Supported Education Among Student Veterans: Impact on Self-advocacy Skills and Academic Performance

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Abstract

Veterans enrolled in postsecondary education may experience service-related health conditions that undermine their success on campus. Supported education services can target student Veterans' self-advocacy skills, thereby facilitating their acquisition of academic accommodations that foster academic success. The purpose of this study was to (1) investigate change in student Veterans' self-advocacy skills and academic performance over time receiving supported education services, and (2) investigate factors that influence change in their self-advocacy skills and academic performance. We collected measures of *self-advocacy skills* (Student Veterans Self-advocacy Skills Assessment [SV-SASA]) and *academic performance* (grade point average) at six time points for 99 student Veterans enrolled in the New Start for Student Veterans (NSSV) supported education program. We used multilevel modelling to determine whether self-advocacy skills and academic performance changed over time receiving supported education services, and whether first-generation status and dosage of intervention explained change in these outcomes. We additionally investigated whether SV-SASA score influenced change in academic performance. Results indicate that student Veterans' self-advocacy skills improved over time receiving supported education services. Further, a greater dose of NSSV services was associated with greater self-advocacy skills across the semesters, irrespective of how long they received services. Student Veterans' academic performance did not change over time spent in the supported education program. We discuss the implications of findings for research and practice.

Keywords: self-advocacy skills; student Veterans; service-related health conditions; academic accommodations; supported education

Since October 2001, approximately 2.77 million United Stated service members have been activated for Operation Enduring Freedom, Operation Iraqi Freedom, and/or Operation New Dawn (Wenger et al., 2018). Compared to previous military campaigns, military personnel serving in these conflicts experienced longer deployments, more frequent re-deployments, and shorter durations between deployments to combat zones (Hosek et al., 2006). These extended and modern military campaigns impose unique physical and psychological trauma on Service Members and have resulted in high rates of service-related health conditions among returning Veterans (Tanielian et al., 2008).

As Veterans with service-related health conditions reintegrate into the civilian community, many are using educational benefits and enrolling in college at high rates (Madaus & Miller, 2009; Shackelford, 2009). Compared to civilian students, student Veterans report more severe posttraumatic stress disorder (PTSD), depression, and physical symptoms such as pain or fatigue (Eakman et al., 2016). Service-related health conditions such as PTSD and depression have been associated with decreased academic performance (Bryan et al., 2014; Eakman, et al., 2019) and limited integration into the campus community (Barry et al. 2014). As such, it is imperative that student Veterans receive supports to maximize their success on campus (Church, 2009).

Supported education programs are capable of fostering academic success among student Veterans with service-related health conditions (Smith-Osborne, 2012a, 2012b). Supported education services, including environmental supports, enhance the academic

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success of students with disabilities by empowering them to access resources that compensate for health-related impairments (Mowbray et al., 2005). One such resource for student Veterans is the availability of academic accommodations (Shackelford, 2009). Academic accommodations alter elements of the classroom activities and/or environment to facilitate academic success (e.g., presence of a note taker), and are available to all students with disabilities due to federal legislation (e.g., the ADA Amendments Act of 2008; Pub. L. No. 101-336). In order to implement academic accommodations, however, student Veterans must play an active role in their acquisition, including initiating contact with the university's disability support office (Lynch & Gussel, 1996). Unfortunately, student Veterans connect with disability services at low rates. For example, a survey of student Veterans revealed that while 77.9% reported functional limitations due to PTSD symptoms, only 5.2% accessed disability-related services (Elnitsky et al., 2018). Supported education services can reduce this discrepancy by promoting student Veterans' self-advocacy skills (Kinney & Eakman, 2017).

Self-advocacy Skills Among Student Veterans

Self-advocacy skills are defined as one's capacity to communicate, and make informed decisions regarding, one's support needs (Stodden et al., 2003). Self-advocacy skills in the college environment represent the ability to select, acquire, and effectively implement academic accommodations. Accommodations increase academic success among students with disabilities (Keim et al., 1996; Trammell, 2003). Indeed, more effective self-advocacy skills have been linked to better grade point averages among both civilian (Lombardi, et al., 2011) and Veteran students (Kinney & Eakman, 2017) with disabilities. Self-advocacy skills are composed of three essential components: (1) knowledge of self, (2) knowledge of rights, and (3) communication (Test et al., 2005). Supported education services are capable of targeting each component of self-advocacy skills. Many student Veterans require such services to become effective self-advocates (Kinney & Eakman, 2017).

