Understanding Mood and Anxiety Disorders: Differences in
Predictability and Risk Factors of Depression and Trait Anxiety

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Abstract

The similarities and common comorbidity of mood and anxiety disorders commonly contributes to an argument of how the disorders should be diagnosed and treated. A regression model was run using either depression or trait anxiety as the criterion. A total of 650 self-report questionnaires were mailed to students from two Midwestern Universities and three Midwestern Community Colleges, who expressed interest in participating in the study. A total of 405 students completed and returned the questionnaires. A comparison of the fit of the model for the depression and anxiety showed no differences between the criterion, however, structural differences were discovered after further analysis. Socioeconomic status, loneliness, and stress predict depression and socioeconomic status, loneliness, stress, and social desirability predict anxiety. Socioeconomic status made a greater contribution to the anxiety model than the depression model and social desirability only contributed to the anxiety model. The results of the study are important for practitioners regarding diagnosis and treatment of disorders and relevant to the decision of categorization and potential combination of the disorders.
Understanding Mood and Anxiety Disorders: Differences in Predictability and Risk Factors of Depression and Trait Anxiety

Mood and anxiety disorders are very similar disorders that have a significant impact on the diagnosed individual’s life (e.g., trouble concentrating, irritability, loss of interest, weight loss, dysfunction in daily life; Brieler, Scherrer, & Salas, 2015). Anxiety and depression have shared risk factors that contribute to comorbid diagnoses (Cummings, Caporino, & Kendall, 2013). Despite the similarities, mood and anxiety disorders are classified under different categories in DSM-5. This has led to a debate on how the disorders should be categorized and diagnosed, with some arguing they should be classified together and others arguing it is best to keep them separated (Waszczuk, Zavos, Gregory, & Eley, 2014). The co-occurring symptomology has led to the introduction of a new diagnostic category in DSM-5. Mixed anxiety depression is a diagnosis for individuals who display both anxious and depressive symptoms. The new diagnosis concerns practitioners (Batelaan, Spijker, de Graaf, & Cuijpers, 2012). Combining the two disorders or keeping them separated may have an impact on the treatment and course of the disorder and may neglect important characteristics of each disorder (Malhi & Henderson, 2013). Although the two disorders are commonly linked, there are distinct differences that cannot be ignored that also require additional research (Brady & Kendall, 1992).

The purpose of this study is to compare possible structural differences in a predictive model of depression and anxiety and consider the possibility of requiring different models to predict each disorder. The study will analyze correlations between the predictors and the criterion and two multiple regression models that use gender, socioeconomic status, financial dependency from parents, loneliness, total social support, social desirability, and stress as predictors for depression.
and anxiety separately. The two regression models will be compared to determine if there are structural differences.

Previous research has found strong links between the predictor variables and the criterion, suggesting these variables are potential risk factors for the development of mood and anxiety disorders. According to the American Psychological Association, women are two times more likely to suffer from depression than men and are more likely to have a co-occurring diagnosis (Mazure, Keita, & Blehar, 2002). Gender is related to depressive disorders but not anxiety disorders in certain age groups, females age 14 to 19 had a higher incidence of depressive disorder than males but there was no significant difference between gender and anxiety disorders. From age 20 to before menopause females tended to have higher depression and anxiety. After menopause, no significant difference between genders was found (Faravelli, Scarpato, Castellini, & Lo Sauro, 2013). Another study found similar results with a higher prevalence of atypical depression in women in the Netherlands (Schuch, Roest, Nolen, Penninx, & de Jonge, 2014). Studies have found that living in low-income neighborhoods increases the risk of mood and anxiety disorders in children. Low socioeconomic status has often been documented as a risk factor for mental health for people of all ages. Anxiety and depression are more common in individuals who are low-income and have low education. Children in low socioeconomic status schools had a greater risk for depression than children in high socioeconomic status schools. However, the risk for anxiety did not differ between the schools (Farrell, Sijbenga, & Barrett, 2009). A study on socioeconomic status and depression found that financial dependence had a strong relationship with depression (Eaton, Muntaner, Bovasso, & Smith, 2001). Another study shows that individuals diagnosed with a social phobia find financial independency harder to achieve (Heimberg, 1995).
Loneliness has been found to be an important predictor in both depression and anxiety (Chang, 2013). Some have found that anxiety tends to influence an individual’s chosen isolation and lead to feelings of loneliness. Loneliness is a risk factor for depression, suggesting loneliness is a mediator between anxiety and depression and may contribute to understanding comorbidity. There was a strong link between the three variables in the study (Ebesutani et al., 2015). Lower levels of social support tend to have a link to depressive symptoms (Barnett & Gotlib, 1988). Low social support is also related to psychological distress and anxiety (Lindfors, Ojanen, Jääskeläinen, & Kneckt, 2014). Strong correlations have been found between depression, anxiety, and social desirability (Connell & Meyer, 1991). Previous research has also found a significant positive correlation between depression, anxiety, and stress in college students (Beiter, Scherrer, & Salas, 2015).

