
Study on Mathematics Achievement in relation to stress Depression and anxiety of 10th grade Class Students of Rural area of Palampur of district Kangra HP

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Abstract

Psychological disorders like anxiety, depression and stress significantly exacerbate the pressure on students to perform better. The factors collectively hamper their performance leading to low academic achievement. In Himachal Pradesh few studies have looked especially in the field of mental health and academic achievement of the students in last decades. This study aimed to fill that gap and find out the relationship among anxiety, stress, depression and academic achievements. For this purpose 120 (60 boys & 60 girls) students of 10th standard studying in government schools located in rural area of Palampur district of Kangra were taken randomly. The ADSS (anxiety, depression and stress scale) was used to measure the anxiety, depression and stress among students. To analysis data Correlation research design will be used. Hierarchical multiple regression analysis revealed significant negative association between depression and anxiety for criterion variable academic achievement. Furthermore, stress and academic achievement found to be significant positive association with each other. It is concluded that mental health condition of the students affect academic achievements.

Keywords: Hierarchical Regression, Students, Depression, Anxiety, Stress, Academic Achievement.

Introduction:

School students have been found to have high prevalence of mental health problems across the country. In Himachal Pradesh had limited resources for mental health treatment, counseling or alternative interventions to help students and manage their level of depression, stress and academic anxiety (Pandey, 2016). There have been few mental health studies found in regional context; so to bridge the gap and find out the relationship among anxiety, depression, and stress with academic achievement many factors influenced students' academic performance. Literature have documented a number of inputs that have impact on students academic achievement these include classroom environment (Sharma, Mitra & Jha, 2014), teacher support (Sharma, 2014). Certain characteristics of the students and their family are also important, including parents education (Sharma & Jha, 2016), locale and sex (Sharma, 2016). Present study focusing on another aspect that influence academic achievement i.e. anxiety, stress and depression. Literature predicts negative association of depression, and anxiety on academic achievement. Academic anxiety is a common psychosocial disorder in school going students (Costello, Mustillo, Erkanli, Keeler & Angold, 2003).

But most of the cases academic anxiety could be underestimated (Tomb & Hunter, 2004); it's linked with perceived social support (Pandey, 2016; Weeks, Coplan & Kingsbury, 2009; Albano, Chorpita & Barlow, 2003). Over anxiety associated with lower academic achievement (Donovan & Spence, 2000; McLoone, 2006; Rapee et al., 2005). Parents' high educational expectations are one of the most negative factors for poor academic achievement and committed self harm activities (Pandey, 2016). The teachers, counselors, administrators, and peers are all school setting can be a first line of defense for students in dealing with mental health concerns and to bring awareness to anxiety, stress and educate helpful ways to cope stress and anxiety (Thompson et al., 2013; Thompson, & TriceBlack, 2012; Tillfors et al., 2011; Tomba et al., 2010; Keough & Schmidt, 2012; Leikanger et al., 2012).

Depression is a mental state in which one suffers sadness; it's a common but major cause of mental illness like depression and academic stress. Depression interrupts an individual's thoughts processes, emotional response and daily life activities (Williams, 1984; Farby, 1980). There are many causes that contribute to depression such as destructive thoughts, cognition, loneliness, social isolation, and lack of peer support. If parents ignore that all things become students getting serious mental condition. Academic stress is anything that inflicted an additional demand on an individual's capability to cope, often with academic stress.

Mostly every student feels stress in his or her schooling period (Sahu, Pandey & Jha, 2016). Some common factors arises stress such as long school schedule, poor socioeconomic status, family educational background (Pandey, 2016); impracticable belief and demands of guardians and teachers, poor academic performance, and poor study (Liu & Lu, 2012; Banerjee, 2011; Gray-Stanley et al., 2010; Rao, 2008; Hamad, Fernald, Karlan & Zinman, 2008). On the basis of above findings of the studies, present study has been undertaken to find the relationship among anxiety, depression and stress on academic achievement.

Participants the sample of the study comprised of 140 (50% boys & 50% girls); mean age 16 years, higher secondary (10th class) school going students studying in government schools at Mahasamund district of Chhattisgarh. All students belonging to Hindi medium and school was situated in rural areas. Random sampling method was used to data collection. Design In this study co relational research design was used. Hierarchical multiple regression analysis was used to analyzed the data. Enter method selecting the predicting variables for the regression model was considered suitable. Measures this study consists of three predicting variables viz. depression, anxiety and stress (Primary data), and one criterion variable i.e. academic achievement (Secondary data).

Socio-demographic variables were noted by self made measures.

1. Academic Achievement – to assess academic achievement of the participants marks obtained by their 10th class board annual examination was taken as a secondary data.
2. ADS Scale (Bhatnagar et al., 2010) – to assess the anxiety, depression and stress, ADS scale is used. The reliability and validity were high at 0.72 which is significant at .01 level of significance.

Result and discussion

Mean and Standard Deviation were carried out for knowing the nature of the data to yield meaningful information about criterion, and predictors (Table - 1).