Knowledge of self refers to student Veterans' appraisal of their strengths, weaknesses, and the ways in which their health condition affects daily functioning (Test et al., 2005). Service-related health conditions experienced by student Veterans are often newly-acquired, and as such, they may need ongoing support to develop an understanding of how their health condition impacts classroom performance (Kinney & Eakman, 2017). Psychoeducational approaches can improve student Veterans' knowledge of self and how to apply this understanding to selecting and implementing effective academic accommodations (Summers et al., 2014).

Knowledge of rights refers to student Veterans' awareness of available accommodations and other disability-related services, and an understanding of the process by which one acquires them (Test et al., 2005). Student Veterans with newly-acquired disabilities may have limited awareness of available supports and/or the rules governing their provision (Kinney & Eakman, 2017). Thus, effective interventions educate students on available supports and their responsibilities in securing those supports (Palmer & Roessler, 2000; White & Vo, 2006).

Communication refers to student Veterans' ability to effectively articulate their support needs to those who provide them (Test et al., 2005). Service-related health conditions such as PTSD and depression may produce cognitive and emotional impairments that limit interpersonal skills (Daggett et al., 2013; Resnik & Allen, 2007). Effective communication skills can also be enhanced through targeted education and role-playing (Palmer & Roessler, 2000; Walker & Test, 2011).

In sum, self-advocacy skills are an important, and potentially modifiable, target for supported education services seeking to foster academic success among student Veterans with service-related health conditions. However, the impact of supported education services on both self-advocacy skills and academic success among student Veterans remains poorly understood (Kinney & Eakman, 2017). The purpose of this study was twofold. First, we sought to investigate whether a supported education program for student Veterans with service-related health conditions improved their self-advocacy skills and academic performance. Second, we sought to investigate whether features of the student Veteran and/or service delivery helped explain program outcomes. Understanding factors that influence response to treatment is critical for the development of interventions, and can inform efforts to maximize their effectiveness (Fleury & Sidani, 2012). Specifically, we investigated whether first-generation status (i.e., parents have no college experience) and dosage of supported education services explained student Veterans' response to the intervention.

We hypothesized that (1) student Veterans' self-advocacy skills would improve over time receiving supported education services. Additionally, we hypothesized that (1a) first-generation student Veterans would experience lesser improvement in self-advocacy skills compared to continuing-generation student Veterans, and that (1b) student Veterans

with higher dosages of supported education services would experience greater improvement in self-advocacy skills. Further, we hypothesized that (2) student Veterans' academic performance would improve over time receiving supported education services. Moreover, we hypothesized that: (2a) first-generation student Veterans would experience lesser improvement in academic performance compared to continuing-generation student Veterans; (2b) student Veterans with higher dosages of supported education services would experience greater improvement in academic performance; and (2c) student Veterans with greater self-advocacy skills would experience greater improvement in academic performance.

Method

Participants and Procedures

This is a prospective longitudinal design study. Participants were student Veterans with service-connected injuries who received New Start for Student Veteran (NSSV) services, a supported education program for Veterans with disabilities at Colorado State University (CSU). NSSV is a person-centered supported education program for Veterans with service-connected disabilities attending college. Individualized supports are provided by three trained student Veteran coordinators in face-to-face meetings throughout the academic year. The foundational structure is hour-long weekly meetings, but the frequency increases or decreases based on a participant's changing circumstances and needs over time. Most meetings occur in the coordinators' offices; however, coordinators occasionally meet participants on campus or in the community to address specific challenges. The NSSV team also meets weekly to discuss recent challenges and successes, upcoming issues and opportunities, and to ensure program fidelity.