Considering previous research, we expect that gender will contribute to the depression model but will not contribute to the anxiety model since 42.2% of the participants in the study were ages 18 and 19. Socioeconomic status is expected to contribute to the depression model but not the anxiety model. We expect financial dependence to contribute to both the depression model and the anxiety model, but to make a relatively larger contribution to the anxiety model. We hypothesize that loneliness will contribute to both models equally. Total social support is expected to contribute to both models equally. We expect social desirability to contribute to both models equally well. We expect an equal contribution from stress in both models. Due to the correlation and comorbidity of depression and anxiety from previous research, we hypothesize that the model will work equally well for both depression and anxiety. Finally, we expect structural differences in each model due to key differences in anxiety disorders and anxious symptoms commonly found in depression (Goldberg, 2013).
Method

Participants

A total of 405 students from two large Midwestern Universities and three large Midwestern Community Colleges participated in this study. The gender composition of the participants was 225 (55.6%) females and 180 (44.4%) males and 94.1% of the participants were European American, 1.5% were Black American, 1.0% were Asian American, 1.0% were Native American, 0.7% were Latino, and the remaining 1.7% were classified as other. The mean age was 28 years with a range from 18 to 62 ($SD = 10.885$).

Materials

Participants completed a self-report questionnaire that included demographic questions regarding gender, socioeconomic status, and financial dependency. Six additional questionnaires were included. The Revised UCLA Loneliness Scale is a 20-item scale that measured loneliness with higher scores indicating higher levels of loneliness (Russell, Peplau, & Cutrona, 1980). The Multidimensional Scale of Perceived Social Support consisted of 12 items that measured the participants perceived levels of social support with higher scores indicating greater social support (Zimet, Dahlem, Zimet, & Farley, 1988). The Marlowe-Crowne Scale of Social Desirability is a 33-item scale designed to measure the desire to appear socially acceptable by respondents; higher scores represented more desire for social acceptability (Crowne & Marlowe, 1960). The Life Experiences Survey consists of 57 items that measure the level of life stress the individual has experienced in the past year with higher scores representing higher levels of life stress (Sarason, Johnson, & Siegel, 1978). Depression was measured using the Beck Depression Inventory, which consisted of 21 items that represent the presence and intensity of depressive symptoms in adults with higher scores indicating higher levels of depression (Beck, 1967). The
State-Trait Anxiety Inventory is a 40-item measure that assesses state and trait anxiety, the trait anxiety questions were used in his analysis with higher scores representing more trait anxiety (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983).

**Procedure**

Promotional sheets were posted near Introductory Psychology classrooms at three Midwestern Universities and two Midwestern Community Colleges. Those who expressed interest in participating in the study were mailed a set of self-report questionnaires. A total of 650 questionnaires were mailed and 405 were returned.

**Results**

Table 1 shows the univariate statistics of each variable and Table 2 shows the correlation of each variable with the criterion depression and trait anxiety. Socioeconomic status, total social support and social desirability were negatively correlated with each criterion, such that higher values of socioeconomic status, total social support and social desirability tend to be associated with lower levels of depression and trait anxiety. Loneliness and stress are positively related to each criterion, such that higher values of loneliness and stress are associated with higher depression and trait anxiety.

Separate regression analyses were run using gender, socioeconomic status, financial dependence, loneliness, total social support, social desirability, and stress to predict the two criterion variables depression and trait anxiety. Table 2 shows the multiple regression weights for the models of the two criterion variables.

The depression model had an $R^2=0.554$, $F(7, 397)=70.461$, $p<0.001$, with socioeconomic status, loneliness, and stress having significant regression weights and socioeconomic status seeming to have the major contribution. Loneliness and stress had significant positive regression
weights, indicating depression is expected to increase by 0.094 for each 1-unit increase in loneliness and 0.218 for each 1-unit increase in stress, after controlling for other variables in the model. Socioeconomic status had a significant negative regression weight, indicating depression is expected to decrease by 0.553 for each 1-unit increase in socioeconomic status, after controlling for other variables in the model. Total social support and social desirability did not contribute after controlling for all other variables in model due to colinearity with other predictors. Gender and financial dependence did not contribute to the model, after controlling for all other variables in the model.

