

**MENTAL HEALTH STATUS AND PERCEIVED BARRIERS TO
SEEKING TREATMENT IN RURAL RESERVE COMPONENT
VETERANS***

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ABSTRACT

National Guard and Reserve (RC) troops (N=617) primarily from the Appalachian Region in Southwestern Pennsylvania who recently returned from deployment in support of current military conflicts responded to a survey that assessed their demographics, mental health symptoms, help-seeking behaviors, barriers for not seeking treatment, deployment history, and stressors. Veterans were classified as rural (N = 334) or non-rural (N = 283). Rural participants reported a significantly greater number of issues with transportation/access in seeking mental health treatment, were more likely to perceive others as worse off as a reason not to seek treatment, had a more negative attitude toward seeking treatment for mental health problems, and reported fewer concerns about a mental health problem affecting their career. Recommendations for mental health care providers and policymakers are offered based on the results, including the importance of recognizing the distinctive barriers to care that RC Appalachian veterans face when they come back into civilian communities, many of them rural.

The cognitive, emotional, and physical demands of a combat environment place enormous stress on even the best-prepared military personnel (Hoge et al. 2004).

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Combat deployment affects service members, their jobs, their family members, their social networks, and their local community. Early national evidence suggests that the psychological toll of combat may be disproportionately high compared with the physical injuries thereof (Tanielian et al. 2008). Seeking and accepting appropriate treatment and support for this psychological burden may be critical to service members' effective reintegration back into their pre-deployment lives. To date, little research has targeted specific behavioral health treatment needs of the rural Reserve Component (RC; National Guard and Reserve) veteran and the barriers he or she may experience accessing treatment.

Since October 2001, the U.S. military has seen more than 1.7 million personnel deploy in support of our nation's two major wars in Iraq and Afghanistan (Department of Defense 2011). Given the traumatic stressors encountered during combat, it is not surprising that up to 30 percent of military personnel returning from combat in Afghanistan and Iraq report suffering from psychological problems such as post traumatic stress disorder (PTSD), depression, and alcohol abuse (Hoge, Auchterlonie, and Milliken 2006; Hoge et al. 2004). Seal et al. (2009) obtained records of 289,328 Operation Iraqi Freedom and Operation Enduring Freedom soldiers who used the Department of Veterans Affairs health care for the first time following their service, and found that PTSD rates increased from .2 percent in 2002 to 21.8 percent in 2008. Depression also rose during this time (from 2.3 percent to 17.4 percent), along with alcohol abuse (1.1 percent to 7.1 percent) and drug abuse (.2 percent to 3.0 percent).

Operations Iraqi Freedom and Enduring Freedom have drawn heavily upon RC forces, who cycle between their civilian communities and their lives as warriors (Bachman et al. 2000; Griffith 2010; Kane 2006). Besides dealing with the consequences of combat exposure, RC troops face the added challenge of returning to civilian communities that may be less aware of the issues a veteran and his or her family may be facing and less well equipped to provide the kind of social and practical support that would be available on a military base (Griffith 2010). In a study of soldiers post-deployment, Milliken, Auchterlonie, and Hoge (2007) found that 42.4 percent of RC soldiers screened positive for a mental health issue (e.g., PTSD, alcohol misuse, major depression, anxiety, or other mental health problems), a rate more than twice that for active duty soldiers, only 20.3 percent of whom screened positive.

An additional cause for concern is that many RC personnel come from rural locations where access to mental health care can be limited (McDonald, Harris, and LeMesurier 2005; Weeks et al. 2008). As of 2008, 41 percent of all veterans enrolled

in the Veterans Administration (VA) resided in rural or highly rural areas (U.S. Department of Veterans Affairs 2010). Warriors from rural America also die at a higher rate than other military personnel (O'Hare and Bishop 2006), creating an additional level of stress for returning veterans from these areas.

Many of these citizen warriors have been from the Appalachian region that includes 406 counties in 13 states. The geographical boundaries set by the Appalachian Regional Development Act of 1965 (ARC 2011) includes all of West Virginia and parts of Pennsylvania, Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, South Carolina, Tennessee, and Virginia. This region's population is 42 percent rural, compared with 20 percent of the national population (ARC 2011). Northern Appalachia includes counties in states that may not typically be thought of as Appalachian (e.g., Pennsylvania, Ohio and New York). These counties are considered part of the Appalachian region and share its characteristics including reduced ethnic diversity (ARC 2011; Pollard 2004). This study addresses the strengths and needs of RC veterans from primarily rural counties in the Appalachian region.