The multifaceted services are broadly classified into five categories: (1) social support, (2) academic advising and study skills, (3) connecting with campus and community resources, (4) health and wellness, and (5) community integration and participation. The types and intensities of services provided are based on the perceived needs and preferences of the participants as well as the clinical judgment of the coordinators, and they vary over time and circumstance. However, the common thread across all services and activities is enhancing student Veterans' self-advocacy skills. The NSSV program is grounded in the belief that effective self-advocacy is fundamental to all aspects of one's life including interpersonal relationships, academic achievement, career success, and overall health and wellbeing.

This study received approval by CSU's Human Subjects Review Board, and each participant completed an informed consent. A NSSV practitioner familiar with each participant completed an online survey to assess participants' self-advocacy skills every semester from fall 2015 to spring 2018, yielding six possible measurement occasions. 99 participants were eligible for analysis, with 76 receiving a second measurement (76.77%); 44 receiving a third measurement (44.44%); 24 receiving a fourth measurement (24.24%); 11 receiving a fifth measurement (11.11%); and seven receiving all six measurements (7.10%). Additional data for each participant was obtained through institutional and clinical records.

Instruments

Self-advocacy skills. We measured self-advocacy skills at each measurement occasion using the seven-item *Student Veteran Self-advocacy Skills Assessment* (SV-SASA), a valid and reliable measure of self-advocacy skills among student Veterans (Kinney & Eakman, 2017). A practitioner with a thorough understanding of the student Veterans' self-advocacy skills scored each item on a scale of 1 (poor) to 4 (excellent), with higher scores indicating that less practitioner support was needed to implement the skill. We used Rasch analysis to improve the measurement precision of the SV-SASA. Specifically, we evaluated each SV-SASA item regarding effective use of the rating scale and revised the rating scale to improve measurement precision according to guidelines by Bond and Fox (2007). We then constructed a Rasch score for the SV-SASA; scores ranged from 0-100, with higher scores indicating more effective self-advocacy skills.

Academic performance. We obtained semester grade point average (GPA) through institutional records. We were unable to obtain semester GPA for 16 participants, leaving $N = 83$ participants with baseline GPA data, 64 with two GPA measurements (77.10%); 40 with three GPA measurements (48.19%); 22 with four GPA measurements (26.51%); 10 with five GPA measurements (12.05%); and seven with six GPA measurements (8.43%).

Time in NSSV. We measured length of time receiving NSSV services by calculating the difference (in years) between the initial assessment date and dates of the measurement occasions.

Dosage of NSSV services. Dosage reflects the total hours of services received in a given semester.

Demographic characteristics. Age and first-generation status were obtained by accessing institutional records.

Self-reported health conditions. Participants were asked to disclose any health conditions they were experiencing; these self-reported conditions were used to profile the sample. Health conditions were classified into the following discrete categories: PTSD; physical/orthopedic injury; brain injury; sensory impairment (e.g., visual deficits); anxiety; depression; cognitive impairment (e.g., memory deficits); developmental condition (e.g., attention deficit disorder); other psychological condition (e.g., bipolar disorder); other neurological condition (e.g., spinal cord injury); other physical condition (e.g., cancer); and sleep disturbance.

Data Analysis

All analyses were performed using R statistical software (R Core Team, 2015). We calculated descriptive statistics for study variables at each measurement occasion. We tested hypotheses using multilevel modeling (MLM), which is a flexible approach to analyzing longitudinal data. Data from participants with varying numbers of observations can inform the calculation of estimates, as opposed to other methods which exclude participants with incomplete data (Singer & Willett, 2003).

We modeled repeated measures of our two outcomes: (1) SV-SASA score and (2) semester GPA. Models were specified using the "lme4" R package (Bates, et al. 2015) with restricted maximum likelihood estimation. We initially specified models with each of the outcomes, but no predictors, to calculate the intra-class correlation coefficient (ICC). The ICC provides insight into sources of variation in the outcome by indicating the proportion of total variability in the outcome that lies *between* participants (Singer & Willett, 2003; Tabachnick & Fidell, 2013).

