



## DEVELOPMENT AND STANDARDIZATION OF ACADEMIC STRESS SCALE (ASS) FOR HIGHER SECONDARY SCHOOL STUDENTS

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### ABSTRACT

Present study describes the process of development and standardization of Academic Stress Scale (ASS) to measure the level of academic stress of higher secondary school students. The scale of this study was divided into seven dimensions including teacher related stress, exam and result related stress, peer related stress, self inflicted stress, time management stress, social and parental stress, and infrastructure related stress, with a total of 40 statements, in which 17 statements were favourable and 23 statements were unfavourable. Likert's five point scale was used, ranging from strongly agree to strongly disagree. For the purpose of tryout of scale, the drafted scale was administered among 170 students of 10 higher secondary schools of Bareilly district. The reliability of developed academic stress scale was calculated to be 0.89 with the Spearman-Brown Prophecy formula. The internal consistency of the scale was to be with high coefficients of correlation. The scale has high face validity according to the educational experts.

**KEYWORDS:** Construction, Academic Stress Scale (ASS), Reliability, Validity, Internal Consistency.

### INTRODUCTION:

Stress is necessary and unavoidably associated with human life. It is necessary because without stress we would be listless and unavoidable because it relates to pleasure or anxiety. Challenging stimulus leads to positive outcome while threatening one can result anxiety and depression. Academic stress is the product of a combination of academic related demands that exceed the adaptive resources available to an individual (Wilks, 2008). Students have different expectations, goals and values that they want to fulfill, which is only possible if the students' expectations, goals and values are integrated with that of the institutions (Goodman, 1993). Wilks (2008) works that if a student is not able to cope effectively with academic stress then serious psycho-social-emotional health consequences may result.

Adolescents spend most of their time in their school or college environment. School environment, curriculum design, examinations and social support definitely would influence the level of stress experienced by the adolescents. It is a 'cultural truism' that stress is associated with impairment of health and the negative emotional experiences associated with stress are detrimental to 'quality of life and sense of wellbeing' (Sinha, 2000). Out of number of stress faced by adolescents and young adults, academic stress emerges as significant mental health problems in recent years (Rangaswamy, 1995). It has been estimated that 10% to 30% students experience academic related stress that affects their academic performance (Johnson, 1979; Hoghughi, 1980; Brackney & Karabenick, 1995).

### ACADEMIC STRESS

In the present era parents have usually invested high in their children's education, and place significant demands on children holding high aspiration for their academic outcomes (Tan & Yates, 2007).

For this reason, research suggests that children may experience high levels of academic-related stress which has negative consequence for their development.

Stress is a negative emotional experience accompanied by predictable biochemical, physiological, cognitive and behavioral change that are directed either towards altering the stressful events or accommodating to its effects (Baum, 1990). Academic stress is a type of stress that arises due to academic factors such as heavy school schedule, unrealistic expectation and demands of parents and teachers, low academic performance, poor study habits and not having enough time to deal with school's multiple priorities (Banerjee, 2011).

The association between school or academic stressors and suicide ideation among adolescents has been well documented in several research studies (Ayyash, 2002; Lewinsohn, Rohde & Seeley, 1993; Nelson & Crawford, 1990). It is therefore not surprising that adolescents who attempted suicide often has problem in school. The Academic Stress Inventory developed by Lin et al. (2009) was designed to capture the levels of academic stress experienced by students in Taiwan and Bisht (2005) was developed a Bisht Battery of Stress Scales to measure the stress of students. But these measures do not suffice the purpose of measuring academic stress of students, so the researcher developed academic stress scale according to their research objectives and aspects of academic stress in Indian context.

### ASPECTS/DIMENSIONS OF ACADEMIC STRESS

1. Teacher related stress: It includes the stress related to teacher behaviour, fear of teacher, teaching materials, teaching method and exercise items etc.
2. Exam and results related stress: It is worry about how prepares for an exam, and redo the compulsory course, worry about results etc.
3. Peer related stress: It includes academic competition, and peer interference, intellectual abilities of peer etc.
4. Self inflicted stress: It includes self-expectation, interests of course selection, etc.
5. Time management stress: It includes Social activities and students association, time management for study and choice etc.
6. Social and parental stress: Stress from parents, including conflicts between expectations and opinions, drops in grades etc.
7. Infrastructure related stress: It includes stress related to facility of library, laboratory and play ground, furniture and building, etc.

### Development of Academic Stress Scale (ASS)

After consulting relevant literature of Academic Stress Scale, the following steps were employed for development and standardizing Academic Stress Scale (ASS).

