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LIFE EVENTS AND SOCIAL SUPPORT IN A 1-YEAR PRECEDING PANIC DISORDER

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SUMMARY

Background*: The aim of the study was to examine the frequency and class of life events, as well as social support, in patients with panic disorder (with/without agoraphobia) (PD/PDA) in a 1-year period preceding the onset of panic attacks.*

Subjects and methods: *The study sample included 40 patients (PD/PDA) (of an average age of 39.25, SD 6.96), and 40 matched healthy controls (M 37.50, SD 8.05). The following instruments were applied: DSM-IV criteria for PD/PDA, Stressful Life Events Scale, Social Support Index (SSI), Family Coping Coherence Index (FCCI), Relative and Friend Support (RFS) and Family Hardiness Index (FHI). The study was retrospective.*

Results: *Patients with PD/PDA compared to the healthy controls, had significantly increased frequency of negative life events (M 3.8, min 0, max 11) ($p<0.05$). With respect to the class of life events, PD/PDA patients reported significantly more frequently: mild somatic illness, serious somatic illness, conflict with a member of the extended family, separation from a significant person ($p<0.05$) and frequent marital conflicts ($p<0.01$). The patients compared to the healthy controls, had significantly lower level of social support by SSI, FHI, and FCCI ($p<0.001$). By RFS, there were no significant differences between the two groups.*

Conclusion*: Increased frequency of negative life events (particularly somatic illness, interpersonal conflicts and separation), combined with absence of the most part of the supportive quality of the environment (particularly family support), precede the development of PD/PDA in vulnerable persons.*

Key words: *panic disorder (with/without agoraphobia) - life events - social support*

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INTRODUCTION

Numerous studies indicate that stressful life events are key precipitants of psychological disturbances. Severe stress often precedes the onset or exacerbation of illness in vulnerable individuals, and may be of primary importance in the genesis of some mental disorders. Social support may reduce the risk of a mental disorder by mitigating aversive effects of stressful life events, pointing to the aspect of supportive or stress provoking quality of the environment. Mechanism of the effect of social support is buffering (it mitigates the effects of aversive life events), although there are also data that social support may be an independent causal factor in the genesis of a disorder. In return, life events may change the role and structure of social support with respect to the range, frequency and stability of interactions.

Several authors have suggested that major life events play a role in the development of panic disorder. Venturello et al. (2002), indicated that the environmental factors play a major role in the development and/or in precipitating of adult-onset panic disorder.

Goldberg (1994) found that anxiety was connected with a long-term illness, onset of a physical illness, stress at work and in social life. Thoughts related to the threat of possible pain, physical discomfort, subjective anxiety, worry and tension are the best predictors of panic. It is known that a panic disorder occurs after life-threatening illness or accidents and losses. The risk may increase in the postpartum period.

According to Schulman et al. (1994), the most frequent precipitating events include injury/illness, interpersonal conflicts, loss, and separation. Faravelli and Pallanti (1989) found the excess of life events two months prior to the onset of panic attacks, particularly illness or death of a person from the household or a relative. Roy-Byrne et al. (1986) point to statistically significantly more life events in patients one year prior to the onset of panic disorder, and these events had more adverse impact on them. The patients reported events involving moves to other neighborhoods and/or cities, far more frequently than did healthy control subjects.

According to Katon (1994), physical illness, major life stress, or stimulate medications that increase activity in the brain may trigger first panic attacks. Manfro et al. (1996) found that negative life events, during the year prior to the onset of panic disorder, occurred in the majority (80%) of patients. Patients with a childhood history of anxiety and comorbid adulthood major depression were more likely to report an antecedent, stressful life event. Antecedent life events were not linked with comorbid, adulthood anxiety disorders or a family history of anxiety difficulties. Despite its associations with childhood anxiety pathology and adulthood major depression, the presence of identifiable antecedent life event at the onset of panic disorder was not associated with the subsequent severity or course of the disorder.

Scocco et al. (2007) examined the stressful life events, in particular focused in the interpersonal psychotherapy problem areas (grief, role disputes, role transitions, interpersonal deficits) in patients suffering from panic disorder (with/without agoraphobia). They found that all subjects had relevant interpersonal problems in the year preceding the onset of panic disorder: 92.7% had experienced a role transition, 85.5% interpersonal deficits, 74.5% a role dispute, and 38.2% had suffered the loss of a relative or significant other.

In the study of Rapee et al. (1990), there were no significantly more life events in the panic patients six months prior to the onset of panic, but the anxious subjects, compared to the normal controls, assessed such events as significantly more negative.

De Loof et al. (1989) found that, compared with the obsessive-compulsive patients, the patients having a panic disorder do not differ with respect to the number of life events in the year prior to the onset of the disorder. However, through the entire life cycle, the panic patients were exposed to a higher number of life events than the obsessive-compulsive patients.

Savoia and Bernik (2004) investigated the relation between life events, coping skills and panic disorder. No differences were observed between panic patients and controls regarding the number of reported stressful life events in a 1-year period preceding the onset of panic attacks. Panic patients compared to controls reported loss of social support as the most meaningful class of events significantly more often. In response to stressful situations, panic patients more often used coping skills judged as ineffective. Their study suggests that the type of life event and the coping skills used in response to them, may be more important than the occurrence of a stressful life event by itself.

On the other hand, social support may reduce the risk of a mental disorder by mitigating aversive effects of stressful life events, or may have an independent effect on mental health, regardless of the presence or absence of stressful life events.

