Reaching Out, Crying Wolf, or Feigning Fine: Identifying Over- and Under-Reporting of Psychological Symptoms on the MMPI-2 in a Military Population

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Reaching Out, Crying Wolf, or Feigning “Fine”: Identifying Over- and Under-Reporting of Psychological Symptoms on the MMPI-2 in a Military Population

by

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Presented to the Faculty of the Graduate Department of Clinical Psychology George Fox University in partial fulfillment of the requirements for the degree of Doctor of Psychology in Clinical Psychology

Newberg, Oregon

April 27, 2012
Honest Reporting on the MMPI-2

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Honest Reporting on the MMPI-2

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Abstract

Research with military service members and veterans has shown military personnel from World War 2, the Vietnam era, and the Gulf War era to regularly elevate above clinical cutoffs on the Minnesota Multiphasic Personality Inventory, 2nd edition (MMPI-2) validity scales (DeViva & Bloem, 2003; Freeman, Powell, & Kimbrell, 2008; Mittenberg, Patton, Canyock, & Condit, 2002; Smith & Frueh; 1996). The current study examines the MMPI-2 validity profiles of Global War on Terrorism era (GWOT-era) military service members at Landstuhl Regional Medical Center (LRMC), Germany. GWOT-era service members are expected to have responses consistent with those found in previous research, that is, elevated beyond clinical cutoffs more dramatically and more frequently than the normative population. The impact of the military culture as well as the importance of identifying under-reporting patterns of psychological symptoms will be discussed. The present study is a systematic replication of past research with the change that it focuses on GWOT-era service members, includes the dimension of under-reporting, and discusses the applicability of normative clinical cutoffs in the military population.
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Chapter 1

Introduction

Service members face a variety of stressors while deployed, ranging from blast exposure to heat exhaustion to constant immanent fear of mortar attack. Currently, returning service members are screened in their first 10 days post-deployment with the Post-Deployment Health Assessment (PDHA), a self-report, face-valid measure. If the service member reports behavioral health symptoms on the PDHA he or she is referred to the [military] behavioral health clinic for further assessment. Service members who report significant behavioral health symptoms are referred for a standard assessment procedure that often relies heavily on the Minnesota Multiphasic Personality Inventory, 2nd edition (MMPI-2). Though the MMPI-2 is self-report measure, it was one of the first personality assessments to include measures of test taking attitude (Greene, 2000). The MMPI-2 validity scales include indicators of inconsistent responding, exaggerating symptoms, and underreporting symptoms (Arbisi, Murdoch, Fortier, & McNulty, 2004). These scales are essential to test interpretation because of the ease with which symptoms can be exaggerated, feigned, or concealed on a face-valid self-report measure. Past studies (see DeViva & Bloem, 2003; Freeman, Powell, & Kimbrell, 2008; Mittenberg, Patton, Canyock, & Condit, 2002; Smith & Frueh; 1996) have shown that military personnel have more extreme scores on the MMPI-2 validity scales than do members of the general population. This study is designed to compare the MMPI-2 validity scale responses of military personnel from Vietnam-era and War on Terror conflicts, explore the relevance of traditional clinical cutoffs in the Military population, and place added emphasis on the often ignored issue of under-reporting of psychological symptoms.
Validity scales of the MMPI-2

A host of literature supports the utility of certain MMPI-2 validity scales in distinguishing between exaggerated and honest symptom reporting. The most effective scales at assessing feigning of symptoms are the F (infrequency) scale, the F\(_{(p)}\) (infrequency psychopathology) scale, the K (correction) scale, and the F-K (Gough Dissimulation) index (Greene, 2000). “The F scale consists of 60 items that were selected to detect unusual or atypical ways of answering test items … it is made up of items that no more than 10%...answered in the deviant direction” (Greene, 2000, p 66). Because it is made up of a number of unlikely or even contradictory symptoms it is very unlikely that any client would answer very many of the questions in a deviant direction. However, because of the unusual nature of the symptoms on the F scale it may be somewhat obvious to test-takers what is being probed. Therefore researchers have taken it a step further with the development of the F\(_{(p)}\) scale which contains 27 items that no more than 20% of an inpatient psychiatric population affirmed in the deviant direction. Because the F\(_{(p)}\) scale is constructed of bizarre items that not even a severe psychiatric population affirmed more than 20% of the time, it is more sensitive to feigning of psychopathology in both psychiatric and veteran populations (Arbisi et al., 2004). In 1950, Gough proposed the F-K index as a “purely mechanical indicator” of both underreporting and over-reporting on the MMPI-2 (Rothke et al., 1994, pp. 1-2). Gough found that by subtracting the K (correction score) from the F (infrequency) score another score could be obtained that more effectively discriminated feigned from true pathology. The cutoff scores for the F-K index have been considerably revised for the MMPI-2 and are now considered to be among the best predictors of honest responding.

Significantly less is known about underreporting of psychopathology. Greene (2000) wonders at the paucity of research on underreporting because of the large number of situations in which one would want to appear healthier than one might actually be, such as in custody battles or personnel screenings. Measures of underreporting include L (lie) and K (correction) scales. Although initially intended to measure underreporting, the L scale has recently been shown to measure sophistication in responding.
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style rather than an underreported profile (Greene, 2000). The K scale was empirically derived to identify profiles of people who displayed significant psychopathology and yet scored in the normal range on the MMPI-2 (Greene, 2000). The 30 items of the K scale have been shown to be effective at identifying defensively reported profiles (Greene, 2000).

