The Development and Implications of Peer Emotional Support for Student Service Members/Veterans and Civilian College Students

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Abstract

Student service members/veterans represent a growing population on college campuses. Despite this growth, scholarly investigations into their health- and adjustment-related issues are almost nonexistent. The limited research that is available suggests that student service members/veterans may have trouble connecting with their civilian counterparts and be at risk for social isolation. The present study compared the development and implications of emotional support from peers among 199 student service members/veterans and 181 civilian students through 3 distinct occasions over the course of 1 calendar year. Data were collected via electronic survey. Measured constructs included perceived emotional support from university friends, mental health, alcohol use, and academic functioning. A series of multilevel models revealed that student service members/ veterans reported less emotional support from their peers compared with their civilian counterparts; yet, emotional support from peers increased similarly for both groups over time. Although, increasing peer emotional support was generally related to better academic and mental health outcomes for both groups, the links between emotional support and mental health were stronger for civilian students. Results suggest that mental health practitioners, particularly those on college campuses, should be prepared to deal with veteran-specific experiences that occur before and during college.

Keywords

emotional support; mental health; social support; student service members; veterans

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In 2008, nearly half a million veterans, active-duty personnel, reservist, and National Guardsmen used military education benefits to attend college (Lum, 2009). Not since World War II have so many veterans transitioned from military life to student life (Cook, Kim, & King, 2009). This large influx of military personnel to higher education is largely the result of the Post-9/11 Veterans Education Assistance Act of 2008 (also known as the "new GI

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Bill"), and the financial assistance and benefits it offers those who served in the Afghanistan and Iraq wars (American Council on Education [ACE], 2008). Despite the upsurge of military personnel into higher education, there has not been a corresponding increase in our understanding of their unique needs or health-related issues. One of the primary features characterizing the student service member/veteran literature is a lack of data-based (especially quantitative) investigations. In other words, there is currently a dearth of scholarly literature illuminating the health-related (behavioral, mental, social) factors influencing student service members'/veterans' adjustment to higher education.

Adjustment of Student Service Members/Veterans to Higher Education

As a result of their unique experiences (e.g., deployment) and different demographic characteristics, student service members/veterans often feel disconnected in higher education and desire interactions with other veterans on campus (Strickley, 2009). An undergraduate veteran at the University of Michigan epitomized this sentiment, asserting "I didn't know other veterans on campus. And I wasn't able to relate to younger students not in the military" (ACE, 2008, p. 8). Of the limited research investigating student service members, qualitative work gleaning insights from veterans themselves has been especially insightful into the specific adjustment difficulties experienced. Overall, student service members/veterans report adjustment difficulties ranging from personal (e.g., developing and maintaining relationship) to educational (e.g., institutional support, infrastructure, and policies). Additionally, numerous studies document conflicts (e.g., upsetting interactions stemming from differing geopolitical and wartime views) between student service members/ veterans and both civilian peers and faculty members (DiRamio, Ackerman, & Mitchell, 2008; Elliott, Gonzalez, & Larsen, 2011; Livingston, Havice, Cawthon, & Fleming, 2011; Persky & Oliver, 2011; Rumann & Hamrick, 2010). Developing interpersonal relationships with their university peers has been highlighted by student service members/veterans as particularly challenging and stressful. For instance, one of the salient themes emerging from the 25 one-on-one interviews conducted by DiRamio et al. (2008) was "connecting with peers." Due to the lack of social support on campus and his desire to connect with others, one student service member joined a fraternity just to be able to connect with others on campus. In contrast, many other veterans report an inability to connect with their civilian peers as a result of differing levels of maturity (DiRamio et al., 2008; Livingston et al., 2011).

Although qualitative investigations have continually highlighted social support as an important factor influencing the adjustment of student service members/veterans to higher education, to date, there are a paucity of quantitative investigations examining social support. The vast majority of published quantitative investigations have focused on psychological and mental health issues such as posttraumatic stress disorder (PTSD) and suicidal ideation (Barry, Whiteman, & MacDermid Wadsworth, 2012; Barry, Whiteman, MacDermid Wadsworth, & Hitt, 2012; Elliott et al., 2011; Rudd, Goudling, & Bryan, 2011; Widome et al., 2011) and health risk behaviors such as alcohol use, smoking, and physical violence (Whiteman & Barry, 2011; Widome, Laska, Gulden, & Lust, 2011). However, one study that examined the implications of social support for student service members/veterans documented a negative relationship between social support from family and friends (not limited to university friends) and PTSD, such that student service members/veterans reporting greater social support experienced less frequent PTSD symptoms (Elliott et al., 2011).

Although support from family and nonuniversity friends has been shown to be beneficial, an inability to connect with peers on campus has the potential to influence the academic progression as well as the overall adjustment of student service members because

"integration into the social and intellectual fabric of the institution" is one of the most important predictors of student persistence (Hausmann, Schofield, & Woods, 2007, pp. 803–804). Given their desire to connect with peers (DiRamio et al., 2008) as well as the important role peer-group interactions play in social integration to university life (Hausmann et al., 2007), the development and maintenance of social support from peers may be especially important for the adjustment of student service members.

Impact of Social Support

The impact of social support on health and wellness cannot be understated. Social support has consistently been linked to better physical health outcomes (e.g., Berkman, Glass, Brissette, & Seeman, 2000; Uchino, 2004, 2006) and decreased rates of mortality (e.g., Brummett et al., 2001; Rutledge et al., 2004). Social support has also been shown to be related to better mental health during college and across the life span in general (e.g., Cohen & Wills, 1985; Hefner & Eisenberg, 2009; Kawachi & Berkman, 2001). For example, in comparison to college students with high-quality social support, students reporting lower quality social support are more likely to experience mental health problems such as depression and anxiety (Hefner & Eisenberg, 2009). As mentioned, recent work has highlighted a similar protective function of social support among veterans and student service members; specifically, greater support from family and friends was linked to fewer PTSD symptoms (Elliott et al., 2011).

In addition to benefiting mental health, previous research has shown that social support, particularly from peers, is especially important for the academic adjustment of college students (e.g., Astin, 1993; Dennis, Phinney, & Chuateco, 2005; Hurtado, Carter, & Spuler, 1996). In fact, a meta-analysis by Robbins and colleagues (2004) revealed that social support is a robust predictor of both retention and grade-point average (GPA) of college students. Taken together, these studies highlight the protective role of social support for the mental health and adjustment of civilian and student service members/veterans alike. To date, however, research has largely failed to consider how the development of social support (especially from peers) may relate to mental health and adjustment during the college years, as most previous work has relied on cross-sectional studies or prospective designs in which social support was only measured once.

Development of Social Support During Early Adulthood

Social support is not a static phenomenon. For instance, social support interventions have sought to improve the health outcomes for patients with issues as diverse as cancer, weight loss, and substance use (for a review, see Hogan, Linden, & Najarian, 2002). The scope of these interventions highlights the malleability of, and potential benefits associated with, social support from family and friends. Developmental and interactional perspectives also highlight that social support evolves over time, often as a function of qualities of an individual and his or her respective environment (Newcomb, 1990; Sarason, Sarason, & Shearin, 1986). Consistent with developmental changes that promote relational intimacy and more mature friendships (Berndt & Savin-Williams, 1993; Erikson, 1968), social support has been shown to increase during late adolescence (Newcomb, 1990). In early adulthood, relationships with friends and peers continue to increase in prominence as social contact with friends and acquaintances heighten (Carstensen, 1992). It is important to note, however, that rates of change in social support are not equivalent across providers. For example, Newcomb (1990) found that social support from family members was more stable over time, whereas support from peers was more variable, possibly reflecting the continuing renegotiation of peer relationships during late adolescence. Given the increasing importance of peer relationships in late adolescence and early adulthood, as well as the increased

frequency with which these interactions occur, the developmental implications of social support from peers may be particularly salient for young adults in college or those adjusting to a new environment.