In general way, social support correlates with the onset of a mental disease. Three mechanisms of effects are possible: 1) Direct effect on health, 2) Effect on alleviation of tension, and 3) Effect a buffer, protector in the period of confrontation with stress. Social support can be conceptualized with regard to numerous variables: a) The level of social integration; b) Subjective experience of the quality of interpersonal relations; c) Assistance and support by other persons; d) Actual supportive behavior (Barrera 1986, Sarason & Sarason 1985, Syme 1984, Bruhn & Philips 1984).

Katerndahl and Realini (1997) in their study identified associations between panic states and family structure, functioning, and stress/support, compared to matched subjects without panic symptoms. Although groups did not differ in either perceived or ideal family cohesion or adaptability, the panic group perceived their families as more dysfunctional, and reported higher levels of family

stress and total stress but lower levels of support, including family support, non family support, and total support.

The aim of our study was to examine the frequency and class of life events, as well as social support, in patients with panic disorder (with/ without agoraphobia) (PD/PDA) in a 1-year period preceding the onset of panic attacks. Examination of life events for a period which extended one year is problematic due to unsecure recollection, but shortness of this period care the risk of taking account only acute, but not prolong and cumulative effects of stressful life events. The body of the research of the impact of life events on psychopathology includes one year preceding period.

SUBJECTS AND METHODS

Sample

The study was undertaken among the patients suffering from panic disorders (with/without agoraphobia) treated in the Institute of Psychiatry of the Clinical Center of Serbia. The sample of healthy controls was selected in five companies in Belgrade and in the Labor Market Bureau in Belgrade, matched with the group of patients with respect to the age, gender, marital status, employment (the reason for selecting a number of unemployment healthy controls), number of children, education, and housing status. The study sample included 80 subjects divided in two groups of 40 subjects.

The first group included 40 patients who fulfilled the diagnosis of Panic disorder (with/without agoraphobia) according to DSM-IV (APA 1994) criteria.

The following differential diagnostic disorders were excluded in the first group of subjects: medical states from which anxiety may originate (hyperparathyroidism, pheochromocytoma, convulsive disorders, vestibular dysfunction, cardiological states), intoxications with a substance, other anxious disorders (social phobia, specific phobias, posttraumatic stress disorder), separation anxiety, psychotic disorders. All the patients passed psychiatric, medical (internist, otorhinolaryngological, endocrinological, and ophthalmological examinations), laboratory (complete blood count, T3, T4, TSH), and electrophysiological examination (EEG).

The control group of subjects included 40 persons without manifest psychopathology and without somatic illness, and in whose history there were no data on mental disorders or psychiatric treatment. Particularly, the above subjects did not meet the diagnostic criteria for Panic disorder (with/without agoraphobia).

Measures

The following study instruments were used in this study: Clinical interview; Case histories; DSM-IV (APA 1994) criteria for diagnostics Panic disorder (with/without agoraphobia); Stressful Life Events Scale (Paykel et al. 1971), Social Support Index (SSI) (McCubbin et al. 1982), Family Hardiness Index (FHI) (McCubbin et al. 1986), Family Coping Coherence Index (FCCI) (McCubbin et al. 1982), Relative and Friend Support (RFS) (McCubbin et al. 1982).

Stressful Life Events Scale (Paykel et al. 1971) consists of 61 items. Events are ranked by the degree of disastrousness and "units of life changes" they bear, and were selected based on the study of a large number of subjects, which pinpointed and ranked not only the events that, according to the experience of the subjects, have the greatest significance in life but also based on the dramatic quality of certain situations. The scale can be used in normal and psychiatric population, as well as for investigation of differences between certain socio-demographic groups. The option is thereby given to add life events that are not included in the list (items exceeding number 61). The degree of stress caused by the events can also be rate. Because of the study design (retrospective for a one year period), subjects in our study assessed life events as negative / positive, as they could not precisely (from a time distance) numerically rate the level of stress caused by events.

Social Support Index (SSI) (McCubbin et al. 1982) measures the degree to which the patient and the family he/she belongs to are integrated in the social community as a possible source of emotional support, affirmation, and backing.

Family Hardiness Index (FHI) (McCubbin et al. 1986) is the questionnaire for assessment of resilience of a family with respect to a stress, as well as of adaptive resources that mitigate the effect of a stressor. The concept of hardness is related to inner strength and toughness of the subject's family, and it is featured by the feeling of control over the outcome of life events, identification of changes, and active approach in overcoming the crisis situations.

Family Coping Coherence Index *(FCCI)* (McCubbin et al. 1982) reflects the degree to which the subject's family functions in harmony, relying on its capacities to properly assess and overcome life events, positive redefinition of problems and trust in God.

Relative and Friend Support (RFS) (McCubbin et al. 1982) consists of items that assess the degree to which a subject and his/her family contact their relatives and friends for support.

Statistical analysis: In the statistical analysis of the data, descriptive statistical measures were used and, for testing of the hypotheses, chi-square test, exact probability test, Kruskal-Wallis test, Mann–Whitney U test, ANOVA and HSD (Tukey) post hoc testing. Chi-square test was used as the homogeneity test for testing of the significance of the difference in incidence of phenomena of interest for the study. In the situations when the expected frequencies in contingency tables were low, exact probability test was applied. Alpha=0.05 was taken as the level of significance in the process of statistical testing of hypotheses. The results of the statistical analysis are graphically presented (in tabular and figure forms).