Under- and Over-Reporting in the Military

The value of face-valid self-report measures is high in cases where there is little or no motivation for the client to misrepresent his or her symptoms. Objective measures of personality and psychopathology provide important assistance to clinicians in making diagnostic and treatment decisions. However, the clinical utility of face-valid, self-report measures is called into question when there are significant personal and/or environmental factors that may influence a test-taker’s candor, as is almost certainly the case for military service members.

There are many salient barriers to assessment and treatment in the Military. Military members have ample reasons to underreport psychopathology. Psychological disorders such as PTSD, mood disorders, and anxiety disorders can warrant Medical Evaluation Board action and possible duty reassignment or forced retirement from the Military. Military culture also enforces mental and physical strength as a central and vital to Military Service. Corrigan (2004) suggests that the stigma associated with mental illness is particularly salient in the military culture, a culture that prides itself on strength and stoicism in the face of terror. A strong stigma against mental illness pervades the military encouraging members to remember, “there’s strong, and then there’s Army strong” (Army slogan). Visco (2009) describes a variety of concerns Air Force members reported influenced their test-taking honesty, such as fear of their commanders obtaining negative behavioral health information, a perceived negative affect on their career if behavioral health information was to be exposed, a community in which strength is highly valued, and a recalcitrant stigma that it is “cowardly” to struggle with behavioral health issues. In addition, many Service members suffering from psychological distress may devalue their symptoms in
comparison to those with post-traumatic physical ailments and underreport their distress (Castro, Hayes, & Keane, 2011). In summary:

We see the development of stigma as a systemic issue, deeply rooted in the traditions of the military. From basic training to their first duty assignment, soldiers are conditioned to be physically strong and mentally tough – in other words, macho…The value placed on strength within the military culture creates the risk of stigma for any situation in which weakness is perceived. (McFarling, L., D’Angelo, M., Drain, M, Gibbs, D., & Olmstead, K., 2011, 1-2)

The Military is governed by a set of values, laws, norms, and traditions that are distinct from the Civilian world (Coll, Weiss, & Yarvis, 2011). Coll et al. (2011) summarize the experience as such,

Upon entry into service, military values are aggressively imposed on the service members…The military believes that the ubiquitous application of their standards of conduct is necessary because members of the armed forces must be ready at all times to be deployed into combat. (Coll et al., 2011, 489)

Coll et al., (2011) also note the crucial importance of unit cohesion in underreporting of symptoms. Service members rely on their units for their lives, if a member of the team reports distress there is a strong possibility that trust in the individual and in the unit will waiver, creating a dangerous battlefield situation (Coll et al., 2011). Military members may have legitimate fears of duty reassignment, adverse effects on military career, or even criminal charges or imprisonment if atrocities related to battle are revealed in a behavioral health setting (Castro et al., 2011). Though the Military Rules of Evidence (MRE) specifically protects psychotherapist-patient confidentiality, a critical exception is made when the information is deemed “necessary to ensure the safety and security of military personnel, military dependents, military property, classified information, or the accomplishment of military mission” (Manual for Courts-Martial, 2008; Castro et al., 2011). In practice this regulation leaves a wide margin for interpretation for commanders and practitioners to grapple with. This often results in behavioral health information that would be protected in the civilian world being made readily available at a
commander’s request. The virtually unlimited access of commanders to behavioral health information on their soldiers, sailors, airmen, and marines leaves Military members with a justifiable fear of disclosing psychological distress.

Many researchers also have noted the questionable validity of self-report measures when there is potential secondary gain (Nichols & Greene, 1997). For example, Arbisi et al. (2004) demonstrated the power of secondary gain to influence symptom reporting when they examined 699 Veteran’s Affairs Compensation and Pension evaluation files and found that veterans seeking compensation consistently scored higher on measures of over-reporting than non-compensation seeking veterans. In the case of the military, potential for secondary gain abounds, whether in medical evaluation board proceedings, physical evaluation board proceedings, Veterans’ Affairs Compensation and Pension evaluations, and possible evasion of deployment or other potentially undesirable duty.

Thus, the approach to under- and over-reporting seems straightforward: apply the clinical cutoff scores to identify respondents whose scores are elevated on the validity scales of the MMPI-2. However, because of the nature of trauma associated with military culture and combat exposure, it is unclear whether elevations on the validity scales of the MMPI-2 are due to genuine symptom severity or over-reporting (Frueh, Smith, & Barker, 1996). In their study, Butcher et al. (1990) examined whether special military norms might be needed in order to avoid misclassifying veterans as feigning psychopathology. The researchers compared the normative sample of the MMPI-2 to a sample of military members and found that the normative sample was an appropriate reference group with which to compare the military population (Butcher et al., 1990).

Armed with evidence that the MMPI-2 normative sample was an appropriate comparison group, Frueh et al. (1996) studied whether or not veterans’ compensation-seeking status affected their validity profiles. The researchers separated Veterans Affairs patient files into compensation-seeking and non-compensation-seeking groups and compared the elevations on the validity and psychopathology scales. Interestingly, they found no difference in the incidence of PTSD diagnosis across groups but the
compensation-seeking group consistently had significantly higher scores on the validity scales. Subsequent research has also suggested that over-reporting of PTSD in particular is a definable taxonomic response set rather than an especially severe symptom presentation (Strong, Greene, & Schinka, 2000).

