

## THE RELATIONSHIP BETWEEN FAMILY FACTORS AND SOMATIC PROBLEMS IN ADOLESCENCE

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**Abstract:** The paper examined the presence of somatic symptomatology in relation to the perception of parental education, emotions and sense of security in the family environment. Those surveyed consisted of 4,847 adolescents. The defined family factors consisted of inconsistency of education, parental interest, supervision, affection and a sense of security within the family environment and these were examined in relation to selected somatic issues through the SAHA methodology. The results of the correlation analysis indicated that the quality of these family factors is related to the symptoms of somatic problems of adolescents. A positive correlation between somatic symptoms and inconsistency of education and a negative correlation between somatic symptoms and a sense of security at home were observed.

**Key words:** adolescence, psychosomatics, somatization, symptoms, family factors

### 1 Introduction

The multifactorial effect of family factors significantly contributes to the mental and physical health of the individual (Langmeier, Krejčířová 2006; Siqueland, L., Rynn, M., Diamond, 2004; Kučírek 2006; Husovská, 2013; et al.). Factors such as a sense of security, parental love, education, and interest are a significant source of emotional bonds and have a determining influence on the development of the individual. A malfunction of the individual factors can be manifested as somatic problems, as evidenced by many studies, e.g.: (Danzer, 2001). The transition period, for example adolescence, is considered as a high-risk period for the development of psychological and somatic problems (Démuthová 2006; Paulík, 2017). The problem represents in a specific way, and it is also an expression of individual experience, perception, the process of managing challenging tasks, personality traits, and other factors. The question remains, how do the family factors during adolescence appear in each age group, by whose age definitions we consider the process of adolescence? Many studies (Blatný, et al., 2004; Blatný et al., 2005; Blatný et al., 2006) prove a relationship between psychosomatic problems and family factors. The relationship between negative emotions and health was examined in the past, e.g.: (Rachmann, 1977), the multifactorial aspect of problems appear in works by many authors (Gullone, 2000; Danzer, 2001; Siqueland, L., Rynn, M., Diamond, 2004; Jessor et al., 2006; Husovská, 2013; Doktorová, Ručková, 2015).

### 2 Characteristics of the Problems

The nature and forms of mental health care have undergone certain transformations. At present, the impact of individual factors is emphasized in the context of an individual's personal life story. Baštecký, Šavlík and Šimek (1993) state that no factor can be considered as the sole and specific cause of any somatic disorder, because psychosocial factors are applied through a complex interaction with many other factors. There is no unambiguous answer to the question of how physiological mechanisms are disturbed and thus the psychosocial pathology develops. The somatic, psychological, social context and situational context have an impact on the development of the specific severity of problems. This circular causality is emphasized by Raudenská, Javůrková (2011). The emergence of somatic problems may be observed from several points of view. In a bio-psychosocial perspective, problems may be seen in the context of relationships with family, sibling and contemporaries, the psychoanalytic concept perceives somatic issues particularly