Although longitudinal investigations specifically examining the trajectory of social support are rare, several studies reveal that changes in social support are related to changes in adjustment over time. For example, even after controlling for initial levels of maladjustment and social support, decreases in social support were related to significant increases in psychological maladjustment over a 1-year period (Holahan & Moos, 1981). Similarly, Galambos, Barker, and Krahn (2006) found that increases in social support over the course of 7 years (ages 18–25) were related to improvements in psychological well-being (i.e., fewer depressive symptoms, greater self-esteem) above and beyond the normative developmental trajectory of well-being. Clearly, change in social support has implications for individual adjustment. Therefore, a goal of this study was to examine how changes in one dimension of social support, specifically emotional support, related to the changes in mental health and academic adjustment of both military-affiliated and civilian college students over a 1-year period.

Multidimensional Nature of Social Support

Traditionally, social support has been divided into two overarching categories: psychological and nonpsychological (e.g., material, tangible, instrumental) forms of social support (Cobb, 1976; Cohen & McKay, 1984; Veiel, 1985). Psychological support is typically further subdivided into appraisal (i.e., knowledge, cognition, information) and emotional support (Cohen & McKay, 1984; Jacobson, 1986; Schaefer, Coyne, & Lazarus, 1981). Jacobson (1986) contends "most other typologies of social support appear to be derivatives of this tripartite [materials, emotional and appraisal] classification" (p. 252). Examining the current student service member literature in light of the aforementioned typologies of social support, it becomes clear that student service members report deficits in either informational support or emotional support from university peers (see DiRamio et al., 2008; Elliott et al., 2011; Livingston et al., 2011; Persky & Oliver, 2011; Rumann & Hamrick, 2010). Shortages of informational support are evident in the lack of guidance and information provided to student service members in navigating the institutional infrastructure and bureaucracy necessary to obtain their benefits (DiRamio et al., 2008). Additionally, interpersonal factors, such as difficulties in developing and maintaining relationships with peers, correspond to dimensions of emotional support such as having confidants who can allow for (a) discussion of feelings and (b) indicate approval and/or acceptance (Wills & Shinar, 2000). Considering "emotional support is associated directly with better physical and mental health *and* usually buffers the damaging mental and physical health impacts of major life events and chronic strains" (Thoits, 1995, p. 64), it would seem advantageous to focus efforts on measuring emotional support specifically among student service members/veterans. This rings especially true in light of the unique mental (e.g., psychological distress and PTSD) and behavioral (e.g., alcohol abuse) health outcomes typically associated with service and deployment (Ames & Cunradi, 2004–2005; Jacobson et al., 2008; Tanielian & Jaycox, 2008). Moreover, because emotional support has been highlighted for its "surprisingly broad usefulness" (Wills & Shinar, 2000, p. 90), measuring the emotional support student service members/veterans receive from their peers in higher education not only extends the literature base but also fills current gaps.

Correlates of Social Support

Although the protective benefits of social support on mental health and adjustment have been noted for most individuals, patterns often vary as a function of other variables. For

example, research highlights gender differences in size of social networks, number of confidants, as well as the support they seek and receive from social relationships (e.g., Belle, 1987; Shumaker & Hill, 1991). In general, this work reveals that women are more likely than men to seek, provide, and receive social support (especially emotional support). In addition to gender differences, research reveals that patterns of social support vary as a function of marital status and age. Given the presence of a caring, stable relationship, it is not surprising that research reveals that married partners tend to perceive receiving higher levels of social support (e.g., Gerstel, Riessman, & Rosenfield, 1985; Turner & Marino, 1994). Even though social support networks shrink as people get older (Carstensen, 1992), the quality of support does not necessarily change. Given these patterns, as well as work that indicates that students with characteristics that differentiate them from the majority of other students are at increased risk of social isolation (Hefner & Eisenberg, 2009), our analyses controlled for gender, marital status, full-time versus part-time student status, and age.

The Current Study

As student service members/veterans continue to matriculate to college campuses, it is imperative to understand the structural and psychosocial factors that may facilitate their adaptation and success. Given that previous research has (a) pointed to the powerfully positive role social support can have on mental health (Cohen & Wills, 1985; Hefner & Eisenberg, 2009; Kawachi & Berkman, 2001), coupled with the fact that (b) student service members/veterans may have difficulty establishing connections with fellow students (DiRamio et al., 2008) and (c) sense of belonging is a powerful outcome associated with students' intention to persist in school (Hausmann et al., 2007), we examined the development and implications of the emotional support student service members/veterans and civilian students report receiving from peers. Specifically, we longitudinally tracked changes in emotional support from peers among student service members/veterans and their civilian counterparts across three consecutive semesters. We then examined whether changes in peer emotional support were related to changes in mental health and adjustment (e.g., psychological distress, alcohol use) and academic outcomes (e.g., grade-point average, academic motivation, educational self-efficacy). Given the developmental changes in social support and relationship intimacy in early adulthood (Berndt & Savin-Williams, 1993; Newcomb, 1990), we expected that emotional support from peers would increase over the course of the three semesters. On the basis of previous research with student service members/veterans (e.g., DiRamio et al., 2008), however, we also expected that student service members would report lower levels of peer emotional support initially and show less rapid growth in support across the study period than civilian students. Given that extant work reveals that social support serves as a buffer against negative mental health outcomes, we also expected increases in emotional support from peers over time would be related to more positive adjustment over time for all students. Nevertheless, because the experiences of student service members may be unique, we explored whether military history moderated such associations.

Method

Participants

The analyses were based on longitudinal data collected at the end of three consecutive semesters (December 2009, May 2010, and December 2010) over a 12-month span. To participate, individuals had to be enrolled students attending an institution of higher education within one midwestern state. Students from 20 different institutions participated. Although there was variability in institution size (enrollment ranged from 4,000 to 40,000 students), the majority of students (86% overall; 94% of student service members/veterans; 77% of civilian) attended public institutions. Twenty-two percent of students (25% of

student service members/veterans; 18% of civilian students) attended community colleges within the state.

At Time 1, the sample (N = 380) consisted of 199 (154 male, 45 female) student service members/veterans and 181 (81 male, 100 female) civilian students. Participants (90% of civilians and 92% of student service members/veterans) were largely White, non-Hispanic. Student service members/veterans were more likely to be enrolled full time (90%) as compared with civilian students (82%) (χ^2 = 4.27, p < .05). Veterans and student service members were older (M = 29.41, SD = 8.18 years) than civilian students (M = 23.67, SD = 7.63 years) (t = 7.04, p < .01), as well as more likely to be married (34%) than were civilian students (8%) (χ^2 = 39.06, p < .01). All branches of the military were represented in the data, with relatively equal distribution among the Air Force (16%), Army (27%), Marines (14%), Navy (14%), and National Guard (23%); a small proportion of the sample served in the Coast Guard (1%) or the Reserves (5%). Overall, these distributions mirror that of the active duty numbers across service branches (Department of Defense, 2008). On average, veterans who were no longer active duty (n = 101; 51%) had been separated from the military for 6.19 years (SD = 7.32, range = 1 month–39 years).

Procedure

After having all procedures vetted through appropriate Institutional Review Boards, data were collected via a web-based survey. At Time 1, students from each participating institution received an e-mail invitation to participate in a longitudinal study examining civilian students' and student service members'/veterans' adjustment to university life. By replying to the invitation, students were indicating their interest in participating. Given that administrative officials at each of the participating institutions were asked to distribute recruitment materials to their respective students, we do not know exactly how many students (civilian or military-affiliated) received our invitation to participate. Of all participants who replied to the initial invitation, however, 70% completed the Time 1 survey. Given the longitudinal design, participants who completed the Time 1 survey were sent invitations to participate in the second and third waves of data collection; 75% (n = 285; 147 student service members/veterans and 138 civilian students) of those participants completed the survey at Time 2, and 69% (n = 263; 135 student service members/veterans and 128 civilian students) completed the Time 3 survey. Sixty-two percent (n = 238) of participants completed all three waves of measurement. A series of chi-square tests and independent samples t tests revealed that those who dropped out of the study were not different from those who completed all three waves of measurement in terms of their demographic profile (i.e., age, gender, military status), the amount of emotional support received from peers, frequency of drinking, or any measures of academic functioning (i.e., GPA, amotivation, educational self-efficacy, or academic persistence). Those who dropped out, however, reported more symptoms of psychological distress (Brief Symtom Inventory [BSI]; M = 1.53, SD = .70) than those who completed all three waves of measurement (M = 1.39, SD = .48) (t = 2.19, p < .05).