RESULTS

Socio-demographic characteristics of the sample

There were no statistically significant differences in the socio-demographic status between the two groups of subjects. The sex ratio and the mean age did not differ (panic disorder group: 19 males/21 females, mean age 39.25, SD 6.96; healthy controls: 20 males/20 females, p=1.00; mean age 37.50, SD 8.05, p=0.30). There were no differences in marital status (married/ single/divorced/widow(err): 24/14/2/0 vs. 24/11/4/1, p=1.00), education (elementary/ secondary school/ higher: 4/33/3 vs. 3/34/3, p=1.00), employment status (unemployed/ employed/pension: 11/28/1 vs. 12/28/0, p=1.00), housing (unresolved/ resolved: 12/28 vs. 5/35, p=0.10), and the number of children in the families of the panic disorder patients and the healthy subjects (M 1.89, range 1-3, vs. 1.52, range 0-3, p=0.16).

Life events

As shown in Table 1, one year prior to the onset of a disorder, the patients with panic disorder (with/without agoraphobia), compared to the healthy controls, had significantly increased incidence of life events (M 4.0, min 1, max 11, vs. M 1.5, min 0, max 6) ($p < 0.05$). As opposed to the healthy controls, negative life events were significantly more frequent in patients (M 3.8, min 0, max 11, vs. M 1.2, min 0, max 6) ($p<0.05$). There were no statistically significant difference in positive life events (p=0.52).

With respect to the class of life events, the patients with panic disorder (with/without agoraphobia) had significantly more frequently a mild somatic illness, (33% vs. 8%) ($p<0.05$), serious somatic illness (30% vs. 8%) ($p<0.05$), frequent marital conflicts (25% vs. 0%) ($p<0.01$), conflict with a member of the extended family (20% vs. 3%) ($p<0.05$), and separation from a significant person (18% vs. 8%) ($p<0.05$).

In the panic disorder patients, compared to the healthy controls more frequent, but not statistical significant were (in order to appearance at the Stressful Life Events Scale): death of a close family member (p=0.402), infidelity of the spouse (p=0.494), major financial difficulties (p=0.181), business failure (p=0.108), separation of spouses due to conflict (p=1.000), one-month unemployment (p=0.087), death of a close friend (p=0.359), start of an affair (p=1.000), failure at school (p=0.615), frequent quarrels with parents (p=0.432), frequent quarrels with the partner (p=0.240), disagreements with the boss or a colleague from work (p=0.154), house-moving to another country (p=1.000), minor financial difficulties (p=1.411), change the job type (p=0.201), breakup of an intimate relationship

(0.116), house-moving to another town/city (p=0.116), a minor breach of law (p=0.494), marriage (p=1.000) and promotion at work (p=0.1000).

In the healthy controls, compared to those suffering from a panic disorder, more frequent were: spontaneous abortion (p=1.000), undesired pregnancy (p=0.494), an important examination=1.000), childbirth (for a mother) (p=1.000), enrolment for schooling (p=1.000) and engagement (p=1.000), but the above differences did not reach a statistical significance.

Social support

As shown in Table 2, there were a statistically significant difference between the groups of subjects by the values of Social Support Index (SSI), Family Hardiness Index (FHI) and Family Coping Coherence Index (FCCI). Panic disorder patients had very significantly (p<0.001) lower values, compared with the healthy controls. There were no statistically significant difference between the patients and the healthy controls by Relative and Friend Support (RFS) (p=0.052).

Table 1. Frequency of life events in a 1-year period (Stressful Life Events Scale)

	Panic disorder patients			Healthy controls			
	Mean	Min	Max	Mean	Min	Max	p
Total number of life events	4.0	1	11	1.5	0	6	0.023*
Negatively assessed life events	3.8	0	11	1.2	0	6	0.017*
Positively assessed life events	0.2	0	2	0.3	0	4	0.52

*statistically significant difference

Table 2. Analysis of Social Support Indexes

	Panic disorder patients		Healthy controls		p
	Mean	SD	Mean	SD	
Family Coping Coherence Index	12.2	3.6	14.8	2.3	<0.001*
Family Hardiness Index	30.3	7.7	38.8	6.0	<0.001*
Relative and Friend Support	22.1	6.8	19.1	6.8	0.052
Social Support Index	22.3	5.8	27.2	5.0	<0.001*

*statistically significant difference

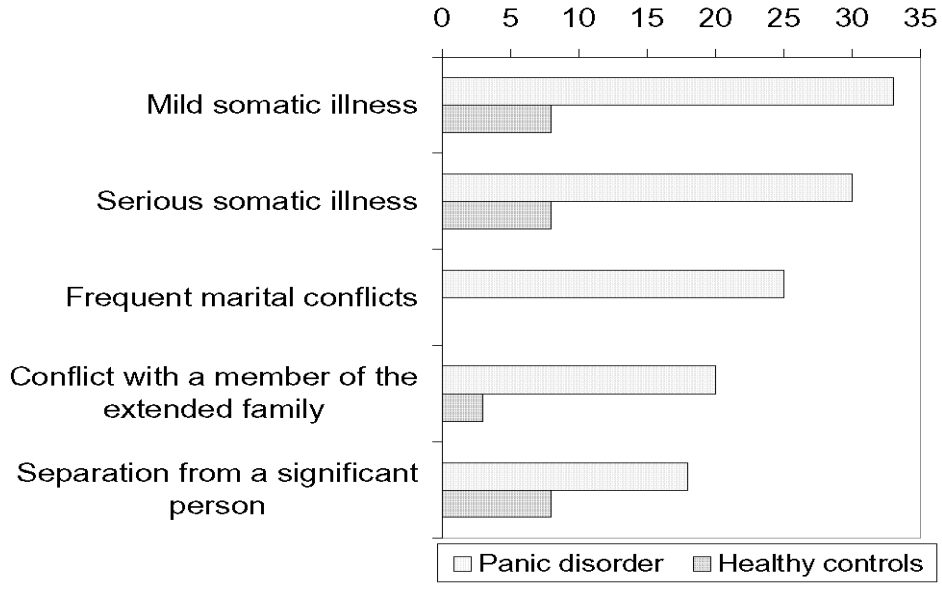

Figure 1. Frequency of life events class in a 1-year period (Stressful Life Events Scale)