Appalachians have been marginalized for centuries due to their geographic isolation and the distinctiveness of the culture (Lemon, Newfield, and Dobbins 1993). While there are as many within-group differences in Appalachian culture as between Appalachian culture and the dominant culture in America (Brown and Herrick 2002; Hauenstein et al. 2007; Tang and Russ 2007), some distinctive attributes common to this region are noteworthy. Qualities often found in Appalachian culture include strong family and kinship ties, strong commitment to family responsibility, self-reliance, strong church and community ties, strong values for equality and independence, a distrust of outsiders and institutions (Tang and Russ 2007), a reluctance to share family problems, strong faith, and being law abiding (Coyne, Demian-Popescu, and Friend 2006) and patriotic (Helton 1995). A duty to serve and family traditions of military service may grow out of this strong commitment to family, community, church, and country. Similarly, the regional values of independence, reliance on the self and those close to you, and distrust of institutions and outsiders may make RC veterans from this region reluctant to seek behavioral health assistance.

Aspects of Appalachian culture are similar in many ways to military culture and the two value systems may thus reinforce each other. Military cultural attitudes include a tendency toward a collectivistic orientation, an external locus of control, emotional suppression, a tolerance for pain, strength focus, self sacrifice, and grounding in tradition (Lunasco et al. 2010). Military culture is characterized by

self-reliance and group norms of “suck it up” or “drive on” despite dire or overwhelming circumstances. All branches of the military share a strong sense of teamwork, a duty to serve, and loyalty to one’s military organization. Service members are often skeptical of the motivations or opinions of those who have not served in the military, being particularly judgmental with those who they do not perceive to share common views (Dowling 2010). These norms for stoicism and suspicion of outsiders (e.g., individuals without military experience) may lead to a lack of acknowledgment of behavioral health problems and act as barriers to seeking behavioral health care when needed. The similar values that veterans from rural Appalachian regions bring with them when they join the military may cause the effects of military values to be even stronger among rural veterans.

The culture of the rural Appalachian citizen-warrior has encouraged the development of unique strengths in terms of family and community support and resilience. Supporting this idea of increased resilience, in a large and representative study of urban versus rural differences in mental health problems and quality of life, Wallace et al. (2006) found that veterans from rural locations were actually less likely to be diagnosed with a variety of mental health problems than veterans from urban locations. However, Wallace et al. (2006) also found that veterans from rural locations with a mental health problem were more likely to experience reduced quality of life than those from urban locations. One reason for the latter finding is the greater prevalence of barriers faced by veterans returning to rural locations. When RC service members return to a rural civilian environment, seeking and receiving needed treatment may be more difficult than for those returning to a non-rural environment (McDonald et al. 2005; Weeks et al. 2008). Barriers to mental health care for the rural population include distance from and limited access to services, a sense of self sufficiency, and community stigma (Brown and Herrick 2002; McDonald et al. 2005).

In the present study, we argue that the characteristics and culture of RC veterans returning to rural Appalachian locations have implications for the development of mental health problems following deployments and the types of barriers facing veterans who need treatment. More specifically, we developed the following hypotheses for this study:

1. Based on the results of Wallace et al. (2006), we anticipate that rural veterans will score lower on indices of mental health symptoms.
2. However, veterans returning to largely rural environments will face both different and significantly more barriers to mental health care than those returning to non-rural environments. For example, veterans in rural

locations will experience more barriers related to travel and are more likely to endorse attitudes such as strong dependence on family that may impede help seeking.

3. Veterans from rural locations will have more negative attitudes toward seeking mental health treatment than veterans from non-rural locations.

METHODS

We developed a survey to assess demographics, mental health symptoms, help-seeking behaviors, barriers to seeking treatment, and deployment history, as well as to identify stressors of members of the RC who were deployed after 2003 in support of military operations. The survey was modeled after, and used questions from, a similar survey developed by the Walter Reed Army Institute of Research (WRAIR) for use with non-Reserve Component veterans (see Hoge et al. 2004 and Wright et al. 2007). Specific evidence on the reliability and measures used in the present study is provided when each measure is described below.

Sample

Participants were a convenience sample of 760 members of the Pennsylvania Army or Air National Guard or Army, Marine, or Air Force Reserves in Western Pennsylvania who had been deployed since 2003 in support of a military operation. Participants were classified as rural or non-rural based on their county of residence using standards established by the (a legislative Agency of the Pennsylvania General Assembly, http://www.rural.palegislature.us/rural_urban.html). The Center for Rural Pennsylvania (2011) defines a county as rural if the population density is lower than 274 persons per square mile; using this classification 71.6 percent of the state's counties are rural. Seventy-two participants reported living in a state other than Pennsylvania and 71 did not provide a county of residence. These participants were dropped from the analyses because they could not be classified as rural or non-rural, leaving a final sample size of 617. All but 26 of the participants in the sample live in counties designated as Appalachian based on the Appalachian Regional Commission (ARC 2011).