At each occasion of measurement, eligible participants were sent a secure link to the web-based survey. After entering the web-based survey, participants completed informed consent procedures and then responded to a battery of questions lasting approximately 45–60 min. Responses were anonymous, with all personal information being kept in a separate secured survey. Participants received an honorarium of $50 for their participation at each occasion of measurement.

Measures

Background and demographic information—Participants provided a variety of background information including age, gender, marital status, and ethnic minority group membership. Additionally, veterans and student service members reported their military branch, pay grade, deployment history, and current status (i.e., active duty, Reserves, National Guard). Military status was dummy coded (0 = civilian; 1 = student service member/veteran).

Peer emotional support—Emotional support received from peers was indexed using the Friend subscale of the Perceived Social Support Inventory (Procidano & Heller, 1983). Participants responded Yes, No, or Don't know to 20 items that assessed the degree to which friends at their university provided support and comfort to them. Example items included: "My university friends give me the moral support I need"; "I rely on my university friends for emotional support"; and, "When I confide in university friends, it makes me feel comfortable." Items to which participants responded Yes were coded as 1; both No and Don't know responses were coded as 0. Scores on the Perceived Social Support Inventory have been shown to be valid and reliable among college student populations (e.g., Gloria, Robinson Kurpius, Hamilton, & Wilson, 1999; Procidano & Heller, 1983; Tardy, 1985). Although characterized as measuring social support, it is important to note that this scale should be interpreted as a measure of emotional support received, and not a broad measure of social support (Tardy, 1985). Scores were summed across the 20 items, with higher scores denoting greater peer emotional support ($M = 9.14$, $SD = 4.78$ at Time 1; $M = 9.81$, $SD = 4.59$ at Time 2; and $M = 9.82$, $SD = 5.35$ at Time 3). Kuder-Richardson 20 estimates of reliability ranged from .83 to .89 across the three waves.

Mental health—*Depression, anxiety, and general somatic complaints* were indexed using the 18-item BSI (Derogatis, 2001). On a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*extremely*), participants were asked to report how often in the last 7 days they were distressed or bothered by different psychological (e.g., "nervousness or shakiness inside" and "feeling of worthlessness") and somatic symptoms (e.g., "pains in heart or chest" and "faintness or dizziness"). Scores were averaged across all 18 items, with higher scores indicating more psychosomatic symptoms ($M = 1.44$, $SD = .58$ at Time 1; $M = 1.45$, $SD = .56$ at Time 2; and $M = 1.47$, $SD = .61$ at Time 3). Scores on the Global Symptom Index of the BSI 18 have been shown to be valid and reliable in diverse samples (Asner-Self, Schreiber, & Marotta, 2006; Derogatis, 2001). Cronbach's alphas ranged from .92 to .93 across the three waves.

Alcohol use—The frequency of *alcohol consumption* was measured using one question from National Institute on Alcohol Abuse and Alcoholism's Task Force on Recommended Alcohol Questions (2003). Specifically, on a 10-point scale ranging from 1 (*Never*) to 10 (*Everyday*), participants indicated how frequently they had a drink of alcohol (i.e., a 12-ounce beer, a 5-ounce glass of wine, or a drink containing one shot of liquor). Higher scores on this item denote greater frequency of drinking alcohol ($M = 5.47$, $SD = 2.60$ at Time 1; $M = 5.60$, $SD = 2.57$ at Time 2; and $M = 5.90$, $SD = 2.55$ at Time 3).

Academic functioning—Participants' GPAs were indexed by one question in which participants were asked "On a four-point scale, what was your GPA as of last semester?" Students' GPAs ranged from 1.2 to 4.0, with means of 3.37 ($SD = .53$) at Time 1, 3.41 ($SD = .47$) at Time 2, and 3.38 ($SD = .47$) at Time 3, respectively.

To assess students' *academic amotivation*, participants completed Vallerand et al.'s (1992) 28-item Academic Motivation Scale. On a scale ranging from 1 (*not at all*) to 5 (*exactly*),

students' rated the extent to which items presently corresponded to reasons for why they attend college. For this study, the Amotivation subscale was used. This subscale consisted of four items from which total scores were averaged and higher scores represent greater amotivation (i.e., less motivation toward academics; $M = 1.45$, $SD = .90$ at Time 1; $M = 1.51$, $SD = .95$ at Time 2; and $M = 1.74$, $SD = 1.08$ at Time 3). Vallerand and colleagues (1992) reported the test–retest reliability of the Amotivation subscale to be .83. Furthermore, scores on the Amotivation subscale have shown good internal consistency as well as convergent and discriminant validity (Fairchild, Horst, Finney, & Barron, 2005; Vallerand et al., 1992). Cronbach's alphas ranged from .86 to .88 across the three waves.

Students' *educational self-efficacy* was measured using a modified version of the Educational Degree Behaviors Self-Efficacy Scale (Gloria et al., 1999) and the social course self-efficacy subscales of the College Self-Efficacy Inventory (Solberg, O'Brien, Villareal, & Davis, 1993). The combined scales have been used by others to measure educational self-efficacy in diverse college student populations, and scores have been shown to be reliable and valid (e.g., Gloria & Robinson Kurpius, 2001; Rayle, Arrendondo, & Robinson Kurpius, 2005). Specifically, on a scale that ranged from 1 (*not at all*) to 7 (*extremely*), participants rated their confidence with 28 statements about their performance in college. Example items included "How confident are you that you could write course papers?" and "How confident are you that you could obtain a job in your chosen field after graduation?" Scores were averaged across the 28 items, with higher scores indicative of greater self-efficacy ($M = 6.10$, $SD = .81$ at Time 1; $M = 6.18$, $SD = .68$ at Time 2; and $M = 6.03$, $SD = .86$ at Time 3). Cronbach's alphas ranged from .93 to .96 across the three waves.

Academic persistence decisions were measured by the Persistence/Voluntary Drop-Out Scale (P/VDDS; Pascarella & Terenzini, 1980). Using a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), students rated their agreement with 30 items assessing their satisfaction with the college experience and perceptions of the likelihood that they would remain in school. Example items include "I am satisfied with the opportunities to me to interact informally with faculty" and "I am confident that I made the right decision in choosing to attend this university." In two validation studies, Pascarella and Terenzini (1980) established that the P/VDDS correctly classified persistence at rates greater than 80%. Furthermore, scores on this scale have strong internal consistency in diverse college student populations (e.g., Gloria & Robinson Kurpius, 2001; Gloria et al., 1999; Hull-Blanks et al., 2005). Scores were averaged across the 30 items, with higher scores reflecting positive persistence decisions ($M = 3.67$, $SD = .45$ at Time 1; $M = 3.66$, $SD = .47$ at Time 2; and $M = 3.60$, $SD = .52$ at Time 3). Cronbach's alphas ranged from .86 to .91 across the three waves.

Table 1 presents the bivariate correlations between the dependent measures across the three measurement occasions.