The trait anxiety model had an $R^2=0.598$, $F(7, 397)=84.480$, $p<0.001$, with socioeconomic status, loneliness, social desirability, and stress having significant regression weights and socioeconomic status and having the major contribution. Loneliness and stress had significantly positive regression weights, indicating that trait anxiety is expected to increase by 0.151 for every 1-unit increase in loneliness and 0.188 for every 1-unit increase in stress, after controlling for all other variables in the model. Socioeconomic status and social desirability had negative regression weights, indicating trait anxiety is expected to decrease by 0.975 for every 1-unit increase in socioeconomic status and 0.306 for every 1-unit increase in social desirability, after controlling for all other variables in the model. Total social support did not contribute to the model after controlling for all other variables due to colinearity with other predictors. Gender and financial dependence did not contribute to the model, after controlling for all other variables in the model.

A comparison of the structure of the models for the two criterion variables was also conducted by applying the model derived from depression to trait anxiety and comparing the resulting “crossed” $R^2$ with the “direct” $R^2$ originally obtained for this criterion. As hypothesized,
the direct $R^2=0.554$ and crossed $R^2=0.527$ were significantly different, $Z=2.447$, $p=0.015$, which indicates that the apparent differential structure of the regression weights derived for the two criteria described above warrants further interpretation and investigation. Further analyses revealed that socioeconomic status and social desirability have a different regression weight between the two criterion ($Z=4.321$, $p<0.001$; $Z=3.219$, $p=0.001$, respectively). Contrary to the hypothesis, socioeconomic status had a greater contribution to trait anxiety than depression and social desirability only contributes to trait anxiety. As hypothesized, loneliness and stress had an equivalent contribution between the two criterion ($Z=0.135$, $p=0.256$; $Z=0.535$, $p=0.592$, respectively). Contrary to the hypotheses, gender, financial dependence, and total social support have equivalent regression weights between the two criterion ($Z=0.721$, $p=0.471$; $Z=1.067$, $p=0.286$; $Z=0.432$, $p=0.666$, respectively).

Discussion

The results of these analyses show support for some of the research hypotheses. Three of the research hypotheses were partially supported. Gender and socioeconomic status were expected to contribute to depression but not anxiety. Gender contributed to neither model and socioeconomic status contributed to both models and contributed more to anxiety. Social desirability was expected to contribute to both models equally but only contributed to anxiety. Two hypotheses were not supported. Financial dependency and total social support were expected to contribute to both models but contributed to neither model. The remaining hypotheses were fully supported. Loneliness and stress were expected to contribute equally to both models and did. As hypothesized, the models predicted depression equally well but have structural differences, although not completely in the hypothesized direction for some variables.
The data for this study found that gender did not have a significant contribution to either model, which is inconsistent with previous research. However, Walton and Politano (2014) study found women did not have a greater degree of depression nor anxiety than men, amongst pilots. Gender and mood and anxiety disorders must be studied further due to conflicting results across multiple studies (Schuch et al., 2014). Faravelli et al. (2013) found a higher risk for affective disorders in women before menopause, after menopause there was no significant difference in gender, suggesting age and development are important factors to consider when determining risk for these disorders. There may be important mediating factors in the relationship between gender and mood and anxiety disorders. The results from the study by Farrell et al. (2009) were not replicated here probably due to the differences in populations. Salami and Walker (2013) found socioeconomic status contributes to both anxiety and depression in black American college students, but a very small percentage of participants in the current study were black American. As with gender, there may be mediating factors between socioeconomic status and the criterion as well. Financial dependence did not contribute to the criterion as predicted. Eaton et al. (2001) found a relationship between financial dependence and depression. Another source finds that having social phobia could lead to being unable to be financially independent (Heimberg, 1995). The differences in the present data and previous research require additional research. Financial dependency may have different impacts on students in consideration of demographic information.

The regression analysis with loneliness and stress were consistent with the hypotheses and previous research (Chang, 2013; Ebesutani et al., 2015; Beiter et al., 2015). Total social support was correlated with both of the variables and this finding is consistent with the research (Barnett & Gotlib, 1988; Lindfors et al., 2014). The analysis of the regression model suggests
that collinearity with other variables in the model accounts for no significant contribution of total social support to the criterion. Social support may be accounted for in the model by loneliness and social desirability. Social desirability in this study is a representation of how much the individual desires to be socially acceptable. Social desirability was correlated with both criterion, which was consistent with previous research (Connell & Meyer, 1991). However, it only contributed to the anxiety model. The differences might be due to a greater likelihood to worry, being anxious, than being depressed when desiring social acceptance. Stress in the study represented stressful life events that took place in the last year. Stress contributed to both models, which is consistent with previous research (Beiter et al., 2015). Trait anxiety is a representation of the individual’s tendency to react anxiously to stressful situations. A predisposition to anxiety and exposure to stressful situations may contribute to the development of an anxiety disorder. A similar process may explain the relationship between stress and depression as well.