in relation to intra-psycho conflicts. Somatic problems can also be considered in the context of social relations (Kučírek, 2006; Novotný, 2009; Poněšický, 2012). At a psychological level, specific experiences are assessed and can be expressed as emotional responses. Emotions can fundamentally affect the function of individual organs and may cause somatic symptomatology. The short-term psychological adjustment and venting of feelings may not pose a great risk of developing somatic problems, but the long-term accumulation of negative emotions, such as anger, rage, sadness, sensitivity and anxiety, can act as a trigger for somatic problems (Rhudy, 2000; Matějček, 1996, 1997; Krivohlavý, 2001, 2002; Trapková, Chvála, 2007; Baranovská, 2016). The authors agree that life experiences and the quality of family relationships are important factors in the prevention of somatic problems. The basis for our research were findings that examined the family and feelings of security, e.g.: (Šulová, 1998; Gecková et al., 2000; Moran Du Bois, 2002; Směkal, 2003; Parker, Benson, 2004). These authors consider a feeling of security as a regulator and supportive element of homeostasis. In the research study, the quality of the family environment is monitored in the context of these family factors: consistency in education, interest, and emotional relationships, function of the family control systems. The first factor examined in relation to somatic problems is inconsistency of education, which emphasizes parental consistency in education in terms of setting of limits, the adequacy of requirements. The importance of education consistency is found in Matoušek and Kroftová (1998). Further, the paper examines the connection between somatic problems and parental supervision and interest. The importance of these factors is found in Matoušek, Kroftová (1998). The authors stress the need for an appropriate level of monitoring, and parental requirements. Requirements that go beyond the abilities of the individual or severely limit his or her needs may be one of the causes of homeostatic disorders and thus constitute one of the risk factors for the development of somatic problems. Another factor studied in relation to somatic disorders is emotional affection. The importance of the emotional relationship and the quality of parental support in the prevention of the development of somatic problems is found in Matějček (1996, 1997, 2001). According to the author, a positive emotional relationship is a source of a sense of security, care, understanding, social interaction, and a negative emotional relationship can represent frustration. According to Paulík (2017), frustration can significantly affect the psychosomatic condition of an individual. Next, we examined parental interest. Support for the study of this factor is found in (Macek, 2003; Verešová, Hušvetyová, 2005; Širůčka, Širůčková, Macek, 2007). According to these authors, parental disinterest may lead, for example, to emotional aversion but the contrary, interest and personal involvement may lead to harmony in the relationship between parents and children. In the context of the quality of the family environment, parental love cannot be omitted. In our research, it is the factor termed parental affection. This factor is supported by Matějček (1994, 2001), Blatný et al. (2005). Emotional support, according to the authors, fulfills a key and integrative function in the social context of health and disease. The period of adolescence which is the focus of the paper is transitory, characterized by significant developmental changes. Many changes are biologically conditioned, but many are also determined by psychological and social factors (Langmeier, Krejčířová, 2006; Macek, 2003; Směkal, 2003; Vágnerová, 2005; Blatný et al., 2006). According to Baumeister Twenge (2003), an important aspect of this developmental period is the creation of one's own identity and autonomy. The process of acquiring identity and autonomy is accompanied by manifestations of negativity and the examination of borders and the resulting parental responses (Bonino, Cattellino and Ciairano, 2005; in Blatný et al., 2006). The subjective experience of the family climate, the current and accumulated problems can be a source of feelings of helplessness, confusion or anxiety which can also be manifested by somatic problems (Paulík, 2017). In this paper, we examine

somatic problems in the psychological plane. The quality of the personal relationship between adolescents and parents as presented in the study by selected family factors may be manifested by somatic problems. Our research focused on the psychological aspect of somatic problems that have a somatoform character. The level of the individual family factors and the presence of somatic problems were detected in the perception of adolescents in three developmental cohorts. The question of somatic problems in those cohorts is not sufficiently well mapped and the results could help to analyse the specific somatic symptoms of each age cohort.

The aim of the paper was to discover the links between family factors and somatic problems, to find the frequency and comorbidity of individual somatic symptoms in three adolescent age cohorts of (12-13 years, 14-15 years, 16-19 years). With regard to these objectives, the research questions (RQ1-RQ6) and the hypotheses (H1, H2) were formulated.

#### Research Questions

- RQ1: Are there significant differences in somatic symptoms among the age groups?  
 RQ2: Which somatic symptoms are associated with a higher level of somatization?  
 RQ3: Are there differences in the specific symptoms within the age groups?  
 RQ4: Which age cohort has the highest incidence of somatic symptoms?  
 RQ5: Is there a relationship between specific somatic symptoms and family factors?  
 RQ6: Are there differences in somatic symptomatology among individual age cohorts?

#### Hypotheses

- H1 There is a statistically significant relationship between family factors (parental affection, interest, consistency in education, parental supervision) and somatic issues  
 H2 Experiencing a sense of security in the family environment is associated with a lower incidence of somatic problems