Data Collection

We administered surveys in one of three ways depending on the unit involved. With the assistance of the Pennsylvania (PA) National Guard, surveys were mailed via the U.S. Postal Service to the home address of eligible members of the PA Army and Air National Guard whose mailing addresses were within 150 miles of a small

rural college in an Appalachian county in Southwestern PA. Potential participants received an envelope containing: a cover letter from the PA National Guard, a cover letter from the researchers, a copy of the survey with a self-addressed stamped envelope in which to return it, instructions for completing the survey online if they preferred, a McDonald's gift certificate as a thank you gift, and, in a separate envelope, a pamphlet on mental health resources in their area and advice for seeking help. We sent reminder post cards two and four weeks after the initial survey was mailed. We received a total of 334 completed surveys from members of the PA National Guard. We estimate the response rate as approximately 12.4 percent. A total of 3,100 surveys were mailed, of these approximately 11 percent (404) either were returned with bad addresses or were sent in error (e.g., the person was no longer with the PA National Guard).

With permission from the Army, Navy, and Air Force, commanders of Reserve units located within 150 miles of the same small college were contacted and invited to offer eligible members of their units, those who had been deployed since 2003, the opportunity to participate in the study. Unit commanders were offered three methods by which their members could be approached. First, during a training weekend a researcher could come and explain the study to eligible members of the unit who were then given the opportunity to complete a paper copy of the survey at that time. Information was also provided to allow a unit member to complete the survey online later. Second, during a training weekend a researcher could come and explain the study to eligible members of the unit who were then given an envelope with a copy of the survey and a self-addressed stamped envelope in which to return it and instructions for completing the survey online so that they could complete the survey on their own time. Third, a packet similar to those sent to members of the PA National Guard could be sent to the home addresses of eligible members of the unit (the primary difference was in the cover letters).

Most of the Reserve units whose commanders agreed to participate selected the first option. Most of the participants attending a survey session (426 out of 476; 90 percent) elected to complete the survey. We cannot estimate the actual proportion of eligible participants that this represents because the Reserve units did not provide the number of members of the unit who were eligible and we do not know what proportion of eligible members attended the training weekends during which surveys were administered. While we cannot calculate an exact response rate for our sample, our sample demographics (See Table 1) are very similar to those reported by other researchers who have sampled RC veterans (e.g., Milliken et al. 2007).

Measures

Demographics. Participants were asked a set of demographics questions including age, race, level of education, and county of origin (to allow classification as rural or non-rural). Participants were also asked questions about their military history, including their branch of service, the type of unit in which they served, the location of their most recent deployment, when they left and returned from their deployment, and the number of deployments they had completed since 2003. Participants were asked whether, during their most recent deployment, they had experienced a traumatic event defined as the threat of death or serious injury to themselves or the threat or actual occurrence of death or serious injury to someone else.

Post Traumatic Stress Disorder (PTSD). Post traumatic stress disorder (PTSD) has become, with Traumatic Brain Injury, one of the invisible signature wounds of the current armed conflict (Tanielian et al. 2008). The American Psychiatric Association *Diagnostic and Statistical Manual of Mental Disorders 4th edition*, text revision (DSM-IV-TR; American Psychiatric Association 2000) defines PTSD as a disordered response to a traumatic event that includes symptoms of: re-experiencing (i.e., flashbacks), hyper-arousal (i.e., exaggerated startle response or difficulty falling asleep), and avoidance (i.e., efforts to avoid activities that bring back memory of the traumatic event).

PTSD symptoms were assessed using the Post Traumatic Stress Disorder Checklist – Military Version (PCL-M; National Center for PTSD 1993), a 17-item self-report checklist (Blanchard et al. 1996; Bliese et al. 2008; Mansfield et al. 2010). The PCL-M has items that correspond to diagnostic criteria for PTSD in the DSM-IV-TR (American Psychiatric Association 2000). Participants were asked to indicate how much of a problem each symptom (e.g., “feeling distant or cut-off from other people,” or “feeling very upset when something reminded you of the stressful experience”) had been in the last four weeks on a 5-point Likert-type scale ranging from *Not at all* (1) to *Extremely* (5). The Cronbach’s alpha coefficient for the scale was .96.

Bliese et al. (2008) recommend selecting a cutoff based on the setting (e.g., in a primary care setting versus a large post-deployment screening venue). Based on our data collection settings, we selected a cut off of 44 or greater (Schneiderman, Braver, and Kang 2008) and, in addition, have done the analysis both with and without requiring that a participant also meet the DSM-IV-TR (American Psychiatric Association 2000) criteria of reporting symptoms of avoidance, re-

experiencing, and arousal to be coded as potentially having PTSD (Schell and Marshall 2008).

Depression. Depression was assessed using the nine-item depression subscale (PHQ-9) from the Patient Health Questionnaire (PHQ) (Kroenke, Spitzer, and Williams 2003; Spitzer, Williams, and Kroenke 1999). Participants indicated the number of days in the last two weeks, on a four-point scale ranging from 1 (not at all) to 4 (nearly every day), that they had experienced various symptoms (e.g., “Feeling down, depressed, or hopeless,” “Little interest or pleasure in doing things”). The PHQ-9 is a frequently used and previously validated instrument for assessing depression (Arroll et al. 2010; Kroenke, Spitzer, and Williams 2001). The PHQ-9 provides a depression severity measure as well as a diagnostic instrument based on the DSM-IV-TR (American Psychiatric Association 2000).

