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Keywords

Dysphoria, Mild depression, Gender, Academic performance, Female students

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Sex, Affect, and Academic Performance: It's Not What You Think

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Abstract

The academic impact of serious depression among college students is beginning to receive increased attention in the research literature. In contrast, we know very little about the affect of mild depression, or dysphoria, on academic performance. This study examines the relationship of baseline dysphoria in 188 students to five measures of academic performance following baseline. Results suggest that even mild dysphoria is associated with poorer academic performance among, paradoxically, academically stronger female students. We discuss the importance of attending to this group of students who are often overlooked because they are relatively high achievers, but who may benefit from short-term, low-level intervention.

Introduction

The sociodemographics of students entering higher education have changed substantially over the last two decades (Schuetze & Slowey, 2002). Today's students are more likely to include females, older individuals, a broader range of socioeconomic backgrounds, returning students, and those with histories of significant psychological difficulties. Much of the recent literature has focused on what are thought to be unique characteristics and pedagogical needs of various sociodemographic groups, such as "non-traditional" (Schuetze & Slowey, 2002) and psychiatrically vulnerable students (Beamish, 2005).

Our interest is in the vast majority of students who are not targeted as in need of special pedagogical, educational, or clinical attention, but for whom issues of emotional well-being may be relevant to academic performance and success. We know that mild depression (or dysphoria) can negatively affect cognitive performance and social relationships among college students. Rokke et al. (2002), for example, reported that dysphoric students performed more poorly than non-dysphoric students on a high-demand attentional task but not on a simpler, low-demand task. Students with dysphoria have been reported to be sensitive to negative affect in priming tasks

(Bradley et al, 1996), to report poor interpersonal problem-solving skills (Berndt & Berndt, 1980), to misperceive hostility and friendliness in roommates (Hokanson et al., 1991), and to be at greater risk for negative life events than non-dysphoric students (Lackey et al., 1993). These studies suggest that, even in the absence of clinically significant symptoms, mild depression or dysphoric mood may be accompanied by subtle impairments in information processing, mood regulation and interpersonal relationships that could interfere with academic performance. These types of studies, generally cross-sectional and restricted to performance on experimental tasks, typically lack detailed examination of actual academic performance.

Such a perspective also demands attention to sex differences for at least three reasons. First, there is evidence that female students may be more susceptible than male students to the negative consequences of "fear of success" (or "fear of failure"; see Leitenberg, 1990; Rothblum & Cole, 1988). Such motivational differences between the sexes could lead to differences in academic performance and, more specifically, to female students "underperforming" their male counterparts. Second, sex differences in the frequency and intensity of depressed moods have been well documented, with women generally the more frequently depressed sex (Nolen-Hoeksema, 2001). Dysphoric affect is a more salient emotional motivation for women than for men. Third, women make up an increasingly large proportion of the undergraduate population (Goldin et al, 2006).

The study reported here focuses on the relationship between mild depression and academic performance over time in a sample of undergraduate students. We address two basic questions in this study: What is the relationship between mild depression and academic performance? How does this relationship differ by sex?

Methods

Participants

We followed up two samples of undergraduates attending a public, urban university who had participated as comparison groups for earlier studies of psychiatric disorder (Lewine, 2005; Lewine & Shriner, 2009). The university serves approximately 15,000 largely in-state students, both traditional and non-traditional. We recruited the original participants through Introductory Psychology courses between 2003 and 2007 and *coded academic transcripts during spring term 2009*. The students earned extra credit in their Introductory Psychology course for research participation.

All aspects of the study were reviewed and approved by the local *Internal Review Board*. The senior author (RL), a licensed clinical psychologist with 30 years of experience, personally interviewed all students in the original studies who scored in the moderate to severe range on the Beck Depression Inventory (see below). We did this to ensure that students were either receiving appropriate clinical care or would be given a referral if necessary. None of the students required emergency services and no adverse clinical events were experienced.

To ensure complete anonymity of the final database that incorporated both clinical and academic information, a random coding system was used. Once the database was complete and anonymized, the coding system was destroyed making it virtually impossible to identify individuals. Neither the raw data nor results of data analysis were incorporated into student files or records.