#### Research Methodology

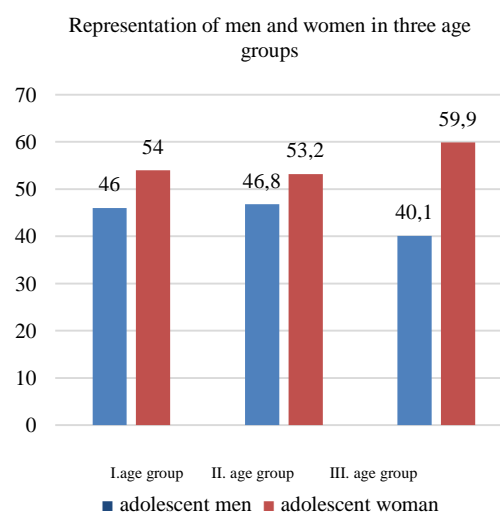
To determine the relationships between family factors and somatic problems, we used the SAHA questionnaire method (Blatný, 2004). This method was part of the International Social and Health Assessment study and identified the individual types of high risk behaviours. It was created for an adolescent population and its sub-scales allow the analysis of the conditional and predisposing factors of high risk behaviours. The individual sub-scales contain personality factors, family, school factors related to the wider social environment and health. The SAHA project is part of a larger program by the Yale Child Study Center, which focuses on the intercultural aspects of mental health and the developmental psychopathology of children and adolescents (Blatný; in Koukal, 2005). The exceptional nature of the SAHA project lies in the monitoring of high risk behaviours in relation to psychosocial factors in the development of children and adolescents. A broad thematic focus and multiculturalism contribute to the exceptional nature of the SAHA method, which makes it possible to better address general trends and patterns in the healthy and pathological development of adolescents (Blatný, Hrdlička, Květon, Vobořil, Jelínek, 2004). Psychosocial factors are contained in individual ranges such as, for example, the impact of the family environment, the school and community environment, environmental quality, bullying, exposure to violence, psychiatric disorders, etc. From the SAHA questionnaire, we used a range of family factors and somatization. Family factors include the sub-ranges: inconsistency of education, parental interest, parental supervision, and parental affection. To these factors, we have assigned a question about a sense of security in the family environment. We examine the issues of somatic problems as an interaction between family factors in relation to

the experience and perception of emotional relationships, education, control, and organization of the family system.

#### Research Sample

The study participants were 4,847 pupils in 3 age cohorts 12-13 year olds, 14-15 year olds, and 16-19 year olds (12-13-year-olds N = 1,436, 14-15-year-olds N = 1,520, 16-19-year-olds N = 1,891). Overall there were 2,716 male participants and 2,131 female participants in the survey. The research sample is shown in Figure 1.

Figure 1 Research sample



Legend: I. age group = (12-14 years), II. age group = (14-16 years), III. age group = (16-19 years)

#### 3 Results

Somatic symptoms were measured by 11 items within the SAHA methodology. The column for N = 4,799 items in the sample show good intra-item reliability Alfa > 0.8. The description of each variable is shown in Table 1. The theoretical range of each variable ranged from 0 to 22 points. The average value was 4.96 points (SD = 3.90), the median was 4 points and the most frequent value 2 points. The inter-quartile margins were between 2 and 7 points. As expected, the variables do not have a normal distribution as it is not a variable that represents a normal phenomenon. For values in the band above  $AM \pm 2SD$ , we can consider those that are in the interval 13-22 (N = 241). Family factors within the SAHA methodology are measured by 5 variables: inconsistency of education, parental interest, parental supervision, parental affection and sense of security. The descriptions of the characteristics of family variables are shown in Table 1. Inconsistency of education was measured using 5 items (Alpha > 0.65), the range of values in the set has a range of 5-20 points (the same as the theoretical range), an average of 11.54 (SD = 3.27), the median and modus are 11 and the inter-quartile variance is in a range of 9-14 points. Parental interest was classified using 6 items (Alpha > 0.65), in a range from 6-24 points and the inter-quartile range was 14-19 points. The average of our set is 16.66 points (SD = 3.42), the median and modus are equal at 17 points. Parental supervision scored between 8-32 points, which is also the theoretical range derived from the minimum and maximum of possible values of 8 items. The inter-quartile interval is between 19 and 26 points, the arithmetic mean is 22.02 (SD = 4.80), we can say that the median, modus, and average reach approximately the same values. Parental affection was calculated as the sum of the score of 5 items; we can see in Table 1 that the range of 5-20 points is the same as the theoretical range. The average is 16.06 (SD = 3.11), median is 17 points and the most frequent value is slightly higher, namely 19 points. The modus is also the upper limit of the inter-quartile range, the lower limit is at 14 points. A sense of security was

measured using one item where the respondents responded with a value between 1 and 4, with an average of 3.73 points (SD = 0.53). As we can see in Table 1, the median, modus, the 1<sup>st</sup> and the 3<sup>rd</sup> quartiles scored 4, which indicates a significant prevalence of feeling safe in the home environment (76.5%). According to the Kolmogorov-Smirnov test (Sig. <0 .05), the family factor variables do not have a normal distribution.

