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Sources of stress and stages of change for stress management in school age children: proposals for points of intervention

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ABSTRACT

The purpose of the study was to identify the daily sources of stress in primary and secondary school children, and their stages of change for stress management. The research took place in two periods (phase 1 & phase 2). In the first phase ninety pupils interviewed and their perceived sources of stress were presented in three levels: daily stress, school stress and stress in physical education lessons. The second phase of the research (300 pupils participated), was held through questionnaires reporting sources of stress. Internal consistency and factorial validity provide preliminary support for the psychometric properties of the stress sources questionnaire, consisting of three factors and 25 questions. From the results it was found out that school, generally, is a major source of stress. The results of the study imply the need for reinforcement of health education and its implementation through physical education or health education lessons, in order to strengthen the students' coping skills. Applications in school setting (intervention programs) are suggested.

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1. Introduction

There is widespread interest among researchers on psychological stress. This interest is justified because psychological stress has been implicated in a variety of disease processes such as coronary heart disease, cancer, lowered immunological resistance to pathogens, reduced quality-of-life, increased incidence of depression and

suicide, lower levels of anxiety, and increased alcohol intake (Giacobi, Tuccito, & Frye, 2007). Stress is common in the lives of children and adolescents and the general assumption is that frequent stress contributes to somatic symptoms among school-aged children (Murberg & Bru, 2007).

Stress is generally defined as “a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being” (Lazarus & Folkman, 1984). Children are most affected by ongoing, enduring experiences, in particular those over which they have no control.

Children and adolescents spend a lot of time in school and this arena can pose social and academic challenges (Murberg & Bru, 2007). Unfortunately, for many children, school – and all that it entails- is not a pleasant experience. Indeed, for a great number of children, school is a major source of stress – an experience that they dread every day (Nelms, 1999). The main focus in the research on school-related stress has been on incidents and on its effects on student emotional adjustment, academic performance, and behaviour (Kaplan, Liu & Kaplan, 2005). School has the paradoxical role of being both a major source of stress and a major source of stress relief for children. Somehow, schools must balance the stress associated with challenge and motivation with the stress associated with pressure to achieve “success” and avoid “failure”. In recent years this balance has been threatened as schools have been under increasing pressure to place a very strong emphasis on academics (Elias, 1989).

As school children spend almost all day in school their perceptions of school environment are associated with not only their academic performances but also with their physical and psychological well being. In particular, school-related stressors such as pressure from schoolwork and high academic demands have been designated as primary sources of somatic and psychological complaints (Tatakura & Sakihara, 2001; Torsheim & Wold, 2001).

Many researchers tried to determine what children see as big stressors in their lives. Witkin (1999) reported that school was identified as the children’s major concern. They worried most about grades and reported that they feared disappointing their parents about grades and not getting all their work done. English and American adolescents listed school-related problems, particularly the excessive demands of schooling, as their biggest stressor (Burnett & Fanshawe, 1999). In Singapore, Isralowitz and Hong (1990) found that the three major problems identified by high school students were all school related: being pressured to keep up with schoolwork, worrying about the future, and needing help with schoolwork. According to Hampel & Peterman (2005), children and adolescents are exposed to a variety of stressors. School-related stressors were most frequently reported, followed by interpersonal stressors such as conflicts with parents, siblings, and peers. Further studies have found that those daily stressors were significantly related to psychological symptoms, whereas a weakened influence of major stressful events on children’s and adolescents’ well-being has been demonstrated (Seiffge-Krenke, 2000; Kraag, Zeegers, Kok, Hosman, & Abu-Saad, 2006).

Daily stress is a risk factor for subsequent somatic symptoms in children and adolescents. The ways in which children and adolescents cope with these various types of school-related stress may have implications for the course of their physical adjustment later in their life (Murberg, & Bru, 2007). Given that daily stress is a threat to the physical wellbeing of adolescents, intervention programmes, for example such as stress-inoculation training and problem-solving training that aim to develop a wide range of coping skills, could be incorporated into the school curriculum. In studies on coping the definition of Lazarus and Folkman (1984) is generally used: constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person. Lazarus and Folkman (1984) further distinguished two fundamental types of coping based on their function: (1) “problem-focused coping” and (2) “emotion-focused coping”. The first refers to efforts to directly change or master the source of the stress; the second refers to efforts to manage or regulate the emotions associated with the stressful episode.