DISCUSSION

The analysis of life events 1-year preceding the onset of panic disorder points to the significantly higher incidence of life events (M 4.0, min 1, max 11), compared to the healthy controls (M 1.5, min 0, max 6) ($p<0.05$). Moreover, the patients had significantly higher number of negative life events (M 3.8, min 0, max 11, vs. M 1.2, min 0, max 6) ($p<0.05$). The above findings are in line with the data from the literature (Venturello et al, 2002) that environmental factors (life stress) play the leading role in the development and/or precipitation of the onset of panic disorder. Other studies have also confirmed that the panic patients have significantly more life events prior to the onset of the disorder, which they assessed as significantly more negative compared to those of the healthy controls (Manfro et al. 1996, Rapee et al. 1990, Faravelli and Pallanti 1989, Roy-Burne et al. 1987).

Analysis of the class of life events in a 1-year period prior to the onset of a disorder indicates that, compared to the healthy controls in panic patients were significantly more frequent: a mild somatic illness ($p<0.05$), serious somatic illness ($p<0.05$), frequent marital conflicts ($p<0.01$), conflict with a member of the extended family ($p<0.05$), and separation from a significant person ($p<0.05$). Thereby somatic illness, interpersonal conflicts and separation appear as predictors of development of panic disorders (with/without agoraphobia). The above findings are also in compliance with the data from the literature that suggest that a panic disorder occurs after life-threatening diseases, separations or losses, and events outside the patient's control (Scocco et al. 2007, Savoia & Bernik 2004, Faravelli & Pallanti 1989). Significant presence of a serious and a mild somatic illness, in one year preceding the onset of panic disorder, is in compliance with the standpoint of other researchers that anxiety related to the threat of possible pain or physical discomfort, in combination with excessive autonomous excitement is the best predictor of the symptom of panic (Goldberg et al. 1994).

Data from the literature point to the role of social support in maintaining the state of mental health and modification of the effects of aversive life events (Cobb 1976). In our study, the data on the social support were obtained by the analysis of Social Support Index (SSI), Family Hardiness Index (FHI), Family Coping Coherence Index (FCCI) and Relative and Friend Support (RFS).

The analysis of Social Support Index (SSI) indicates that the patients having a panic disorder have very significantly ($p<0.001$) lower values compared to the healthy controls, which suggests a significantly lower degree to which the patients with a panic disorder within their families are integrated in the social community, identify it less as a source of support, and less feel that the community may offer them affirmation and a supportive social network. This indicates that, in the case of those suffering from panic disorder, there is the lack of social integration and positive effects of social regulation on provision of stable and awarding roles, promotion of healthy behavior, and maintenance of stable functioning during the period of occurrence of life stressors. Additionally, the quality of interpersonal relationships, i.e. the feedback information is lacking, that make the subject feel that he/she belongs to the network of social communications and mutual obligations.

There was a statistically significant difference by Family Hardiness Index (FHI) between the patients with a panic disorder and the healthy controls. The patients with a panic disorder had significantly lower values by this Index, which points to a low resilience of their family system to stress and scarce adaptive resources for mitigation of the effect of a stressor, flexibility, and adaptation. Inner strengths and toughness of their family systems were low and are featured by experience of lack of control over the outcome of life events and difficulties, negative approach to changes, passivity, and resignation regarding overcoming of crisis situations. The results of other studies also corroborate that, compared to the healthy controls, the panic patients experienced a lower level of family support (Katerndahl and Realini 1997). Thus the patients with a panic disorder lack social support as a subjective experience of the quality of intimate interpersonal relations that provide feedback information that the subject is loved, appreciated, and protected.

Unsatisfactory intimate interpersonal relations within the family do not meet the requirements for affiliation and needs for love, the feeling of similarity and belonging, positive self-assessment and experiencing of control over life events.

The patients with a panic disorder, compared with the healthy controls, had a statistically significantly lower Family Coping Coherence Index (FCCI) in coping with difficulties in life, which points to a disharmony in family functioning, and poor capacities for proper assessment and overcoming of stressful life events and negative definition of problems in coping with difficulties.

There were no statistically significant differences between the patients and the healthy controls by Relative and Friend Support (RFS) ($p=0.052$). When a support within the family is lacking, the request for company and support is focused on relatives and friends.

The obtained results, after the analysis of the aspects of social support supportive are for the most part in compliance with the data from the literature (Katerndahl and Realini 1997) that the panic patients, compared with the subjects without panic, report lower levels of social support, including family support and total support. In the case of those suffering from panic disorder (with/without agoraphobia), there was absence of the buffering and modifying effect of social support (particularly family support) on the effects of stressful life events, and its reparative role in maintenance of the state of mental health.

Study limitations

The presented study has certain limitations. Examination of life events for a period of one year prior to the development of a panic disorder was retrospective. Retrospective studies show well-known difficulties. Possibility of incorrect recollection is present, under the influence of cognitive distortions conditioned by the presence of psychopathological phenomena. However, most of the studies of life events and mental disorders in epidemiological studies also depend on retrospective data of the events that took place in the preceding days, weeks, months or years. As we are reminded by Paykel (1994), retrospective approach is useful because there are many areas that cannot be studied otherwise. Although prospective studies of reactions to life events are preferable, the incidence of numerous psychiatric disorders in the general population is low, so that it would be difficult to form an adequate sample as a framework that would be strictly prospective with respect to the occurrence of life events.