Table 1 Descriptive characteristics of family factors and somatic symptoms

	a	b	c	d	e	f
N	4745	4748	4701	4734	4795	4799
Average	11,54	16,66	22,02	16,06	3,73	4,96
Median	11	17	22	17	4	4
Modus	11	17	22	19	4	2
Standard deviation	3,27	3,42	4,80	3,11	0,53	3,90
Minimum	5	6	8	5	1	0
Maximum	20	24	32	20	4	22
1st quartile	9	14	19	14	4	2
3rd quartile	14	19	26	19	4	7

Legend: a = inconsistency of education, b = parental interest, c = parental supervision, d = parental affection, e = sense of security, f = somatic symptoms

H1, H2: To determine the correlation between somatic symptoms and family factors, we used a correlation coefficient, and given the non-normal distribution of the variables, we chose a nonparametric Spearman variant of the coefficient. Table 2 contains the test results. There is a significant but weak positive correlation between somatic symptoms and inconsistency of education, a weak negative relationship between somatic symptoms and a sense of security. We extrapolated that the more intense the inconsistency of education and the less secure teens feel in the home environment, the higher the incidence of somatic symptoms. Table 2 contains other statistically significant results at a level of significance of Sig. < 0.001, however, these are very weak correlations that we interpret as trivial relationships. Based on the above, we accept hypotheses H1 and H2.

Table 2 Spearman's coefficient of rank correlation between somatic symptoms and family factors

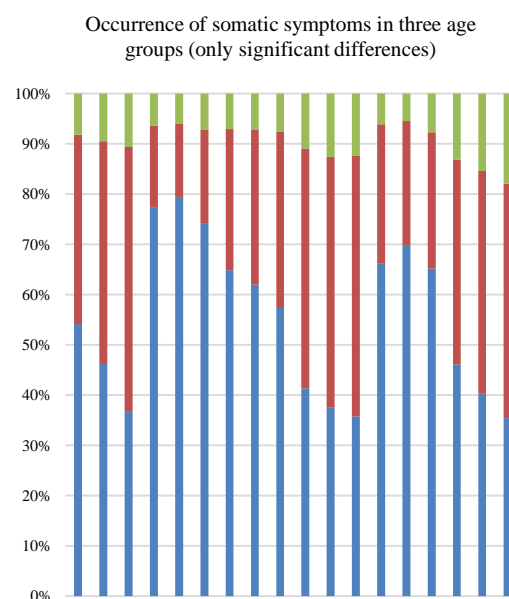
	a	b	c	d	e
r	.191**	-.059**	0,026	-.095**	-.213**
Sig.	0,000	0,000	0,077	0,000	0,000
N	4684	4687	4638	4674	4727

Legend: a = inconsistency of education, b = parental interest, c = parental supervision, d = parental affection, e = sense of security, f = somatic symptoms

RQ1: Are there significant differences in somatic symptoms among the age groups?

Within the range of somatic symptoms, 11 partial symptoms were identified. We observed differences in the occurrence or in the responses to the incidence (none – partial – total) in three age groups 12-13, 14-15, and 16-19-year-olds. The differences in individual items were determined using the Kruskal-Wallis test. Significant differences between the three groups (Figure 2) were reported by “I did not feel good”, “I felt sick”, “I felt that my health should be better”. The incidence of somatic problems is greatest in the 16-19-year-old adolescent group and least in the youngest age group. In the case of “I felt something hurt or ached”, we find the lowest occurrence of the phenomenon in the 12-13-year-old age group, which can be interpreted as a significantly smaller incidence (3.6%) compared to the other two groups (14-15, 16-19-year-olds) – between these groups, the difference in incidence is only 1.9%. In the case of “I was worried about my health”, we recorded a significantly lower partial or total incidence in the middle age group (14-16-year-olds – 30.3%) compared to 12-14-year-olds (33.5%) or 16-19-year-olds (34.8%). In the case of “I had rashes or skin problems”, most respondents reported a negative response in the group of 14-year-olds, slightly more in the group of 12-year-olds, and the highest number of adolescents who reported skin problems were in the group of 16-year-olds.