We then added predictor variables (first-generation status [0 = continuing generation; 1 = first generation]; dosage of NSSV services) in a stepwise fashion. Variables failing to meet the a priori level of significance ($\alpha = .05$) were removed. We examined the main effects and interactions with time in NSSV for each predictor variable to assess the overall relationship between predictors and outcomes, and whether the relationships vary over time (Singer & Willett, 2003), respectively. We included SV-SASA scores to the model predicting GPA. Additionally, we controlled for age and the baseline values of each outcome.

Results

The average age for participants at baseline was 31.3 (*SD* = 5.9). Forty-six participants were first-generation students (46.46%). On average, participants self-reported 2.00 health conditions (*SD* = 0.10). The most commonly reported condition was posttraumatic stress (*n* = 55 [55.6%]), followed by a physical/orthopedic injury (*n* = 38 [38.4%]) and brain injury (*n* = 34 [34.3%]). See Table 1 for a comprehensive summary of self-reported health conditions.

Table 2 presents descriptive statistics for study variables across measurement occasions. Means for the SV-SASA scores indicate a substantial decrease in SV-SASA scores from the fourth to the fifth measurement occasion. This is likely an artifact of the reduction in sample size from the fourth (*n* = 24) to the fifth (*n* = 11) measurement occasions. The use of MLM compensates for such discrepancies by using characteristics of those with varying numbers of measurement occasions to inform the calculations for estimates of change (Singer & Willett, 2003). As such, relative to reviewing change in the observed means over time (Table 2), a more robust estimate of change in the outcomes is the fixed effect of time in NSSV (Table 3).

The ICC for both models supported the use of a MLM approach. The ICC for the model explaining self-advocacy skills indicated that 58.8% of the variability in SV-SASA scores was attributable to individual-level factors. The ICC for the model explaining semester GPA indicated that 71.0% of the variability in semester GPA was attributable to individual-level factors.

Model Explaining Self-advocacy Skills

Self-advocacy skills improved over time in the NSSV supported education program ($b = 3.92$, $SE = 0.96$, $p < .001$). It is important to reiterate that this estimate reflects change in self-advocacy skills *among those with identical baseline levels of self-advocacy skills*, thereby strengthening support for the assertion that exposure to NSSV services may have influenced the student Veterans' ability to self-advocate. Dosage of NSSV was also statistically significant, indicating that irrespective of how long the participant received NSSV services, a greater dose of NSSV services in a given semester was associated with greater self-advocacy skills ($b = 0.21$, $SE = 0.10$, $p = .041$). However, the interaction between dosage of NSSV services and time in NSSV was not statistically significant ($b = -0.19$, $SE = 0.14$, $p = .174$). With respect to first generation status, the main effect ($b = -2.80$, $SE = 2.99$, $p = .349$) and its interaction with time in NSSV ($b = 2.22$, $SE = 1.98$, $p = .262$) were not statistically significant. See Table 3 for final model results.

Model Explaining Semester GPA

GPA did not change over time in NSSV supported

education services (b = -0.02, SE = 0.04, p = .564). First-generation status (b = 0.11, SE = 0.12, p = .374) and its interaction with time in NSSV (b = 0.01, SE = 0.08, p = .880) were not statistically significant. Similarly, dosage of NSSV services (b = -0.01, SE = 0.01, p = .412) and its interaction with time in NSSV (b = 0.00, SE = 0.01, p = .594) were not significant. Lastly, self-advocacy skills (b = 0.00, SE = 0.00, p = .362) and its interaction with time in NSSV (b = 0.00, SE = 0.00, p = .393) were both statistically insignificant. See Table 3 for final model results.

Discussion

It has been proposed that supported education programs are capable of bolstering the self-advocacy skills of student Veterans with service-related health conditions, thereby providing them with the tools needed to achieve academic success (Kinney & Eakman, 2017). Our study is the first to provide evidence supporting this proposition. Specifically, student Veterans' self-advocacy skills improved as they spent more time receiving services that supported their: (1) reflection upon their personal strengths and weaknesses; (2) knowledge of disability-related supports (e.g., academic accommodations) and the processes by which they access them; and (3) clear communication with those who provide disability-related supports. This finding suggests that self-advocacy skills may be an important and modifiable target of supported education services for student Veterans with disabilities. Previous studies have shown that supported education programming for civilian students improved outcomes such as academic achievement (Unger et al., 2000), academic-related behaviors (e.g., study skills; Getzel et al., 2004), and interpersonal skills (Gutman et al., 2009). However, further research is needed to refine our understanding of the impact of supported education services upon the self-advocacy skills of both civilian and Veteran students (Webb et al., 2008).

