

Physical and Psychological Correlates of Academic Performance in Male and Female University Students.

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Introduction

Studying at university can be a stressful experience due to academic workload, financial cost, and performing within a competitive environment (Park & Adler, 2003). The self-esteem of students has been demonstrated to be significantly related to academic performance (Crocker, Karpinski, Quinn, & Chase, 2003). Further, the perception of stressful situations between males and females appears to differ (Misra, McKean, West & Russo, 2000). The aim of this study was to determine whether physical and psychological functioning changed over the course of a university semester. Further, the study sought to determine the role of these variables and participation in exercise on academic performance by male and female university students.

Main Text

Studying at university is considered to be a chronic stressful experience due to the pressure on students to perform and succeed. When the university experience is perceived by a student as negative, motivation to perform and academic results can be adversely effected (Amirkhan, 1998; Struthers, Perry & Menec, 2000). There is conflict in the literature as to the consequences of exercise on cognitive and affective functioning (Le Unes & Nation, 1996).

Research with university students found that male participants reported a lower number of academic stressors than those indicated by females (Misra et al., 2000). Further, female students have reported more stressful incidents in their lives and perceive they experience a higher number of stressors in an academic environment (McDonough & Walters, 2001). A higher level of exposure to stressful situations by women than men is described as the Differential Exposure hypothesis (Roxburgh, 1996). This theory argues that it is the greater level of exposure by women that results in them experiencing higher levels of stress. In contrast, the Differential Vulnerability hypothesis argues that it is a tendency by women to view situations as being more stressful that underlies the gender difference (McDonough & Walters, 2001).

The present investigation was an attempt to assess gender related differences in perceived stress and academic performance in university students. The effects of participation in exercise on academic outcomes were explored using a longitudinal design.

First, second, and third year university students (N=382) completed the SF-36 (Ware, Kosinski & Keller, 1995), Health Locus of Control Scale (Wallston & Wallston, 1978) and Symptom Checklist-90-revised (SCL-90-R) (Derogatis, 1992) in weeks 1-3 (Time 1, T1) and 10-12 (Time 2, T2) of a university semester. Student's responses were considered in relation to their academic performance. Univariate and multivariate tests were used to analyse the data, including Discriminant Function Analysis to determine whether academic performance differentiated the physical and psychological variables.

Male participants reported higher levels of vitality, physical functioning, and mental health than female participants at T1 and T2 ($p < 0.05$). Reported psychological symptomatology was higher in females for interpersonal sensitivity, psychoticism, paranoid ideation, and hostility ($p < 0.05$). Such differences may be accounted by a willingness of women to report experiences of distress. It may also be due to real variations in experiences (Caltabiano & Sarafino, 2002).

Perceived stress at the end of semester significantly differed between female and male students ($\chi^2 = 6.04$, $df = 2$, $p < 0.05$). 52.9% of female students described feeling 'stressed' or 'highly stressed' compared with 42.4% of male students. In contrast 30.5% of male students described themselves as 'slightly' or 'not at all' stressed compared with 14.4% of female students. This finding provides further support for females reporting a perception of higher levels of stress than males (Caltabiano & Sarafino, 2002).

Females who did not exercise regularly were 1.99 times more likely to pass their university subject than females who did exercise regularly. In contrast, males who regularly exercised were as likely to pass their university subject as those who did not regularly exercise. Despite reporting better physical and psychological functioning, males ($M = 57.94 \pm 13.12$) achieved significantly lower academic results than female participants ($M = 65.10 \pm 13.14$) ($F_{1, 303} = 20.94$, $p < 0.001$; $\eta^2 = 0.07$, $d = 0.99$).

Participants were classified according to their academic performance (high distinction/distinction $n = 27$; credit $n = 40$; pass $n = 49$; fail/cancel subject $n = 13$). For female participants, one significant function explained 66.9% of the variance to discriminate physical characteristics according to academic performance. The important variables were general health and bodily pain. Therefore, female participants who had better general health and reported more bodily pain achieved higher levels of academic performance. Greater bodily pain may be associated with greater exercise levels and normal soreness from exercise. Higher academic performance for individuals with better general health has been found in other university populations (Chemers, Hu, & Garcia, 2001).

One significant function explained 87.5% of the variance for male participants to discriminate psychological characteristics according to academic performance. The important variable was control on the Health Locus of Control Scale. Therefore, male participants who had a greater sense of control over their health achieved higher levels of academic performance.

Conclusions

The current research indicated that whilst males reported better physical and psychological functioning than females, this did not translate to better academic performance. Female participants reported experiencing higher levels of stress in comparison with male participants. Further research needs to further explore the mechanisms underlying differences in male and female perceptions of stress. Academic performance was better for female participants not involved in regular exercise. Higher academic performance was best discriminated by general health and bodily pain in females and feeling in control of health by males.

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