The items for the PHQ-9 are summed to produce a score between 0 and 27. Scores from 5-9 are considered mild depression, 10-14 moderate, 15-19 moderately severe, and above 20 severe. Participants with a score of 15 or higher were classified as moderately to severely depressed. Following recommendations by Hoge et al. (2004), we included an impairment question, “If you have experienced any of the above problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?” The response options were: “Not at all difficult,” “Somewhat difficult,” “Very difficult,” and “Extremely difficult.” Participants were classified as likely to be experiencing major depression if their score on the PHQ-9 was 15 or higher and their response to the impairment question indicated that their symptoms were making it at least somewhat difficult for them to function in daily life. The Cronbach’s alpha coefficient for the scale was .91.

Item 8 of the PHQ-9, “Thoughts that you would be better off dead or of hurting yourself in some way” was used as a measure of suicidal ideation. Participants were considered potentially suicidal if they endorsed item 8 as occurring “at least several days” in the last two weeks. This scoring is consistent with Walker et al (2010), who found that while higher scores on this item indicated a greater likelihood of being suicidal, even cancer patients who endorsed a low frequency of “at least several days” could be suicidal and therefore require further assessment.

Alcohol issues. Potential alcohol abuse issues were assessed using the Two-Item Conjoint Screen (TICS) (Brown et al. 2001). This is a two-item screen for alcohol and other drug abuse or dependencies has been used in modified form by the military to screen for alcohol problems (see Wright et al. 2007). Participants respond to two questions—whether in the past month they have “Used alcohol more

than you meant to” or “Felt you wanted or needed to cut down on your drinking.” A yes response to both questions indicates a possible problem with alcohol.

Barriers to seeking care. We used 23 items to assess barriers to seeking care. All items were presented in Likert format using a 5-point response scale that ranged from *Strongly Disagree* (1) to *Strongly Agree* (5). The items included: six items to assess stigma based on work by Hoge et al. (2004) and Britt et al. (2008); six items to assess barriers to care taken from Hoge et al. (2004) and Britt et al. (2008); five items assessing attitudes toward mental health care (e.g., “Mental health treatment would cause me distress” and “I don’t think mental health professionals would understand my problems”) (see MacKenzie et al. 2004); six additional items developed for this survey to assess additional barriers to care (e.g., “I would have to drive too far to get treatment” and “There are other military members with problems worse than mine”). A total measure of barriers was created by summing the items. The Cronbach’s alpha coefficient for the scale was .94.

Attitudes toward treatment seeking. A single item assessed participants’ general attitude toward mental health treatment. Participants were asked, “Overall, what is your current attitude toward seeking treatment for a potential psychological problem from a mental health professional (e.g., psychiatrist, psychologist, social worker) were you to develop a problem?” using a 7-point scale ranging from *Very Negative* (1) to *Very Positive* (7). This item has been found to predict reported treatment seeking in prior research with military veterans (Britt et al. 2011).

Data Analysis

In the present study we primarily categorized veterans according to cutoff scores on the mental health outcomes and whether they acknowledged or did not acknowledge different types of barriers to care. Therefore, chi-square tests were primarily used to assess whether rates of mental health problems and acknowledgment of different barriers were related to whether veterans came from a rural or urban location. In cases where the relationship between rural/urban location and a continuous outcome was examined, t-tests were used.

RESULTS

Participants

A total of 617 RC members completed usable surveys (194 Army Reserve; 89 Air Force Reserve; 26 Marine Reserve; 282 Army National Guard; 16 Air National Guard; and 10 who did not indicate their branch). The sample demographics are similar to other RC samples (e.g., Milliken et al. 2007), but might be surprising to

