

# Hardiness, gender, and leader effectiveness in West Point cadets\*

Lieutenant Colonel Paul T. BARTONE, Ph.D.  
United States Military Academy  
West Point, New York 10996  
USA

**BACKGROUND:** The present study explores the role of personality hardiness as a stress-resistance resource in Army officer cadets. The U.S. Military Academy at West Point places officer cadets in a world of extreme mental and physical challenges. This provides an excellent natural laboratory in which to study how people respond and adapt to highly stressful conditions. Given the recognized stressfulness of the four-year West Point cadet experience, as well as the highly ambiguous and stressful operational environments which cadets will enter as junior Army officers, military psychologists should devote more research toward identifying potential stress resiliency factors for cadets and young officers.

Previous research has shown that personality hardiness provides a protective advantage to those who have it. Conceptually, hardiness involves a high sense of commitment to life and work, a strong belief in one's ability to control events and influence outcomes, and greater openness to change and challenges in life (Maddi & Kobasa, 1985). Persons high in hardiness are more resilient when exposed to a range of environmental stressors, remaining healthy and performing well despite high stress levels. Those low in hardiness, on the other hand, tend to become ill and suffer performance breakdowns under stress. The possibility of sex differences in hardiness, and in how hardiness might function as a stress moderator, remains relatively unexplored. Previous studies with cadets show that in general, female cadets report higher stress levels than male cadets across several domains (Belmont, 2000), and that hardiness predicts military performance for female cadets (Bartone & Snook, 2000). This raises the possibility that, given the recognized role of hardiness as a stress moderator, hardiness may be a more salient resiliency tool for females than it is for males. The present study tests this hypothesis, examining the relation of hardiness to health and performance indicators within sex groups.

**METHODS:** A survey instrument was used to assess hardiness, symptoms, illness behaviors, and perceived stress/demands in several different domains for freshman cadets at West Point (all instruments available upon request from author). All participants (N=234) volunteered for the research as part of their Introductory Psychology course. Female cadets currently make up about 17% of the student population at West Point. Females were over-sampled for this study in order to provide more balanced comparison groups. The sampling strategy resulted in N=72 females (31%) and N=162 (69%) males for this study. Once the survey data collection was complete, official academy records were consulted to obtain Military Performance Grades for all participants, based on their 1<sup>st</sup> semester of freshman year. These grades reflect the combined ratings of several supervisors who have evaluated the cadet's performance as a military leader.

**RESULTS:** As predicted, female cadets (N=72) were found to be higher than males (N=162) in hardiness ( $t=2.01$ ,  $p<.05$ ) and symptoms ( $t=3.17$ ,  $p<.002$ ). Female cadets also reported significantly higher levels of stress in several domains: (1) Military, (2) Physical, (3) Time/schedule, and (4) Overall – Life in general.

Next, the correlations of hardiness to Military Grades and symptoms were examined, for the total group and within sex groups. Further, in order to explore the potential role of hardiness as a stress resiliency factor, the correlations were also computed within "low-stress" and "high-stress" groups. In theory, if hardiness functions as a stress resiliency factor, the association between hardiness and relevant outcome indicators (health and performance) should be stronger under high-stress conditions. Table 1 shows the correlations between hardiness and (a) military grades; (b) symptoms for groups broken down by sex and high or low stress groups. The Low Stress group includes those who reported "very low", "low", or "medium" demands during the current academic year in the area of "Overall, life in general"; the High Stress group reported "high" or "very high" demands.

As expected, hardiness correlates negatively with symptoms, and this relation appears fairly consistent regardless of sex or high / low stress condition. Hardiness also correlates with Military performance grades for the total group, and for men, but not for women in this sample. There are two instances where sex and stress together appear to influence the strength of the correlations. First, hardiness correlates with military grades ( $r = .23^{**}$ ) for male cadets under the high stress condition, but not the low. Second, for women, hardiness correlates with symptoms under high stress

conditions, but not when stress / demands are perceived as low. A significant correlation was observed between hardiness and military grades for women under the low stress condition ( $r = .47^*$ ), but not under high stress.