Analytic Strategy

Our goals were to examine the developmental course of emotional support student service members/veterans and civilian students received from peers over the course of 1 year as well as investigate whether changes in emotional support from peers predicted changes in adjustment and academics. Furthermore, we examined whether the links between emotional support from peers and adjustment and academics were moderated by military status. Toward this end, we tested a series of multilevel models using the mixed procedure in SAS (Version 9.2). This approach is advantageous because (a) it extends multiple regression to incorporate nested data; (b) it uses restricted maximum likelihood procedures to estimate effects; (c) it does not require equal spacing between observations; and (d) it can accommodate data that are unbalanced or missing at random (Raudenbush & Bryk, 2002;

Schafer, 1997; Singer & Willett, 2003). In this study, our longitudinal assessments were nested within individuals, and individuals were nested within institutions (i.e., colleges and universities). Accordingly, our three-level models partitioned variance into (a) within-individual (Level 1), (b) between-persons (Level 2), and (c) between-institution components (Level 3). Because participants were not equally distributed across the 20 institutions and the data did not meet the minimum number of cases required (13 institutions had fewer than 10 participants) to explain variance at this level (Singer & Willett, 2003), institution-level (Level 3) predictors were excluded from the models.

Our initial models explored whether there were differences in the initial level and trajectories of emotional support received from peers among student service members/ veteran and civilian students. First, we ran an unconditional means model that did not include any predictors. This model served to establish the baseline for the amount of variance explained at each level. Our second model then examined the developmental course of peer emotional support while controlling for known correlates such as age (centered at its mean), gender (effect coded: −1 = male, 1 = female), marital status (effect coded: −1 = unmarried, 1 = married), and full- versus part-time student status (effect coded: −1 = part time, 1 = full time). Explanatory variables, including linear effects for time (centered at Time 1, as such intercept values reflect Time 1) and military status (dummy coded: 0 = civilian, 1 = student service member/veteran), were also entered into this model. To examine whether the trajectory of received emotional support from peers varied as a function of military status, a third model included an interaction between time and military status in addition to the aforementioned variables. In the latter two models, intercepts were allowed to vary across individuals. As in any multilevel model, between-person predictors such as gender or military status estimate effects on level of the outcome, that is, the between-person intercepts. The time metric (or time "clock"; Singer & Willett, 2003) estimates the rate of change in the outcome, or slopes. To predict slopes from a between-person predictor, an interaction term such as Military Status × Time is used. The use of an interaction allows prediction of the slopes, or individual difference in rate of change, from a given predictor (Singer & Willett, 2003).

With a focus on within-individual change over time, our subsequent models examined the associations between the changes in peer emotional support and mental health and academic outcomes while controlling for time-related changes and other stable characteristics. Specifically, at Level 1 (within-individual), we included effects for time-varying variables (time and peer emotional support). Time was centered at Time 1, and peer emotional support was person mean-centered (i.e., centered around each individual's cross-time mean; this approach has been termed "group-mean-centering for clustered data"; Hoffman & Stawski, 2009). At Level 2 (between-persons), the cross-time mean for peer emotional support (centered around the sample mean) as well as other individual-specific time-invariant variables (i.e., gender, marital status, veteran status) were included. By person-mean centering, peer emotional support at Level 1 and including the cross-time mean at Level 2, our models disaggregated variance so that Level 1 effects represent the linkages between peer emotional support and adjustment beyond stable individual differences (Enders & Tofighi, 2007; Hoffman & Stawski, 2009; Singer & Willett, 2003).

Similarly to the previous models, control and independent variables were entered in Model 1. To test whether the effects of time or peer emotional support varied as a function of military status, Model 2 included three interactions: Time × Military Status, Within-Person Peer Emotional Support (i.e., Level 1 index of peer emotional support, which was person-mean centered) × Military Status, and Between-Person Peer Emotional Support (Level 2 index of peer emotional support, which was centered around the grand mean) × Military Status interactions. Significant interactions were plotted following the procedures outlined

by Aiken and West (1991). For these models, intercepts were allowed to vary across participants. Results are presented separately for each outcome.

Results

Multilevel Model of Change for Emotional Support Received From Peers

The unconditional model for peer social report revealed significant within-person variation (i.e., over time; $\sigma^2 = 9.34$, $p < .001$) and between-person variation ($\tau_2 = 14.11$, $p < .001$), indicating that predictor variables could be included at the different levels to explain these estimates. (There were no differences in peer social support received between institutions, $\tau_3 = .10$, *ns*.) Our second model, exploring the initial level and trajectory of perceived peer emotional support, revealed significant effects of four between-person variables: age, gender, full-time versus part-time student status, and military status. Additionally, the effect of time, a within-person variable, was also significant. As seen in Table 2, older, male, and part-time students reported less emotional support from university friends at Time 1. The model also revealed evidence for differences between student service members/veterans and civilian students in initial level of peer emotional support received, with veterans reporting less emotional support from university friends at Time 1. Finally, the significant effect of time revealed that emotional support increased over the course of the three semesters: The rate of change in emotional support was .37 units per semester. In the next model (not shown in Table 2), the interaction between time and military status was not significant, indicating that the rate of change in emotional support did not vary by military status. In other words, student service members/veterans and civilian students reported similar growth in emotional support received from peers across the three occasions of measurement.

Correlates of Peer Emotional Support: Mental Health and Alcohol Use

Mental health—The unconditional means model for symptoms of depression, anxiety, and general somatic complaints (BSI) revealed significant within-person ($\sigma^2 = .13$, $p < .001$) and between-person variation ($\tau_2 = .18$, $p < .001$), but no variation between institutions ($\tau_3 = .04$, *ns*). The models examining the association between changes in peer emotional support and reports of psychological distress revealed several significant associations and interactions. Specifically, as can be seen in Table 3, Model 1 revealed effects for gender, marital status, between-person peer emotional support, and within-person peer emotional support. It is noteworthy that there was no effect for time, meaning that there was no time-based systematic change in mental health over the three-semester study period. In general, women and unmarried participants reported greater psychological distress at Time 1. The significant effect of between-person peer emotional support was negative, indicating that individuals who reported more social support, on average, reported fewer symptoms of psychological distress. The negative trend-level effect for within-individual emotional support indicated that on occasions when individuals reported more emotional support than they received on average (i.e., their individual mean), they reported fewer symptoms of distress. These effects, however, were both qualified by interactions with military status in Model 2. As can be seen in Figure 1, the Between-Person Emotional Support × Military Status interaction revealed that the negative association between received peer emotional support and psychological distress was stronger for civilian students than student service members/veterans. That is, the protective effect of emotional support in general was stronger for civilian students. As can be seen in Figure 2, the Within-Person Emotional Support × Military Status interaction revealed a negative association between emotional support and BSI symptoms for civilians, but no association for student service members/veterans. This interaction indicates that for civilian students on occasions when emotional support was high (relative to their individual mean), reports of psychological distress declined. For student

service members/veterans, however, within-person changes in emotional support were unrelated to symptoms of psychological distress.

Alcohol use—The unconditional means model examining the frequency of alcohol use revealed significant within-person ($\sigma^2 = 1.19$, $p < .001$) and between-person variation ($\tau_2 = 5.30$, $p < .001$), but no variation between institutions ($\tau_3 = .18$, *ns*). Growth models examining frequency of alcohol use revealed effects for gender, military status, between-person emotional support, and time (see Table 4). Specifically, males and student service members/veterans reported drinking more frequently at Time 1. Additionally, the positive effect of between-person emotional support revealed that students who reported receiving more emotional support in general drank more frequently. The significant effect for time indicates that alcohol use increased over the course of the three semesters for all students. That said, military status explained some of the individual variability in alcohol use slopes, as noted by the Time × Military Status interaction (a "slopes-as-outcomes" effect; Singer & Willett, 2003). This effect is graphically depicted in Figure 3, showing that student service members'/veterans' frequency of alcohol consumption was elevated and stable over time. In contrast, civilian students started out lower, but increased their frequency of alcohol use across the three semesters.