In our study, minimization of cognitive distortions in the accounts of the patients was bypassed by a gentle interview technique, and by postponing examination about life events and social support up to the remission of a panic disorder (with/without agoraphobia). The period of time prior to the onset of the disorder is important, because the events that are rather the consequence than the cause of the disorder are thus avoided. The onset of the disorder was clearly defined by the occurrence of the first panic attack.

CONCLUSION

Increased frequency of negative life event was found in a 1-year period preceding panic disorder (with/without agoraphobia). Somatic illness, interpersonal conflicts and separation with the absence of the most part of the supportive quality of the environment (particularly family support), leads to the development of a panic disorder in vulnerable persons. Effects of life events on mental health and development of psychopathology have a practical implication, particularly in the area of prevention. With the cautious realism with respect to the prevention in the area of life events, many of which are outside the control of an individual or are inevitable consequences of a life cycle and of the nature of human relations, the importance of this study lies in its contribution to the establishing of the periods of a significantly increased risk. In the persons with distinct factors of vulnerability (heredity, aversive early developmental experiences, risk-factors in adult life), occurrence of life events may serve as an alarm, when making interventions in a crisis may prevent development of a distress and psychopathology.

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STRESS, COPING AND SOCIAL SUPPORT IN THREE GROUPS OF UNIVERSITY STUDENTS

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SUMMARY

Background: *The paper presents the findings of our study researching the differences in strategies for coping with stress, social support, hassles and uplifts of sport, medical and psychology students at the University of Ljubljana, Slovenia.*

Subjects and methods: *A random sample of 237 Slovene undergraduate university students was studied. The three groups were chosen among students of medicine, sport and psychology.*

Results: *It was found that there were no significant differences in strategies for coping with stress between the three groups of students. Significant differences between the groups were found in the number of uplifts and hassles, but not in the mean of both variables. Sport students had less social support compared with the other two groups of students, but the difference between actual and ideal social support is not significant.*

Discussion: *The results were interpreted according to our hypothesis and compared with findings of research in students' stress.*

Conclusion: *Some suggestions for further research are given on the basis of the present research.*

Key words: *coping with stress - university students - hassles and uplifts - social support*

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INTRODUCTION

University students experience a variety of stress-related situations, which are daily hassles relating to teachers, student colleagues and studying at home (Spangler et al. 2002). It is generally believed that medicine is one of most demanding studies. Medical education is long and emotionally taxing (Radcliffe & Lester 2003). Medical students thus experience tremendous stress during their undergraduate study (Guthrie et al. 1998, Supe 1998, Spangler et al. 2002, Yiu 2005). On the other hand, the study of sport is supposed to be one of the easiest, being more physical training oriented, although few authors have empirically investigated the sources of stress and coping responses experienced by sport students. Only recently have Reed and Giacobbi (2004) expressed concern about stress and burnout in sport students. In their study they concluded that students of sport should be encouraged to use problem-focused and emotion-focused forms of coping with stress. There are also very few research data on how psychology students perceive stress and their strategies for coping with it.

Why did we select precisely these three groups of undergraduate students? Mainly because they are all learning to become professionals who, along with their basic profession, will also teach people to recognise and cope with stress. As teachers at these three faculties, we were interested in how students recognise their own stress and what strategies they use to cope with daily stress.

Because major life events are poor predictors of strain and distress (Kanner et al. 1981), we decided to assess minor life events, such as daily hassles. These are the irritating and distressing demands of daily existence. Concurrently we also considered daily uplifts, which are positive, boosting events that make one feel good. It seems

that hassles and uplifts have effects independent of major life events. We also stressed the question of social support because this could be seen as a potential for coping with stress or even become the coping style in itself.

In our research we were interested in both emotional and practical support, and in the difference between real and ideal support for both types (Power et al. Aris 1988).

Social support has been conceptualised as a component and as a context of adaptive behaviour. As a component, significant others constitute external social resources, which can be mobilised. They are providers of perception-focused, emotion-focused or tangible coping assistance. Both as a component and as a context, social factors influence appraisals of the situation and of personal control early in a person's career. As a contextual factor, cohesive social groups and dyads form a secure base and sense of existential anchoring or coherence, in which complex coping behaviour can take place (Waltz 1994).

Social support thus is subsumed into a very wide range of informal helping relationships between the individual and other people. Most commonly these people are friends and family, but various other people may help (Cowen 1982).

Psychological mechanisms, such as styles for coping with stress, are placed in the individual's social network, so the role of social support is thought to be crucial. The social support network could be a function of a certain coping style or vice versa. For instance, interpersonal coping with stress directly affects the availability of social support, which in turn influences the loneliness of the coping individual. Pleasant social coping behaviour increases social support and decreases loneliness, whereas unpleasant social coping behaviour reduces social support and increases loneliness (Kato 2002).

Avoidance coping behaviour is a powerful predictor of depression in both men and women (Felsten 1998). On the other hand, Felsten (ibid) also found that the correlation between stress and depression is stronger in students who use problem solving as behaviour for coping with stress. Felsten (ibid) furthermore argues that there is no difference between men and women in the use of either problem solving or avoidance coping strategies.

It is obvious that there is little evidence of the strategies for coping with stress in different groups of students who study under considerable stress and are expected to cope with it. There are some specific factors which could affect stress and stress coping styles, such as the term when stress is measured, specific institution, measures used etc. These specific factors could determine stress burden and stress coping styles and this can lead to the impression that there are considerable differences in stress burden between different kinds of students. But it is not possible to generalize such results. We expected that different groups of students could to a certain degree undergo different kinds of stress burden, but generally there are no statistically significant differences in hassles and uplifts, stress coping styles and social support between different groups of students.