Stress is to be considered in the context of a more and more challenging society, where stressful situations are part of everyday life. People may have resources to cope with stressful situations; however, successful coping implies learning to activate these resources. In other words, going from overwhelming stress to stress management is an active process implying change (Padlina, Aubert, Gehring, Martin-Diener, & Somaini, 2001) and this change can be applied by the Transtheoretical Model of behavioral change (TTM) in the area of stress and stress management (Velicer, Prochaska, Fava, Norman, & Redding, 1998). The Transtheoretical Model (Prochaska & DiClemente, 1983; Prochaska, DiClemente, & Norcross, 1992; Prochaska & Velicer, 1997) is an integrative model of behavior change. The model describes how people modify a problem behavior or acquire a positive behavior. The central organizing construct of the model is the Stages of Change.

The model has been successfully applied to a variety of health-related behaviors, including smoking, physical activity, nutrition habits and stress management (Prochaska et al., 1994). The concept of Stage of Change regards behavioral change not as a dichotomized process, but as a cyclical staged process through which people may move backward and forward through different stages of motivational and behavioral change. People are regarded as *pre-contemplators* when they do not think about changing their behavior; *contemplators* when they intend to make a change within the next 6 months; and *preparators* when they intend to make a change within the next 30 days. People are in *action* when they actively attempt to change and in *maintenance* when they have changed their behavior for more than six months. The progression between these stages is regarded as neither inevitable nor irreversible, since people may attempt and relapse between different stages. They may move backward and forward across the different stages several times before they may reach the final endpoint (De Nooijer, Van Assema, De Vet, Brug, 2005). According to the theory it is likely that people in pre-contemplation and maintenance do not have intentions to change their behavior, nor are they actively involved in making changes, and thus stage transitions may be less likely to occur. On the contrary, stage transitions in contemplation, preparation and action are likely, since people in these stages indicate that they would like to change or are already active in making behavioral changes.

The application of TTM on stress and stress management may be difficult, and for this reason only six studies have been published so far on this subject (Evers, Evans, Fava, & Prochaska, 2000a; Evers, Prochaska, Johnson, Mauriello, Padula, Prochaska, 2006); Laforge, Velicer, Richmond, & Owen, 1999; Riley, Toth, & Fava, 2000; Riley, & Fava, 2003; Velicer, Prochaska, Fava, Norman, & Redding, 1998). A major difficulty is the understanding of the concept of stress, because coping with stress, as behaviour, is not as concrete and measurable as other behaviours, like smoking cessation (Padlina, Aubert, Gehring, Martin-Diener, & Sonaini, 2001) or physical activity participation (Godin, & Shephard, 1985). Keeping in mind the above finding and various conclusions from different researchers mentioning that programs applying a combination of stress management techniques produced more significant outcomes, we used in this research this brief definition of stress management as reported by Evers, Prochaska, Johnson, Mauriello, Padula, & Prochaska (2006): "stress management includes regular relaxation and physical activity, talking with others, and/or making time for social activities".

The purpose of the study is to identify the daily sources of stress in primary and secondary school children, and their stages of change for stress management. The research hypothesis was that school stress is common in the lives of children, due to the pressure from schoolwork and high academic demands, or other sources and that secondary school student will report more daily sources of stress than primary school students.

2. Materials and methods

2.1. Study1: method

The first aim of this research is to explore the different sources of stress in the school setting. For this reason the first issue in selecting the methodology was the need for the research to reveal and provide detailed information about the theme. Exploratory interviews might provide such information and guide further research in relation to both the data to be collected and the procedures to be followed.

The decision was to undertake exploratory interviews (as a first step) which would provide information to enable detailed questionnaires to be devised. These techniques seemed more appropriate than an exhaustive study of specific cases for both practical and academic reasons. So, the following research methodology was adopted: a) exploratory interviews and b) questionnaires devised on the basis of the information emerging from the interviews.

A semi-structured interview schedule was selected to explore questions about the sources of stress in school age children, as it would give participants the chance to describe in depth the situation about the possible stressors due to the high academic demands or the pressure from schoolwork or due to the interaction with peers or teachers, the areas of focus of the study.

