited from undergraduate psychology courses at the University of South Florida in return for course extra credit. Subjects were randomly assigned to one of two groups, so that there were 20 subjects in an experimental (maling erer) group and 20 in a control group. The subjects were not significantly different from each other on age (control $M = 21.95$ years, $SD = 2.24$; maling erer $M =$
24.60, SD = 7.01), education level (control M = 14.85, SD = 0.93; malingerer M = 14.60, SD = 0.94), or frequency of prior military service (10% for each group). An additional 9 subjects were excluded from the study because they showed evidence of PTSD symptoms on the MMPI-2 Keane PTSD subscale, used as a brief screening measure.

**Vietnam veterans with PTSD.** Twenty White male Vietnam veterans suffering from combat-related PTSD were recruited from the posttraumatic stress clinic (PCT) at the Ralph H. Johnson Veterans Affairs Medical Center in Charleston, South Carolina. Participation was limited only to individuals who achieved a T-score of greater than 65 on the MMPI-2 Keane PTSD subscale and met the *DSM-III-R* criteria for PTSD, which was assessed by either the Structured Clinical Interview for *DSM-III-R* (SCID-R) or the Clinician-Administered PTSD Scale (CAPS).

The average age of patients from the PTSD sample was 44.95 years of age (SD = 3.55), their mean education level was 12.90 years (SD = 1.80), and the average number of years served in the military was 5.85 (SD = 5.52), with 30% serving more than one tour of duty in Vietnam. The PTSD patients were statistically older than either of the other two experimental groups. However, it has been demonstrated that subjects do not differ significantly by age on the Rorschach, except at the extremes (Exner, 1986). Of the 20 PTSD patients included in the sample, 13 were married, 6 were divorced, and 1 was single. Eight of the patients had no previous psychiatric hospitalizations, but of the remaining 12 patients with a history of psychiatric hospitalizations the average number was 2.33 (SD = 1.72). Furthermore, all but 2 of the patients had a prior history of comorbid psychiatric diagnoses, with affective (13) and substance abuse (12) disorders being the most common, followed by panic disorder (7). Subjects diagnosed with a current substance abuse problem were not included in the study, nor were patients whom the clinical treatment team suspected of malingering.

**Materials**

**MMPI-2 Keane PTSD subscale (Keane, Malloy, & Fairbank, 1984).** This measure was administered to all subjects prior to experimental instructions as a screening instrument for detecting psychopathology. It consists of 46 true/false items from the MMPI-2 and has been found to be highly correlated with the SCID-R (McFall, Smith, Roszell, Tarver, & Malas, 1990). Undergraduate subjects scoring above a T-score of 65 were eliminated from the study to minimize PTSD symptomatology in the sample.

**MMPI-2 validity scales.** As one measure of potential dissimulation or exaggeration, subject response styles were evaluated using the MMPI-2 L, F, and K scales (MMPI-2; Hathaway & McKinley, 1989).
The Mississippi Scale for Combat-Related PTSD (Keane, Caddell, & Taylor, 1988). This scale was used as a means of evaluating the experimental manipulation. It is a 39-item self-report scale derived from the DSM-III criteria for PTSD and been found to be highly correlated with the SCID–R and to be quite sensitive to degree of combat exposure (McFall et al., 1990).

Rorschach Inkblot Test. Exner's (1986; 1990) Comprehensive System was used to administer and score the Rorschach for all subjects.

Procedure

Data collection for the undergraduate subjects occurred in two phases with a research assistant running the first phase. She administered the MMPI–2 Keane PTSD subscale as a screening measure for each subject, randomly assigned each subject to either the control or malingering condition, gave each subject the test instructions, and helped each subject understand the instructions and complete the self-report questionnaires. In the second phase, subjects were introduced to the experimenter who then administered the Rorschach, blind to the condition of the subject.

The instructions to the undergraduate subjects in the control group and to the PTSD patients were standard instructions, asking the subjects to approach the testing in an honest and open manner. The instructions to the experimental group included a brief description of the symptoms and experiences of Vietnam veterans with PTSD and the request to mangle the disorder on all subsequent tests. The experimental subjects were also promised a cash reward for the most convincing protocol as incentive to try their best.

Data collection with the actual PTSD patients was carried out during the course of the PTSD clinical team's initial psychological evaluation process, and the information collected was also used for diagnostic and treatment purposes by the clinical team in charge of each patient. However, due to the treatment needs of these patients the examiner was not blind to their condition.