The aim of our study was to compare the amount of hassles and uplifts, strategies for coping with stress, and social support between three groups of undergraduate students at the University of Ljubljana, Slovenia.

SUBJECTS AND METHODS

A convenience sample of three groups of undergraduate university students from three different faculties, i.e. medicine, psychology and sports, were asked to volunteer for the study after signing the informed consent. There were altogether 237 subjects included, 124 students of psychology, 37 students of medicine and 75 students of sport. The sample approximately represented the gender ratio of these three faculties (75% female students and 25% male students). Their age mean was M = 20.6 years and there was no significant age difference between male and female students.

The Coping Responses Inventory-Adult (CRI-Adult), Significant Others Scale (SOS), and The Uplifts and Hassles Scales were applied.

The Coping Responses Inventory-Adult (CRI-Adult), (Moos 1990) evaluates personal coping strategies and is based on eight scales. These are:

logical analysis, positive re-appraisal, cognitive avoidance, acceptance or resignation, seeking guidance and support, problem-solving action, seeking alternative rewards and emotional discharge. It is a 48-item questionnaire. Each coping response item is rated in terms of a four-point frequency scale, ranging from "never" (0) to "fairly often" (3). Stability of CRI scores suggests consistency over one year period despite variations in stressors. The reliability of the CRI has been investigated by means of internal consistency of the subscales and by the test-retest method over one year period. Moos (1990) reported that both measures indicated "satisfactory" reliability.

The Significant Others Scale (SOS), (Power et al. 1988) is designed to gather information from the individual on both their key supporters and the different types of help that they provide. It focuses on perceived rather than received support and on the adequacy of the perceived support. A seven point frequency scale is used, ranging from "never" (1) to "always" (7). There are two types of scores, one for actual support and the other for ideal support, each consisting of ten items and six or more relationships. Both types of support are referring to practical support and to emotional support. Then, difference between practical (ideal and perceived) and emotional (ideal and perceived) support is calculated. The test-retest reliability for all four summary support functions over six month period was 0.73 to 0.83).

The Uplifts and Hassles Scale (Kanner et al. 1981) assesses daily hassles, together with daily uplifts, as a measure of stress. The two Hassles and Uplifts scales consist of a list of 252 events in total, rated on four point scales of frequency and severity. There are 117 hassles and 135 uplifts. Originally, replies are based on experiences during the last month, but in our study a whole study year was taken into account. The hassles and uplifts items are rated in terms of their severity (0 to 3). The client is asked first to circle all hassles and uplifts experienced during the study year and then to rate them for severity and frequency respectively. Frequency scores are thus obtained (numbers of hassles or uplifts circled), which are not summed together. The intensity score is then generated by calculating an average for the severity of the hassles and frequency of the uplifts.

Reliability was assessed by the test-retest method over nine months. For the hassles scale the average correlation coefficient for the frequency score was r=0.79 while for the uplifts scale it was r=0.72. The associations between intensity scores were r=0.48 and r=0.60 respectively.

The study was approved by the National Ethics Commission. All participants signed a letter of informed consent. The instruments were applied in groups.

According to our hypothesis we examined the differences in daily hassles, uplifts, stress coping and social support between students from different types of faculties. Therefore, the ANOVA procedure was used. We compared all dependant variables between the three types of faculties. Data were analysed with the SPSS 13.0 for Windows statistical package.

RESULTS

It was found that severity of hassles ($F=2.134$; $df=2$; $p<.05$) and frequency of uplifts ($F=1.236$; $df=2$; $p<.05$) do not differ between different groups of students (Mean Hassles=1.63; SD=0.38; Mean Uplifts=2.01; SD=0.31). According to this interpretation of hassles and uplifts, the hypothesis regarding the difference between groups of students in hassles and uplifts is accepted.

There was significant difference found in number of hassles ($F=3.773$; $df=2$; $p<.05$) and in number of uplifts ($F=6.567$; $df=2$; $p<.05$). Students of psychology have a significantly higher number of uplifts; the other two groups of students don't differ significantly in number of uplifts (ANOVA - Bonferroni post-hoc test – mean difference between psychology and medicine students – $p<.05$; psychology and sport students – $p<.05$). According to this interpretation of hassles and uplifts our hypothesis is rejected.

Medical students have a significantly lower number of hassles than the other two groups. These two groups (students of psychology and students of sport) don't differ significantly in number of hassles. Descriptive statistics for all three groups is added below (Table 1).

Table 1. Descriptive statistics for Hassles and Uplifts scale

	Type of students	N	Mean	Std. Deviation
number of uplifts	Psychology	124	52.48	23.37
	Medicine	37	40.73	19.83
	Sport	75	42.37	22.77
number of hassles	Psychology	124	23.69	13.92
	Medicine	37	16.89	15.77
	Sport	75	23.50	12.14

Since differences were found in the number of hassles, we specified types of hassles and uplifts in which groups of students differ.

ANOVA was performed and all following differences were significant at p<.05 level. Students of psychology more often tend to misplace and to lose things, they don't have enough money for clothing and for housing and they don't have enough time to do things they like than the other two groups of students, which don't differ significantly. Students of psychology also report more often than the other two groups that they dislike their work duties while students of sport more often dislike their work duties than students of medicine.

Students of sport are less often inconsiderate smokers than other two groups of students but they have more often troubles with relaxing and with waiting, and they more often report about sexual problems (not physical). We didn't find typical hassles for students of medicine.

Students of psychology enjoy relaxing, socializing, entertaining, having free time and dreaming more than the other two groups.

Students of sport appreciate exercising and physical shape more than the other two groups. They also practice their hobbies more often than students of psychology, while students of psychology practise their hobbies more often than students of medicine. However, they enjoy reading and giving presents less frequently.

