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# Does the GI Bill Support Educational Attainment for Veterans with Disabilities? Implications for Current Veterans in Resuming Civilian Life

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*A secondary data analysis of the 2001 National Survey of Veterans (NSV) for 2075 Gulf War-era veterans was conducted to investigate whether the GI Bill (the Servicemen's Readjustment Act of 1944, most recent provisions of which have been entitled the Montgomery GI Bill and the Post 9/11 GI Bill), considered as a social welfare policy, demonstrated protective effects for veterans with disabilities in terms of successful re-entry and sustained enrollment in higher education. Regression analyses to test the mediation effects of use of the GI Bill, use of non-Veterans' Administration (VA) financial aid, and use of VA health services suggested mediation effects; however, post hoc testing did not yield significant results. Analysis of this and an alternative multiple mediator model using bootstrapping strategies for assessing indirect effects suggested that total and non-labor income and social support, not the GI Bill, mediate the effects of disability on educational attainment among this population. Implications for social welfare policies and programs to support this population's access to and success in post-secondary institutions are highlighted.*

*Key words: GI Bill, disabilities, veterans, Veterans Administration, resiliency, life trajectory, educational attainment, ADA, accommodations, assistive technology*

Military service as a positive or negative turning point in life trajectory has received conflicting reviews in the literature. On the one hand, some cohorts of veterans have experienced military service as an opportunity for enhanced chances for

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an improved life trajectory (Elder, 1998), while others, scholars have argued, have experienced military service as a sacrifice of civilian employment and educational opportunities for which veterans' benefits such as the GI Bill (the Servicemen's Readjustment Act of 1944, most recent provisions of which have been entitled the Montgomery GI Bill and the Post 9/11 GI Bill) are merely compensatory (Angrist, 1993, 1998; Angrist & Johnson, 2000; Cohen, Segal, & Temme, 1992). In today's All Volunteer Force (AVF) context, the desire to earn educational benefits for higher education has been identified as the primary incentive for military enlistment across service branches (National Priorities Project, 2006).

For Americans who leave military service with service-connected disabilities, benefits policies have been articulated variously since the Civil War era as ensuring civil rights to be protected from discrimination so as to return to expected improved post-service life trajectories as well as full social inclusion, or, conversely, to rehabilitate them so as to return to pre-military service functioning or as welfare entitlements to provide income replacement for lost wages, based on means testing and medical limitations testing as eligibility requirements (Carden-Coyne, 2007; Gelber, 2005; Ingram, 2006; Skocpol, 1992). The enactment of the Americans with Disabilities Act (ADA) and the Individuals with Educational Disabilities Act (IDEA) has only partially resolved the interpretation of benefits and accommodations for veterans and other Americans who are differently abled as alternately an anti-discrimination provision or a redistributive welfare entitlement (Gelber, 2005; Ingram, 2006; tenBroek & Matson, 1966). In addition to veterans' disability pensions, the GI Bill has historically offered enhanced benefits for veterans with service-connected disabilities to use as part of their vocational rehabilitation plan in pursuing post-secondary education (Dole et al., 2007). Health care enrollment priority groups enacted in 1996 (U.S. Department of Veterans Affairs, National Survey of Veterans [NSV], 2001) also give priority to veterans with major service-connected disabilities for free health care within the Veterans Health Administration (VHA) delivery system.

A patriotic sense of moral obligation to veterans has influenced social policy on veterans' benefits, with the political

debate shifting away from the social equity argument with the elimination of conscription and initiation of the All Volunteer Force (Gerber, 2003, Kelly, 1997; Larsen, Highfill-Roy, Booth-Kewley, 2008; McMilford & Severo, 1989; Skocpol, 1992). The status of the veteran with disabilities has figured significantly in these policy deliberations, and advocacy groups for this population have been active in arguing for interpretation of policies as anti-discrimination, civil rights statutes, not simply income replacement provisions (Gelber, 2005; Merrow, 2008; Zdechlik, 2005). Currently, the VA has noted a dramatic increase in the filing of disability claims related to PTSD since 1999, which include not only current veterans from Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF), but also those from earlier eras who are experiencing delayed or chronic forms of this disorder in later life (Committee on Veterans' Compensation for Posttraumatic Stress Disorder [CVCPTSD], 2007; Martz, Birks, & Blackwell, 2005; Smith-Osborne, 2009).