The main purpose of the interviews undertaken in this study was to suggest material to develop a questionnaire and also to support retrospectively the findings from the questionnaires offering deeper insights into individuals' answers. The questions used in the interview were open-ended since the researcher's aim was to obtain preliminary information. Open-ended questions are flexible and allow the interviewer to probe so that he may go into more depth if necessary or clear up possible misunderstandings. Open-ended questions also expected

to result in unexpected or unanticipated answers which would suggest hitherto of relationships or hypotheses which would be extremely valuable for the purpose of the current study (Karagiannopoulou, 1998). The analysis and coding of the interview data were carried out as follows:

1. The information which emerged from the interviews was reported in summary form on a single sheet.
2. A first code was given to the basic points in order to remind the researcher of his referent.
3. The process of analyzing the data and coding the information started with a small number of potential patterns. These were modified and enriched during the course of the analysis.
4. The analysis considered individual statements, since the aim was to explore all the information reported by the interviewees.
5. A series of subcategories were developed in many cases, in order for the data to be organized and described more clearly.

2.1.1. Participants

In the first phase of the study 90 children (they chosen randomly) from public schools participated (30 children from primary school, 30 from high school and 30 from senior high school), aged from 10 to 17 years old. Nearly half of the participants were girls. All of them were living in suburban and urban areas of west-north-west Greece. Individuals attended for interviews on a voluntary basis.

2.2.2. Procedure

The interviews were semi-structured. The interviewer focused the interview process on the basis of the planned questions. Each interview lasted about 20-25 minutes and was recorded with the participants' permission. The location for the interviews was decided by the interviewee. The questions were explained upon request. Periods of silence were allowed during the interview process in order for the students to have time to think. The answers of the students were categorized into three subcategories: daily life stress (6 questions), school stress (9 questions) and stress in physical education lesson (10 questions). These categories emerged from the interviews. The above 25 questions composed the "stress sources questionnaire".

2.2. Study 2: participants

In the second phase of the research 300 pupils participated, 100 children from primary school aged 11.48±.57 years, 100 from high school aged 13.26±.83 years and 100 from senior high school aged 16.32±.58 years.

2.2.1. Measures

The participants completed the following scales;

1. The stress sources questionnaire which was developed from the answers given in the previous phase of the research (interviews). The participants responded on a 5-point Likert scale (where 1= never, to 5=very often).
2. Definition of the stages of change for stress management. To determine which stage of change for stress management practices participants were in at baseline, we gave them this brief definition of stress management: Stress management includes regular relaxation and physical activity, talking with others, and/or making time for social activities. They were then asked, "Do you effectively practice stress management in your daily life?" (Velicer, Prochaska, Fava, Norman, & Redding, 1998). Five response categories were available, placing the participants in one of five stages of change for stress management: Students in the precontemplation stage were not practicing this type of effective stress management in their daily lives and were not intending to within the next 6 months. Students in the contemplation stage were intending to start within the next 6 months, and those in preparation were intending to within the next 30 days. Students in the action stage reported that they had been effectively practicing stress management in their daily life for less than 6 months, whereas those in the maintenance stage were practicing for more than 6 months.

2.2.2. Procedure

The researcher visited the schools and administered the questionnaire in the classroom. The students were given verbal instructions with regard to how to complete the questionnaire. After the opportunity for clarification and questions, they responded to the measures. Generally, the completion of the questionnaires required 15-20

min. The first and the second phase of the study were conducted with the permission of the Greek Ministry of Education and the children voluntarily chose to participate.

3. Results

Factor analysis of the stress sources questionnaire

In table 1, results from oblique rotation (direct oblmin) are reported. Three factors with eigenvalues greater than 1 emerged, accounting 41.11% of the variance. The minimum loading used to identify items to factors was .30. The first factor was constructed by 10 items reflecting stress in physical education lesson. The second factor comprised 7 items, implying stress generally in school and the third factor including 7 items, suggesting students' stress in daily life.

Reliability analysis showed that all scales had an acceptable level of internal consistency. As is shown in table 2, for all scales but one the reliability alpha coefficients were 0.65 or above. Intercorrelations among factors appear in table 2. The factors had low relationships, suggesting that they are independent of each other.

Table 1

Principal components factor of the stress sources questionnaire following oblique rotation.