It is important to note that Butcher et al. (1990) and Frueh et al.’s (1996) work supporting the use of the MMPI-2 validity scales with military samples was conducted before the recent wars in Afghanistan and Iraq. Arbisi et al. (2004) assert that all combat veterans have undergone a traumatic experience and are therefore more likely to be able to feign PTSD based on their acute stress reactions immediately after the event regardless of their current symptomatology. In a more recent examination of the validity of self-reporting in the military, Alder, Thomas, and Castro (2005) used the meticulous Army Physical Training Test records and compared them to soldier’s self-reported Physical Training (PT) scores. They asked soldiers their physical training scores, including exact number of sit-ups, push-ups, and exact run time from their most recent PT test. Adler et al. (2005) found “generally weak to moderate” correspondence between soldier’ self-reported PT scores and the Unit’s record, with soldiers tending to report somewhat higher scores than found in the Unit record. It is important to note that even knowing that PT scores are easily verifiable by checking unit records, soldiers still tended to present themselves in a favorable light. This discrepancy could have been due to an error in unit records, poor memory, or soldiers’ misunderstanding of the instructions, but the pervasive pattern of favorable self-reporting casts doubt on the validity of other self-report measures.

More directly relevant to use of face-valid measures of behavioral and mental health issues is the work of Tolin, Steenkamp, Marx, and Litz (2010). The current study seeks to replicate the results of Tolin et al.’s 2010 study on Vietnam veterans in a sample of Global War on Terrorism era service members. A mixed group validation technique was employed in the original study to estimate the base rate of service members who over-report symptoms in a Behavioral Health outpatient setting. The base rates of over- and under-reporting on the MMPI-2 found in the current study will be compared with the rates found by Tolin et al. (2010) as well as Smith and Frueh (1996), DeViva and Bloem (2003), and Freeman et al.
(2008). All four of these studies estimated exaggeration rates (typically over-reporting) in Vietnam veterans. Smith and Frueh (1996) examined the profiles of 145 Vietnam Veterans separated into compensation seeking veterans and non-compensation seeking veterans. They found 41.03% of compensation seeking veterans and 18.60% of non-compensation seeking veterans were estimated to be exaggerating. DeViva and Bloem (2003) used the same methodology as Smith and Frueh (1996) but found 33.33% of compensation-seeking veterans and 17.95% of non-compensation seeking veterans’ profiles to be exaggerated. Finally, Freeman et al. (2008) reviewed profiles of veterans assessed for PTSD and found that 53% of veterans in their sample met criteria for symptom exaggeration on the SIRS (Tolin et al., 2010).

The current study seeks to describe the rates of over- and under-reporting of psychological distress, as measured by the MMPI-2 validity scale scores, in a sample of military personnel. This sample is similar to those studied by Arbisi et al. (2004) and Tolin, et al. (2010) in that all examine over-reporting in Service Member populations. Unlike Arbisi et al. (2004) and Tolin, et al.’s (2010) samples, the current sample was comprised of participants from the Global War on Terrorism era. Another contribution of this study is that whereas previous studies have studied over-reporting, this study will examine both over- and under-reporting of symptoms in the Military. It is hypothesized that rates of over-reporting will not differ significantly for Vietnam and Global War on Terrorism era service members.
Chapter 2

Methods

Participants

This study employed archival data. Permission was granted by the internal review board at San Antonio Military Medical Center and the Landstuhl Regional Medical Center commander. Patients at Landstuhl Regional Medical Center are from all branches of US military service. Landstuhl Regional Medical Center serves service members stationed in Europe and those medically evacuated from the Iraq and Afghanistan theaters. However, psychological testing in the Neuropsychology department was conducted only with service members stationed in Europe. One-hundred seventy-eight files were accessed from the Neuropsychological wing; these represent all of the files that contain MMPI-2s administered in 2009. The current sample consisted of 178 service members, 121 from the US Army, 22 from the US Air Force, and 6 US Navy members, with an mean age of 29.56 years (SD = 9.52). The sample consisted of 148 males and 30 females. Of the files which contained information about military rank (n = 151), most of the service members were identified as private-specialists (n = 100), followed by non-commissioned officers (n = 42) and officers (n = 9).

Measures.

Minnesota Multiphasic Personality Inventory-2 (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989) is one of the most commonly administered psychological test. It is designed as a measure of personality structure and pathology. The MMPI-2 contains 10 clinical scales. Additionally, the MMPI-2 contains three basic types of validity measures: those designed to detect non-responding or inconsistent responding (e.g., CNS, VRIN, TRIN), those designed to detect when clients are over reporting or exaggerating the prevalence or severity of psychological symptoms(e.g., F, Fb, Fp, FBS), and those scales designed to detect under-reporting or downplaying psychological symptoms (e.g., L, K). A
new addition to the validity scales for the MMPI-2 RF includes an over reporting scale of somatic symptoms scale (Fs).

The current study employs the Correction (K) scale, Variable Response Inconsistency Scale (VRIN), and three infrequency scales including Infrequency (F), Back Side Infrequency (Fb), and Infrequency-Psychopathology (Fp). Additionally, scores on the Gough Dissimulation Index (F-K) were recorded (Gough, 1950). Reliability and validity values for each of the exaggeration scales are reported in Table 1.