This paper reports a study of Gulf War veterans to investigate whether the GI Bill and related VA benefits and non-VA financial aid mediate the effect of service-connected disabilities on educational attainment for veterans. A resiliency theory framework was the basis for selecting variables supported by the literature as potentially mediating the risk factor of service-connected disability on educational attainment for veterans. This veteran cohort was selected for study as it is the group closest in characteristics to the current OIF/OEF military force for which a large, population base random sample was available (Smith-Osborne, *in press*).

## Methodology

### *Sample*

The National Survey of Veterans, or NSV (primary data set), collected data from a total of 20,048 American veterans, selected using two national sampling frames: a random digit dialing (RDD) methodology using national phone bank list (N=12,956) and a stratified systematic sample drawn from VA administrative files (N=7,092). Samples from the two sampling frames were weighted to represent the entire veteran population, with the RDD sample benchmarked to the 2000 Census

data to account for under-coverage due to omission of non-telephone and unlisted telephone households. The weight calculations also accounted for original selection probability, non-response, and households with multiple residential telephone lines.

This study (secondary data analysis) drew a subsample from the NSV data set of 100% of veterans who served in the Gulf War era. These veterans would have been approximately 18 years of age or older at the beginning of the Gulf War, which was ten years earlier from the time of NSV interview. Seventy-five percent of the sample drawn was between the ages of 18 and 36 at the start of the war. Since 1996, the VA has identified veterans by health care enrollment priority group (U.S. Department of Veterans Affairs, 2001), so these categories, inclusive of veterans with service-connected disabilities, were also available for study.

#### *Measures and Data Analysis*

Most independent variables utilized in multivariate analyses, as well as variables included in the descriptive statistics, were unmodified items from the NSV interview questionnaire. The initially extracted Gulf War sample from the NSV was 2,075, with a final sample size of 206 for this study. A priori power analyses using Power and Precision 2 software (Borenstein, Rothstein, & Cohen, 2001) found the sample size sufficient for a power of .80 with a small effect size. Statistical analyses were conducted using SPSS 14.0 software. A series of hierarchical multiple regression analyses met the requisite assumptions (Cohen, Cohen, West, & Aiken, 2003), and, following the method of Baron and Kenney (1986), were done to explore potential protective factors. Post hoc testing was done to determine the significance of individual and multiple mediators utilizing the product of coefficients method (Sobel, 1982) and alternate bootstrapping strategies utilizing 1,000 resampling iterations and calculation of 95% confidence intervals (Preacher & Hayes, 2008).

## Results

### *Descriptive Statistics*

Selected descriptive statistics may be found in Table 1; this table presents data comparing the full sample used for the mediation analyses with the sub-sample of Priority Group 1 veterans (i.e., veterans with 50% or more service connected disability rating). This highest-rated disability group represented 22.8% of the study sample, and is the only group granted automatic free services by the VHA (U.S. Department of Veterans Affairs, 2001). Additional descriptive statistics for the full Gulf War sample from the NSV have been reported in tabular form elsewhere (Smith-Osborne, in press). Thirty-three percent of these Gulf War veterans, a lower proportion than the 56.1% for all veterans surveyed, were calculated by the VHA to fall in Health Care Priority Group 7, the lowest need group, while the next largest group, 17.7%, fell in Priority Group 3, indicating the presence of disabling conditions, including service-connected disabilities rated at 10-20% (the next largest group for all veterans was the low income, non-disabled Priority Group 5).