TABLE 1. PROPORTIONS (PERCENTAGES) OF DEMOGRAPHIC FEATURES OF THE SAMPLE FOR BOTH RURAL AND NON-RURAL VETERANS

| VARIABLE | TOTAL | | RURAL VETERANS | | NON-RURAL VETERANS | |
|---|------------|----------------|----------------|----------------|--------------------|----------------|
| | PROPORTION | N | PROPORTION | N | PROPORTION | N |
| | | <i>N</i> = 617 | | <i>N</i> = 334 | | <i>N</i> = 283 |
| Age (years) | | | | | | |
| 20-24. | 11.3 | 70 | 12.0 | 40 | 10.6 | 30 |
| 25-29. | 18.5 | 114 | 19.8 | 66 | 17.0 | 48 |
| 30-39. | 26.6 | 164 | 27.5 | 92 | 25.4 | 72 |
| 40 or older. | 43.6 | 269 | 40.7 | 136 | 47.0 | 133 |
| Gender | | | | | | |
| Female. | 11.2 | 69 | 9.9 | 33 | 12.7 | 36 |
| Male. | 88.2 | 544 | 89.5 | 299 | 86.6 | 245 |
| Education | | | | | | |
| High school degree (or GED). | 22.2 | 137 | 28.1 | 94 | 15.2 | 43 |
| Some college (includes Associates degree). | 45.4 | 280 | 3.4 | 145 | 47.7 | 135 |
| Bachelors degree. | 23.0 | 142 | 21.3 | 71 | 25.1 | 71 |
| Graduate degree. | 8.6 | 53 | 6.0 | 20 | 11.7 | 33 |
| Relationship Status | | | | | | |
| Single, never married. | 20.9 | 129 | 19.8 | 66 | 22.3 | 63 |
| Single, living with partner. | 5.8 | 36 | 6.6 | 22 | 4.9 | 14 |
| Married. | 62.9 | 388 | 63.2 | 211 | 62.5 | 177 |
| Divorced. | 7.5 | 46 | 8.1 | 27 | 6.7 | 19 |
| Have or support children?. | 58.7 | 362 | 58.7 | 196 | 58.7 | 166 |
| Civilian employment | | | | | | |
| Work full-time. | 78.8 | 486 | 78.1 | 261 | 79.5 | 225 |
| Work part-time. | 9.4 | 58 | 9.6 | 32 | 9.2 | 26 |
| Looking for work. | 6.3 | 39 | 6.3 | 21 | 6.4 | 18 |
| Retired. | 2.6 | 16 | 3.6 | 12 | 1.4 | 4 |
| Student. | 12.5 | 77 | 12.0 | 40 | 13.1 | 37 |

TABLE 1. PROPORTIONS (PERCENTAGES) OF DEMOGRAPHIC FEATURES OF THE SAMPLE FOR BOTH RURAL AND NON-RURAL VETERANS
(CONTINUED)

| VARIABLE | TOTAL <i>N</i> = 617 | | RURAL VETERANS <i>N</i> = 334 | | NON-RURAL VETERANS <i>N</i> = 283 | |
|--|-------------------------|----------|----------------------------------|----------|--------------------------------------|----------|
| | PROPORTION | <i>N</i> | PROPORTION | <i>N</i> | PROPORTION | <i>N</i> |
| Supervise others as part of job..... | 45.4 | 280 | 43.4 | 145 | 47.7 | 135 |
| Branch of service | | | | | | |
| Army reserve..... | 31.4 | 194 | 27.2 | 91 | 36.4 | 103 |
| Air Force reserve..... | 14.4 | 89 | 7.2 | 24 | 23.0 | 65 |
| Marine reserve..... | 4.2 | 26 | 3.6 | 12 | 4.9 | 14 |
| Army National Guard..... | 45.7 | 282 | 58.1 | 194 | 31.3 | 88 |
| Air National Guard..... | 2.6 | 16 | 3.0 | 10 | 2.1 | 6 |
| Type of unit | | | | | | |
| Combat..... | 31.0 | 191 | 38.6 | 129 | 21.9 | 62 |
| Combat support..... | 33.4 | 206 | 33.2 | 111 | 33.6 | 95 |
| Combat service support..... | 30.1 | 186 | 23.4 | 78 | 38.2 | 108 |
| Rank | | | | | | |
| Enlisted..... | 18.3 | 113 | 21.3 | 71 | 14.9 | 42 |
| Non-Commissioned Officers..... | 57.4 | 382 | 64.8 | 216 | 58.7 | 166 |
| Commissioned and Warrant Officers..... | 19.0 | 116 | 12.9 | 43 | 25.8 | 73 |
| Number of Deployments Lasting More than Six Months | | | | | | |
| 1..... | 53.6 | 331 | 55.1 | 184 | 51.9 | 147 |
| 2..... | 20.9 | 129 | 23.4 | 78 | 18.0 | 51 |
| 3 or more..... | 7.6 | 49 | 8.4 | 28 | 7.5 | 21 |

people unfamiliar with RC demographics. RC veterans are often older, 43 percent of our participants were more than 45 years of age. The majority reported having at least some college education, working full time, being married, and having or supporting children, with a median of two children.

Most of the participants, 573, were Caucasian (93 percent), a small number were African Americans 23 (4 percent) or Hispanic or Latino 9 (1.5 percent), and less than 1 percent reported being Asian, American Indian, or Alaska Native. While the sample may seem remarkably homogeneous, it is in fact consistent with the demographics of both the survey region and the Appalachian region as a whole. Based on the 2000 census (U.S. Census Bureau 2000), in the counties from which we have participants, 92 percent of residents self-identify as white, 6 percent as black, 2 percent as Hispanic or Latino, 1 percent as Asian, and 0.1 percent as American Indian or Alaska Native. Within these counties, the percentage of county residents identifying themselves as white ranged from 93.4 percent for Allegheny County to 99.4 percent for Jefferson County. Thus, the racial composition of the sample reflects the region as a whole. It is also consistent with the Appalachian region overall, which exhibits an overall lack of racial diversity compared with the rest of the nation (Pollard 2004).