Correlates of Peer Emotional Support: Academic Outcomes

The unconditional means model for GPA revealed significant within-person ($\sigma^2 = .07$, $p < .001$) and between-person variation ($\tau_2 = .17$, $p < .001$), but no variation between institutions ($\tau_3 = .01$, *ns*). Conditional growth models did not reveal significant change in GPA over time, but several Level 2 (between-person) predictors were significant predictors of GPA at Time 1 (i.e., the intercept). As can be seen on the left side of Table 5, trend-level effects for gender and age revealed that males tended to report lower GPAs, whereas older students reported higher GPAs. A significant effect of marital status indicated that married students reported higher GPAs. Finally, a significant between-person effect of peer emotional support revealed that those who received more social support in general reported greater GPAs at Time 1. Model 2 (not shown in Table 5) did not reveal any significant interactions involving military status, time, between-person emotional support, or within-person emotional support.

With respect to academic amotivation, the unconditional means model revealed within-person ($\sigma^2 = .53$, $p < .001$) and between-person variation ($\tau_2 = .40$, $p < .001$), but no variation between institutions ($\tau_3 = .02$, *ns*). In the conditional growth models, effects of age, marital status, time, and between-persons emotional support emerged in Model 1 (see the right side of Table 5). Specifically, younger and unmarried participants were more likely to report greater amotivation at Time 1. The effect of time revealed that amotivation increased over the three semesters. Finally, the effect for between-person emotional support indicated that those who received more emotional support in general reported less academic amotivation. There were no differences in amotivation as a function of military status, and Model 2 did not reveal any significant interactions (not shown in Table 5).

For educational self-efficacy, the unconditional means model revealed significant within-person ($\sigma^2 = .30$, $p < .001$) and between-person variation ($\tau_2 = .31$, $p < .001$), but no variation between institutions ($\tau_3 = .01$, *ns*). Model 1 of the conditional growth model revealed significant effects for marital status as well as between-person and within-person emotional support (see the left side of Table 6). Specifically, married students reported greater educational self-efficacy at Time 1. The between-person effect of peer emotional support indicated that individuals who received more emotional support from their peers in general reported greater educational self-efficacy. The within-person effect for peer emotional support revealed that individuals reported greater self-efficacy on occasions on

which they received more emotional support from peers than they did on average (i.e., increases in peer emotional support associated with increases in educational self-efficacy). There were no differences in educational self-efficacy as a function of military status, and Model 2 did not reveal any significant interactions (not shown in Table 6).

In regards to academic persistence, the unconditional means model revealed significant within-person ($\sigma^2 = .07$, $p < .001$) and between-person variation ($\tau_2 = .15$, $p < .001$), but little variation between institutions ($\tau_3 = .01$, *ns*). Model 1 revealed significant effects for gender, marital status, time, and both between-person and within-person emotional support (see the right side of Table 6). Specifically, women and married students reported a greater likelihood to persist at Time 1. The significant effect for time indicated that, in general, reports of persistence declined over the three semesters. The effect of emotional support was protective both between- and within individuals. That is, the between-person effect of emotional support indicated that those who received more emotional support from peers, in general, reported greater persistence. Furthermore, the within-person effect of emotional support revealed that participants reported greater persistence on occasions when they received more support than they typically received. Model 2 did not reveal any significant interactions (not shown in Table 6).

Discussion

In this study, we examined the development and implications of emotional support received from peers among student service members/veterans and civilian students enrolled in higher education. Consistent with expectations, student service members/veterans reported less peer emotional support than their civilian counterparts at Time 1. Rates of received peer emotional support among student service members/veterans and civilians increased similarly over time. Taken together, these findings indicate that although emotional support from peers increased over time for student service members/veterans, given their initial deficit compared with civilian students, student service members/veterans never reached the same level of emotional support as their civilian counterparts.

With respect to the implications of emotional support, results generally suggested that emotional support received from peers was protective and related to positive mental health and academic adjustment. These findings echo those of other investigations in which higher perceived social support was found to be associated with lower rates of mental health disturbances (i.e., depression, anxiety and suicidal ideology, PTSD; Elliott et al., 2011; Hefner & Eisenberg, 2009) and more positive academic adjustment (e.g., Astin, 1993; Dennis et al., 2005; Hurtado et al., 1996).

Although received peer emotional support was beneficial for all students academically, associations varied as function of military status for mental health outcomes. Specifically, Emotional Support × Military Status interactions revealed that the protective effect of perceived peer emotional support was stronger for civilian students than for student service members/veterans. That is, increases in emotional support from peers were associated with little change in psychological distress among student service members/veterans. Although previous work (e.g., Elliott et al., 2011) has documented that social support from friends and family is associated with lesser frequency of PTSD symptoms among student service members/veterans, to date, research has not examined the implication of emotional support from university peers. Although student service members/veterans in our sample did not differ from civilian students in terms of the psychological distress at Time 1 (i.e., no differences at the intercept), it is important to note that approximately one third of those deployed in support of Operation Enduring Freedom and Operation Iraqi Freedom will experience either PTSD, traumatic brain injury, or major depressive disorder/symptoms

(Tanielian & Jaycox, 2008). That said, results from this investigation suggest that emotional support from peers may be insufficient to buffer against the psychological problems prevalent among student service members/veterans. Institutions of higher education and counseling professionals, therefore, should take note that lower levels of received emotional support among student service members/veterans are both real and consequential. Because the psychological symptoms among student service members/veterans were not as responsive to peer emotional support as civilian students, campus counseling centers may be faced with the task of dealing with veteran-specific experiences that may occur before and during college. This burden becomes even more real considering the "Military Health System lacks the fiscal resources and the fully-trained personnel to fulfill its mission to support psychological health in peacetime or fulfill the enhanced requirements imposed during times of conflict" (Department of Defense Task Force on Mental Health, 2007, p. ES-2).

Are campus counseling centers equipped to meet the transition-related issues associated with this special needs population? Rudd et al. (2011) contend "we are unaware of any data describing the preparedness of college and university counseling centers to meet such unique demands" (p. 359). When considering the overall state of psychiatric services on college campuses throughout the United States, the outlook appears bleak. For instance, according to the National Survey of Counseling Center Directors (Gallagher, 2010), only 56% of colleges/universities have on-campus psychiatric services available. Of those with psychiatric services, the average school provides 20 hr of psychiatric consultation per week —about 1.8 hr of consultation hours per week for every 1,000 students (Gallagher, 2010). It is important to also note that psychiatric disorders are common among all college-age students (Blanco et al., 2008; Kessler et al., 2005), and 91% of counseling center directors report an increasing trend of students with severe psychological problems (Gallagher, 2010). That said, there is also research that suggests student service members/veterans may be less likely to seek counseling center services when compared with their civilian peers (Bonar & Domenici, 2011). Thus, in addition to the growing rate of psychological issues among civilian students, campuses will be faced with an influx of student service members/veterans —a group for which little empirical evidence exists.

Limitations

This investigation fills a unique void in the literature on the mental health and academic adjustment of college students. To date, little research has specifically examined the adjustment of student service members/veterans enrolled in higher education. Among the few studies that have considered this unique population, the vast majority have generally relied on qualitative data (DiRamio et al., 2008; Livingston et al., 2011) or been editorial/ commentary in nature. Of those using quantitative designs, all have been cross-sectional designs (Barry, Whiteman, MacDermid Wadsworth, & Hitt, 2012; Elliott et al., 2011; Whiteman & Barry, 2011; Widome, Kehle, et al., 2011; Widome, Laska, et al., 2011) and often focus on variables such as alcohol use (Barry, Whiteman, MacDermid Wadsworth, & Hitt, 2012; Whiteman & Barry, 2011). To the best of our knowledge, this investigation is the first longitudinal investigation of student service members/veterans. Moreover, of the studies examining this unique population, none have quantitatively assessed the potential influence of university peers, specifically, on one's who have received emotional support. Although offering new and timely insights that fill current holes in the scholarly literature, it is important to also consider a few methodological limitations in unison with the results reported herein.