Higher dosages of NSSV supported education services was associated with more effective self-advocacy skills, across semesters, but irrespective of time receiving NSSV. In other words, student Veterans tended to be more effective self-advocates when they received more NSSV services within a given semester. This bolsters our limited understanding of the optimal dose-response relationship for student Veteran supported education programs. Understanding the dose-response relationship is a critical component of systematically developing effective interventions (Fleury & Sidani, 2012). While our findings suggest that higher dosages of supported education services may be linked to more positive outcomes among student Veterans, continued research is necessary to establish the precise amount of treatment that is most cost-efficient, safe, and effective (Whyte & Barrett, 2012).

None of the variables included in either model demonstrated a statistically significant interaction with time receiving NSSV services. This indicates that factors influencing student Veterans' responsivity to supported education services remains poorly understood. Understanding the characteristics of individuals for whom an intervention is more, or less, effective is a crucial component of systematic intervention development (Whyte & Barrett, 2012). Such an understanding allows service delivery to be precisely tailored to individuals with particular characteristics, thereby maximizing the intervention's efficacy (Fleury & Sidani, 2012). Continued research is necessary to understand variability in responsiveness to supported education services across different subgroups of student Veterans. For example, we did not include standardized assessments of symptoms of health conditions (e.g., PTSD symptoms). Future research should consider if student Veterans with differing profiles of health-related symptoms respond differently to supported education programming (Whyte & Barrett, 2012).

Our study indicated that student Veterans' academic performance did not change over time receiving supported education services. Further, greater self-advocacy skills did not contribute to an improvement in academic performance as hypothesized. These null findings may be attributable to our chosen method of assessing student Veterans' academic performance. Grade point average (GPA) was relatively stable over time in our sample of student Veterans, which is an acknowledged quality of this particular metric of academic performance (e.g., Hartnett & Willingham, 1980). As such, once we controlled for baseline GPA, there may have been little variability for our proposed variables to explain. Future research should employ measures of academic-related ability that exhibit greater variability and sensitivity to change. For example, previous studies have employed measures of student Veterans' academic-related behaviors (e.g., difficulty studying) that demonstrated ample variability (Bryan et al., 2014; Eakman et al., 2019). Employing such assessments could therefore foster an understanding of modifiable factors capable of promoting academic success of student Veterans with service-related health conditions.

Limitations and Future Research

This study employed a longitudinal design, and therefore compares favorably to cross-sectional de-

signs with respect to satisfying criteria for causal assertions (Menard, 2002). However, our design is unable to completely satisfy criteria for causality, and should not be interpreted as such. In particular, we were unable to adjust for several variables in our models that could potentially influence responsivity to supported education services, including the (1) service provider assigned to each individual student Veteran; (2) time since deployment, (3) severity of combat exposure, and (4) severity of health-related challenges. Nonetheless, our study lays a foundation upon which future research could support causal claims by employing designs capable of doing so (e.g., experimental designs). In addition, we used a relatively small sample of student Veterans with health conditions that was drawn from one university. As such, our sample may not be representative of all student Veterans with health conditions, thereby limiting the generalizability of our findings. Future research should attempt to replicate this study using larger samples from multiple sites.

While this study linked more time receiving supported education services to improvement in self-advocacy skills, future research should attempt to link specific components of the intervention to outcomes of interest. To be sure, self-advocacy skills training is a foundational component of NSSV services. However, it remains a multi-component intervention that includes services that are distinct from self-advocacy skills training (e.g., development of study skills; see Kinney & Eakman, 2017). Testing links between specific components of supported education services and outcomes of interest (e.g., self-advocacy skills training and self-advocacy skills) will provide more precise guidance on the aspects of the intervention that are contributing to intended benefits (Fleury & Sidani, 2012). Lastly, future research should investigate factors that influence the likelihood of student Veterans seeking out supported education services. For example, evidence indicates that perceived stigma may serve as a barrier to student Veterans accessing care (Bonar et al., 2015; Currier et al., 2018). Understanding whether perceived stigma is a barrier to supported education services may inform the implementation of educational campaigns targeting such stigma, thereby encouraging help-seeking behaviors among student Veterans.