Table 1
Validity Scales on the MMPI-2 Employed in the Present Study.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Assesses</th>
<th>Reliability</th>
<th>Validity (Correlated with LES)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M  F</td>
<td>M  F</td>
</tr>
<tr>
<td>F</td>
<td>Infrequency</td>
<td>.78 .69</td>
<td>.20 .25</td>
</tr>
<tr>
<td>K</td>
<td>“Correction” Denial/Evasiveness</td>
<td>.84 .81</td>
<td>-.18 -.18</td>
</tr>
<tr>
<td>Fb</td>
<td>Infrequency (in last half of test)</td>
<td>.86 .71</td>
<td>.22 .20</td>
</tr>
<tr>
<td>VRIN</td>
<td>Answering similar question inconsistently</td>
<td>.54 .52</td>
<td>.12 .14</td>
</tr>
</tbody>
</table>

Procedure

Files were reviewed on the 2C wing of Landstuhl Regional Medical Center. The researcher checked and double checked the transcription of scores from the computer generated MMPI-2 score reports. T-scores and raw scores were obtained for the F, Fp, F-K, K, and VRIN, as well as the age, rank, military branch, gender, and whether or not each participant elevated above t > 70 on each clinical scale.
Chapter 3

Results

Clinical Scales

The MMPI-2 was administered to 178 service members in this sample. The values of each of the clinical scales were not available, however each individual’s file did indicate whether each clinical scale did or did not exceed the traditional clinical cutoffs ($t \geq 70$). Figure 1 shows how many service members had scores that exceeded critical values on no scales through ten scales. The mean number of clinical scales on which service members had a score that exceeded the critical value was 3.64 ($SD = 2.82$).

*Figure 1.* The number of service members who had scores that exceeded critical values on no scales through 10 scales.
Table 2 shows how many service members exceeded the critical value on each of the 10 content scales. It should be noted that the majority of participants exceeded clinical cutoffs on more than one scale; in fact 68.70% of the sample exceeded the critical value on two or more of the content scales.

Table 2

The Number of Participants who Exceeded the Critical Value on Each of the 10 Clinical Scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>( f )</th>
<th>Percent of the sample</th>
<th>( z )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>63</td>
<td>35.8</td>
<td>-12.780</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>2</td>
<td>86</td>
<td>48.9</td>
<td>-16.780</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>3</td>
<td>56</td>
<td>31.8</td>
<td>-11.460</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>4</td>
<td>86</td>
<td>48.9</td>
<td>-16.780</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>5</td>
<td>15</td>
<td>8.5</td>
<td>-1.8860</td>
<td>0.0296</td>
</tr>
<tr>
<td>6</td>
<td>63</td>
<td>35.8</td>
<td>-12.780</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>7</td>
<td>87</td>
<td>49.4</td>
<td>-16.943</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>8</td>
<td>92</td>
<td>52.3</td>
<td>-17.749</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>9</td>
<td>61</td>
<td>34.7</td>
<td>-12.410</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>10</td>
<td>67</td>
<td>38.1</td>
<td>-13.515</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>

Note: \( n = 178 \). \( Z \) reports the results of a binomial test for the difference between two proportions (i.e. the observed percent is compared with the 5% t-score cut off). \( P \) reports the one-tailed probability of obtaining that \( z \)-score.

For each of the 10 content scales, a binomial test (i.e., \( z \)-score) was conducted to determine whether the difference between the observed percentage and the ideal of 5% (i.e., the percent of the sample that would be expected to exceed the \( t > 70 \) cutoff) was different. The percentage of service members who exceeded the \( t > 70 \) cutoff was significantly higher than expected for all 10 of the content scales.
Table 3 shows the percent of the sample that elevated beyond clinical cutoffs of $t<70$, $t>80$, $t>90$, and $t>100$ on F, Fp, FB, K, VRIN, and F-K. It is important to notice that whereas only 2.5% of the norming population elevated beyond $t>70$ on the $F(t)$ scale, 56% of the current sample elevated above $t>70$. A binomial test shows that the percentage of the current sample that exceeds $t>70$ is significantly higher than the percentage in the norm group, $z = 21.43$, $p< .001$.

Table 3
The Percent of the Sample that Exceeded the Critical Values on Each of the Six Validity Scales

<table>
<thead>
<tr>
<th>Validity scale</th>
<th>Critical cutoff values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\geq 70$</td>
</tr>
<tr>
<td>F(t)</td>
<td>56.2</td>
</tr>
<tr>
<td>Fp(t)</td>
<td>27.5</td>
</tr>
<tr>
<td>FB(t)</td>
<td>19.7</td>
</tr>
<tr>
<td>K(t)</td>
<td>4.5</td>
</tr>
<tr>
<td>VRIN(t)</td>
<td>3.4</td>
</tr>
<tr>
<td>F-K &gt; 13</td>
<td>9.1</td>
</tr>
</tbody>
</table>

Comparisons with Other Military Samples

Our hypothesis explores whether rates of over-reporting differed significantly for Vietnam and Global War on Terrorism era service members. Both of our comparison studies used F-K > 13 to distinguish an over-reported profile from a non-over-reported profile. Using F-K > 13 as our measure of over-reporting, 9.1% of the present sample can be considered over-reported. This result is significantly
lower than DeViva and Bloem’s (2003) finding that 33-35% of their sample over-reported \( z=6.08, p<.0002 \).

