

Student Stress in Adolescence

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Abstract

The development of school-aged children is influenced to a great extent by the level stress they encounter during the learning process and to what extent they feel it is manageable. Permanent high levels of stress induce negative emotions, which hinder and lower academic achievement. One of the major elements of an affective curriculum is to teach students how to handle stress and counteract negative emotions.

The Student Stress Inventory of Dobson and Metcalfe (1983) was administered to 422 adolescents. The factor analysis of the Hungarian results yielded 7 factors. Adolescents who are 1-2 years away from finishing the given level of schooling show the highest level of stress. Differences as a function of gender emerge when factor scores are compared. Girls show a higher level of stress in factors regarding comprehension difficulties, choice of career and confrontation.

Possible interventions are outlined: identifying irrational beliefs, questioning them and replacing them with positive thoughts enhancing self-esteem. Enhancing self-esteem in girls is especially important, as they tend to react with self-depreciating attributions, while boys tend to criticise the instructional environment. As a result of transforming beliefs and shaping self-esteem students' abilities to solve conflicts in an assertive fashion and form positive long-term goals for their life-style is enhanced.

According to the control-theory of stress, stress is the result of the subjective evaluation of events. A person perceives a situation as stressful when he feels that events are unpredictable and uncontrollable, and that his response capabilities do not make it possible for him to meet the demands of the situation (Atkinson and et al., 1994; Parkes, 1993).

Learning in school - as any other event - can become a source of stress. Students can achieve to their maximum abilities if the classroom climate is appropriate. Defining what is appropriate may be a difficult task as cross-cultural studies have pointed out (e.g. Husbands, Lang, Vasileous, Neill, 1999), thus all research results must be very carefully evaluated in light of what is taken as appropriate in a culture.

Stress is accompanied by important affective responses: anxiety, anger and depression. Automatic processes of judgement and evaluation precede these affective states, which are not easily accessible to conscious control. Cognitive theories state that this automatic evaluation is based on prior experiences, it builds on memory processes and often contains faulty thinking processes. An exaggeration of failures and underestimation of success is characteristic of the thought processes of depressive persons. They tend to evaluate chance unfavourable changes of events as their own fault and have a pessimistic outlook regarding future events, omitting facts that would prove otherwise (Beck, Rush, Shaw and Emery, 1979; Schruppf, Freiburg and Skadden, 1993.).

As a result of development in thought processes and the self, conscious control of negative thoughts connected to stressful events by e.g. directing attention to positive memories become possible from the beginning of adolescence (Clark and Isen, 1984). This does not follow necessarily without explicit teaching and training. Meanwhile the adolescent differentiates more and more stressful events by way of his increasingly complex thinking abilities (Copeland, 1987). Studies with school-aged children point to the fact that emotional/affective rejection is the most stressful element for 10-11 year-olds. Adolescents perceive events in a more differentiated fashion. When researchers ask students' opinion of sources of stress, adolescents tend to emphasise conflicts with peers, opposition to authority figures, emotional rejection and failure in achievement as main sources of stress. Boys tend to react to cumulative negative events with psychosomatic illnesses while girls react with emotional instability.

Dobson and Metcalfe studied stress related to learning and the school environment with school-aged children (Dobson and Metcalfe, 1983). They used a 30 item questionnaire, the Student Stress Inventory, which included items pertaining to: tasks (understanding tasks in class, tests and the quantity of homework) - role expectations (the expectations of teachers and parents regarding student achievements) - environmental conditions (numbers of students/class, noise, timetable) - peers (loneliness, friendship problems). These considerations were supplemented by questions regarding choice of vocation. A characteristic of their study was that students were asked to use a four-point scale to indicate the amount of stress instead of the researchers assigning a weighed points to answers. 58 boys and 62 girls filled in the questionnaire. Parallel to this they measured locus of control to validate the questionnaire. A factor analysis was performed on the data gained from 120 students. Of the 10 varimax factors received three were deemed as suitable for further investigation by them: 1. Getting down to work, 2. Future goals, 3. Demands of academic life. Based on the total stress scores corresponding to the three varimax factors correlation was observed between achievement and anxiety, and stress and the lack of control.

Measurement of stress and teaching students how to cope with it is an important aspect of affective education, which can help to teach students control negative emotions hindering academic achievement and negatively influencing class climate.