Students of medicine are more characterised by what they don't like as much as the other two groups, for instance practicing their hobbies, socializing, engaging in recreational activities and dreaming.

Further, it was not possible to conclude that there are typical styles for coping with stress for specific types of students (Table 2). ANOVA showed that differences between three groups of students were not statistically significant.

Table 2. ANOVA - F and p values and descriptive statistics for coping styles

	F	p	Mean for all groups	Std. Deviation
logical analyses	1.737	0.178	0.17800	3.747150
positive appraisal	1.934	0.147	9.64600	3.714770
seeking support	1.893	0.153	8.92547	3.302133
problem solving	1.812	0.166	10.35090	4.523160
cognitive avoidance	0.950	0.388	8.19250	3.829730
acceptance	2.246	0.108	6.17760	4.131770
alternative awards	0.949	0.389	6.78820	4.072620
emotional discharge	0.383	0.682	5.56830	3.616760

The hypothesis concerning coping styles, which didn't hypothesise statistically significant different coping styles between the three groups of students, is accepted.

There were significant differences found in actual and in ideal emotional support between students from different types of faculties (actual emotional support: F=9.236; df=2; p<.05; ideal emotional support: F=16.355; df=2; p<.05; actual practical support: F=10.842; df=2; p<.05; ideal practical support: F=14.111; df=2; p<.05). The discrepancy between actual and ideal support was not significant when all types of students were compared (difference in emotional support:

F=1.653; df=2; p<.05; difference in practical support: F=0.579; df=2; p<.05). That is, if there was lower ideal support in a certain group of students, then the actual support was also lower, and vice versa. Descriptive statistics for social support is added below (Table 3). Thus, the hypothesis regarding social support which hypothesised no significant differences in social support is rejected.

Table 3. ANOVA – descriptive statistics for SOS scale

	Type of Faculty	N	Mean	Std. Deviation
emotional support	Psychology	124	5.370	0.794
	Medicine	37	5.450	0.740
	Sport	75	4.890	0.940
ideal emotional support	Psychology	124	6.320	0.570
	Medicine	37	6.120	0.750
	Sport	75	5.730	0.840
practical support	Psychology	124	4.990	0.780
	Medicine	37	5.090	0.710
	Sport	75	4.500	0.870
ideal practical support	Psychology	124	5.800	0.670
	Medicine	37	5.750	0.710
	Sport	75	5.250	0.810
difference in emotional support	Total	236	0.8709	0.820
difference in practical support	Total	236	0.7614	0.750

Sport students had lower levels of all types of social support (actual and ideal, emotional and practical) compared with medical and psychology students (ANOVA – Bonferroni post-hoc test, mean differences are significantly lower at p<.05 level). Students of psychology and students of medicine don't differ significantly in the two aspects (ideal and practical) of emotional and practical support. Therefore hypothesis concerning social support is rejected (no differences were expected).

DISCUSSION

As mentioned in the introductory section there is little clear research evidence on stress, social support and stress coping among different groups of students. Therefore the aim of this study was the comparison of stress coping, stress and social support.

Coping styles were not associated with the course of study. Reed and Giacobbi (2004), who studied coping mechanisms in sport students, suggested that they should be encouraged to use problem-focused and emotion-focused forms of coping with stress, which, however, is reasonable for all students. All types of coping strategies were used comparably in all groups of students included in the present research.

Further, we hypothesised that the three groups of students didn't differ significantly in their burden with hassles.

Students of psychology have significantly higher number of hassles compared to medical students. Students of sport don't differ significantly from students of psychology but they have almost significantly higher number of hassles compared to medical students (p=.051). It is possible to interpret that there is more heterogeneous pattern of burden with hassles in psychology and sport students but the severity of these hassles is not significantly higher. Specific studies could have different demands, but that does not necessary mean higher stress burden in the sense of daily hassles. There is an important question of the concept of stress we take into account. In this study we decided to measure daily hassles, but there are other possibilities for measuring stress, some of them could be more specifically oriented toward academic stress. The types and number of stressors could be different but severity of stress is on the same level. As a further possibility for research it would be reasonable to specify in more detail the

types of stress characteristic for different groups of students. When we talk about pretentiousness of different studies, different concepts are probably mixed, for instance pretentiousness doesn't necessarily mean higher stress for students. Student's life doesn't mean academic stress only but general problems concerning housing, standard of life in general, etc.

It is possible to say that the pattern of stressors of specific group of students is different or specific. Moffat et al. (2004) reported that hassles in medical students are related more to medical training than to personal problems. On the other hand, Bjorksten et al. (1983) reported that medical students have the same spectrum of perceived problems as other students, but they complain more intensely about these problems. In our research we could not confirm this statement. Contrary to Bjorksten et al, Daly's research (Daly et al. 2002) showed that medical students (especially new medical graduates) have a tendency towards poor emotional sensitivity and/or expressiveness and externally oriented thinking (alexithymia), which could be a possible predictor of a residency with difficulties, leading to distress. Alexithymia is postulated to represent a personality trait or state induced by stressful circumstances and could indicate a coping mechanism midway through the stressful circumstances.

It is worth mentioning that the hassles and uplifts scales used in our research were not constructed specifically for student populations, nor do they deal specifically with academic hassles. There are, for instance, very few specific hassles considered to be typical of students included in these scales. The differential validity of these two scales is therefore lower than it would be if it were designed for student populations. It would be reasonable to use a specific hassles scale, which stresses, for instance, uncertainties about individual study, progress and aptitude, concerns about assessment, the availability of learning materials, etc.