Each of the Rorschach protocols was then scored by a research assistant, a doctoral candidate in clinical psychology, experienced with the use of the Comprehensive System, and blind to the condition of the protocols. In addition, for purposes of interrater reliability, 33% of the protocols were scored by another research assistant, also blind to the condition of the protocols. The two sets of scored protocols were then compared to each other, and percentages of agreement were calculated for all relevant scoring categories, as recommended by Exner (1991). The 80% agreement level necessary for reliability, suggested by Weiner (1991), was achieved for each of the eight scoring categories, with an overall agreement level of 88%. an
individual category low of 82% for Location, and an individual category high of 95% for Populars.

In addition to the standard scores calculated in the Comprehensive System, a Dramatic score was calculated as the sum of responses that included themes of depression, sex, blood, gore, confusion, mutilation, hatred, fighting, decapitation, negative emotion, or evil. This is a relatively new experimental score, and was used to examine the often reported finding that malingering subjects tend to provide excessively dramatic responses on the Rorschach.

RESULTS

Data Management and Selection of Statistical Procedures

All tests of significance were planned in advance of data collection. Because many of the Rorschach variables are not normally distributed, the use of traditional parametric statistical procedures is often inappropriate due to violations of their statistical assumptions (Kinder, 1992). Therefore, frequency distributions were calculated for each Rorschach variable, as recommended by Hopkins and Weeks (1990). When either the skewness or the kurtosis exceeded a conservative cutoff of ±0.50, the variable's distribution was considered to be non-normal and nonparametric tests, such as the Kruskal–Wallis H and Mann–Whitney U tests, were used instead of analyses of variance (ANOVAs) and the Fischer PLSD. Although the cutoff point just described is quite conservative, visual inspection of the frequency distributions confirmed the skewness of the variables that exceeded it.

Rorschach variables that were relatively normal in distribution included only X+ % and F+ %. Therefore, these two variables, along with the self-report measures (MMPI–2 scales and the Mississippi scale) were analyzed using an ANOVA and using Fischer PLSD for follow-up comparisons. All other Rorschach variables showed distributions that were not considered normal and were analyzed using the Kruskal–Wallis H test and using Mann–Whitney U for follow-up comparisons. These nonparametric tests were used because they are designed for ordinal data and are considered to have 95% the power of parametric tests (Conover, 1980).

MMPI–2 Validity Indices

L. A one-way ANOVA for this variable was not significant.

F. As predicted, a one-way ANOVA revealed that the MMPI–2 F scale was significantly different across experimental groups. F(2, 57) = 79.23, p <
.001. Each of the three groups was significantly different from the others (Fischer PLSD = 4.65), with controls being the lowest, PTSD patients being higher, and malingerers being the highest (see Table 1).

K. An ANOVA revealed that the MMPI-2 K scale was significantly different across experimental groups, $F(2, 57) = 17.28$, $p < .001$. The control group was significantly higher than the other two groups (Fischer PLSD = 2.46). The malingerers and PTSD patients were not significantly different from each other on this scale.

$F-K$. This ratio, as predicted, was also shown to be significantly different across experimental groups on a one-way ANOVA, $F(2, 57) = 82.66$, $p < .001$. Each of the three groups was significantly different from the others (Fischer PLSD = 5.64), with the controls being the lowest, PTSD patients being higher, and malingerers being the highest.

Mississippi Combat Scale A one-way ANOVA revealed that the Mississippi scale was significantly different across experimental groups, $F(2, 57) = 142.36$, $p < .001$. As predicted, the malingerer and PTSD patient groups were not significantly different from each other, and both were significantly higher (Fischer PLSD = 9.46) than the scores of the control group.

Rorschach Variables

Number of responses ($R$). The Kruskal–Wallis $H$ test did not show significant differences in the number of Rorschach responses given by the three groups.

Dramatic. A Kruskal–Wallis $H$ test revealed the three groups were significantly different from each other on this variable, $H(2) = 10.02$, $p < .01$. Subsequent pairwise comparisons using the Mann–Whitney $U$ showed that the malingerers were significantly higher than either the controls, $U = 89.00$, $p < .01$, and the PTSD patients, $U = 120.50$, $p < .05$. The controls and PTSD patients were not significantly different from each other on this variable.