Table 1 Demographic information of the participants (N = 140) Variables Frequency Percentage (%) Mean S

| Variables Participant | Frequency | Percentage (%) | Mean | SD |
|-----------------------|-----------|----------------|------|-------|
| Boys | 70 | 50 | | |
| Girls | 70 | 50 | | |
| Academic Achievement | | | 62.2 | 12.01 |
| Anxiety | | | 6.12 | 3.25 |
| Depression | | | 4.32 | 3.12 |
| Stress | | | 7.12 | 3.51 |

Hierarchical multiple linear regression analysis was used to summarize the data as well as to study relationship between a single criterion variable and three predicting variables. The results are presented in (table – 2)

| Predictors | Model -I | | Model -II | | Model- III | | Model- IV | |
|------------------------|--------------------|------|-----------------------------|------|------------------------------|------|----------------------------|-------|
| | β | VIF | β | VIF | β | VIF | β | VIF |
| Gender | .145 | 1.00 | .181 | 1.20 | 0.144 | 1.05 | 0.154 | 1.06 |
| Anxiety | | | | | -0.328 | 1.71 | -0.328 | 1.728 |
| Depression | | | | | -0.227 | 1.75 | 0.120 | 2.148 |
| Stress | | | | | | | 0.212 | 1.500 |
| R | 0.145 | | 0.234 | | 0.297 | | 0.338 | |
| R ² | 0.021 | | 0.055 | | 0.086 | | 0.114 | |
| R ² -Change | 0.021 | | 0.033 | | 0.029 | | 0.030 | |
| F- Change | F(1,155) =3.409 | | Δ F(1,157) =4.563 | | , Δ F(1,156) =4.67 | | Δ F(1,155) =4.77 | |

The result of model 1 control variable gender found insignificant $F(1, 158) = 3.401, p < 0.067$; standardized β value = 0.145, $t = 1.844$ indicate that the variable is not contributing significant relation in the variation of the criterion variable academic achievement. That means boys and girls had equal performance in reference to academic achievement. In model 2 including predicting variable anxiety ΔF value $(1, 157) = 4.562, p < 0.05$ is significant which explain that the model 2 anxiety is significant negative contribution in variation of the academic achievement, contributing 3.4 % individual, $R = 0.235$; $R^2 = 0.055, \Delta R^2 = 0.033$, the model explain overall 5.5% of the variance in academic achievement, which anxiety was added. The standardized β value = 0.187, $t = -2.371$, indicates that anxiety is also significantly negatively associated with academic achievement. It is concluded that control variable gender was found significant relation that's why enter method include this variable; gender (β value = 0.175, $t = 2.216$) contribute

2.1% and anxiety was 3.4% separately; overall both variables are explained 5.5 % of the total variance (Table – 2).

It means when level of anxiety would be down the achievement level will be high. Result also indicated that boys were taken less stress comparatively to girls. VIF was found between the ranges of 1.025 to 1.025 which was distant from the 1.0 to 4.0 criteria that may indicate multicollinearity concern (Pandey & Shrivastava, 2016). It is clear that all the variables were positively correlated with academic achievement of the participants. Studies find awareness and management of academic anxiety can be vital in reducing comorbidity with mental health issues (Miller, Laye-Gindhu, Bennett, Liu, Gold, March, Olson, & Waechter, 2011). Students would be capable to task more efficiently and focus more on schooling, attendance, and social anxiety for learners themselves, educators, and supervisors (Bostick & Anderson, 2009; Lothmann et al., 2011; Marks et al., 2010; Muris et al., 2002;

Thompson et al., 2013; Thompson, & Trice-Black, 2012; Von Der Embse et al., 2013). Parents could help make emotional and tangible support to help for their child basic requirements (Pandey, 2016). Furthermore, in model 3 when including predicting variable depression ΔF value (1, 156) = 4.770, $p < 0.01$ is found significant which explain that the model 3 depression is significantly negative contribution in variation to academic achievement, contributing 2.9% individual, $R = 0.291$; $R^2 = 0.085$, $\Delta R^2 = 0.029$, the model explain overall 8.5% of the variance in academic achievement, which depression was added.

The standardized β value = -0.227, $t = -2.226$, $p < 0.05$ indicates that depression is also significantly negatively associated with academic achievement. It is concluded that control variable gender was found insignificant relation and anxiety was found significant negative relation; anxiety (β value = -0.328, $t = -3.268$, $p < 0.01$ is significant which explain that the model 4 stress variable is significant positive contribution in variation of the academic achievement, contributing 3.0% individual, $R = 0.338$; $R^2 = 0.085$, $\Delta R^2 = 0.114$, the model explain overall 11.4% of the variance in academic achievement, which stress was added.

The standardized β value = 0.212, $t = 2.278$, indicates that stress is found significantly positively associated with academic achievement. It is concluded that control variable gender was found insignificant relation (β value = 0.155, $t = 1.198$, $p < 0.05$) and anxiety was found significant negative relation; anxiety (β value = -0.352, $t = -3.533$, $p < 0.01$) and depression (β value = 0.120, $t = 0.076$, $p > NS$); overall variables are explained 11.4 % of the total variance (Table – 2). Academic stress influenced academic achievements of the secondary class students (Sahu, Pandey & Jha, 2016). It means general level of stress was fruitful for students; when stress was present academic achievement level was high (Liu & Lu, 2012; Banerjee, 2011; Gray-Stanley et al., 2010; Rao, 2008; Hamad, Fernald, Karlan & Zinman, 2008). A researcher was found similar correlation with depression, anxiety, stress and academic achievement (Bhasin, Sharma & Saini, 2010). VIF was found between the ranges of 1.060 to 2.148 which was distant from the 1.0 to 4.0 criteria that may indicate multicollinearity concern.

(Pandey & Shrivastava, 2016). It is clear that all the variables were correlated with academic achievement of the participants.

CONCLUSION

The findings of the present study concluded that, academic stress, depression (Mental illness), and anxiety was directly associated with students daily life and influence their level of academic achievement; it is most important to parents, teachers, mental health professionals and counselors to solve problems of the students related to their mental health.

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