Table 1  
Correlations of hardiness with Military Grade & Symptoms for Low & High Stress (overall, life in general) groups

		Low stress (N=65)	High stress (N=168)	Total (N=233)
<b>Men</b>	<u>MD grade</u>	--	.23**	.18*
	<u>Symptoms</u>	-.30* (47)	-.29** (114)	-.29*** (161)
<b>Women</b>	<u>MD grade</u>	.47*	--	--
	<u>Symptoms</u>	-- (18)	-.31* (54)	-.25* (72)
<b>Total</b>	<u>MD grade</u>	--	--	.16**
	<u>Symptoms</u>	-.24* (65)	-.24** (168)	-.25*** (233)

\* =  $p < .05$ ; \*\* =  $p < .01$ ; number in parenthesis is the N on which correlation coefficient is based.

**DISCUSSION / CONCLUSIONS:** It was predicted that hardiness would correlate with military performance and health indicators more strongly under high stress conditions. The general pattern of correlations provides some support for this prediction. Somewhat surprisingly, hardiness correlates  $r = .47^*$  with Military performance grades for women, under the low stress condition. One possible explanation for this finding is that there may be a sub-group of female cadets who are not only low in hardiness, but also somewhat alienated and low in motivation. These cadets are likely to report low stress or demands because they are largely unaffected by the requirements of the institution around them. A very different, well-adjusted sub-group of female cadets might also report low stress, because they are functioning well and coping effectively with the many institutional demands of West Point. They are also higher in hardiness. These highly motivated and high hardiness female cadets would perform better, and achieve higher military grades, while their poorly motivated counterparts would earn grades that reflect their poor performance. This dynamic could account for the high correlation between hardiness and military grades among low-stress female cadets. Future research should evaluate this possibility, by looking more closely at female cadets and following them over time. The low-stress, low-hardy, low performance cadets may also be at higher risk for early attrition from the academy.

Several conclusions can be drawn from this research. First, we have confirmed that female cadets at the U.S. Military Academy experience higher levels of stress and symptoms than their male counterparts, but females are also higher in hardiness. For all groups, hardiness is associated with better health (fewer symptoms). Hardiness is also associated with higher military performance for cadets, though this appears more true for males than females. The pattern of correlations within sex- and low/high stress groups lends some support to the hypothesis that hardiness functions as a stress moderator; for men, the resiliency effect seems to be with respect to performance outcomes, while for women, it is with respect to health outcomes.

Additional research should explore these relations further, preferably with a larger sample of female cadets to support more fine-grained and multivariate analyses. If female cadets are generally higher in hardiness than males, perhaps as a result of some self-selection process, than a problem of restricted-range in hardiness might serve to mask an actual stress-resiliency function of hardiness for females. A similar restricted-range problem could affect stress measures in a uniformly stressful institutional environment such as West Point. With respect to female cadets in particular, if most are high in hardiness, while also experiencing high levels of demands or stress, hardiness may be functioning as a stress resiliency factor or coping tool for the entire female cadet population. If this is so, only main effects would be apparent, and interaction effects (e.g., hardiness X stress) would not be seen. Future work will explore this possibility, and also expand the health and performance indicators to include a longer time period of reference and additional performance measures (e.g., academic performance; attrition). Results could lead to substantially improved selection and training strategies for future military officers.

Bartone, P.T. & Snook, S.A. (June, 2000). Gender differences in predictors of leader performance over time. Presented at the Annual Meeting of American Psychological Society, Miami Beach, Florida.

Belmont, K. (May, 2000). Stress, coping, and disturbed eating behaviors at the U.S. Military Academy. Senior Research Project in Psychology. West Point, New York: Department of Behavioral Sciences and Leadership, U.S. Military Academy.

Maddi, S.R. & Kobasa, S. (1984). The hardy executive: Health under stress. Homewood, IL: Dow Jones-Irwin.