Lambda. A Kruskal–Wallis $H$ test revealed the three groups were significantly different from each other on this variable, $H(2) = 9.38$, $p < .01$. Subsequent pairwise comparisons using the Mann–Whitney $U$ showed that the PTSD patients were significantly higher in the predicted direction than both the controls, $U = 89.00$, $p < .01$, and the malingerers, $U = 119.50$, $p < .05$. The controls and malingerers were not significantly different from each other on this variable.
Emotional modulation variables (\textit{SumC, C} + \textit{CF}). On the \textit{SumC} variable a Kruskal–Wallis \textit{H} test showed significant differences across the three experimental groups, \(H(2) = 9.85, p < .01\). Subsequent Mann–Whitney \textit{U} tests showed that the malingerers were significantly higher than the controls, \(U = 115.50, p < .05\), and the PTSD patients, \(U = 86.50, p < .01\). The controls and PTSD patients were not significantly different from each other on this variable.

Additionally, on the \(C + CF\) variable a Kruskal–Wallis \textit{H} test showed significant differences across the three experimental groups, \(H(2) = 7.09, p < .05\). Subsequent Mann–Whitney \textit{U} tests showed that the malingerers were significantly higher than the controls, \(U = 112.50, p < .05\), and the PTSD patients, \(U = 130.50, p < .05\). The controls and PTSD patients were not significantly different from each other on this variable.

Reality testing variables (\textit{X+\%}, \textit{F+\%}, \textit{X–\%}). On the \(X–\%\) variable a Kruskal–Wallis \textit{H} test showed significant differences across the three experimental groups, \(H(2) = 14.06, p < .001\). Subsequent Mann–Whitney \textit{U} tests showed that the malingerers were significantly higher than the controls, \(U = 118.00, p < .05\), and the PTSD patients, \(U = 61.00, p < .001\). The controls and PTSD patients were not significantly different from each other on this variable.

In addition, a one way ANOVA revealed that the \(X+\%\) variable was significantly different across experimental groups. \(F(2, 57) = 5.29, p < .01\). Subsequent pairwise comparisons that the controls and PTSD patients were not significantly different from each other, but both were significantly higher than the scores of malingerers (Fischer PLSD = .085). A one way ANOVA revealed that the \(F+\%\) variable was not significantly different across the experimental groups.

Disordered thinking variables (\textit{SCZI}, \textit{WSum6}, \textit{M–}). On the \(M–\) variable a Kruskal–Wallis \textit{H} test showed significant differences across the three experimental groups, \(H(2) = 11.75, p < .01\). Subsequent Mann–Whitney \textit{U} tests showed that the PTSD patients were significantly lower than the controls, \(U = 128.50, p < .01\), and the malingerers, \(U = 98.00, p < .001\). The controls and malingerers were not significantly different from each other on this variable. Predicted differences on \textit{SCZI} and \textit{WSum6} were not supported.

Other variables (\textit{Adj D}, \textit{D Score}, \textit{m}, \textit{Y}, \textit{Sum T}, \textit{H}, \textit{DEPl}, \textit{CDI}, \textit{MOR}, \textit{S-Con}, \textit{Afr}, \textit{3r+2/R}). Contrary to predictions, Kruskal–Wallis \textit{H} tests did not show significant differences across the experimental groups on any of these variables.

Means and standard deviations for all the dependent variables are provided in Table 1.
\begin{table}
\centering
\begin{tabular}{lccc}
\hline
Variable & Measure & Control & Malingering & PTSD \\
\hline
L & Mean & 2.95 & 3.30 & 4.20 \\
 & SD & 1.58 & 2.96 & 2.73 \\
F & Mean & 5.40 & 34.50 & 17.50 \\
 & SD & 3.28 & 10.88 & 5.72 \\
K & Mean & 14.30 & 7.20 & 7.65 \\
 & SD & 3.90 & 2.61 & 4.82 \\
F - K & Mean & -8.90 & 27.30 & 7.85 \\
 & SD & 6.31 & 11.77 & 7.75 \\
Mississippi & Mean & 67.85 & 139.65 & 133.75 \\
 & SD & 12.44 & 17.68 & 14.23 \\
R & Mean & 17.60 & 18.40 & 16.85 \\
 & SD & 3.73 & 3.76 & 3.08 \\
Lambda & Mean & .68 & .85 & 1.62 \\
 & SD & .58 & .78 & 1.51 \\
Adj D & Mean & -.25 & .30 & -.15 \\
 & SD & 2.43 & .92 & .59 \\
D Score & Mean & -.30 & -.25 & -.20 \\
 & SD & 1.72 & .85 & .70 \\
m & Mean & 1.30 & 2.10 & 1.05 \\
 & SD & 1.78 & 2.22 & 1.17 \\
Sum Y & Mean & 1.15 & .90 & .40 \\
 & SD & 1.84 & 1.25 & .75 \\
SCZI & Mean & 1.35 & 2.25 & 1.35 \\
 & SD & 1.50 & 1.74 & .99 \\
WSum6 & Mean & 9.70 & 11.45 & 10.55 \\
 & SD & 11.39 & 11.99 & 6.68 \\
M- & Mean & .60 & .95 & .05 \\
 & SD & .88 & 1.19 & .22 \\
X + % & Mean & .52 & .39 & .51 \\
 & SD & .14 & .13 & .14 \\
X - % & Mean & .17 & .24 & .13 \\
 & SD & .12 & .09 & .12 \\
F + % & Mean & .47 & .37 & .44 \\
 & SD & .26 & .23 & .21 \\
H & Mean & 2.55 & 2.50 & 1.30 \\
 & SD & 1.79 & 2.01 & 1.03 \\
Sum T & Mean & .20 & .30 & .15 \\
 & SD & .52 & .47 & .49 \\
Sum C & Mean & 2.00 & 3.15 & 1.75 \\
 & SD & 1.71 & 1.44 & 1.38 \\
FC + C & Mean & 1.05 & 2.00 & 1.35 \\
 & SD & 1.23 & 1.30 & 1.31 \\
Afr & Mean & .41 & .44 & .49 \\
 & SD & .12 & .14 & .15 \\
\hline
\end{tabular}
\caption{Means and Standard Deviations for All Dependent Variables by Experimental Group}
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TABLE 1 (Continued)