Of the 216 undergraduates who participated in the original studies, we lost 23 due to unavailable data. To reduce confounding variables such as age, employment status, parenthood, and previous college experience, we limited this data analysis to those students ($n = 161$) who matriculated

during the original study period (2003-2007). This also yielded a sample of predominantly first year students (68% of the sample) at the time of depression assessment. Finally, omitting those students with depression scores in the moderate to severe range yielded a final sample of 42 male and 108 female students.

Measures

Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). This self-report instrument is a 21-item, self-report questionnaire that measures the severity of depression. Scores range from 0-63. The BDI-II has been consistently demonstrated to be a reliable and valid measure of depression.

Academic performance. We used students' academic transcripts to generate the following indices of academic performance: cumulative GPA, number of failed courses, number of repeated courses, and number of courses from which the student withdrew. The four academic measures correlated significantly with each other, but across all pairwise correlations accounted for an average of 17.6% of the variance among variables. We therefore chose to analyze each academic measure separately.

Procedures: The BDI-II was administered 2-6 years before the coding of academic indices. The distribution of students by time between depression assessment (BDI-II) and calculation and coding of the academic performance measures for the sample was: 6 years $n = 17(10.6\%)$, 5 years $n = 49(30.4\%)$, 4 years $n = 59(36.6\%)$, 3 years $n = 34(21.1\%)$, and 2 years $n = 2(1.2\%)$. We used published clinical cut-scores (Beck et al, 1996) to eliminate students reporting depression that reached clinically significant levels. Of 118 women, 4 (3.4%) had severe depression and 6 (5.1%) had moderate depression; of 43 men, 1 (2.3%) had moderate depression. These students were dropped from this analysis.

All academic variables were calculated on the basis of cumulative performance by the end of spring term 2009. For example, GPA was the cumulative GPA for each student over all courses taken during the student's enrollment for the study period. As indicated above, this analysis focused on those students who matriculated to the university for the first time during the study period.

Findings

Sample characteristics. Female and male students did not differ significantly in mean age (20.6 versus 20.0), mean BDI (7.5 versus 6.9), mean number of failed courses (1.6 versus 2.2), or mean number of repeated courses (.5 versus .6). Women did have a statistically higher mean GPA (3.0 versus 2.6, $t_{148} = 2.141$, $p = .034$) and a lower mean number of withdrawn courses (1.9 versus 3.4, $t_{148} = -2.683$, $p = .008$). In addition, the percent of students who had graduated at the time of the study was slightly higher for women (29.8%) than for men (23.2%; n.s.). Distribution of race for women and men was similar: 72.2% of women and 69.0% of men were White; 19.4% and 16.7% were African-American, and the remainder were Asian, Hispanic/Latino, or Other.

Academic performance and dysphoria. Table 1 summarizes the first-order bivariate correlations between the BDI and academic performance measures separately for women and men.

Table 1. Correlation between BDI score and academic indices

	Female Students	Male Students
GPA	-0.14	0.12
Number of failed courses	0.16	-0.08

Number of repeated courses	0.10	-0.03
Number of withdrawn courses	0.07	-0.12

None of the correlations reached conventional levels of statistical significance, although an interesting difference in the pattern of correlations emerged, suggesting that the dysphoria-academic performance relationship was opposite in men and women.

We conducted a further, *post-hoc* analysis to explore the possible moderating effect of "student academic quality". The rationale for this analysis emerged from an impression developed over several years of teaching that better female students are both the more invested in their academic performance and more affected by challenging classroom practices (such as critical thinking exercises) than males or lower-performing females. To pursue this reasoning empirically, we divided the sample into "better" (GPA > 3.0) and "poorer" (GPA ≤ 3.0) performing students and re-ran the bivariate correlations. Table 2 summarizes the results.