The goals of the study and hypotheses

The following hypotheses were tested in conducting the study:

1. On the basis of item content the emergence of the following factors were expected:
 - a) Parents, family, b) Choice of vocation and future, c) Comprehension problems in tests, d) Motivational problems, e) Overexertion, f) Attention deficits, g) Difficulty in social integration.
2. The highest amount of stress will be found in the first and last grades of a given school / school-type.
3. Differential cultural expectations have to be taken into account when interpreting the differences in results emerging between girls and boys. Society is more accepting

towards girls who talk about negative feelings. They do not receive negative labels in the ways boys would. So in the case of girls higher stress values are deemed more acceptable.

Method

Participants

In this study 422 adolescents between the ages of 13 and 18 years participated in Hungary, of this 230 girls and 192 boys. The adolescents were in grade 7- 12. The public education system in Hungary makes it possible, that grade 7 and 8 may be the last two years in elementary school or the first two in a six-grade grammar school. In this study of the 90 students in grade 7, 42 were elementary school students and 48 were grammar school students. All in all, 42 were elementary school, 380 were grammar school students.

Thus three groups were formed. E 13 year-olds denotes adolescents in grade 7-8 in an elementary school. G 13-16 year-olds denotes students in a grammar school in grad 7, 8, 9, 10. G 17-18 year-olds denotes grammar school students in grade 11 and 12.

The first (E 13-year-olds) and the last group (G 17-18 year-olds) are in the same situation, as members of both groups are one or two years from finishing a given school-type.

Of the 94 persons in grade 10, 38 persons participated in individual counselling and completed the questionnaire as a part of that process.

Methods

The Hungarian translation of the Students Stress Inventory (Dobson and Metcalfe, 1983) was used. After ascertaining the subjective relevance of the content for adolescents this questionnaire was used in the work of school psychologists in Hungary to identify problems of school classes and the mapping of individual stress. The order of the items was not changed. The original four-point scale was complemented with one further point. The original "0" value was differentiated as a result of the counselling sessions in the following way: "0" - I have no such problem; "1" - no stress at all (i.e. the problem is present, but is not a source of stress). All other values were used as in the original study.

Scoring

Scoring of the Student Stress Inventory thus changed. Total stress values were computed for each factor by summing values 2, 3 and 4 for items in the factor (as value 0 and 1 denote the absence of stress). The total stress-level was derived by adding factor stress-levels and dividing it by the number of factors (i.e. 7).

Results and Discussion

Factors

This investigation mobilised a higher number of participants than the original study and was conducted in a different social-cultural environment. The factor analysis of data resulted 7 varimax factors (Jahn and Wahle, 1974) as shown in Table

1. Of the original factors only the one pertaining to choice of career and future remained unchanged. As opposed to our own

Table 1
Factors and Weights in the Hungarian Sample

Item Factors	Weights
Factor I. Comprehension difficulties	
23. Understanding the wording of examination questions	.72
11. Examination syllabuses too demanding in some subjects	.66
8. Examination pressures	.60
7. Difficulties understanding academic work	.59
3. Little knowledge of standards of work required by the teacher	.58
12. Difficulties keeping up with academic work	.50
24. Difficulty making own notes from books	.27
Factor II. Overexertion and tiredness	
26. Too much home work to do each evening	.75
19. Too many consecutive demanding subjects in the school's daily timetable	.66
28. Teachers make too many extra demands on their students	.62
1. Poor motivation to work in some subjects	.53
17. The consequences of watching too much T.V. to the detriment of homework	.45
Factor III. Parental expectations	
25. Consequences of letting down parents	.77
15. Parents who are over-anxious about school work	.74
20. Lack of understanding by parents about study commitment	.64
29. When friends repeatedly get higher marks for written exercises	.43
Factor IV. Choice of career and uncertain future	
14. Worry about ultimate future career	.84
4. Uncertainty about immediate plans on leaving school	.65
21. Lack of sufficient useful careers advice and guidance	.64
Factor V. Hindering environmental circumstances	
9. Petty school regulations	.68
5. Poor school facilities (books, material, equipment)	.63
30. Relevance of subjects being studied	.50
16. Lack of concentration in school	.44
Factor VI. Confrontation	
13. Personal problems	.60
2. Noisy students in class causing distraction	.54
6. Too many demands made by parents on after school time which detract from studies	.52
27. Conflicting attitudes to life between students and parents	.50
Factor VII. Loneliness and pointlessness	
18. Difficulties with boy/girl relationships	.71
22. Monotony of daily routine	.61
10. Lack of concentration at home when studying	.42

Note: The items are the same as in the original Student Stress Inventory (Dobson and Metcalfe, 1983)

hypothesis the events related to parents and family are related to two factors. Factor III. contains the parents' concern about the students' learning achievement. The

parents are overly demanding in connection with academic achievement, but maintain close affective ties with their offspring. Factor VI. contains the strong confrontations with authority figures, especially parents. In this case the parent is not caring enough, but is restrictive. Motivation, attention and social relations do not appear as separate, independent factors as originally hypothesised.