Items	Factor		
	1	2	3
A low test performance in athletic skills	0.78		
My classmates are laughing at me because I'm not good enough in an exercise	0.73		
I'm afraid I'll have the worst performance in physical education lesson.	0.67		
My team misses the game and the others are laughing at us	0.66		
I can't achieve an athletic skill	0.65		
The ways the physical education teacher behave towards me.	0.62		
The low grade in physical education lesson	0.61		
I'm afraid i won't make the shot (basketball or football)	0.61		
Not be chosen for the school team	0.59		
My body image in physical education lesson	0.37		
I'm not well prepared for the lesson in school		0.74	
The grades in the trimester		0.72	
Written evaluations / low grades in a test		0.71	
The bad performance generally in the lessons		0.69	
The way the teacher behave towards me		0.62	
When I know that the next day I'll have to take a difficult test		0.59	
I must answer correct to my teachers' questions		0.58	
The pressure from my parents for good grades			0.63
A conflict with a peer			0.67
The extracurricular activities			0.56
My relationships with friends			0.56
My friends are teasing me			0.46
I'm leaving out of the group of friends who are playing			0.45
Too much homework / difficulties with work management		0.34	0.39
Percent of variance (%)	23.36	10.61	7.14
Eigenvalue	5.8	2.6	1.7

Table 2

Means, standard deviations, internal consistency and correlations of the factors.

Factors	Mean	SD	1	2	3	a-cronbach
Stress in daily life	2.58	0.69		0.265*	0.209*	0.65
Stress in school	3.11	0.82			0.213*	0.80
Stress in physical education lesson	2.19	0.80				0.84

Table 3

Age – group means and standard deviations.

Sources of stress	Primary school		High school		Senior high school	
	Mean	SD	Mean	SD	Mean	SD
Too much homework / difficulties with work management	2.64	1.11	3.17	1.10	3.64	1.08
The pressure from my parents for good grade	2.61	1.36	3.21	1.37	2.88	1.28
My relationships with friends	2.05	1.37	2.11	1.13	2.40	1.23
A conflict with a peer	2.24	1.21	2.35	1.20	2.54	1.13
The extracurricular activities	2.75	1.45	2.55	1.25	2.85	1.33
The grades in the trimester	3.46	1.43	3.72	1.37	4.02	1.06
Written evaluations / low grades in a test	3.53	1.35	3.58	1.35	3.84	1.20
The way the teacher behave towards me	2.31	1.33	2.97	1.42	2.94	1.16
I'm not well prepared for the lesson in school	3.11	1.49	3.38	1.35	3.45	1.17
Feeling left out of the group of friends who are playing	2.12	1.40	2.31	1.40	2.36	1.25
The bad performance generally in the lessons	2.76	1.53	3.21	1.38	3.61	1.09
When I know that the next day I'll have to take a difficult test	3.11	1.42	3.34	1.29	3.63	1.07
My friends are teasing me	2.58	1.37	2.49	1.21	2.81	1.25
I must answer correct to my teachers' questions	3.08	1.38	3.21	1.21	3.19	1.22
Not be chosen for the school team	2.55	1.34	1.80	1.27	2.23	1.34
My classmates are laughing at me because I'm not good enough in an exercise	2.55	1.28	1.71	1.21	2.03	1.00
The ways the physical education teacher behave towards me.	2.17	1.15	1.40	.73	2.12	1.20
My team misses the game and the others are laughing at us	2.53	1.43	1.61	.96	2.04	1.09
A low test performance in athletic skills	2.52	1.18	2.00	1.21	2.15	1.00
My body image in physical education lesson	2.37	1.23	2.12	1.40	2.83	1.37
The low grade in physical education lesson	2.60	1.39	1.94	1.30	2.33	1.30
I can't achieve an athletic skill	2.53	1.30	1.78	1.08	1.98	.86
I'm afraid i won't make the shot (basketball or football)	2.33	1.26	1.96	1.11	2.64	1.24
I'm afraid I'll have the worst performance in physical education lesson.	2.82	1.41	2.00	1.33	2.35	1.11

Stages of change for stress management

In figure 1 stages of change for stress management are presented with statistically significant differences in the precontemplation and preparation stage ($\chi^2_{(4)} = 8.20, p = .042$).

Age-group differences in the stress sources

For each item of the three factors, a One-Way Anova was conducted with class level as the independent variable and item score as the dependent variable (Table 3). Univariate F tests and Scheffe post-hoc tests followed in order to examine between group differences.