Table 2. Correlation between BDI score and academic performance indices by sex and academic performance

	Female	Students	Male	Students
	GPA > 3.0	GPA ≤ 3.0	GPA > 3.0	GPA ≤ 3.0
GPA	-0.3	0.01	0.24	0.08
Failed courses	0.03	0.23	-0.17	-0.06
Repeated courses	-0.15	0.27	-0.18	0.05
Withdrawn courses	0.26	-0.2	-0.18	-0.12

Two findings should be noted. First, statistically significant correlations obtained among the better female students: BDI scores were significantly negatively correlated with GPA and positively correlated with number of withdrawn courses. Second, of the remaining 12 correlations for low performing male and female students, and high performing male students, 10 were in the opposite direction of those among high performing female students.

Differences in constrictions of BDI score range between the better and poorer students did not account for these results. The BDI score ranges were: 3-18, 3-18, 3-19, and 3-19 for better performing females, poorer performing females, better performing males and poorer performing males, respectively. The differences in mean BDI scores among the four groups were not statistically significant: 7.1, 7.9, 7.3, and 6.9. Further, dividing students into better and worse academic performers constricted the GPA scores that should have reduced, not enhanced, the magnitude of the correlations.

We conducted further post hoc tests to test the stability of the negative correlation between GPA and BDI in the academically stronger sample of women. The part correlation between GPA and BDI, controlling for duration between the time of assessing the two measures was -.42 ($p < .0001$). Including female students who matriculated before 2003 resulted in a correlation of -.40 ($p < .0001$). The correlations for the other student subgroups were almost identical to the original values. Finally, calculating the GPA-BDI correlation and part correlation for only stronger academic female students matriculating before 2003 yielded values of -.30 ($p = .11$) and -.35 ($p = .07$). These values are comparable to those in the more recently matriculating female students, but not as statistically significant because of reduced sample size ($n = 7$ vs 68 in recently matriculated students).

Discussion

There were no sex differences in either frequency or intensity of dysphoria at the mild levels of depression examined in this study. As observed by others (Sax & Harper, 2005), our results show that female undergraduates appear to be outperforming their male peers, at least as reflected in their higher average GPA and lower number of withdrawals from courses. Sex and level of academic performance emerged as strong moderators of the relationship between dysphoria and academic performance indices, although graduation rates did not differ by sex.

Specifically, among the better academic female students, dysphoria was negatively correlated with cumulative GPA and positively with number of course withdrawals. Just as importantly, we note that of the 12 correlations between dysphoria and academic indices among the other three groups (poorer performing females and both male groups), 10 were in the opposite direction to those of the better performing females. This suggests a unique pattern for the academically stronger female students.

It is important to recall that dysphoria was measured at baseline in a class normally taken during a student's first thirty hours (68% of the students in our study were freshmen at the time of their participation) and that academic performance measures represented cumulative behavior over a two- to six-year period following baseline. At the time of dysphoria assessment, the students had received from two to 12 semesters of course grades. Time between dysphoria assessment and transcript coding do not affect our findings. Thus, it is tempting to infer that dysphoria at the beginning of college among academically stronger female students, may affect academic achievement even if it does not impede graduation. We can also make the opposite case: that the better female students experience dysphoria as their initial academic performance falls below their expected high levels. This would be consistent with the report that women value a college education more highly than do men (Sax & Harper, 2005). Valuing education more highly, female students might be more negatively affected by "poorer" early performance. And finally, of course, some third variable, such as interpersonal relationships may lead to both dysphoria and lower academic performance.

As one possibility, we note that the results of our study are consistent with a literature that suggests female college students are particularly susceptible to "fear of failure" (Golden, 1988; Rothblum & Cole, 1988; Rothblum, 1990; Yuen & Depper, 1987). As suggested by Golden (1988), female students' fear of failure is expressed in two primary domains: academic or intellectual performance and interpersonal relationships. Female students, according to Golden, fear looking "stupid, unintelligent". This view holds that the fear of failure motivation often results in procrastination and as a consequence decreased academic performance. The results of our study suggest that this motivation may be especially salient among higher academically performing females who may be more invested, and hence have more to lose in failure, than do the poorer performing female students. From this perspective, level of academic performance may moderate women's fear of failure and its impact on college career.