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<td>SD</td>
<td>1.09</td>
<td>2.25</td>
<td>2.35</td>
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DISCUSSION

The purpose of this study was to evaluate the ability of relatively intelligent people (e.g., college students) serving as role-informed malingerers to (a) intentionally alter their responses on the Rorschach Inkblot Test and self-report measures, and (b) do so in a direction which would mimic the responses of a population of Vietnam veterans suffering from combat-related PTSD as compared to a control population. These results suggest that although the role informed malingerers were able to alter their Rorschach protocols in some ways, making them similar to those given by PTSD patients, they differed significantly on other key Rorschach and self-report variables.

As predicted, the $F$, $K$, and $F-K$ validity scale scores of the MMPI–2 show large differences between the three groups in the expected directions. The $K$ scale of controls is higher than either of the other two groups. And the $F$ scale and $F-K$ index produced by malingerers is much higher than those of PTSD patients, which are in turn higher than those of controls. In fact, the mean $F - K$ index score (27.30) of the malingerer group far exceeded the conservative cutoff points of 13 used by Smith, Frueh, and Reynolds (1992) and 11 recommended by Graham (1987), whereas the mean index score from neither of the other two groups do. Thus, it can be concluded that the validity scales of the MMPI–2 may be a good indicator of attempts to malinger PTSD.

In contrast to the validity scales, the Mississippi scale, a commonly used PTSD symptom measure, appears to be extremely vulnerable to being faked. The role-informed malingerers in this study produced scores that were nearly identical to those of PTSD patients, suggesting that not only was the experimental manipulation effective, but that malingerers are able to successfully fake the symptoms of PTSD on this self-report scale.

On the Rorschach, several interesting differences were noted between the groups. Surprisingly, and in contrast to the findings of previous malingering
studies, the number of responses \((R)\) across experimental groups did not differ. In fact, if there was a trend in the data, it was in the opposite direction than expected, with the malingering subjects producing an average of 1.55 responses more than the PTSD subjects. The low number of responses typically given by PTSD patients may be explained by their suspicious approach to the test or by a more general withdrawal from their environment.

Other variables did prove to be significantly different in the expected direction. Malingers produced notably more dramatic responses than either of the other two groups, meaning that they were more likely to describe percepts of violence and bloodshed than even the PTSD patients were. Also, the PTSD patients exhibited a higher percentage of pure form responses than the malingering or control groups did, suggesting that they took a more simplistic and defensive approach to the testing situation. Furthermore, although no differences were noted for the two most important indicators of disturbed or psychotic thinking, significant differences across the three groups were noted for two variables reflective of poor reality testing and a degree of social ineptness often associated with schizophrenia. For each of these variables, the malingering group scored in a direction that was significantly more pathological than the PTSD patients, suggesting a tendency to perhaps exaggerate the phenomena of inaccurate perception while faking PTSD.

Another interesting finding is that the malingering group gave more total color responses and more color responses that are interpreted to be dramatic or emotionally unconstrained. This pattern is consistent with the suggestion that the protocols of malingers were notably more complex than the protocols produced by PTSD patients and controls. The malingers showed a greater tendency to have less modulation of their affective experience than subjects in the other two groups. The PTSD patients seemed to be quite emotionally constrained, a clinical picture that may be consistent with avoidance symptoms of PTSD.