Future research should assess different populations. Though the present research had a large sample size, there was little diversity in the sample. The racial composition of this study is not an accurate representation of the rest of the country. Further research should include a more representative sample in order to achieve greater generalizability. These findings relate to European American college students, a very specific population. The differences in previous research and the current study emphasize the importance of a representative sample. However, studying specific populations may be beneficial for studying efficacy of treatment. Further research may also consider additional variables to account for more variance in the models and to consider other risk factors for depression and anxiety.

The results of the current study are important for practitioners in understanding the differences between mood or anxiety disorders. The presented models show differences in
structures for predicting depression and anxiety. The variables that contribute more to one disorder over the other suggest which risk factors and predictors more important to address in treatment. These variables could be prioritized to make treatment more efficient and specialized for the different disorders. Practitioners should note that the desire to be socially acceptable is of greater importance to anxiety than depression. Although socioeconomic status is not a variable the practitioner has control over, a focus on coping with the anxiety from being in a stressful economic situation should be greater in the treatment of anxiety than depression. The results are also valuable in determining how the disorders should be categorized. The findings emphasize the importance of separate diagnoses and the consideration of both disorders separately, but also require further research on determining other differences in models after accounting for different variables.
References


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<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std</th>
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<td>Depression</td>
<td>7.45</td>
<td>6.544</td>
</tr>
<tr>
<td>Trait Anxiety</td>
<td>38.83</td>
<td>9.909</td>
</tr>
<tr>
<td>Gender(^1)</td>
<td>1.56</td>
<td>0.498</td>
</tr>
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<td>Socioeconomic status</td>
<td>33.30</td>
<td>5.229</td>
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<tr>
<td>Financial dependence(^2)</td>
<td>1.50</td>
<td>0.506</td>
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<tr>
<td>Loneliness</td>
<td>37.21</td>
<td>11.377</td>
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<td>Total social support</td>
<td>5.62</td>
<td>1.182</td>
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<td>Social desirability</td>
<td>15.64</td>
<td>5.281</td>
</tr>
<tr>
<td>Stress</td>
<td>8.70</td>
<td>7.448</td>
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</table>

\(^1\) coded as 1=male and 2=female  
\(^2\) coded as 1=yes and 2=no
Table 2  Correlations and multiple regression weights from criterion depression and trait anxiety

<table>
<thead>
<tr>
<th>Variable</th>
<th>r</th>
<th>b</th>
<th>β</th>
<th>r</th>
<th>b</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender¹</td>
<td>0.055</td>
<td>0.530</td>
<td>0.040</td>
<td>0.018</td>
<td>-0.041</td>
<td>-0.002</td>
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<tr>
<td>Socioeconomic status</td>
<td>-0.677***</td>
<td>-0.553***</td>
<td>-0.441</td>
<td>-0.725***</td>
<td>-0.975***</td>
<td>-0.515</td>
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<tr>
<td>Financial dependence²</td>
<td>-0.096</td>
<td>-0.817</td>
<td>-0.063</td>
<td>-0.055</td>
<td>0.033</td>
<td>0.002</td>
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<tr>
<td>Loneliness</td>
<td>0.537***</td>
<td>0.094**</td>
<td>0.164</td>
<td>0.554***</td>
<td>0.151***</td>
<td>0.174</td>
</tr>
<tr>
<td>Total social support</td>
<td>-0.369***</td>
<td>-0.395</td>
<td>-0.071</td>
<td>-0.355***</td>
<td>-0.209</td>
<td>0.025</td>
</tr>
<tr>
<td>Social desirability</td>
<td>-0.258***</td>
<td>-0.056</td>
<td>-0.045</td>
<td>-0.369***</td>
<td>-0.306***</td>
<td>-0.163</td>
</tr>
<tr>
<td>Stress</td>
<td>0.487***</td>
<td>0.218***</td>
<td>0.248</td>
<td>0.421***</td>
<td>0.188***</td>
<td>0.141</td>
</tr>
</tbody>
</table>

*p<0.05  **p<0.01  ***p<0.001  
¹ coded as 1=male and 2=female  
² coded as 1=yes and 2=no