Because Frueh and Smith (1996) screened for PTSD as a part of their sampling procedure, we separated out participants who elevated above \( t = 70 \) on both clinical scales 2 (depression) and scale 8 (schizophrenia) as a way to estimate the members of the current sample who might have a PTSD diagnosis, as suggested by Munley, Bains, Bloem, & Busby (1995). Our sample contained 67 respondents (38.1%) with both 2 and 8 elevated. Of this subsample with a 2/8 profile (i.e., suspected PTSD) 9.1% had an F-K score elevated above 13. This is significantly lower than the rate reported by Smith and Frueh’s (1996) finding 37% of their sample over-reported \( z=6.08, p<.0002 \).

**Rates of Under-Reporting**

A particular interest of the current study is identification and description of the rates of under-reporting in the military population. Figure 2 shows the distribution of F-K scores in the current sample. The mean of the F-K scores is -1.93 \( (SD = 11.82) \). The distribution is not skewed (skew = .79, SEskew = .18), however it is significantly leptokurtic (kurtosis = 1.30, SEkurtosis = .36), indicating that more scores than expected are clustered around the mean.
Figure 2. The distribution of F-K scores in the current sample.
Chapter 4

Discussion

The hypothesis examined in the current study stated that rates of over-reporting would not differ significantly between Vietnam and Global War on Terrorism era service members. This hypothesis was not supported. The current study demonstrated that active duty service members over-report at a significantly lower rate than Vietnam veterans. Part two of the study sought to describe the rates of under-reporting and thus begin the conversation about the importance of identifying under-reporting in a military population.

Though a significantly lower percentage of active-duty service members were found to be over-reporting than their Vietnam veteran counterparts, the amount of elevation seen in the active-duty sample is significantly higher than the normative population. The discrepancy in elevation between the normative sample and the current sample suggests two possibilities:

1. The participants in the military sample are more often and more egregiously over-reporting their symptoms resulting in a pattern of elevated validity profiles. If this is true then the validity scales are measuring what they intend to measure and successfully discriminating between honestly reported and over-reported profiles, or

2. The normative sample is not an appropriate comparison sample for a military population, and therefore other measures of validity in reporting must be considered.

Previous research conducted by Tolin et al. (2010) and Arbisi, Ben-Porath, and McNulty (2006) concluded that the normative population is an adequate comparison group for military personnel. If this is an accurate conclusion we must consider any profile that exceeds $t=70$ on any validity scale to be exaggerated, as is suggested by the test manual (Butcher, Graham, Ben-Porath, Tellegen, & Dahlstrom,
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2001). By this standard we must consider 65% of the profiles in the current to be exaggerated and therefore invalid. Even if the cutoff is elevated to an extreme of \( t=100 \) we still must classify 33.1% of profiles as over-reported. This stands in stark contrast to the normative population in which less than .1% of the norming population elevated above \( t=100 \).

The second explanation suggests that military personnel as a population have a characteristic style of reporting that differs significantly from the norming population. Previous research has noted that, “genuine PTSD is characterized by the presence of wide range of symptoms, high rates of comorbidity, and extreme symptom severity making the indiscriminate endorsement of feigned psychiatric symptoms difficult to distinguish from the accurate report of PTSD symptoms” (Arbisi et al., 2004, p. 58). A one-sample \( t \)-test reveals a significant difference \( (p < .0001) \) between the sample and the norming population. If indeed there is a true difference between the populations, the \( t \)-scores determined by the normative population will not adequately categorize profiles from the military sample.

If the MMPI-2 normative population is used to determine \( t \)-scores for the military population there is a very present risk of misclassifying up to 65% of the current sample. If the norming population is accepted as an adequate comparison it may significantly increase the risk of invalidating the distress suffered by many who have endured serious trauma. Furthermore, this misclassification can lead to denial of services these patients desperately need.

It is becoming clear that the F scale as normed on the non-military population may not be an accurate discriminator of over-reported versus accurate but extreme profiles in a military setting. It is likely that the majority of service members have experienced events that trigger sub-threshold psychological symptoms and are therefore at higher risk for psychopathology than their civilian counterparts. Other scales may more appropriately determine the validity of military profiles. The Infrequency-Psychopathology scale consists of 27 items that “no more than 20% of a sample of inpatients and the norming sample endorsed in the deviant direction” (Greene, 2000, p. 71). The infrequency-psychopathology scale may be a more useful scale to discriminate between feigned pathology and honest
reporting in the military because of increased likelihood of trauma exposure in the military. In the current sample 27.5% of the files reviewed elevated above t>70 and 7.3% elevated beyond t>80 on Fp. Though these values are still much higher than the norming population they may provide a more accurate basis for classification of over-reporting when interpreting MMPI-2 validity profiles of service members.

There are significant costs to misidentification of over-reported profiles as accurately reported but severe. Even when validity profiles are classified according to a conservative cutoff of t>80 on Fp it is important to note that the current sample still exhibits a 7.3% rate of over-reporting as compared to less than 1% in the norming (inpatient) population. There are notable benefits to obtaining psychological diagnoses including but not limited to non-deployable status, limited duty assignments, and medical board review for medical retirement from the military (often with life-long financial benefits). Interestingly, these same motivations also apply to underreporting psychopathology as non-deployable status, limited-duty status, and medical retirement are often equated with weakness, shame, and peer-rejection.