Additionally, 49.2% stated they had a service-connected disability rating; of those, 23.4% had a rating of 50-100% disabled. Of the 11% of veterans who were unemployed and not looking for work, 41% stated their main reason was being disabled.

### *Multivariate Analyses*

An initial regression analysis (see Table 2) examining the association of VA policies and non-VA financial aid as potential protective factors with lifetime educational attainment was performed. The policies were: the GI Bill as applied to post-secondary education, VA treatment for mental health and substance abuse conditions, and non-VA financial aid for college. The model was significant ( $F=14.99$ ;  $p<.0005$ ), but accounted for only 18% of the variance in education attainment, with the two forms of financial aid being the significant predictors.

Mediation analyses examining these same variables as potential mediators of the effect of disability rating as a risk factor on educational attainment did not demonstrate reduction of

Table 1. Descriptive statistics for key variables

| Type  | Full Sample (n=2,075)               |         | Priority 1 Sub-Sample (n=242) |         |
|---|-------------------------------------|---------|-------------------------------|---------|
|   | Number                              | Percent | Number                        | Percent |
| <i>Sample Demographic Characteristics</i>             |                                     |         |                               |         |
| <i>Gender</i>   |                                     |         |                               |         |
| Male  | 1,726                               | 83.2    | 178                           | 73.6    |
| Female  | 349                                 | 16.8    | 64                            | 26.4    |
| <i>Ethnicity</i>                                      |                                     |         |                               |         |
| Non-minority  | 1,476                               | 71.1    | 164                           | 67.8    |
| Minority  | 586                                 | 28.2    | 78                            | 32.2    |
| <i>Marital Status</i>                                 |                                     |         |                               |         |
| Married and living w/spouse                           | 1,431                               | 69.0    | 167                           | 69.0    |
| Other   | 642                                 | 30.9    | 75                            | 31.0    |
| <i>Education in Years</i>                             |                                     |         |                               |         |
| Range 11-20   | Average 14.15 (SD = 2.14)           |         | Average 14.5 (SD = 2.22)      |         |
| <i>Total Annual Family Income</i>                     |                                     |         |                               |         |
| \$10,000 or less                                      | 69                                  | 3.3     | 9                             | 4.0     |
| \$10,001-20,000                                       | 175                                 | 7.5     | 15                            | 6.0     |
| \$20,001-30,000                                       | 248                                 | 12.0    | 42                            | 17.4    |
| \$30,001-40,000                                       | 330                                 | 15.9    | 49                            | 20.2    |
| \$40,001-50,000                                       | 329                                 | 15.9    | 42                            | 17.4    |
| Over \$50,000   | 944                                 | 45.5    | 115                           | 47.5    |
| Full Range \$0-480,000                                | Avg. \$56,641.57 (SD = \$37,787.61) |         |                               |         |
| Priority 1 Range \$0-160,000                          | Avg. \$49,190.91 (SD = \$28,361.83) |         |                               |         |
| <i>Number Sources of Non-labor Income (N = 2,061)</i> |                                     |         |                               |         |
| 0   | 55                                  | 2.7     | 0                             | 0.0     |
| 1   | 528                                 | 25.6    | 2                             | .8      |
| 2   | 570                                 | 27.7    | 56                            | 23.1    |
| 3   | 511                                 | 24.8    | 90                            | 37.2    |
| 4   | 326                                 | 15.8    | 70                            | 28.9    |
| 5   | 55                                  | 2.7     | 11                            | 4.5     |
| 6   | 15                                  | .7      | 7                             | 2.9     |
| 7   | 1                                   | .5      | 1                             | .4      |
| Range 0-7   | Average 2.37 (SD = 1.22)            |         | Average 5 (SD = 3)            |         |

(continued next page)