First, our measures were limited as they relied on participants' self-report. As a result, it is possible that observed associations between emotional support and outcomes may be inflated by common method variance (Campbell & Fiske, 1959). Along these same lines,

our investigation focused on emotional support from university peers. Although previous research has suggested that student service members/veterans may experience deficits in social support, our investigation did not examine forms of social support other than emotional support, nor did we assess other sources from which support may be received (e.g., family, peers outside of the university). For example, qualitative investigations have identified fellow veterans (who may, or may not, be students on their campus) as key and sometimes preferred sources of social support (DiRamio et al., 2008; Livingston et al., 2011; Rumann & Hamrick, 2010). Additionally, our study did not assess how long students (civilian or military affiliated) have been enrolled at their current institution. Clearly, the amount of time in a given environment could be related to the development of close and meaningful relationships with peers and potentially confounds our results. Moreover, our focus on university peers also excluded the spouses of student service members/veterans in our sample, who were more likely to be married than their civilian peers. Given that married (as well as older and male) participants reported less emotional support from peers at Time 1, it is possible that these other sources of support compensate for potential deficits from university peers and colleagues. Clearly, more research is needed to examine such possibilities as is work that investigates the multidimensional nature of social support experienced by student service members/veterans.

Second, although we used a longitudinal design in this study, the correlational nature of the study inhibits the ability to determine whether increasing emotional support was associated with more positive adjustment, or vice versa. Additionally, given our sampling methodology, participants self-selected into the study and as a result may not represent the full spectrum of service-affiliated or civilian students across the 20 campuses. To the extent that self-selection was related to variables of interest, particularly emotional support and mental health outcomes, our results may misestimate the direction or magnitude of effects. And although our analytic procedures minimize the effects of attrition by using all data and maximum likelihood estimation, selective attrition also may have influenced our results. As a result, future research with this population would benefit from methods (e.g., random samples of college students) that may yield and maintain more representative populations. Adoption of such methods would also allow for examination of potential between campus differences, highlighting how campus factors such as culture, size, and policies shape relations among students.

Lastly, this investigation was also limited because of its reliance on web-based data collection methods. Even though American university students generally reside in computer-friendly environments, use of a web-based survey may have biased the demographics of our sample, as research suggests that Black and Hispanic college students may be less likely to participate (Cranford et al., 2008). It is important to note, however, that numerous studies have documented few differences with regard to response rate between web-based surveys and traditional paper-and-pencil methods or telephone interviews (e.g., Kypri, Gallagher, & Cashell-Smith, 2004; McCabe, Diez, Boyd, Nelson, & Weitzman, 2006; Miller et al., 2002; Parks, Pardi, & Bradizza, 2006). Finally, although data were collected from students at a wide array of institutions (including private and public, community colleges and 4-year universities), the relative ethnic homogeneity of our sample limits our ability to generalize to more diverse groups. Future research should focus on larger, more representative samples that will account for the growing diversity among both U.S. military (Department of Defense, 2008) and American institutions of higher education (Keller, 2001).

Conclusion

Student service members/veterans represent a growing, unique presence on the campuses of universities and colleges throughout the United States. To date, we know this group faces challenges in adjusting from military service to student life (Bonar & Domenici, 2011;

DiRamio et al., 2008; Livingston et al., 2011) and exhibits a high frequency and severity of psychological symptoms and risk of suicide (Rudd et al., 2011). Compared with their civilian counterparts, this unique group also tends to report a great number of safety-, tobacco-, and alcohol-related risk behaviors than their civilian, nonveteran peers (Widome, Laska, et al., 2011).

This investigation expands our current understanding of student service members/veterans enrolled in higher education by examining the emotional support these individuals receive from their university peers. When received, peer emotional support brings with it similar benefits to both student service members/veterans and civilian students regarding academic outcomes. That said, student service members/veterans do not receive the same amount of emotional support as their civilian peers, and the beneficial effects of peer emotional support were more strongly related to civilian students' mental health as compared with student service-members/veterans. These results should be considered in unison with DiRamio and colleagues' (2008) assertion that "the transition to college was among the most difficult adjustments made when returning from wartime service" (p. 97). To ensure successful transition, institutions of higher education must ready themselves and enact holistic approaches (DiRamio et al., 2008) to minimize the stress, isolation, and difficulties experienced by student service members/veterans.