Conclusion

This was a longitudinal study that investigated whether student Veterans' self-advocacy skills and academic performance changed over time receiving supported education services. In addition, we investigated whether specific factors influenced their response to the intervention. Our findings indicate that student Veterans' self-advocacy skills improved over time receiving New Start for Student Veterans (NSSV) supported education services. Further, a greater dose of NSSV services was associated with greater self-advocacy skills within each semester. However, time spent receiving NSSV services was not linked to change in academic performance.

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Table 1

Self-Reported Health Conditions of Student Veterans (N =99)

Health Condition	n (%)
Number of self-reported health conditions (M ± SD, min – max)	2.00 ± .96 (0 – 5)
PTSD	55 (55.6)
Physical/orthopedic injury	38 (38.4)
Brain injury	34 (34.3)
Sensory impairment	22 (22.2)
Anxiety	15 (15.2)
Depression	8 (8.1)
Cognitive impairment	6 (6.1)
Developmental condition	5 (5.1)
Other psychological condition	4 (4.0)
Other neurological condition	4 (4.0)
Other physical condition	4 (4.0)
Sleep disturbance	3 (3.0)

Note. PTSD = post-traumatic stress disorder; one participant reported no health conditions; participants eligible to report multiple conditions.

Table 2

Descriptive Statistics for Study Variables at Each Measurement

	Measurement Occasion: *M (SD)*					
Variable	1 (*n* = 99)	2 (*n* = 76)	3 (*n* = 44)	4 (*n* = 24)	5 (*n* = 11)	6 (*n* = 7)
Self-advocacy skills	46.29 (17.23)	49.48 (18.71)	53.02 (20.35)	61.82 (21.74)	51.38 (25.26)	52.16 (24.34)
Semester GPA┼	2.85 (1.03)	3.06 (0.70)	2.89 (1.01)	3.21 (0.59)	2.93 (0.94)	2.77 (0.46)
Time in NSSV (years)	0.68 (0.63)	1.12 (0.60)	1.63 (0.58)	2.20 (0.64)	2.65 (0.45)	3.09 (0.42)
Dosage of NSSV services (hours)	5.68 (8.24)	6.30 (9.35)	7.66 (8.84)	5.68 (6.02)	6.80 (6.66)	5.07 (7.78)

Note. GPA = grade point average; ┼ Sample sizes at each measurement for semester GPA are as follows: *n* = 83 at first measurement, *n* = 64 at second measurement, *n* = 40 at third measurement, *n* = 22 at fourth measurement, *n* = 10 at fifth measurement, and *n* = 7 at sixth measurement; NSSV = New Start for Student Veterans.

Table 3

Parameter Estimates From Final Multilevel Models

Parameter	Estimate	SE
Final model explaining self-advocacy skills (*N* = 99)		
Fixed effects		
Intercept	4.72	2.99
Time in NSSV (years)	3.92***	0.96
Age	-0.04	0.15
Hours of NSSV service	0.21*	0.10
Baseline level of self-advocacy skills	0.82***	0.06
Random effects		
Intercept variance	35.56	5.96
Residual variance	127.91	11.31
-2LL	2053.83	
AIC	2072.97	
Final model explaining semester GPA (*N* = 83)		
Fixed effects		
Intercept	0.41**	0.13
Time in NSSV (years)	-0.02	0.04
Age	-0.01	0.01
Baseline GPA	0.87***	0.04
Random effects		
Intercept variance	0.01	0.11
Residual Variance	0.23	0.48
-2LL	306.03	
AIC	340.64	

Note. *SE* = standard error; NSSV = New Start for Student Veterans; GPA = grade point average; *$p \leq .05$; ** $p \leq .01$; *** $p \leq .001$