Figure 2 Occurrence of individual somatic symptoms



Legend: ■ none somatic symptoms, ■ partially somatic symptoms are present, ■ somatic symptoms occur completely

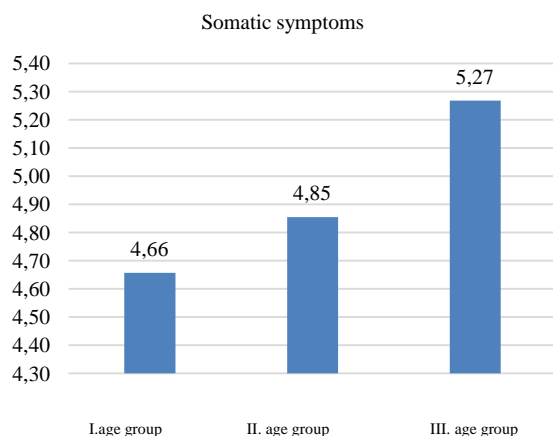
We interpret Figure 2 to mean that significant differences in the specific somatic symptoms were not found among the age groups: headache, abdominal pain, vomiting, nausea and eye problems. We also tested the differences among the groups in the range of somatic symptoms. We used the Kruskal-Wallis test to determine the statistical significance due to the non-normal distribution of the comparison variables. The results are shown in Table 3. In the last column, we can see that the differences between the age groups are significant. The highest score for somatic symptoms is found in 16-19-year-old adolescents, 14-16-year-olds have a lower incidence and 12-14-year-olds have the lowest. The average values are shown in Figure 3, where a more pronounced difference between the oldest age group and the second age group is seen and a slightly smaller difference between 14-16-year-old and 12-14-year-old adolescents. Therefore, the results are supplemented by a calculation of the difference between the pairs of adjacent age groups of students (12-13, 14-15 and 14-15, 16-19) that we tested using the Mann-Whitney U test (the second and third sections of Table 3). In both comparisons, the differences are interpreted as statistically significant (Sig. < 0.05). There is a slight increase in somatic symptoms in the 12-13-year-olds and 14-15-year-olds, in the case of the 16-19-year-old age group, the increase is more pronounced.

Table 3 Statistical test results of the differences in the range of somatic symptoms among age groups (Kruskal-Wallis test, Mann-Whitney U test)

	b	N	Average Rank	Kruskal-Wallis test	
a	I.	1,418	2,251.58	Chi-square	34.36
	II.	1,506	2,374.14	df	2
	III.	1,875	2,533.02	Sig.	0.000
	total	4,799			
a	I.	1,418	1,423.04	Mann-Whitney U	1011804
	II.	1,506	1,499.65	Z	-2.463
	total	2,924		Sig.	0.014
	II.	1,506	1,627.98	Mann-Whitney U	1316973
a	III.	1,875	1,741.61	Z	-3.378
	total	3,381		Sig.	6

Legend: a = somatic symptoms, b = age group, I. = age group (12-14 years), II. = age group (14-16 years), III. = age group (16-19 years)

Figure 3 Average values of somatic symptoms by age categories



Legend: 4,66 = average values of somatic symptoms by age categories I (12-14 age),

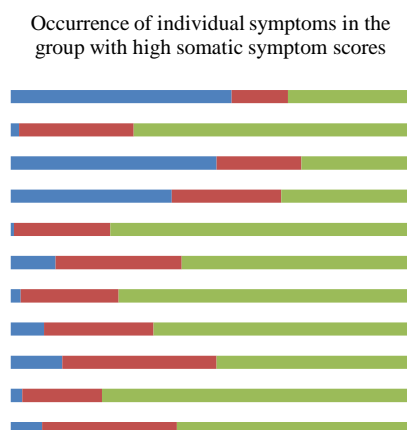
4,85 = average values of somatic symptoms by age categories II (14-16 age),

5,27 = average values of somatic symptoms by age categories III (16-19 age)

RQ2: Which somatic symptoms are associated with a higher level of somatization?