Statistically significant differences were found among the age groups in the first factor (stress in physical education lesson) in the items: "The way the physical education teacher behave towards me" ($F_{(2,297)} = 17.07, p < .05$) and "My team misses the game and the others are laughing at us" ($F_{(2,297)} = 14.89, p < .05$), "A low test performance in athletic skills" ($F_{(2,297)} = 5.39, p < .05$), "The low grade in physical education lesson" ($F_{(2,297)} = 6.10, p < .05$), "Not be chosen in the school team" ($F_{(2,297)} = 8.02, p < .05$), "My classmates are laughing at me because I'm not good enough in an exercise" ($F_{(2,297)} = 12.40, p < .05$), "I'm afraid I'll have the worst performance in physical education lesson" ($F_{(2,297)} = 10.05, p < .05$), with higher scores reported by primary school students. Differences between high school and senior high school students were found in the items: "I'm afraid I'll not succeed in the shot (basketball or football)" ($F_{(2,297)} = 7.99, p < .05$) and "My body image in physical education lesson" ($F_{(2,297)} = 7.25, p < .05$), with higher scores reported by senior high school students.

In the second factor (stress in school) statistically significant differences were found in the items: "The way the teacher behave at me" ($F_{(2,297)} = 7.95, p < .05$), "When I know that the next day I'll have to answer in a difficult test" ($F_{(2,297)} = 4.14, p < .05$), "The bad performance generally in the lessons" ($F_{(2,297)} = 9.94, p < .05$) and "The grades in the trimester" ($F_{(2,297)} = 4.52, p < .05$), with higher scores reported by senior high school students.

In the third factor (stress in daily life) statistically significant differences were found in the item: “Too much homework / difficulties with work management” ($F_{(2,297)} = 19.81, p < .05$), with higher scores reported again by senior high school students.

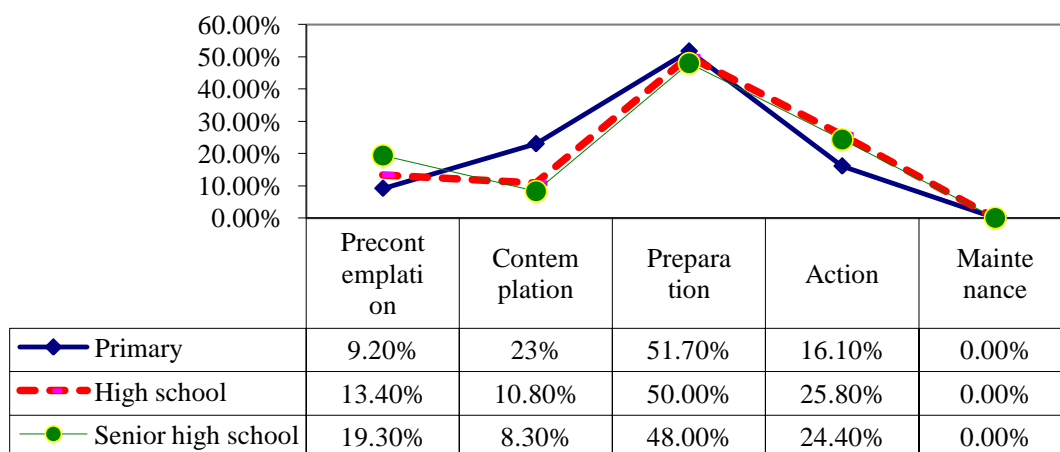


Fig.1. Stages of change for stress management

4. Discussion

The main purpose of the study was to describe the research efforts toward the development of a questionnaire to measure sources of stress in Greek primary and secondary school children, following exploratory interviews. In this respect, the factor analytic results were encouraging the construct validity of the instrument, with three factors: stress in physical education lesson, stress in school and stress in daily life. With regard to the reliability of the scale, examination of the Cronbach’s alpha showed that the scale was reliable. The results of the study concur with past findings, which indicate that school may be a basic source of stress experiences for children (Simmons & Blyth, 1987; Phelan, Yu, & Davidson, 1994). Generally it was found that the grades in the trimester, the written evaluations, the low grades in a test, the excessive homework and the difficulties with work management are the main stress experiences in the Greek school children. From primary to middle school there was a significant increase in the mean frequencies of the stress types (e.g. school work and achievement, peer relationships) (Paterno, 1987), and academic stressors (e.g. having more difficult school work, higher expectations for performance) were the most severe stressors for children (Elias, Gava, & Ubriaco, 1985).