Table 1. Descriptive statistics for key variables (continued)

| Type   | Full Sample (n=2,075)       |         | Priority 1 Sub-Sample (n=242) |         |
|--|-----------------------------|---------|-------------------------------|---------|
|  | Number                      | Percent | Number                        | Percent |
| <b>Predictor Variables</b>   |                             |         |                               |         |
| <i>Used VA Educational Benefits</i>  |                             |         |                               |         |
| Yes  | 633                         | 30.5    | 59                            | 24.4    |
| No   | 1,442                       | 69.5    | 183                           | 75.6    |
| <i>Used VA Educational Benefits for College</i>                                    |                             |         |                               |         |
|  | (N = 633)                   |         | N = (59)                      |         |
| Yes  | 470                         | 74.2    | 45                            | 76.3    |
| No   | 163                         | 25.8    | 14                            | 23.7    |
| <i>Used Non-VA Sources of College Financial Aid</i>                                |                             |         |                               |         |
| Yes  | 451                         | 21.7    | 32                            | 13.2    |
| No   | 1,624                       | 78.3    | 210                           | 86.8    |
| <b>Number of Non-VA Aid Sources Used</b>   |                             |         |                               |         |
|  | (N = 451)                   |         | (N = 32)                      |         |
| 1  | 321                         | 71.2    | 26                            | 81.2    |
| 2  | 105                         | 23.3    | 6                             | 18.8    |
| 3  | 22                          | 1.1     | 0                             | 0       |
| 4  | 1                           | .0      | 0                             | 0       |
| 5  | 2                           | .1      | 0                             | 0       |
| Range 1-5  | Average 1.35<br>(SD = 0.63) |         | Average 1.19<br>(SD = 0.40)   |         |
| <b>Have a Service-Connected Disability Rating (N = 2,056)</b>                      |                             |         |                               |         |
| Yes  | 1,099                       | 53.5    | 242                           | 100     |
| No   | 957                         | 46.5    | 0                             | 0       |
| <i>Percentage Disability Rating (N = 1060)</i>                                     |                             |         |                               |         |
| <10%   | 50                          | 4.7     | 0                             | 0       |
| 10-20%   | 445                         | 41.9    | 0                             | 0       |
| >20-<50%   | 323                         | 30.5    | 0                             | 0       |
| 50-100%  | 242                         | 22.8    | 242                           | 100     |
| <b>VA Treated Past Year for Mental Health/Substance Abuse Condition (N = 2063)</b> |                             |         |                               |         |
| Yes  | 125                         | 6.0     | 45                            | 18.6    |
| No   | 1,950                       | 94.0    | 197                           | 81.4    |



the risk factor beta value, as required by the mediation strategy (see Table 3), suggesting that the set of variables did not reduce the impact of veterans' disabilities on furthering their education after military service.

Table 2. Final model of regression analysis for potential protective factors on education for Gulf War Veterans (N = 206).

| Variable  | B    | SE B | $\beta$ | t    | p      |
|---|------|------|---------|------|--------|
| Non-VA financial aid                              | .36  | .20  | .12     | 1.81 | .07    |
| VA educational benefits                           | 1.95 | .32  | .39     | 6.04 | <.0005 |
| VA treatment for mental health or substance abuse | -.58 | .77  | -.05    | -.75 | .46    |

$\Delta R^2 = .18$ ,  $R^2 = .18$ .

Model  $F = 14.99$ , Model  $p < .0005$ .

The product of coefficients method, also known as the Sobel test (Sobel, 1982), is currently the most commonly used post hoc method used to test the contribution of specific intervening variables to the overall mediation effect in the relationship of predictors, particularly risk factors, with dependent variables/outcomes of interest (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Preacher & Hayes, 2008). When the Sobel method of post hoc significance testing was applied to each potential mediator, non-VA financial aid was the only variable to approach significance (Sobel statistic = 1.496;  $p = .07$ ). The bootstrapping method of post hoc testing was then applied, as it has been suggested to provide more accurate results when assessing indirect effects, such as mediation, in models with multiple mediators in smaller sample sizes (MacKinnon et al., 2002; Preacher & Hayes, 2008). The potential mediators also failed to demonstrate mediation effects according to this method, as all confidence intervals included "0" within their range (see Table 4).