Acknowledgments

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Figure 1.
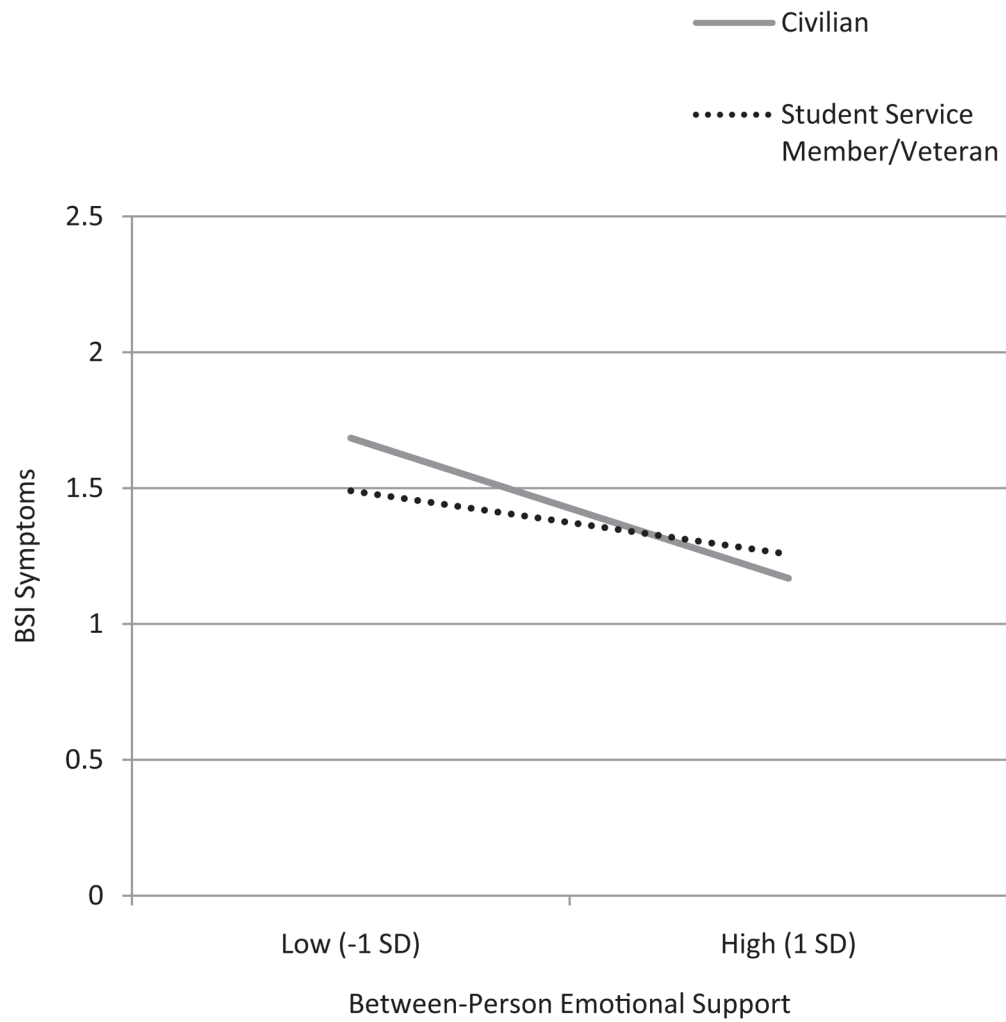Association between between-person emotional support from university friends and Brief Symtom Inventory (BSI) symptoms as a function of military status.
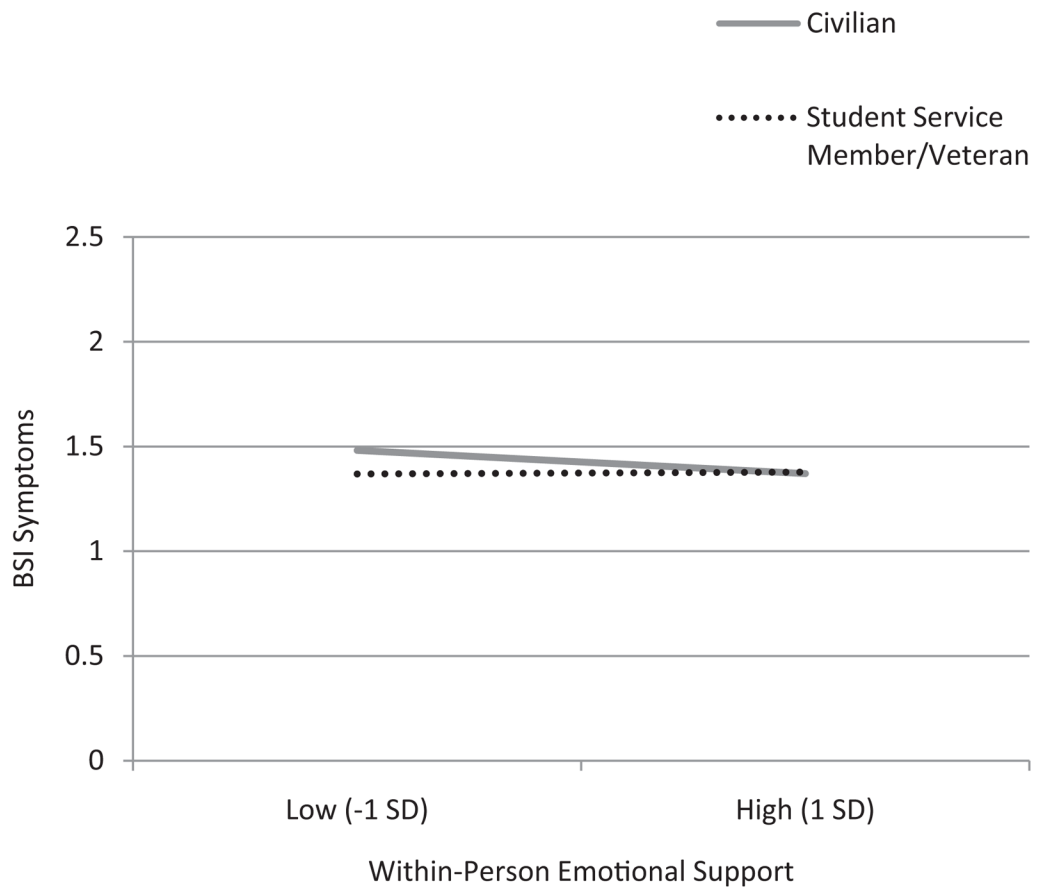
Figure 2.
Association between within-individual (time-varying) emotional support from university friends and Brief Symptom Inventory (BSI) symptoms as a function of military status.
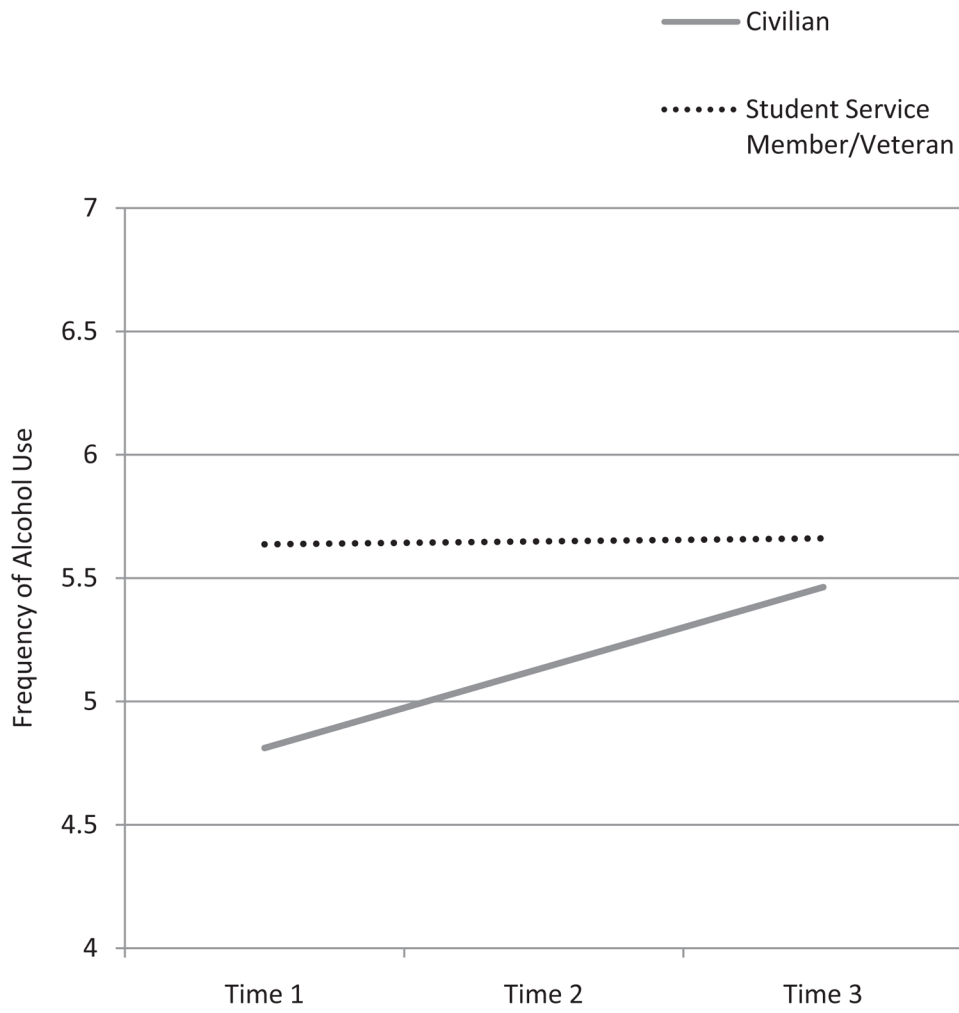
Figure 3.
Frequency of alcohol use over time as a function of military status.

Table 1

Correlations Between Dependent Variables Across Three Measurement Occasions

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. BSI T1	—																	
2. BSI T2	.64**	—																
3. BSI T3	.56**	.58**	—															
4. Freq. drink T1	.00	.01	.02	—														
5. Freq. drink T2	.03	.04	.05	.83**	—													
6. Freq. drink T3	.08	.05	.01	.80**	.85**	—												
7. GPA T1	−.16**	−.13*	−.05	−.00	.06	.02	—											
8. GPA T2	−.09	−.17**	−.05	−.04	.01	−.04	.72**	—										
9. GPA T3	−.12	−.21**	−.17*	−.02	.09	.03	.64**	.82**	—									
10. Amot. T1	.41**	.17**	.18**	.04	−.01	.01	−.24**	−.23**	−.22**	—								
11. Amot. T2	.21**	.26**	.18**	.08	.09	.15*	−.03	−.15*	−.15*	.51**	—							
12. Amot. T3	.22**	.28**	.28**	−.06	−.08	.02	.01	−.07	−.11	.36**	.47**	—						
13. Ed. SE T1	−.19**	−.18**	−.19**	.14*	.15*	.18**	.31**	.29**	.30**	−.36**	−.20**	−.22**	—					
14. Ed. SE T2	−.30**	−.23**	−.26**	.08	.16*	.18*	.36**	.34**	.27**	−.32**	−.28**	−.27**	.60**	—				
15. Ed. SE T3	−.15*	−.15**	−.26**	.17*	.20**	.15*	.11	.13	.29**	−.26**	−.31**	−.41**	.45**	.57**	—			
16. Persistence T1	−.24**	−.12*	−.17**	.02	.09	.02	.20**	.11	.16*	−.40**	−.27**	−.22**	.42**	.36**	.35**	—		
17. Persistence T2	−.21**	−.20*	−.17*	.01	.03	.02	.08	.08	.08	−.30**	−.41**	−.27**	.34**	.35**	.34**	.64**	—	
18. Persistence T3	−.13	−.14	−.24**	−.00	.05	.04	.07	.07	.19**	−.29**	−.34**	−.40**	.38**	.35**	.48**	.62**	.79**	—

Note. BSI = Brief Symptom Inventory; T1–T3 = Time 1–Time 3; Freq. = frequency; GPA = grade-point average; Amot. = Amotivation; Ed. SE = educational self-efficacy.