Success in many schools is associated with the accumulation of “correct” answers and “high” scores in academic subject areas, especially reading, math and science. Students with the best scores are often selected for enrichment or given other special opportunities to accelerate their academic power (Elias, 1989). The competition to be “the best” pervades many school climates. But too few children have access to this valued role and the resulting pressures have been acknowledged to contribute to a sense of failure and alienation (Lightfoot, 1987). Psychologically the pressure on children is generated in the form of expectations that either cannot be met or are difficult to meet. It is well known that a sense of self-efficacy – a sense that one’s efforts are worthwhile and that one can attain things that are rewarding, enjoyable and fun – is a fundamental component of positive mental health and sound social adjustment (Elias, 1989).

The Greek educational system is especially competitive and exam oriented, with only one goal orientation predominating in academic contexts: an ego performance goal, which denotes a major concern about normative ability. Success is defined as doing better than others and normative criteria of evaluation are adopted. Ego involved students try to outperform others and achieve normative records, feel more satisfied when they establish superiority and interpret mistakes as personal failure (Dweck & Legget, 1988). Learning is conceived as a means to exhibit superiority and is not experienced as intrinsically satisfying (Nickolls, 1989). In Greek school system the cooperative learning, the experience approach to knowledge, the inter – scientific knowledge, the alternative

didactic styles are excluded, because of the pure competition and the graduation. The main educational target is the achievement of the best grade in multiple lessons. As a result, children experience more stress.

From the research it was found that the “the pressure from parents for good grades” is a major source of stress in children. Parents are looking to schools to contribute to their children’s future success. Rather than take a developmental perspective on their children’s education, many parents want to see each day used to maximize achievement and skills mastery. Free play is increasingly relegated to a category of “nonproductive use of time”. Pressures are being placed on schools to increase academic instruction despite considerable evidence that this may not only be unnecessary, but also harmful (Elias, 1989).

The stressor of not being good enough at sports (low performance in athletic skills, I can’t achieve an athletic skill, I’m afraid I’ll have the worst performance in physical education lesson) was identified mostly in primary school children. This stressor may relate to Elkind’s (1988) impression that children experience too much pressure to excel in too many things, with too little time for unstructured play. Greek physical education in grades 3-12 is largely sport oriented, with competitive activities, team sports dominating the curriculum (Diggelidis, Papaioannou, Lapidis, & Christodoulidis, 2003) and low emphasis on learning goals (Diggelidis & Papaioannou, 1999). Based on the achievement motivation theory (Duda, 1996), one can hypothesize that curricula based almost exclusively on competitive activities or on a sport education model (Siedentop, 1994), will cause stress for the students with low athletic ability and some may feel in disadvantageous positions. When an ego or performance goal is salient, people are concerned with how good they are at the particular task (e.g. when children are told “we are going to have a race to see who is fastest”). Consequently, the main interest is to show evidence of ability in a normative manner. For instance, individuals try to beat others, outperform a high normative performance or achieve success with little effort. Individuals experience failure and negative emotion when they are evaluated as having lower abilities than others (Papaioannou, 1994). As a result children experience more stress.

Another stressor is “feeling left out of the group”. Being ostracized from a peer group may have a negative impact on children’s self-esteem, which may carry into adolescence and adulthood. Strategies for self-esteem enhancement could include role-playing to explore adaptive responses to these situations and assisting children to develop a peer group that matches their own strengths and skills.

Regarding the stages of change for stress management, it was found that the 50% of the primary, high school and senior high school children were categorized in the preparation stage. These students intended to make a change for stress management within the next 30 days, according to the brief definition for stress management, which was determinate in the questionnaire (Velicer et al., 1988), and none of the participants were categorized in the last stage of change, the maintenance stage.