**Directions for Future Research**

Though Fp and F-K have both been suggested as the most accurate discriminators of exaggerated reporting on the MMPI-2, further research is needed to determine the cutting scores that will best discriminate between honest and over-reported profiles. The current study employed a cutoff of F-K>13 to discriminate over-reported profiles based on the precedent set by DeViva and Bloem (2003) and Frueh and Smith (1996), though cutting scores from 6 (Sivec, Lynn, & Garoke, 1994) to 27 (Graham, Timbrook, Ben-Porath, & Butcher, 1991) have been suggested (Greene, 2001). Further research is needed to determine what the optimal cut-offs are for identifying over-, honest, and under-reporting. Additionally, though Fp may provide a more accurate delineation between over-reported and honestly reported profiles there is more work to be done regarding the whether the Fp norming sample is a good-enough comparison group for the military population.

The paucity of research on underreporting provides little precedent for identifying under-reporters who may benefit from psychological intervention. Further research into detection of underreporting using
existing measures as well as development of instruments designed to detect underreporting may provide essential information for intervention and treatment with the military population.

**Limitations**

The current sample was composed of profiles collected for a variety of reasons. It would have been helpful to know the source of referral for services (command directed, self-referred…etc.) as well as the diagnostic decisions made based on the assessment information. Further research may benefit from noting the source of referral and an examination of any patterns that emerge related to the reason for referral.
References


Gough. (1950). The F minus K dissimulation index for the Minnesota Multiphasic Personality Inventory. *Journal of Consulting Psychology* 14(5), 408-413


Appendix A

Curriculum Vitae
Amanda Kruszewski
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Education

8/2007 – Present
George Fox University
Graduate Department of Clinical Psychology: APA Accredited
Newberg, OR
**Doctoral Student in Clinical Psychology (PsyD)**
Dissertation: “Reaching Out, Crying Wolf, or Feigning “Fine”:
Identifying Over- and Under-Reporting of Psychological Symptoms on
the MMPI-2 in a Military Population.” Defense April 2012: Full Pass

George Fox University
Graduate Department of Clinical Psychology: APA Accredited
Newberg, OR
**Master of Arts in Clinical Psychology**

Grove City College
Grove City, PA
**Bachelor of Arts, Psychology**

Supervised Clinical Experience

6/2012 – Present
Pre-Internship
Kaiser Permanente
Salem, OR
Duties included conducting intake interviews, individual therapy, group
therapy, and neuropsychological assessment with Kaiser Permanente members.
Clients represent a broad spectrum of difference in age, race, ethnicity, sexual
orientation, religious affiliation, gender identity, and pathology. Designing
assessment batteries based on referral questions, providing comprehensive
cognitive and neuropsychological assessments, and writing concise and accurate
reports. Working with, consulting with, and providing consultation for the
mental health team to provide the best care for our members.
Supervisor: Catherine deCampos, PsyD, FNP, Robert Schiff, PhD
Assessments Performed: WAIS-IV, WISC-IV, WRAT4, Trails, BDI-II, PHQ-9, D-
KEFS, TOMM, WRAML-2

Practicum II (269.5 Direct Client Hours, 486 Total Hours)
Salem Vet Center
Salem, OR
Duties included conducting therapy and assessment with combat veterans of
Vietnam, Operation Desert Storm, Operation Iraqi Freedom, and Operation
Enduring Freedom, as well as veterans who experienced sexual trauma while in
Honest Reporting on the MMPI-2

Veterans receiving services at the Vet Center varied widely in age, ranging from young adults (18-22) to older adults (65+), and ethnicity including Native American, Native Alaskan, Hispanic, and Caucasian clientele. Clients also present with a large range of diagnostic diversity including Post-Traumatic Stress Disorder, Major Depressive Disorder, Social Anxiety, Agoraphobia, General Anxiety Disorder, Dissociative features, Personality Disorders, Substance Abuse Disorders, and a variety of relational issues. Several comprehensive assessments were conducted in the interest of best client care and advocacy for VA benefits. Batteries included the Minnesota Multiphasic Personality Inventory (MMPI-2), Personality Assessment Inventory (PAI), Detailed Assessment of Post-Traumatic Stress (DAPS), Post-Traumatic Stress Checklist – Military (PCL-M), Weschler Adult Intelligence Scale – IV (WAIS-IV), and Wide Range Assessment of Memory and Learning 2 (WRAML2). Frequent consultation with masters-level psychological professionals, legal services, social work services, and medical practitioners in and outside the VA system was an integral part of the scope of practice.