An alternative set of potential mediators was identified outside the policy domain, based on theory and prior literature on veterans with disabilities. These variables were marital status, number of dependents, number of sources of informational social support, number of non-labor sources of income, and total family income. The bootstrapping method was applied to analyze this set of multiple mediators (see Table 5).

Table 3. Regression analyses for mediating effects of potential protective variables on disability risk factor for education.

| Variable  | B     | SE B | $\beta$ | t     | p      |
|---|-------|------|---------|-------|--------|
| <i>Step 1 for Mediation — DV = Percentage disability, N = 206</i> |       |      |         |       |        |
| <i>R<sup>2</sup> = .16, Model F p = 12.72 &lt;.0005</i>           |       |      |         |       |        |
| Model 1   |       |      |         |       |        |
| VA educ. benefits   | 1.52  | 2.97 | .03     | .51   | .61    |
| Non-VA financial aid  | -4.88 | 1.82 | -.18    | -2.68 | .01    |
| VA MH/SA treatment  | 36.94 | .32  | -.54    | -9.02 | <.0005 |
| <i>Step 2 for Mediation — DV = Highest grade, N = 206</i>         |       |      |         |       |        |
| <i>R<sup>2</sup> = .004, Model F p = 8.94 .003</i>                |       |      |         |       |        |
| Model 1   |       |      |         |       |        |
| Percentage disability   | .01   | .002 | .07     | 2.99  | .003   |
| <i>Step 3 for Mediation — DV = Highest grade, N = 206</i>         |       |      |         |       |        |
| <i>R<sup>2</sup> = .19, Model F p = 11.45 &lt;.0005</i>           |       |      |         |       |        |
| Model 1   |       |      |         |       |        |
| Percentage disability   | .01   | .01  | .07     | .93   | .35    |
| VA educ. benefits   | 1.94  | .32  | .39     | 6.02  | <.0005 |
| Non-VA financial aid  | .39   | .20  | .13     | 1.95  | .05    |
| VA MH treatment   | -.84  | .82  | -.07    | -1.02 | .31    |

The final model was significant (CI=.0001-.0048). The results were that non-labor income and informational social support had a positive mediational effect, and number of dependents had an inverse mediational relationship, suggesting that more sources of cash benefits and increased density of social networks (i.e., social support directed to providing access to information) mediated the risk of disability on educational attainment, while increasing numbers of dependents had a suppressor effect on educational attainment.

Table 4. Bootstrapping mediation analyses for potential protective variables (N=206).

| Variable  | Point Estimate | Product of Coefficients<br>SE | Bootstrapping    |             |
|---|----------------|-------------------------------|------------------|-------------|
|   |                |                               | BCa 95%<br>Lower | CI<br>Upper |
| Non-VA financial aid                              | -.0030         | .0019                         | -.0072           | .0005       |
| VA educational benefits                           | -.0012         | .0033                         | -.0096           | .0047       |
| VA treatment for mental health or substance abuse | -.0028         | .0025                         | -.0103           | .0005       |
| TOTAL   | -.0070         | .0042                         | .0155            | .0012       |

Table 5. Bootstrapping mediation analyses for alternative protective variables (N=206)

| Variable                     | Point Estimate | Product of Coefficients<br>SE | Bootstrapping    |             |
|------------------------------|----------------|-------------------------------|------------------|-------------|
|                              |                |                               | BCa 95%<br>Lower | CI<br>Upper |
| Non-labor income             | .0052          | .0009                         | .0034            | .0070       |
| Number of dependents         | -.0029         | .0007                         | -.0042           | -.0016      |
| Total family income          | .0001          | .0001                         | -.0001           | .0004       |
| Marital status               | -.0004         | .0002                         | -.0010           | .00001      |
| Informational social support | .0004          | .0002                         | .00001           | .0009       |
| TOTAL                        | .0024          | .0012                         | .0001            | .0048       |