School environment and school curriculum are basic sources of stress experiences in children and adolescents. Appropriate didactic school interventions must be implemented in the daily curriculum for stress management, an active process implying change (Padlina et al., 2001). The findings point to the school environment as the most appropriate site for intervention, not only because of the accessibility to the population, but because the stressors reported to be experienced most frequently by children and adolescents are those relating both directly and indirectly to the school environment. The press of time, achievement and expectations weigh heavily upon this population. A critical component of any intervention should be a thorough examination of the major stressors in the school environment to determine how they contribute to the students’ level of stress and what changes can be made to alter these elements to provide an environment that simultaneously promotes health and learning (DeAnda, Baroni, Boskin, Buchward, Morgan, Ow, Gold, & Weiss, 2000). Intervention programmes must develop a wide range of coping skills and might play an important role in promoting and/or improving effective coping by encouraging the flexible use of different coping skills in response to school-related stressors (Murberg & Bru, 2007).

Various curricular areas offer practical opportunities to promote stress management (DeWolfe & Saunders, 1995; Gilbert & Orlick, 1996). School-based life skills programs that focus on such strategies as relaxation, problem solving, and positive perspectives are successful in teaching children and adolescents how to control their stress (Dubow, Schmidt, McBride, Edwards, & Merk, 1993; De Wolfe & Saunders, 1995; Gilbert & Orlick, 1996; Lohaous, Klein-Hebling, & Shebar, 1997; Pincus, & Friedman, 2004; Hampel, Meier, & Kummel, 2007). Curricular areas that offer opportunities for curriculum infusion include:

- a) Health Education: Mental and emotional health is one of the 10 major content areas of health education, and stress management techniques can be taught as a part of this unit. Also, stress management can be addressed in other health content areas such as family living; nutrition; personal health; physical fitness;

and tobacco, alcohol, and other drugs. Personal and social skills--decision making, problem solving, communication, conflict resolution, peer resistance, and goal setting--are essential in helping children to cope with stress. There are numerous skill-building activities that can be used in the classroom (Miller, Telljohann, & Symons, 1996; Bender, Neutens, Skonie-Hardin, & Sorochan, 1997).

b) Physical Education: Many of the health benefits derived from regular physical activity are directly related to stress management, including the reduction of depression and anxiety and the promotion of psychological well-being and improved vitality. Daily physical education provides students with multiple opportunities to engage in physical activity and to develop personal and social skills. Through quality physical education, students can learn various relaxation techniques (including the basics of deep breathing), acquire the knowledge and skills for participating in lifelong regular physical activity, develop self-discipline, learn how to cooperate with others, and have fun in the process (Brown, & Lawton, 1986; Steptoe, & Butler, 1996; Salmon, 2001; Theodorakis, Natsis, Papaioannou, & Goudas, 2002; Roemmich, Gurgol, & Epstein, 2003).

On the other hand, it is likely that some degree of environmental or contextual stress is a reality of life for most children. For this reason, it is also important to teach children how best to cope with and manage stressors. However, it is also important to incorporate training in coping skills, particularly for children with the highest levels of stress, that address how to manage school failure, lack of support, etc. Such efforts will likely benefit children's social and emotional development as well as helping them succeed in school (Morales, & Guerra, 2006).

Schools must promote classroom environments without stressors, which support learning. Removing even one stressor from a child's life can lead to a significant improvement in the overall situation. Eliminating a stressor will help to reduce the multiplicative effects of stress and also assist in making the child feel stronger and more capable in dealing with the other stressors (Hample et al., 2008) It is therefore imperative for parents and educators to recognize the degree of the stress experienced by their children, be aware of the types of the events that children perceive as stressful and the ways in which children cope with anxiety-producing stressful situations. Better informed parents and educators can then be good role models and successfully help children to deal with stress by utilizing positive and effective coping mechanisms.

4.1. Limitations of the study

This study has some potential limitations. The study represents students' views from some Greek primary and secondary schools, placed in suburban and urban areas of west-north-west Greece, thus the conclusions are mostly applicable to those students. Another limitation concerns the adequacy of the school stressors in Greek educational system that was used. Although I attempted to create an instrument that captured the most common stressors in Greek school children, it may well be that I have missed some important stressors. Additionally I'm also aware that some of the report elements would be closely related to the specific school's environment, so generalization is left to the reader. One more limitation is that the perceived school related sources of stress scale used in this study (even if the construct validity of the instrument was generally supported through the results of the factor analysis), was not an internationally validated instrument and the results may differ from results obtained in studies using different stress scales.

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