Supervisor: David Collier, PsyD

Psychometrist (254 Direct Assessment Hours, 340 Clinical Hours)
Landstuhl Regional Medical Center
Landstuhl, Germany
Duties included administration and scoring of a variety of neuropsychological assessment tools including the Weschler Adult Intelligence Scales (WAIS-III), Weschler Memory Scales (WMS-III), California Verbal Learning Test (CVLT-II), Wide Range Academic Test (WRAT), Continuous Performance Test (CPT), Minnesota Multiphasic Personality Inventory (MMPI-2), Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), Neuropsychological Assessment for Children (NEPSY), Victoria Symptom Validity Test (VSVT), Wisconsin Card Sort Test (WCST) and the Halsted Reitan Battery. Supervision included battery development for individual cases, consultation with neuropsychologists regarding cases. Additionally, duties included training Air Force and Army psychology technicians.
Supervisor: LTC Nathan Huck, PhD, MAJ Robert Parish, PhD
Assessments Performed: WAIS-IV, WISC-IV, WMS-IV, WRAT4, Trails, BDI-II BAI, Auditory Consonant Trigrams, Halstead Reitan, TOMM, WRAML-2, NEPSY, Victoria Symptom Validity Test (VSVT), Wisconsin Card Sort, MMPI-2, California Verbal Learning Test Second Edition (CVLT2), Rey-Osterrith Complex Figure Test, Boston Naming Test, Controlled Oral Word Association Test

Practicum I (158 Supervised Therapy Hours, 7.5 Supervised Cognitive Assessment hours)
Archer Glen Elementary School
Sherwood, OR
Duties included providing individual therapy for children ages 6-11 with a wide variety of backgrounds and pathologies including childhood bipolar disorder,
depression, adjustment disorders, anxiety, learning disabilities, and difficult family systems. Psychoeducational duties included teaching *Second Steps* preventative emotion management and self-regulation curriculum to kindergarteners. Cognitive assessments were conducted to determine eligibility for the Talented and Gifted program. Finally, I engaged in frequent consultation with teachers and other staff to improve understanding of children with mental health and behavioral challenges.

**Supervisor:** Hannah Stere, PsyD

**Assessments Performed:** WISC-IV, BASC-2

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**Supplemental Practicum (230 direct)**

George Fox University  
Doctor of Clinical Psychology Program  
Newberg, OR  
Duties included providing individual and family therapy for a child with early-onset bipolar disorder with psychotic features, and an adolescent with a significant physical disability and a seizure disorder. I engaged in consulting and treatment planning with medical and behavioral health care providers as well as frequent crisis intervention.

**Supervisor:** Elizabeth Hamilton, Ph.D.

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**Pre-Practicum (35 direct)**

George Fox University  
Doctor of Clinical Psychology Program  
Clinical Training Program  
Newberg, OR  
Duties included learning and refining clinical skills with college-age clients in a highly supervised environment

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**Research Experience**

**8/3/2012**  
**American Psychological Association Presentation**  

**5/5/2012**  
**Oregon Psychological Association**  

**11/2011 – 1/2012**  
**Unit-II Standardization**  
PRO-ED (Nationwide)
Newberg, OR
Duties included administration of the Universal Non-Verbal Intelligence Test (UNIT-II) to children ages 5 – 18 as part of a larger effort to determine appropriate norms for various age groups.

Assessments Administered: UNIT-II

12/01/2010

**Head to Head Project**

Landstuhl Regional Medical Center
Landstuhl, Germany
Duties: Working as a research assistant for the Head to Head Project I was tasked with recruiting subjects from the emergency department at Landstuhl Regional Medical Center, conducting the Automated Neuropsychological Assessment Metrics 4th edition Military Version (ANAM 4 TBI MIL) and the Immediate Post-Concussion Assessment and Cognitive Testing Military Version (ImPACT MIL) along with the UPST (a balance test), and the AHEAD M-100 EEG device to recently concussed individuals.
Supervisor: Robert Parish, PhD, MAJ US Army

4/24/2009

**Western Psychological Association Presentation**


9/2008 – Present

**Research Vertical Team Member**

George Fox University
Doctor of Clinical Psychology Program
Newberg, OR
Duties included designing and carrying out a dissertation research project, as well as consulting on the research projects of other students on the team and mentorship of junior students.
Supervisor: Kathleen Gathercoal, PhD, Chair of Research, George Fox University


**Research Intern**

Rosemead School of Psychology
Biola University
La Mirada, CA
Duties included administration and transcription of the Adult Attachment Interview (AAI) and the Spiritual Experiences Interview (SEIn). Editing “Furnishing the Soul,” by Dr. Todd Hall. Designed and completed a pilot study to increase the versatility of the Spiritual Transformation Inventory (STI) by extending it to an adolescent population.
Supervisor: Todd Hall, PhD
Assessments Administrators: AAI, SEIn


**Advanced Statistics and Research Methods**

George Fox University
Doctor of Clinical Psychology
Honest Reporting on the MMPI-2

Newberg, OR
Supervisor: Kathleen Gathercoal, PhD, Chair of Research, George Fox University


**Advanced Research Methods**
Grove City College
Grove City, PA
Duties: Designed and conducted a study assessing the relationship between strength of Spiritual commitment and delay of gratification. Project presented at the 2007 meeting of Eastern Psychological Association.
Supervisor: Joseph Horton, PhD


**Independent Study Research**
Grove City College
Grove City, PA
Duties: Extended the Spiritual Transformation study conducted at Rosemead School of Psychology by the Institute for Research on Psychology and Spirituality to Grove City College. Used the Spiritual Transformation Inventory (STI) and Spiritual Experiences Interview (SEIn) to assess spiritual growth through time at Grove City College.
*Assessments Administered: STI, SEIn*