In contrast to the fear of failure studies, there is a more substantial literature on female students' "fear of success" (see Leitenberg, 1990), a view that women are reluctant to appear too intelligent and therefore restrict their performance. This seems less relevant to our findings on two counts. The academic indices (GPA, withdrawals, failures, and repeats) used in this study are not public and not as likely to be as influenced as academic performance in a social context, such as asking questions in class. If the fear is of success,

then having a lower than expected grade should reduce rather than increase dysphoric mood as the feared outcome is avoided.

The important conclusion, we believe, is that for a subgroup of better performing female students, academic performance and mood appear to be related, a relationship that deserves further study.

But why bother? After all, this subgroup of young women is “doing well” and getting their degrees. Perhaps the modest relationship between dysphoria and academic performance in this group of students is simply part of the “college experience”. Who has not felt depressed sometime in college? In response to this position, we counter by suggesting that education is about far more than mere graduation and that there may be subtle effects in the form of lower self-esteem and impact on goals and expectations for the future, such as whether or not to apply to graduate school or compete for a selective internship or job. We would further emphasize that this particular group of high performing female students is very likely to be overlooked by student services and faculty since they are doing well, as judged by the usual markers of academic warning, probation status and withdrawal. As suggested by Kalsbeek (cited in Hoover, 2008), our “obsession with outliers” (those students with more obviously severe emotional problems deleted from our study) may lead us to overlook milder problems in other students that might yield even higher social dividends at the price of rather modest intervention.

How might this look in practice? Consider a student who is perfectionistic, a so-called “good girl” (Simmons, 2009). While appearing to be competent, autonomous and admirably in control, such a student may experience an intense need for achievement that exacts a heavy toll: test-taking anxiety, avoidance of risk, rigid problem-solving strategies, lack of resilience and self-defeating beliefs (Cohen-Sandler, 2005). The prototypical good girl’s need for perfection makes it particularly difficult to cope with challenge or failure and to accept feedback without shame and threat to sense of self. These students, especially, could be expected to react with dysphoria when their high achievement falters, even though the “failure” might appear minor to others. (We should note again that by the time of our study all of the students would have received course grade reports for at least two semesters.) An insightful and empathic encounter with an instructor or an advisor who can address this set of issues could make a significant difference in the student’s eventual success.

This should not be interpreted as suggesting that serious problems do not deserve our attention, but rather that less serious problems that might respond very well to rapid or minimal intervention should not be overlooked. These possible sex-related differences in mood and academic performance gain further importance as it is predicted that by 2019 women will make up 59% of the undergraduate population in the United States and 61% of the graduate students (Schmidt, 2010).

While these results are interesting, we are faced with restrictions in this initial study: students were self-selected from Introductory Psychology classes, we did not include anxiety assessments, and we failed to conduct in-person follow up assessments of attitudes toward academic performance with students to address some of the possible mechanisms that might underlie the relationship between dysphoria and academic performance and to account for why this relationship appeared to be restricted to the academically better female students. Finally, we have chosen not to pursue statistical strategies such as structural equation modeling as we view our study and data as in an early, pre-theoretical stage. Nonetheless, we believe that our findings, in all their limitations, point in a direction that has been largely overlooked in the past, but that could yield substantial individual and social benefits in the future.

We close with the recommendation that we add to our pedagogical responsibilities some attention to those who may be less dramatically distressed (Hoover, 2008), but who may benefit from some mild intervention or support. Students who do receive decent grades in class are not generally viewed as in need. They are, after all, well on the way toward graduation, tend not to create difficulties and our current emphasis on retention and persistence directs our attention elsewhere. While we cannot determine, without further study, the cause-effect relationship between mood and poorer academic performance and its longer-term effects among academically stronger female students, it may be helpful to initiate mild inquiries in everyday advising and teaching. To assume that a student is fine because she is earning As and Bs may be to miss an opportunity to explore the student's attitudes about grades and academic performance and/or provide appropriate encouragement, support and referral. This group of students may find it difficult, embarrassing, or even inappropriate to volunteer their emotional needs related to academic performance. We will never know if we do not we ask.

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