Initially, a list of 55 statements was prepared to measure the level of academic stress as initial draft. The statements of the scale were prepared keeping in mind the level of the secondary school students. The statement were developed both in Hindi and English language. The items were collected/developed by reviewing the available literature and carrying out personal discussion with educational experts and researchers with regard to various aspects of academic stress. These items were developed in the form of statements and a five-point rating scale was developed for each item. Along with this, mode of scoring and instructions for the respondents were also developed.

### Review of the Items/Statements

After preparing initial draft of Academic Stress Scale (ASS), the statements were reviewed by seeking the opinion of educational experts. Thus, a preliminary draft of Academic Stress Scale (ASS) was developed comprising of 55 statements. Out of these 55 statements, 10 items belonged to teacher related aspects, 11 items to exams and results related aspects, 7 items to peer related aspects, 9 items to self inflicted aspects, 4

items to time management, 5 items to social and parental aspects, and 9 items belonged to infrastructure related aspects. Furthermore, 25 items were favourable and 30 items were unfavourable.

The distribution of the selected items of the draft Academic Stress Scale (ASS) is given in the Table-1.

**Table 1: Distribution of the Selected Statements of the Draft Academic Stress**

S.No.	Dimension	Nature of Statement	Item No.	Total Statements	Total Statements in Dimension
I	Teacher related stress	Favourable	4,15,46	03	10
		Unfavourable	1,7,10,12,31,32,51	07	
II	Exams and results related stress	Favourable	6,19,37,40,43,48	06	11
		Unfavourable	3,14,25,28,33	05	
III	Peer related stress	Favourable	26,35,52	03	07
		Unfavourable	5,8,16,29	04	
IV	Self inflicted stress	Favourable	11,20,34,41	04	09
		Unfavourable	18,21,44,49,53	05	
V	Time management stress	Favourable	23,45	02	04
		Unfavourable	30,42	02	
VI	Social and parental stress	Favourable	36,54	02	05
		Unfavourable	24,27,50	03	
VII	Infrastructure related stress	Favourable	2,9,13,47,55	05	09
		Unfavourable	17,22,38,39	04	
Total favourable statements =3+6+3+4+2+2+5				25	55
Total unfavourable statements =7+5+4+5+2+3+4				30	

The final draft was prepared by arranging the selected items in random manner in a single format.

**Item Analysis and selection of items for final Draft**

The scale with 55 statements was administered to a representative sample of 150 secondary students from 10 schools of Bareilly district. It was made clear to the respondent that no item of Academic Stress Scale (ASS) should be omitted and there was no correct or incorrect response of any item.

After completion of the scale, the scoring was done in such a manner that respondent giving answer i.e. strongly agree, agree, undecided, disagree, and strongly disagree to favourable items in the scale were assigned scores of 1,2,3,4, and 5 respectively. On the contrary, the unfavourable items were scored in reverse order completely. The total score of an individual respondent varied from 55 to 275.

On the basis of the scores obtained by the respondents on all statements, the scales were arranged in descending order. Following the Kelley’s (1939) division method of 27% top scores and 27% bottom scores; two extreme groups were formed- upper group comprising of top 27% scores and the lower group comprising of bottom 27% scores. Then, top 40 students (top 27%) with highest total scores on the scale and the bottom 40 students (bottom 27%) with lowest total scores on the scale were separated out. Afterwards, means and standard deviation were computed for each individual item separately.

The discriminating value for each item was then determined by computing t-value (critical ratio) on the basis of responses of upper and lower group. Only those statements were retained for final draft of Academic Stress Scale (ASS), which were having t-value greater than 2.58. A ‘t-value’ greater than 2.58 indicated that the average response of the top and bottom group of students to a statements differ

significantly. Thus, on the basis of this, out of 55 statements, 40 items out of 55 with highest t-value (more than 2.58) or in other words items which were highly capable of discriminating between two extreme groups of students were selected for final draft of Academic Stress Scale (ASS).