## Discussion

A secondary data analysis of the 2001 National Survey of Veterans for 2,075 Gulf War-era veterans was conducted to investigate whether the GI Bill, considered as a social welfare policy, demonstrated protective effects for veterans with disabilities in terms of successful re-entry and sustained enrollment in higher education. Regression analyses to test the mediation effects of use of the GI Bill, use of non-VA financial aid, and use of VA health services, following the method of Baron and Kenney (1986), suggested mediation effects; however, post hoc testing using the product-of-coefficient approach (Sobel, 1982) did not yield significant results. Analysis of this and an alternative multiple mediator model using resampling (i.e., bootstrapping) strategies for assessing indirect effects suggested that non-labor income and informational social support, not the GI Bill, mediate the effects of disability on educational attainment among this population, while larger numbers of dependents may have a suppressor effect. While the original set of potential mediators was suggested to examine policy effects, and the second set to explore the effects of personal and interpersonal variables, the finding of positive association with non-labor sources of income clearly has policy implications. This variable's mediational effect suggests that income

benefits such as VA disability pensions and SSDI may play an important role in enabling veterans with disabilities to pursue their dreams of higher education, even more so than direct educational financial aid, as is the case with the veteran population overall (Smith-Osborne, in press). Further, policies and programs aimed at providing this population with increased access to informational social networks, personal assistance, and mentoring may be more important to enhancing their optimal civilian achievement than for the general, non-disabled veteran population. An implication of study results may be that veterans with disabilities not only need such benefits and networks, but have a right to expect them as part of their right to equal opportunity to pursue their educational and vocational goals after military service. If that is the case, then these mediators may be considered in the context of anti-discrimination efforts to ensure equal rights for the differently-abled veteran.

The recent scandal at the Walter Reed Army Medical Center (WRAMC) [Priest & Hull, 2007; Zwerdling, 2007] illustrates underlying causes relevant to the needs vs. rights issues affecting veterans with disabilities. One contributor to the negative conditions which precipitated the scandal was the perception that access to personal assistants was a need but not a right. Injured military personnel who were assigned to outpatient status and out placed from the WRAMC facility to outlying (“outside the post”) rooming houses were not assigned co-located or visiting personnel (personal assistants) to help manage their schedules, thus effectively denying them access to needed medical care and subsistence resources (e.g., the mess hall, sanitary living space, personal hygiene supplies). Although they hypothetically had equal access to transportation to post and equal access to medical services, the functional impairments associated with their injuries prevented them from effectively experiencing equal access—the precise circumstances associated with health disparities groups. This study’s implications for educational access are parallel: for this population, the availability of the GI Bill is not sufficient to support their access to higher education without effective collateral social and income support systems. It is possible that the more generous provisions of the post 9/11 GI Bill, to be implemented in August,

2009, may function as a more protective factor for the OIF/OEF veterans with disabilities than the Montgomery GI Bill for the study's sample of Gulf War veterans (Lehrer, 2000; McChesney, 2008), in that it will cover more tuition and living expenses and thus may function more as another nonlabor source of income. However, the literature on the higher education experience of non-veteran populations with disabilities similar to the signature conditions (Smith-Osborne, in press, 2009) of the current wars (PTSD, traumatic brain injury, persisting post-concussive symptoms, depression, substance abuse) suggests that more intensive and multidimensional assistive services may be required (Megivern, Pellerito, & Mowbray, 2003; Smith-Osborne, 2005). Such services in all likelihood will go beyond the current array of services and accommodations available in many post-secondary institutions (Bobkoff, 2008; Merrow, 2008; Ofiesh, Rice, Long, Merchant, & Gajar, 2002). Therefore, implementation of policies designed to benefit veterans with disabilities should be undertaken from the standpoint of civil rights, even in income replacement/subsidy programs.

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