The concern about choice of career and future is similar among Hungarian and British students. Comprehension problems are sharply outlined in one factor, while conflicts with parents appear in two factors. A cause of this phenomenon may well be connected to the fact that in Hungarian schools it is a generally accepted fact that students have to accommodate to the teachers' teaching style. Under these circumstances "I don't know..." means the person blames himself and this self-blame is a major form of causal attribution. In this situation if the student initiates a dialogue and not the teacher - it may well be evaluated as insubordination. Marks received for tests have a great importance for both the students and their parents. Value is attached to marks symbolising school achievements for adolescents in Hungary. As opposed to the results of the Coleman study (Coleman,1960), achievement opposing adolescent subculture as a counter-culture is evident only in a few school classes. In spite of continuous vehement criticism of public education parents still consider adequate school achievement as a means for social mobility.

Table 2 demonstrates the means and SD of the seven factors obtained and their correlation with the total stress value points. The correlation values indicate that all factors significantly contribute to the total stress value points. The reliability index pertaining to the total stress value is Cronbach alpha=0.85, which indicates a strong consistency among the items.

Table 2
Correlation of Factors in the Hungarian Sample (n=422)

	Factors							total average
	I.	II.	III.	IV.	V.	VI.	VII.	
mean	6.59	6.48	3.04	2,79	3.64	2.06	2.11	3.82
SD	4.91	4.29	3.02	2,66	3.32	2.04	2.06	2.24
correlation	0.717	0.729	0.700	0.600	0.667	0.492	0.609	

We would like to draw attention to the fact that high stress values can be interpreted in a different way if we want to interpret the behaviour of individual children than if we want to find an explanation for high stress values in the whole class. In this latter case the clients of the school psychologist are not primarily the students, but the teachers teaching the class and the form teacher are the primary clients in consultations aiming at changing pedagogical methods used.

Differences among age-groups

Data were analysed by two-tailed t tests. The results are depicted in Table 3 and 4. The most noteworthy result is that low or high levels of stress cannot simply be explained with age or grade related factors in case of 13 year-olds. In case of 13 year-olds (grade 7), who attend a 6-year grammar school, stress values are as low as the stress values of 14, 15, and 16 year-olds. Whereas the stress values of 13 year-olds attending elementary school were as high as those of 17 and 18 year-olds attending

grammar school - in fact their stress values were even higher in some factors. The effects of school-type are more vividly apparent in Figure 1. As opposed to our hypothesis, stress levels become elevated only in the last two years of the school, but not in the first years.

Table 3

Means of Factors as a Function of Age-Group

groups	Factors							total mean
	I.	II.	III.	IV.	V.	VI.	VII.	
E 13 year-olds n=43	8.60	7.12	5.23	3.70	4.86	3.47	2.12	5.01
G 13-16 year-olds n=183	5.69	5.13	2.08	1.87	1.96	1.66	1.44	2.83
G 17-18 year-olds n=196	6.98	7.61	3.46	3.44	4.95	2.14	2.74	4.48