**Table 2: t-value in respect of 40 items selected for ASS**

Item No.	t- value	Result	Item No.	t- value	Result
1	3.13	Significant	21	3.02	Significant
2	4.89	Significant	22	5.67	Significant
3	6.01	Significant	23	6.25	Significant
4	5.28	Significant	24	4.81	Significant
5	6.13	Significant	25	4.38	Significant
6	5.40	Significant	26	3.41	Significant
7	5.56	Significant	27	3.08	Significant
8	7.24	Significant	28	6.49	Significant
9	3.49	Significant	29	5.07	Significant
10	6.08	Significant	30	3.97	Significant
11	4.78	Significant	31	5.48	Significant
12	3.37	Significant	32	4.67	Significant
13	6.71	Significant	33	3.81	Significant
14	5.20	Significant	34	3.51	Significant
15	3.20	Significant	35	5.80	Significant
16	3.80	Significant	36	5.67	Significant
17	4.02	Significant	37	4.67	Significant
18	5.66	Significant	38	3.76	Significant
19	5.16	Significant	39	6.68	Significant
20	5.98	Significant	40	4.26	Significant

(Table-2, t-value of items selected for Academic Stress Scale)

In the present case, the t-value of all the 40 items was more than 2.58. After computing the t-value of item and selecting the statements for final draft of the scale, the distribution of favourable and unfavourable statements was carried out in seven dimensions of academic stress which is provided in table 3.

**Table 3: Distribution of Statements (Both Favourable and Unfavourable) Over Seven Dimensions of Final Draft of Academic Stress Scale (ASS)**

S.No.	Dimension	Nature of Statement	Item No.	Total Statements	Total Statements in Dimension
I	Teacher related stress	Favourable	2,23	02	06
		Unfavourable	4,5,23,37	04	
II	Exams and results related stress	Favourable	11,27,35	03	07
		Unfavourable	7,17,20,24	04	
III	Peer related stress	Favourable	18,26,38	03	06
		Unfavourable	3,8,21	03	
IV	Self inflicted stress	Favourable	12,25,30	03	07
		Unfavourable	10,13,31,39	04	
V	Time management stress	Favourable	15,32	02	03
		Unfavourable	22	01	

VI	Social and parental stress	Favourable	-	-	03
		Unfavourable	16,29,36	03	
VII	Infrastructure related stress	Favourable	1,6,34,40	04	08
		Unfavourable	9,14,28,29	04	
Total favourable statements =2+3+3+3+2+0+4				17	40
Total unfavourable statements =4+4+3+4+1+3+4				23	

### Scoring procedure

There are 40 statements in the scale, 17 statements of the scale are favourable worded and 23 statements are unfavourable. The scale is self administering and self-reporting five point scale. Scoring for unfavourable statements, award 5 marks on strongly agree, 4 marks on agree, 3 marks on undecided, 2 marks on disagree, and 1 marks on strongly disagree. For favourable statements scoring procedure is completely reversed.

### Scoring Key

Nature of Statements	Strongly Agree (SA)	Agree (A)	Undecided (U)	Disagree (D)	Strongly Disagree (SD)
Favourable	1	2	3	4	5
Unfavourable	5	4	3	2	1

The sum of score on all statements of the scale is considered as respondent's total academic stress score. The score on the scale can range from 40 to 200. A high score is indication of high level of academic stress of higher secondary school students.

### Reliability of the ASS

#### (i) Split-half reliability:

The reliability of Academic Stress Scale (ASS) was ascertained by 'split-half reliability' method. For this, scale was divided into two halves by following odd-even procedure. Each half of the scale thus comprised of 20 statements (both favourable and unfavourable) belonging to all seven dimensions of academic stress. The coefficient of correlation between two parts of the scale was calculated by using the formula of product moment co-efficient of correlation. This showed the reliability of half scale. It was found to be 0.80. After obtaining the reliability coefficient of the half test, the Spearman-Brown prophecy formula was used to estimate the reliability of the whole test. The whole test reliability was calculated to be 0.89, which is a fairly high measure of intrinsic consistency of the test.

#### (ii) Internal consistency

The internal consistency of scale was ascertained by computing the coefficients of correlation between total score on the scale and score on the each seven dimensions of the scale. The values of correlation coefficients representing internal consistency of the scale are given in table-4. All the correlation coefficients indicating internal consistency of the scale was highly significant.

**Table 4: Correlation Coefficients showing Internal Consistency of ASS (N=170)**

S.No.	Dimensions of Academic Stress Scale	"r" Value
1	Teacher related stress	0.76
2	Exam and results related stress	0.74

3	Peer related stress	0.76
4	Self inflicted stress	0.85
5	Time management stress	0.63
6	Social and parental stress	0.68
7	Infrastructure related stress	0.69

### Validity of the Scale

The scale has high face validity since all the items have been included in the scale only after seeking the opinion and approvals of the educational experts.

### CONCLUSION

The scale is fairly reliable and valid to measure academic stress of higher secondary school students. The Academic Stress Scale of this research was divided into seven dimensions, with a total of 40 statements. Likert's five point scale was used.

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