Based on county of residence, 334 veterans (54 percent) were classified as rural and 283 (46 percent) as non-rural. Participants reported, on average, 16 years of military experience, with a range of 3 to 40 years. Approximately 66.9 percent of the sample served in Iraq, 4.4 percent served in Afghanistan, 11.7 percent served in southwest Asia (e.g., Bosnia, Croatia), and 14.4 percent served in other areas. Most of the participants reported serving in a unit whose primary function was some type of support. Although most of the participants were not serving in units whose primary function was combat, 55 percent responded "Yes" when asked, "During your most recent deployment did you experience a traumatic event (e.g., an actual or threat of death or serious injury to you or someone else)?" The majority reported that they were no longer with the same unit with which they had deployed. Roughly one-third of the participants reported having completed two or more deployments lasting at least six months.

Mental Health Problems

PTSD symptoms. All three methods of calculating a positive PTSD screen yielded similar percentages of potential PTSD among our participants, although there were small differences in whether individual participants met the criteria under all three schemes.

TABLE 2. NUMBER (PERCENT^a) OF PARTICIPANTS (RURAL AND NON-RURAL) MEETING CUTOFFS FOR MENTAL HEALTH SCREENING INSTRUMENTS

| OUTCOMES | TOTAL | RURAL | NON- |
|--|------------|-----------|------------------|
| | N = 617 | N = 334 | RURAL N = 283 |
| PTSD Screen (PCL-M)..... | | | |
| PCL-M score ≥ 44..... | 132 (23.1) | 81 (26.4) | 51 (19.3) |
| PCL-M – meeting DSM criteria ^b . | 136 (23.1) | 81 (25.4) | 55 (20.4) |
| PCL-M score ≥ 44 and met DSM | | | |
| criteria ^b | 117 (19.9) | 71 (22.3) | 46 (17.0) |
| Significant Impairment ^c | 42 (7.8) | 26 (8.8) | 16 (6.6) |
| Depression Screen (PHQ-9) | | | |
| Moderate to Severe Depression ^d ... | 103 (18.0) | 59 (18.8) | 44 (16.9) |
| Major Depression ^e | 45 (7.7) | 28 (8.8) | 17 (6.4) |
| Significant Impairment ^c | 41 (8.4) | 28 (10.1) | 13 (6.1) |
| Suicidal Ideation ^f | 61 (10.4) | 37 (11.5) | 24 (9.0) |
| TICS Alcohol Abuse Screen ^g | 78 (13.2) | 44 (13.7) | 34 (12.7) |

Notes: ^aPercentages are the percentage of participants who completed each scale. ^bParticipants were coded as screening positive for PTSD meeting DSM criteria if they report at greater than moderately disturbing at least one intrusion symptom, two hyper-arousal symptoms, and three avoidance symptoms. ^cParticipants were classified as having significant impairment if they responded that their symptoms were making it “very difficult” or “extremely difficult” for them to function in daily life. ^dParticipants with a score of 15 or higher on the PHQ-9 were classified as moderately to severely depressed. ^eParticipants were classified as experiencing major depression if their PHQ-9 score was ≥ 15 and their response to the impairment question was that their symptoms were making it at least “somewhat difficult” for them to function in daily life. ^fParticipants were scored as experiencing suicidal ideation if they indicated that they had “Thoughts that you would be better off dead or of hurting yourself in some way” on “at least several days” in the last 2 weeks. ^gParticipants were scored as having a potential alcohol problem if they responded “Yes” to both questions.

A significantly higher proportion of rural participants (26 percent) than non-rural participants (19 percent) screened positive for PTSD using a cutoff at a score of 44, $\chi^2(1, N = 571) = 3.99, p < .05$. However, rural participants were also significantly more likely to report having had a traumatic experience during their last deployment (63 percent) than non-rural participants (53 percent), $\chi^2(1, N = 585) = 5.94, p < .05$. Separate chi-square tests for participants in rural and non-rural counties showed a significant relationship between experiencing trauma on the most recent deployment and status on the PTSD screen, $\chi^2(1, N = 300) = 51.74, p < .001$ and $\chi^2(1, N = 257) = 35.42, p < .001$, respectively. However, separate chi-

square tests for participants who had and had not experienced trauma on their last deployment found no relationship between living in a non-rural or rural county and status on the PTSD screen. Status on the PTSD screen is therefore related to the experience of traumatic events and not residence in a rural or non-rural county.

Depression, suicidal ideation, and comorbidity. Based on the PHQ-9, 18 percent of participants were moderately to severely depressed. Ten percent indicated suicidal ideation. Of those individuals experiencing suicidal ideation, 63 percent also scored as moderately to severely depressed. Seven percent had scores indicating the possibility of major depression. By either measure of PTSD, the comorbidity with possible PTSD was high – 45 participants (90 percent) using a cutoff at scores of 44 on the PCL-M, or 42 (84 percent) using the cutoff at 44 and meeting the DSM criteria. This high level of comorbidity is consistent with the literature. Van der Kolk et al. (2005) reported that PTSD is diagnosed as comorbid with another disorder as often as 80-88 percent of the time. Gaudiano and Zimmerman (2010) also found that 48 percent of individuals with a lifetime history of PTSD also meet criteria for a major depressive disorder.

