Abstract

The present research examined the contributions of risk and protective factors, constituting personal resources, to adjustment and academic achievement of college students. An additional aim was to investigate gender differences and the contribution of gender to college adjustment.

We studied three groups of students: those with learning disabilities (LD) only; students with LD and comorbid ADHD (comorbidity group); and students with typical development (comparison group).

Personal resources of an emotional nature that we examined were sense of coherence (SOC), perceived social support and test anxiety. We also studied cognitive factors: difficulties in executive functions (EF) and learning strategies. High scores on SOC, perceived social support and learning strategies were considered protective factors, while high scores on test anxiety and EF difficulties were considered risk factors.

The measures of adjustment (dependent variables) were perceived academic, social and personal-emotional adjustment as well as self-reported academic achievement.

The research sample included 271 undergraduate college and university students in Israel, 172 (63%) of them female.

To test the research hypotheses, we performed analyses of covariance (ANCOVA), calculated correlations among variables and tested two statistical models of the results by means of Structural Equation Modeling (SEM).

Analysis of covariance of the group differences, controlling for socioeconomic status, indicated that on the measures of test anxiety, EF difficulties and personal-emotional adjustment, the lowest level of functioning was found among students with both LD and comorbid ADHD. Students in the LD only group functioned at a somewhat higher level, while students with typical development showed the highest level of functioning. These findings were consistent with the research hypotheses.

However, ANCOVAs indicated that there were no significant group differences between the LD and the typical group in the following: the independent variables SOC and perceived social support, and the dependent variables of academic adjustment, social adjustment, and academic achievement. Nevertheless, there were significant differences between the comorbidity group and the comparison group for these same variables: the comorbidity group showed poorer functioning than the students with typical development, and for some variables the comorbidity group showed poorer functioning than the LD only group.

A different pattern of group differences emerged regarding learning strategies. Students with typical development reported a higher level of strategy use than the LD only group, but there were no significant differences between the comorbidity group and the typical student group. This last finding was inconsistent with the research hypotheses.

Consistent with previous research, female students had higher levels of test anxiety and higher levels of perceived social support as compared to males. There were no interaction effects between gender and research group.

There were significant correlations among scores on most personal resource measures, as hypothesized. The correlation between test anxiety and perceived social support, as well as the correlation between perceived social support and learning strategies were not significant. Most correlations among the adjustment variables were statistically significant, but only academic adjustment correlated significantly with academic achievement. As hypothesized, most correlations between the personal resources and the adjustment measures were significant, but only learning strategies were correlated with academic achievement.

We created and utilized two models within the framework of Structural Equation Modeling (SEM) in order to examine the contribution of the background variables, LD and ADHD, and personal resources to the different aspects of adjustment. In the first model, LD was represented as a dichotomous variable and ADHD was represented as a continuous variable. In the second model tested, the research groups were represented as discrete variables.

SEM analyses indicated that the LD or attention difficulties (or the comorbidity of LD and ADHD) did not directly contribute to the adjustment measures; however, indirect contributions were found in both models.

In the model where ADHD was represented as a continuous variable, attention difficulties explained variance in more measures of personal resources than did LD. In the second model tested, the research groups were represented as dichotomous variables. This analysis showed contributions of the research groups to explaining variance in most of the personal resources. In both models, emotional functioning predicted social and/or personal-emotional adjustment of students, but it was weakly related to academic adjustment, and insignificantly related to academic achievement. The only predictor of academic achievement was use of learning strategies.

SEM analyses confirmed that female students reported higher levels of test anxiety, as well as higher levels of social support than males. Females reported a higher level of academic adjustment and males reported a higher level of personal-emotional adjustment. In addition, gender contributed indirectly to social adjustment: the higher level of social adjustment among female students was mediated by a higher level of perceived social support.

Overall, the results suggest that students with LD but without comorbid ADHD may demonstrate resilience. In certain aspects of adjustment the functioning of LD students was similar to the adjustment of students with typical development. Having ADHD in addition to LD was shown to be more detrimental to adjustment than having LD only.

The findings are consistent with previous research on factors related to resilience. They emphasize the need to examine the interplay of risk and protective factors, and particularly the number and weight of these factors, in order to accurately predict the functioning of at-risk students. In line with Antonovsky's Salutogenic Model, the results also demonstrate the important contribution of sense of coherence to adjustment and coping of college students, particularly those with LD.

Contributions of the present study include suggesting the importance of distinguishing between students with LD only from those with comorbid ADHD in research on student adjustment. The study indicates the added impact of ADHD to LD in explaining difficulties in adjustment, as the comorbidity group reported more adjustment difficulties than the group with LD only. The results also demonstrate the multi-dimensional nature of college adjustment, particularly the difference between perceived social and emotional aspects and academic achievement. In the present study, these forms of adjustment and academic achievement were not related. In addition, the current research contributes to knowledge regarding some of the moderating factors between the background variables of gender, LD and comorbidity and measures of adjustment and achievement.

In the Discussion chapter we discuss some limitations of the present research. These include issues stemming from the cross-sectional and correlational research design used here and in most other studies, and from the use of self-report measures. We also discussed limitations related to LD documentation policies in different institutions and to sample size. All of these considerations point to the need for further research on

the possible effects of learning and attention difficulties on adjustment and achievement among college students.

The research findings have implications for the provision of support services to students in general, and students with LD in particular. These include recommendations to provide interventions to reduce test anxiety levels and EF difficulties, to help students to improve learning strategies, to enable LD students to cope with ADHD, and to raise SOC levels. Such steps show promise for helping students maximize their academic potential and improve their adjustment.