Predictions that there would be differences on other indicators of features associated with PTSD (such as depression, low stress tolerance, and social withdrawal) were not supported. In fact, all groups, including the control group, showed moderate elevations on some of the important indices, which may have obscured some differences between malingers and PTSD patients. For example, what might otherwise be a significantly lower score for the malingers as compared to the PTSD patients on the Coping Deficit Index is rendered statistically nonsignificant by the elevated scores of the controls, whose average score is higher than the malingers on this variable. Similarly, the elevated scores of control subjects on the Depression Index may have obscured a significant difference between malingers and PTSD patients on this index, where the malingers scored higher than patients.

Before reaching any general conclusions about the findings discussed to this point, some behavioral observations, which were not quantified, but were consistently noted, need to be mentioned. Because administration of the Rorschach Inkblot Test is a highly interpersonal context, it is generally
considered to be an important opportunity to gain relevant information pertaining to the patient's current cognitive, affective, and interpersonal functioning. As such, some profound differences were noted across the three groups in terms of how they behaved during the testing situation. As a rule, the PTSD patients were detached and affectively flat during administration of the Rorschach. They appeared to be lethargic and depressed, often exhibiting relatively impoverished speech, having difficulty finding words, using poor grammar, and giving short answers. They were also more likely to need encouragement, often setting the first card down after giving only one response. In addition, they tended to be somewhat suspicious about the nature and purpose of the test, often asking questions during administration and requiring more complete explanations afterwards. In contrast, the malingerers were easily distinguished from the control subjects by the blind examiner at the time of testing. The examiner recorded estimates of which group each subject was in immediately after testing, achieving a hit rate of 75%. The subjects suspected of malingering generally tended to appear rather upbeat and cheerful. They seemed interested in taking the Rorschach, focusing easily on the task, giving rather long and complicated answers, and interacting eagerly with the examiner. The control subjects were more serious, and seemed less interested in the task. These behavioral observations are consistent with those noted by Perry and Kinder (1992). Future studies might benefit from attempts to quantify and measure behavioral aspects of those taking the test under different instructions.

It must be emphasized that care should be taken in attempting to generalize these results to populations other than college students, given that there was a significant difference in age, educational level, life experience, and likely intellectual capacity between the control/malingerer and PTSD patient groups. Future research on this issue should attempt to better control for these variables by using control/malingerer subjects drawn from the community or other VA samples. It is also suggested that better instruments be used to screen out actual psychopathology in the control and malingering groups. This study used a short measure intended to identify subjects with some degree of PTSD symptomatology, but other forms of psychopathology, such as depression or thought disturbance, were not screened. Future studies might also benefit from increasing the external validity of the study by comparing the Rorschach protocols of PTSD patients to those of confirmed malingerers of PTSD, or by comparing the protocols of PTSD patients to those of “coached simulators” trained in malingering detection strategies, as recently done with the MMPI-2 by Rogers, Bagby, and Chakraborty (1993).

An additional feature of this study is the potential for family-wise error due to the large number of variables that were analysed. However, this problem is considered to be minimal because there were many more significant variables than would be expected by chance, and comparisons were planned in advance based on theory or empirical data from previous studies.
Overall, the results suggest that not only was it possible for role-informed college students to intentionally alter their Rorschach protocols, but that in the case of some variables they were able to alter them in a direction consistent with the protocols of a group of PTSD patients. However, in some very important ways they showed striking differences from the PTSD patients, and these differences may be the most important findings of this study because they suggest how malingering might be detected in clinical settings. As mentioned, these differences include a tendency to give responses on the Rorschach that were overly dramatic, excessively complex in the variety of determinants, showed evidence of an unrestrained emotional style, and indicated an exaggerated degree of reality impairment. In contrast, the PTSD patients tended to give short, simple responses that were remarkably unexciting, devoid of melodramatic content or color, and relied primarily on pure form determinants. Additionally, although the malingerers were able to simulate PTSD on a relatively face-valid measure, such as the Mississippi Combat Scale, their performance on the MMPI–2 validity scales was highly suggestive of exaggeration or an attempt to fake-bad. In other words, as a group, the malingerers tried too hard to convince the examiner that they were "sick." Practically speaking, this points towards the importance of examining data from a variety of sources, including the Rorschach, MMPI–2, self-report symptom scales, and behavioral observations, when attempting to assess patients for whom there is a question of malingering.

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B. Christopher Frueh
Psychology Service (116B)
Ralph H. Johnson Veterans Affairs Medical Center
109 Bee Street
Charleston, SC 29401–5799

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