*
$p < .05$.

**
$p < .01$.

Table 2

Multilevel Models of Change in Emotional Support From University Friends Over Time, With Between-Person Effects of Key Predictors on Time 1 Emotional Support

Predictor	γ	SE
Intercept	8.55***	.49
Gender	.60*	.24
Age	−.08*	.03
Marital status	−.47	.30
Part time versus full time	1.87***	.33
Military status	−1.10*	.52
Time	.37*	.16

Note. Convergence criterion = .001. Gender (male = −1, female = 1), marital status (unmarried = −1, married = 1), and full- versus part-time student status (−1 = part time, 1 = full time) were effect coded. Military status (0 = civilian, 1 = student service member/veteran) was dummy coded. Between-person variables (Level 2), such as gender, age, marital status, part-time versus full-time status, and military status, estimate effects on level of the outcome, which was centered to Time 1. Within-person variables (Level 1), such as time, estimate the rate of change in the outcome.

*
$p < .05.$

***
$p < .001.$

Table 3

Multilevel Models of Change in BSI Over Time, With Between-Person Effects of Key Predictors on Time 1 BSI, and the Within-Person Effect of Peer Emotional Support on Within-Person BSI Estimation

Predictor	Model 1		Model 2	
	γ	SE	γ	SE
Intercept	1.39***	.07	1.43***	.07
Gender	.10**	.03	.10**	.03
Age	.00	.01	.00	.01
Marital status	−.12**	.04	−.12**	.04
Part time versus full time	.07	.05	.07	.05
Military status	−.03	.07	−.07	.05
Time	.03	.02	.03	.03
BP emotional support	−.04***	.01	−.06***	.01
WP emotional support	−.01†	.01	−.03**	.01
Time × Military Status			.01	.04
BP Emotional Support × Military Status			.03*	.02
WP Emotional Support × Military Status			.03*	.01

Note. Convergence criterion = .001. Gender (male = −1, female = 1), marital status (unmarried = −1, married = 1), and full- versus part-time student status (−1 = part time, 1 = full time) were effect coded. Military status (0 = civilian, 1 = student service member/veteran) was dummy coded. BP emotional support denotes Level 2 (grand mean-centered) index of emotional support. WP emotional support denotes Level 1 (person mean-centered) index of emotional support. Between-person variables (Level 2) estimate effects on level of the outcome, which was centered to Time 1. Within-person variables (Level 1) estimate the rate of change in the outcome. Interactions including within-person (e.g., time or WP emotional support) variables estimate individual differences in rate of change from a given predictor. BSI = Brief Symptom Inventory; BP = between person; WP = within person.

†
$p < .10$.

*
$p < .05$.

**
$p < .01$.

***
$p < .001$.

Table 4

Multilevel Model of Change in Frequency of Alcohol Use Over Time, With Between-Person Effects of Key Predictors on Time 1 Frequency of Alcohol Use, and the Within-Person Effect of Peer Emotional Support on Within-Person Frequency of Alcohol Use Estimation

Predictor	Model 1		Model 2	
	γ	*SE*	γ	*SE*
Intercept	4.95***	.30	4.81***	.30
Gender	−.45**	.15	−.46**	.15
Age	−.03	.02	−.03	.02
Marital status	−.04	.20	−.02	.19
Part time versus full time	.11	.21	.10	.21
Military status	.59†	.33	.83*	.34
Time	.17**	.05	.33**	.08
BP emotional support	.07*	.04	.09*	.06
WP emotional support	−.00	.02	−.01	.03
Time × Military Status			−.31**	.11
BP Emotional Support × Military Status			−.04	.07
WP Emotional Support × Military Status			−.01	.04

Note. Convergence criterion = .001. Gender (male = −1, female = 1), marital status (unmarried = −1, married = 1), and full- versus part-time student status (−1 = part time, 1 = full time) were effect coded. Military status (0 = civilian, 1 = student service member/veteran) was dummy coded. BP emotional support denotes Level 2 (grand mean-centered) index of emotional support. WP emotional support denotes Level 1 (person mean-centered) index of emotional support. Between-person variables (Level 2) estimate effects on level of the outcome, which was centered to Time 1. Within-person variables (Level 1) estimate the rate of change in the outcome. Interactions including within-person (e.g., time or WP emotional support) variables estimate individual differences in rate of change from a given predictor. BP = between person; WP = within person.

† $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 5

Multilevel Model of Change in Frequency of GPA and Academic Motivation Over Time, With Between-Person Effects of Key Predictors on Time 1 GPA and Academic Motivation, and the Within-Person Effect of Peer Emotional Support on Within-Person GPA and Academic Amotivation Estimation

Predictor	GPA		Academic amotivation	
	γ	SE	γ	SE
Intercept	3.51[***]	.06	1.32[***]	.11
Gender	.05[†]	.03	−.08	.05
Age	−.01[†]	.01	−.02[*]	.00
Marital status	.14[***]	.04	−.11[†]	.06
Part time versus full time	−.01	.04	.03	.08
Military status	−.09	.06	.04	.11
Time	.01	.01	.13[*]	.04
BP emotional support	.02[*]	.01	−.03[*]	.01
WP emotional support	.00	.00	.00	.01

Note. Convergence criterion = .001. Gender (male = −1, female = 1), marital status (unmarried = −1, married = 1), and full- versus part-time student status (−1 = part time, 1 = full time) were effect coded. Military status (0 = civilian, 1 = student service member/veteran) was dummy coded. BP emotional support denotes Level 2 (grand mean-centered) index of emotional support. WP emotional support denotes Level 1 (person mean-centered) index of emotional support. Between-person variables (Level 2) estimate effects on level of the outcome, which was centered to Time 1. Within-person variables (Level 1) estimate the rate of change in the outcome. GPA = grade-point average; BP = between person; WP = within person.

[†] $p < .10.$

[*] $p < .05.$

[***] $p < .001.$

Table 6

Multilevel Model of Change in Educational Self-Efficacy and Academic Persistence Over Time, With Between-Person Effects of Key Predictors on Time 1 Educational Self-Efficacy and Academic Persistence, and the Within-Person Effect of Peer Emotional Support on Within-Person Educational Self-Efficacy and Academic Persistence Estimation

Predictor	Educational self-efficacy		Academic persistence	
	γ	*SE*	γ	*SE*
Intercept	6.23***	.09	3.76***	.05
Gender	.02	.04	.06*	.02
Age	.00	.01	.00	.00
Marital status	.18***	.05	.07*	.03
Part time versus full time	−.04	.06	.01	.03
Military status	.02	.09	.08	.05
Time	−.02	.03	−.04**	.01
BP emotional support	.05***	.01	.05***	.01
WP emotional support	.02*	.01	.03***	.01

Note. Convergence criterion = .001. Gender (male = −1, female = 1), marital status (unmarried = −1, married = 1), and full- versus part-time student status (−1 = part time, 1 = full time) were effect coded. Military status (0 = civilian, 1 = student service member/veteran) was dummy coded. BP emotional support denotes Level 2 (grand mean-centered) index of emotional support. WP emotional support denotes Level 1 (person mean-centered) index of emotional support. Between-person variables (Level 2) estimate effects on level of the outcome, which was centered to Time 1. Within-person variables (Level 1) estimate the rate of change in the outcome. BP = between person; WP = within person.

*
p < .05.

**
p < .01.

***
p < .001.