Kanner et al. (1981) reported that the three studied groups (middle-aged participants, students and professionals) had the same most frequent items of hassles ("misplacing things", "physical appearance", "too many things to do"). In this study students struggled mostly with academic and social hassles ("concerns about meeting standards", "being lonely"). Psychology students seem to be more similar to the group of "professionals" than to the group of students, because typical hassles for professionals in Kanner's study were similar to those of psychology students. Academic and social hassles (like "meeting standards", "being lonely"), which were typical of the student population in Kanner's study, were not typical of groups of students included in present research.

A more comparable study of students' hassles is Tyrrell's study of sources of stress among Irish psychology undergraduates (Tyrrell 1992), which reported that the most common hassles for psychology students were fear of falling behind with coursework, finding the motivation to study, time pressures, financial worries, and concerns about academic ability. It is not possible to compare these findings because of the different scales (or hassles) used.

We found that there are clearer differences between students of the three different faculties in regard to uplifts than hassles. Typical uplifts of sport students were to be expected given their study course. They liked to participate in recreational activities, exercise, to gain new skills and to be in good physical shape. On the other hand, typically they did not like to read or entertain and they did not like to give presents as much as the other two groups of students.

Medical students had a relatively small number of uplifts that were typical of them (significantly less than their student colleagues from the other two groups). They were more recognisable by what they did not like. They like to practise their hobbies less, to dream, to participate in recreational activities, to have free time and to socialise than their colleagues, especially in comparison with students of psychology, who are recognizable by their social orientation. They appeared to be more serious and introverted than psychologists, who liked to entertain, and sport students, who liked to exercise. Maybe that is an indirect sign of the possibility that they like all these activities but don't have time for them due to their engagement in study.

As mentioned previously, psychology students like to relax, to entertain, to socialise, to dream and to have free time more typically then their colleges. These uplifts, which are hedonistic in nature, were also typical of students studied by Kanner (1981). Iwasaki (2003) found that leisure-coping beliefs predict lower levels of mental and physical illness and greater levels of psychological well-being and that leisure-coping strategies are associated with the perception of effectiveness in coping with stress and stress reduction (both positively correlated with leisure-coping beliefs).

It is worth mentioning the comparison of typical hassles and uplifts in sport students. They liked to be active (to exercise, to participate in recreational activities, to improve new skills etc.), but, on the other hand, they had troubles relaxing and sexual problems. It seems that their inclination to physical activities may be exaggerated.

Finally, we have to take into account that students of medicine group is smaller than the other two groups. Therefore the interpretation of number of hassles and uplifts is more informative. The main interpretation of hassles and of uplifts is the interpretation of mean values, which don't differ significantly among the three groups of students.

We found that sport students had a significantly lower degree of social support (emotional and practical) than the other two groups of students, but the difference between their actual and ideal support was not significantly higher than in their student colleagues.

The discrepancy score is the one that clients are most likely to complain about and which is the most critical to the client's emotional well-being (Power et al. 1988). So, it means that this difference, which was significant in fact, couldn't be interpreted as a difference that lowers the well-being of sport students.

The difference between actual and ideal emotional and practical support in our three groups of students was lower than that in normative groups. It ranged from .65 (difference in practical support for medical students) to .95 (emotional support in psychology students) in our three groups of students, which was lower than, for instance, 1.1 (in the symptom-free normative group or 1.7 in the depressed patients group).

Our conclusion is that sport students perceive their need of social support in a different way than medical or psychology students. Their need for social support is lower, but as said, still not critical in the sense of a discrepancy between both types (actual and ideal) of support.

Compared with normative data for the SOS (Power et al. 1988) it can be seen that the perception of their own needs for social support is significantly higher in our three groups of students.

The actual emotional support in our groups of students ranged from 4.9 in sport students to 5.45 in medical students, which was higher than in the normative groups (symptom-free group and the group of depressed clients), which scored 4.2.

Medical and psychology students had higher needs of emotional support than those in the normative groups. Ideal emotional support in the normative groups was 5.2, or 5.9 in depressed clients, which is approximately on the same level as in sport students.

Sport students' perception of practical social support was approximately on the same level as that of depressed clients in the normative sample, while again it was higher in students of psychology (5.0) and medical students (5.1).

The ideal practical support for our samples was higher than in the normative symptom-free group (4.8 in the normative symptom-free group and from 5.2 in sport students to 5.8 in psychology students). The ideal practical support for our samples was approximately at the same level as in the depressed clients normative sample (5.4), or even higher (in medical students and especially in psychology students).

These results show that all measures used in this study show no noticeable differences between groups of students of sport, psychology and medicine. This does not mean that there are no differences between students in certain characteristics, for instance the level of pretentiousness, in values of students and some characteristics which are associated with stress and stress coping, like personality, etc. But we can say that the differences in the specific types of stress and stress coping discussed in this article are not significant.

The results of this study could serve as a basis for further, more detailed studies of student

populations and differences between different groups of students.

There are some limitations to this study. We didn't measure some other variables which could mediate stress response, for instance personal standards of participants like perfectionism, personal hardiness and other personality characteristics. Further, there are many ways of measuring the variables included, like stress. There are many possibilities for which stress measure to choose; and maybe some other instruments, which are more specifically oriented toward academic stress, would be more appropriate. And, last but not least, the size of samples of students included in research could be better balanced.

CONCLUSION

In conclusion, the findings of the study demonstrate that there are no significant differences in strategies for coping with stress between medical, sport and psychology students. There are some significant differences in the quantity of uplifts and hassles, but - what is also important - not in the severity of hassles or in frequency of uplifts. Finally, some significant differences in social support found don't affect the level of well-being of sport students, whose social support is perceived to be lower in general.

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