E= elementary school; G= grammar school

Table 4

The Results of Two-tailed t-tests

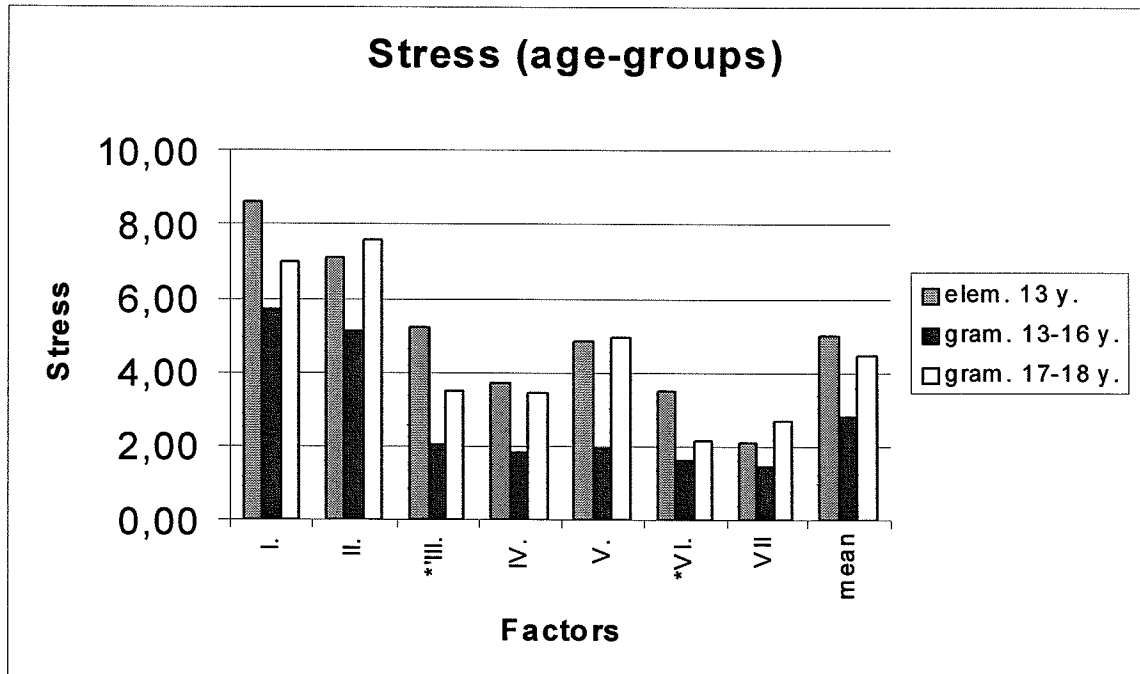
compared groups	Factors							total mean
	I.	II.	III.	IV.	V.	VI.	VII.	
E 13 year-olds - G 13-16 year-olds	0.001*	0.005*	0.000*	0.000*	0.000*	0.000*	0.103*	0.000*
E 13 year-olds - G 17-18 year-olds	0.074	0.489	0.009*	0.588	0.877	0.007*	0.150	0.154*
E 13-16 year-olds - G. 17-18 year-olds	0.009*	0.000*	0.000*	0.000*	0.000*	0.044*	0.000*	0.000*

*t test $p < 0,05$

In spite of the difference in age a common element in the life of these grades (grade 7 in elementary school and grade 11 and 12 in grammar school) is that teacher appraisals become stricter, learning tasks increase and the feelings of overexertion grow. Youngsters have to realise that their attitudes towards studying determine their future in the long run. Students are often left on their own to cope with their problems. All this together brings about an increased feeling of stress. Under these circumstances in the process of educational and pedagogical work with this age group it is a task to consider whether or not the teacher is taking the abilities of the students into account when designing and planning learning. In taking a whole-class approach, it is essential that questions regarding choice of vocation be dealt with in a non-threatening way, in a continuous fashion based on a co-operative, partner relationship between teachers and parents with an emphasis on information and guidance. Counselling parents is all the more important as parental expectation and parent-child confrontation (see factors III. and VI. in Figure 1) come to a peak in the elementary school 13 year-olds age-group.

Figure 1.

Stress levels in Different Factors as a Function of School-type and Age-group



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The differences between girls and boys are displayed in Table 5. There is no significant difference between girls and boys regarding total stress values. Girls display significantly higher stress in three factors: I. (Comprehension difficulties), IV. (Choice of career) and VI. (Confrontation). On the basis of differences we may say, that girls are more stressed as a result of comprehension problems and unsuccessful tests, than boys are. Girls are more engaged in problems concerning choice of career. In case of girls, confrontations with parents are more vehement while they are the ones who are called on more often to help in housework, which decreases their free time to a considerable extent. These results can be interpreted in another way, as well. That is, girls can indicate their higher levels of stress more effectively because it is in accordance with cultural expectations associated to the gender-role.

Table 5

Mean Values of Factors as a Function of Gender and Their Comparisons

		Factors						
		I.	II.	III.	IV.	V.	VI.	VII.
girls	n=230	7.46	8.08	3.48	3.08	3.48	2.42	1.99
boys	n=192	5.53	8.38	3.55	2.43	3.85	1.63	2.26
Two-tailed		0.000*	0.549	0.867	0.019*	0.255	0.000*	0.274
t test								

Two tailed t test $p < 0,05$

Boys are socialised to be "free from complaints". They are less motivated to learn regularly from day-to-day and they excuse themselves from this by self-talk: "if I wanted to learn, I could understand this". As a consequence of this motivational attitude comprehension problems are not such a source of stress as it is in the case of girls. Analysis by age shows that stress values for boys can be higher than those for girls. In such cases boys are more open to criticising their environment and they use external attribution more often in interpreting stress. On the other hand, girls tend to find fault with their abilities and utilise internal attribution processes.