**Supervision Experience**

8/2012 - Present

**Graduate Teaching Assistant, Pre-Practicum Supervisor**
**Clinical Foundations to Treatment**
Duties: In this role I am responsible for the immediate supervision of four first-year doctoral students as they learn basic therapeutic skills. I review, grade, and give feedback on simulated therapy video tapes, while evaluating each student’s skills. Our group meets once a week to process learning skills and practice new skills. It is my responsibility to facilitate their growth as neophyte clinicians and prepare them for their first practicum in conjunction with our Director of Clinical Training.
Supervisor: Carlos Taloyo, PhD, Director of Clinical Training, George Fox University

8/2012 – Present

**Supervision and Management**
George Fox University
Newberg, OR
Duties included providing supervision for a second year student over the course of an academic year. Providing a safe place for process, suggesting intervention options, and facilitating case conceptualization were among the important duties in this role.
Supervisor: Mary Peterson, PhD, Joel Gregor, PsyD

**Teaching Experience**

8/2012 – Present

**Graduate Teaching Assistant**
Clinical Foundations to Treatment
Duties: In this role I am responsible for the immediate supervision of four first-year doctoral students as they learn basic therapeutic skills. I review, grade, and give feedback on simulated therapy video tapes, while evaluating each student’s skills. Our group meets once a week to process learning skills and practice new skills. It is my responsibility to facilitate their growth as neophyte clinicians and prepare them for their first practicum in conjunction with our Director of Clinical Training.
Supervisor: Carlos Taloyo, PhD, Director of Clinical Training, George Fox University

8/2012 – Present
Graduate Teaching Assistant Consultation
Duties include grading assignments and providing assistance to students as they formulate and complete consultation projects.

8/2012 – 12/2012
Graduate Teaching Assistant Comprehensive Assessment
Duties include reviewing and grading comprehensive assessment profiles and reports as well as, providing assistance to students as they engage in learning comprehensive assessment

5/2012
Graduate Teaching Assistant Learning, Cognition, and Emotion
Duties included teaching a section on the neurobiology and neuroanatomy of emotion, grading exams and papers, providing assistance to students as they learn Learning, Cognition, and Emotion concepts.

6/2012
Graduate Teaching Assistant Social Psychology
Duties included teaching a section on neurobiology of social psychology, grading exams and papers, providing assistance to students as they learn Social Psychological concepts.

Relevant Work Experience

Senior Family Advocacy Educator
Army Community Services
Baumholder, Germany
As Senior Family Advocacy Educator I was tasked with creating and presenting psycho-education classes on a variety of topics related to parenting, deployment, child development, and couples communication. My responsibilities also included mentoring, supervising, and instructing two junior staff. Additionally was trained as a back-up victim advocate, a crisis service provided by Army community service for anyone who has been a victim of sexual assault. Finally, I served as back-up Emergency Placement Care program manager in which I intervened in crisis situations and connected children who were in danger at home with safe and carefully screened families. All three of
these roles required frequent consultation with the Garrison Commander, and other senior officials on USAG Baumholder.

6/2007-8/2007  **Women’s Staff Counselor**  
Miracle Ranch, Crista Camps  
Port Orchard, WA  
Duties included leadership of the women on summer staff, weekly individual mentorship with each staff member, crisis intervention with campers and staff with a variety of difficulties. Duties also included design and facilitation of summer camp programs.

Grove City College  
Grove City, PA  
Duties included serving as a liaison between college administration and students. I often served in a pseudo-counselor role for students as they frequently approached me with very difficult issues. Duties also included facilitating personal and community growth among students.

**Professional Affiliations**

1/2007 – Present  **American Psychological Association**, Student affiliate

12/2011 – Present  **Military Psychology (APA Division 19)**, Student affiliate

11/2008 – Present  **Western Psychological Association**, Student membership

4/2006 – Present  **Psi Chi**  
National Honorary in Psychology

**Relevant Experience**

Providence Newberg Hospital  
Newberg, OR  
Duties included facilitating discussion about depression recovery curriculum and encouraging participation from each group member in group discussions

Partners in Missions International  
Oradea, Romania  
Duties included formation of a mission team, communication with the missions agency, support, training, and mentorship of team members, creation of a curriculum to teach and encourage Orphans and Roma (Gypsy) children in Romania.
4/2005

**Mission Trip Leader**  
Daybreak  
McLean Bible Church  
Washington, DC  
Duties included formation of mission team; communication with missions agency, support, training, and mentorship of team members, creation of curriculum to tutor and minister to children living in government subsidized housing projects in Lincoln Heights.

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**University Involvement**

2/2012

**Student Interviewer**  
George Fox University  
Newberg, OR  
Duties included assisting faculty in conducting interviews with prospective students for the Doctorate of Clinical Psychology program.

2/2008

**Interviewee Host**  
George Fox University  
Newberg, OR  
Duties include hosting prospective students interviewing for the Doctorate of Clinical Psychology program.

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**References**

**LTC Nathan Huck, PhD, ABClinP**  
**LTC, MS, USA**  
Licensed and Board Certified Clinical Psychologist  
Clinical Neuropsychologist  
Command Psychologist, Army Operations Group  
301-833-8042

**Catherine deCampos, FNP, PsyD**  
**Kaiser Permanente Northwest Division**  
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503-361-5400

**Carlos Taloyo, PhD**  
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