There were no differences in rate of depression, $\chi^2(1, N = 584) = 1.09, p = .35$, depending on whether veterans were from a rural (8.8 percent) or non-rural (6.4 percent) location. There were also no differences in rate of suicidal ideation, $\chi^2(1, N = 588) = 1.01, p = .34$, depending on whether veterans were from a rural (11.5 percent) or non-rural (9.0 percent) location.

Alcohol abuse. Based on the TICS, 13 percent scored as potentially having issues with alcohol abuse by answering “Yes” to both questions. We found no differences between the percentage of rural (13.7 percent) and non-rural (12.7 percent) veterans screening positive for alcohol abuse, $\chi^2(1, N = 590) = 0.12, p = .81$.

Barriers

Of the 201 participants screening positive for any of the mental health difficulties (i.e., major depression, PTSD, alcohol problems, or suicidal ideation), only 93 (46 percent) reported either having sought treatment in the last 12 months or being interested in receiving help. These results suggest the presence of barriers preventing the receipt of needed mental health treatment.

We found no significant differences in the total barriers score for rural participants ($M = 62.3$) compared with non-rural participants ($M = 61.4$), $t(568) = -.62, p = .54$. However, rural participants reported significantly more issues with transportation/access. A chi-square test was used to examine the relationship between rural status and agreeing or strongly agreeing with barriers related to

transportation. Significant differences were found for the barriers “I would not have adequate transportation,” $\chi^2(1, N = 587) = 6.50, p < .05$, and “I would have to drive too far to get treatment,” $\chi^2(1, N = 587) = 13.64, p < .001$. Rural participants were more likely to report not having transportation (5 percent) or having to drive too far (22 percent) than non-rural participants (1 percent and 11 percent respectively). Seven barriers were acknowledged (*Agree* or *Strongly Agree*) by more than 35 percent of the sample (see Table 3). Chi-square tests were conducted to examine the relationship between rural status and agreeing or strongly agreeing with the top seven barriers. Significant differences were found for two of the seven barriers. Rural participants reported fewer concerns about a mental health problem affecting their career or about how their leadership would perceive them than non-rural participants. Significantly more rural participants also agreed or strongly agreed (69 percent) with the barrier “There are other military members with problems worse than mine,” $\chi^2(1, N = 589) = 5.11, p < .05$, than non-rural participants (60 percent). Non-rural participants were more likely (44 percent) to acknowledge the barrier “My unit leadership might treat me differently,” $\chi^2(1, N = 589) = 7.90, p < .01$, than rural participants (32 percent).

TABLE 3. PROPORTION (PERCENT) OF TOTAL, RURAL AND NON-RURAL PARTICIPANTS AGREEING OR STRONGLY AGREEING WITH BARRIERS TO SEEKING MENTAL HEALTH CARE THAT WERE ACKNOWLEDGED BY 35 PERCENT OR MORE OF THE SAMPLE

| BARRIER | TOTAL N = 617 | RURAL N = 334 | NON-RURAL N = 283 |
|---|------------------|------------------|----------------------|
| There are other military members with problems worse than mine. | 65 | 69 | 60 |
| I might be prescribed medicine that would interfere with my ability to do my job. | 44 | 46 | 43 |
| Other people I know just would not understand. | 43 | 44 | 42 |
| I would be seen as weak. | 38 | 35 | 42 |
| Members of my unit might have less confidence in me. | 38 | 35 | 41 |
| My unit leadership might treat me differently. | 38 | 33 | 44 |
| It would harm my career. | 36 | 33 | 40 |

While not statistically significant, there was a trend for non-rural participants to be more likely to acknowledge two other stigma-related barriers, "It would harm my career," and "I would be seen as weak." Forty percent of non-rural participants compared with 33 percent of rural participants agreed or strongly agreed that seeking mental health care harming their career was a barrier, $\chi^2(1, N = 588) = 3.90, p = .058$. Forty-two percent of non-rural participants agreed or strongly agreed that they would be concerned with being seen as weak if they sought care compared with 35 percent of rural participants, $\chi^2(1, N = 589) = 3.27, p = .075$.

Finally, in response to the question regarding general attitude toward mental health treatment, non-rural participants had a significantly more positive attitude ($M = 4.56$) than rural participants ($M = 4.27$), $t(597) = 2.14, p < .05$. These results suggest that an additional barrier for rural veterans seeking treatment is a more negative attitude toward mental health treatment.

DISCUSSION

We hypothesized that Appalachian RC veterans in rural locations would report a lower frequency of mental health symptoms. Contrary to this hypothesis, the only difference we found was that of a significantly higher rate for rural veterans on one measure of PTSD symptomology. However, that difference was better explained as a function of traumatic experiences during deployment than of being from a rural region. This finding may underscore the reality that the demands of a combat environment place enormous stress on even the best-prepared military personnel.