Conclusions

Goals of counselling and affective education

1. The recognition of negative emotions that accompany stress: anxiety, anger and depression.
2. The recognition and change of irrational beliefs and automatic thoughts that maintain these emotions - e.g. in order to be able to decrease the stage fright before writing tests.
3. Teaching assertive communications skills - to enhance peer-relations and friendships.
4. Teaching conflict resolution skills - to enable students to solve conflicts with parents.
5. Career guidance - to map primary spheres of interest, to identify long-range goals and prepare decision-making.

Coping with stress can be successful if the destructive behaviours, emotions and thoughts related to it can be modified into constructive ones. One of the basic goals is to develop social and self-reflective skills, which are delineated in Gardner's theory of multiple intelligence (Torff and Gardner, 1999).. Self-reflective intelligence is the ability to perceive ones own emotional states, needs and values adequately, it is the ability to accept oneself and to communicate this to others. Social intelligence means one is able to perceive others' emotional states and needs - and is able to communicate ones own needs assertively and is able to influence others in order to attain own goals (Goleman, 1995).

Recognise stress related somatic symptoms and negative feelings - anxiety, anger and depression. In order to enhance the ability to recognise stress-related somatic symptoms adolescents participating in the training and their teachers receive a list of symptoms and answer a questionnaire regarding stress and anxiety. Under the guidance of the group leader the participants evaluate the questionnaire themselves. Only those participate in the following group discussions that feel comfortable with sharing their experiences and the results of the questionnaire.

Irrational beliefs and/or automatic thoughts maintain the extreme and unmanageable emotions. These come to the surface in the course of individual counselling utilising of non-directive communicative situations. In group-training situations a list of irrational beliefs may aid the explicit discussion of the theme. In group-training situations (altogether 38 adolescents in three groups) the following typical irrational beliefs surfaced. Factor I. - I must understand these tasks. I must be quicker. I must be able to meet the demands of the teacher. I can never be as clever as the others. Factor II. - Although I am incapable of doing this I must do it. I am

lazy. Factor III. - I must be perfect. I must meet the expectations of my parents. Factor IV. - It's awful that the others will successfully continue their studies, while I fail. Factor V. - I am not responsible for what happens with me. Factor VI. - Everybody is hurting me. Factor VII. Nobody loves me. No one would notice if I were to disappear from this world.

Querrying, self-talk or turning them into requests can alter automatic thoughts. E.g. instead of "Everyone hurts me." - "I would like it if people would be kind to me." In this way instead of accusation, the feeling becomes their own and they accept responsibility for it. Emotions do not control us, but we are the ones controlling them. By influencing automatic thoughts we basically affect self-esteem.

In teaching communication skills it is important to help participants realise how they can express their needs in an assertive fashion. If a person remains passive others may dominate them or may become lonely. On the other hand aggressive communication may destroy interpersonal relationships and provoke aggressive responses. Teaching how to send "I messages" is an important element in assertive communication. The ability to read and interpret non-verbal messages is an important element in finding one's way in social relations. Empathy and the ability for self-disclosure are an important condition for fostering friendships. These skills can be developed with special tasks.

In teaching conflict management skills we must not forget to analyse the situation we are in, what our goals are and whom we want to maintain our contacts with. A person must be able to determine which forms of conflict management - confrontation, compromise, smoothing, forcing or withdrawal would be the most suitable for our goals (Horvath-Szabo K., 1994.). Improving relations with parents, teachers and peers is a way to reduce stress related negative experiences and a possible mode of attaining goals.

The mapping of interests in vocations means recognising the personal values and the long-range goals. Dealing with vocation directly influences the commitment to direct learning goals and learning motivation. Youth may compare his ability and skills not only to the requirements of school tasks, but to the wants and demands of the chosen vocation or career - that is they may find a new frame of reference for thinking about their abilities.

We feel that the joint development of these skills constitute an important part of the affective curriculum, and give an opportunity to reshape adolescents' stress handling skills in a constructive fashion.

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