We analysed the distribution of individual somatic symptoms in respondents who scored at least 13 points (AM + 2SD) overall. In the N = 241 research sample, over the previous 30 days, more than 70% of adolescents had an overall response: "I felt sick", "I felt something hurt or ached" and "I had headache". More than 60% of respondents had a total incidence of abdominal pain and did not feel well. More than 55% of those with overall high scores of somatic symptoms had an intense feeling that their health should be better and reported nausea. Nearly half of adolescents with pronounced somatic problems strongly agreed that they were worried about their health and a fourth reported frequent vomiting, skin problems and eye problems (Figure 4).

Figure 4 The occurrence of individual somatic symptoms in the group of adolescents with high scores in the somatic symptoms range (N = 241)



Legend: ■ none somatic symptoms, ■ partially somatic symptoms are present, ■ somatic symptoms occur completely

In Table 4, we present the occurrence of combinations of the individual somatic symptoms in the group that have high scores for somatic symptoms. More than three-quarters of the individuals in the group said that in the last 30 days they had suffered headaches, abdominal discomfort, or pain, had been sick, did not feel well, or their health could be better. Nausea,

worrying about health, along with the combination of symptoms mentioned above, was reported by almost 60% of respondents with a high overall score. Approximately one third, having the first combination (abdominal pain, headache), reported that they also suffered from vomiting. More than a third of the individuals in the group, along with pain and unpleasant feelings, had a rash or skin problems. Less than half (46%) reported eye problems in addition to pain in the abdomen, headaches as well as uncomfortable feelings. From other combinations, we can see that in the past 30 days approximately a quarter of teenagers suffered from eye and skin problems, and, at the same time, approximately 20% of individuals suffered from nausea in the group with a high score for somatic symptoms. Nausea in combination with rashes and skin problems (along with pain and unpleasant feelings) was reported by nearly 30% of the respondents in the group.

Table 4 Frequency of selected symptom combinations in the group with a high score for somatic symptoms (N = 241)

a	%	a	%	a	%	a	%	a	%
X	77.2	+C	67.6	+F	59.8	+H	34.4	+I	20.3
								+K	15.3
						+I	29.1		
						+K	26.9		
		+F	68.9	+H	39.8	+I	22.8		
						+K	17.8		
		+H	46.1	+I	25.3	+K	10.4		
		+I	35.3	+K	14.5				
		+K	32.4						

Legend: a = somatic symptoms, X = ABDGEJ symptoms (A = health problems, B = headache, C = feeling unhealthy, D = abdominal pain, E = other pain, F = feeling sick, G = other somatic pains, H = eye problems, I = skin problems, J = feeling of physical discomfort), + = symptom comorbidity, % = percent age of the most frequent symptoms

RQ3: Are there differences in the specific symptoms within the age groups?

To determine the statistical significance of the differences, we used the Kruskal-Wallis test. There were no significant differences in the number of N = 241 respondents (Sig. > 0.05). (Table 5).

Table 5 Differences in the most frequent somatic symptoms among groups (N = 241)

a	b	N	Average rank	Chi-square	1.547
a	I.	75	129.06	df	2
a	II.	64	116.13	sig.	0.461
a	III.	102	118.13		

Legend: a = somatic symptoms, b = age group, I. = age group (12-14 years), II. = age group (14- 16 years), III. = age group (16 -19 years)

RQ4: Which age cohort has the highest incidence of somatic symptoms?

A somatization variable was created based on a determination of high scores for somatic symptoms, namely for values in the range of 13-22 points. The categories of somatization occurrence and absence were compared among the three age groups using the chi-square test. The results are shown in Table 6. Based on a statistical significance of Sig. > 0.05, we interpret the differences in the high score rates as insignificant compared to the expected rates among the three age groups. In Table 6, the incidence of high scores for somatic symptoms is between 4.20 and 5.40% in all three groups.

Table 6 The occurrence comparison of somatic symptoms for age groups

Somatic symptoms		Low score	High score	Total
I.	N	1,343	75	1,418
	%	94.70%	5.30%	100.00%
II.	N	1,442	64	1,506
	%	95.80%	4.20%	100.00%
III.	N	1,773	102	1,875
	%	94.60%	5.40%	100.00%
	Value	df	Sig.	
Chi-square	2.782a	2	0.249	

Legend: I. = age group (12-14 years), II. = age group (14 - 16 years), III. = age group (16 -19 years)

RQ5: Is there a relationship between specific somatic symptoms and family factors?