We found support for the hypothesis that veterans returning to largely rural environments would face different barriers to mental health care than those returning to non-rural environments, but not for the hypothesis that they would face many barriers. As hypothesized, veterans in rural locations reported greater barriers related to transportation because of distance from treatment locations compared with veterans from non-rural locations.

As hypothesized, veterans in rural locations also reported a more negative attitude toward seeking mental health treatment. This finding is consistent with the Appalachian value of self reliance, believing individuals can better resolve difficulties on their own than with professional support. This argument is also consistent with rural veterans' stronger opinion of others being worse off than themselves as a barrier to seeking treatment. These rural veterans may actively choose not to participate in mental health services due in part to their trust in the strength of their known support systems.

Unexpectedly, veterans from rural regions were less concerned than non-rural veterans about the stigma related to the barrier of their unit leader treating them differently. This may relate to the strong value Appalachians place on the reliability of the support they receive from family, church, and community. The belief in the dependability of this support may decrease concerns about stigma. The finding that rural participants were less concerned about the impact on their careers, about the perception of their leadership, or that members of their unit would treat them differently may reflect a security, not found in the non-rural participants, that their associates know who they are and trust them.

Most current research focuses on barriers based on stigma rather than general negative attitudes toward mental health care. It is noteworthy that in the present research, RC veterans from rural Appalachian areas showed a more negative attitude toward mental health treatment, but less stigma in the context of treatment causing harm to one's career and being treated differently by leaders. These results have implications for the need to consider the target population when designing interventions to reduce the barriers veterans face when seeking mental health care. It is important that policy makers and others recognize that a "one size fits all" approach lacks awareness of regional differences that may render ineffective an approach that worked well in a different region. For example, it may be that for rural veterans, particularly from Appalachian regions, an intervention that focuses on the benefits for the veteran's family, beyond the veteran, of the veteran seeking mental health care would be more effective than one focused solely on the benefits to the veteran.

Limitations

Participants in this study were a convenience sample who responded to our survey. The attitudes expressed by participants were compared with attitudes found in other research on Appalachian values since there were insufficient participants in this study from non-Appalachian regions to allow a meaningful within-study comparison. It may be that the high levels of agreement with the barrier "Others may have problems that are worse than mine," is associated with a tendency to minimize or under-report personal mental health symptoms. Given the absence of an independent assessment of symptomology, there is no way to verify whether this is occurring.

This study focused on RC veterans returning to rural and non-rural areas primarily within the Appalachian region of southwestern Pennsylvania. Although the veterans came primarily from one state, we have no reason to believe the results

found with this sample would not generalize to veterans residing in other areas of Appalachia. In addition, to the extent that other rural regions share some same values as the Appalachian region, the results may well generalize to non-Appalachian rural regions.

Lessons Learned: Treatment Applications

Aspects of military culture are similar to those found in rural Appalachian culture, while other aspects may be in conflict. Failure to understand this dialectic may result in culturally insensitive approaches to mental health treatment and may exacerbate problems by decreasing trust and perpetuating impressions of stigma. Professionals seeking to provide effective services for Appalachian RC veterans need to be sensitive to the influence of both, and understand where these cultural orientations may be similar and where they may be in conflict; both overall and for the individual veteran.

Members of Appalachian culture may have their own language used to refer to mental health concerns, such as the term “nerves” used to describe emotional problems (Lemon et al. 1993). The same is true for members of military culture who incorporate military terms and abbreviations into daily experience and speech (Center for Deployment Psychology 2008). With both groups, it is important to view the individual as the authority and ask for an explanation of the meaning and context of usage.

Effective treatment for members of both Appalachian culture and military culture will emphasize the core values of each. Appalachian citizens and those in the military are often conservative with respect to their views on religion, politics, the role of government, and traditional family values, despite political registration as a Democrat or Republican (Dowling 2010). Providers need to be sensitive to, and respectful of, this orientation.

As with language, asking the client about his or her core values is a good way to open this dialogue. Members of Appalachian culture are often characterized as individualistic and self-reliant (Coyne et al 2006; Lemon et al. 1993; Tang and Russ 2007), whereas members of the military are seen as collectivistic (Lunasco et al. 2010), focusing on unit mission rather than individual goals. Sensitivity to this dialectic is essential if trust is to be built and the individual is to be engaged effectively in treatment. Most mental health professionals are taught interventions to develop the internal locus of control in their clients. This may be at odds with the orientation of an external locus of control that is common in both military personnel (Lunasco et al. 2010) and members of Appalachian culture (Bennett

2008). A mistrust of outsiders is often found in Appalachian culture (Tang and Russ 2007) and in military personnel. Providers have a better chance of building a good therapeutic alliance if they attend to the language, values, and goals of rural Appalachian veterans.

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