We examined the relationship between individual symptoms and family factors. For each individual, we determined the occurrence or absence of somatic symptoms (11 separate symptoms) over the last 30 days. Subsequently, we compared family factors (inconsistency of education, parental interest, parental supervision, parental affection, and a sense of security) between two groups – according to the occurrence of symptoms. Thus, we made comparisons of the five family factors and 11 symptoms. The results are shown in Table 7 where we can see the statistical significance of differences found between groups, and arrows that show higher/lower scores in the group, in which a specific somatic symptom occurred. We can see that for two factors: inconsistency of education and a sense of security, there are significant differences with regard to the occurrence of all the symptoms. We interpret this to mean that for adolescents who experienced any partial or fully-fledged symptoms, there is a higher level of inconsistency of education and a lower sense of security in the family environment. Another factor, where we found the most significant differences for most of comparisons, is parental affection. This is lower for individuals who feel that they should be in a better condition, experiencing headaches, pain or aches, nausea or vomiting, discomfort, or eye problems. Similarly, lower values of parental interest were found for almost all the same symptoms as those reported for parental affection, with the exception of feelings of doubt regarding their health and headaches. The least significant differences with respect to individual symptoms were found in the parental supervision factor, where there were higher values for only those respondents with a feeling of anxiety about their health and abdominal pain.

Table 7 Comparison of family factors with regard to the occurrence of individual somatic symptoms (Mann-Whitney U test)

a	IE	PI	PS	PA	SS
A	^ 0.000	0.809	0.201	∨ 0.002	∨ 0.000
B	^ 0.000	0.169	0.165	∨ 0.008	∨ 0.000
C	^ 0.000	0.129	^ 0.004	0.520	∨ 0.000
D	^ 0.000	0.358	^ 0.031	0.072	∨ 0.000
E	^ 0.000	∨ 0.044	0.186	∨ 0.001	∨ 0.000
F	^ 0.000	∨ 0.000	0.085	∨ 0.000	∨ 0.000
G	^ 0.000	∨ 0.000	0.921	∨ 0.000	∨ 0.000
H	^ 0.000	∨ 0.020	0.896	∨ 0.000	∨ 0.000
I	^ 0.000	0.502	0.623	0.110	∨ 0.000
J	^ 0.000	∨ 0.000	0.691	∨ 0.000	∨ 0.000
K	^ 0.000	∨ 0.000	0.142	∨ 0.000	∨ 0.000

Legend: a = somatic symptoms, A = health problems, B = headache, C = feeling unhealthy, D = abdominal pain, E = other pain, F = feeling sick, G = other somatic pains, H = eye problems, I = skin problems, J = feeling of physical discomfort, K = vomiting, IE = inconsistency of education, PI = parental interest, PS = parental supervision, PA = parental affection, SS = sense of security

RQ6: Are there differences in somatic symptomatology among individual age cohorts?

We tested the relationship between somatic symptoms and family factors separately in the three age groups (12-13, 14-5 and 16-19-year-olds). The results of the Spearman's rank correlation coefficient calculations are presented in Table 8. We can see that in all three age groups we find the same degree of intensity – a weak relationship between somatic symptoms and inconsistency of education (positive direction) and between somatic symptoms and a sense of security (negative direction). In the youngest group of adolescents we also found a statistically significant weak negative relationship between somatic symptoms and parental affection, while in the older age groups this relationship is not significant (or significant, but negligible in intensity).

Table 8 Spearman's coefficient of rank correlation between somatic symptoms and family factors in three age groups

a	IE	PI	PS	PA	SS
	r	-.220**	-.066*	0.044	-.126**
	Sig.	0.000	0.015	0.104	0.000
I.	N	1,371	1,382	1,341	1,365
	r	.191**	-0.007	0.048	-.062*
	Sig.	0.000	0.988	0.104	0.039
	N	1,371	1,382	1,341	1,365

II.	Sig.	0.000	0.801	0.065	0.017	0.000
	N	1,474	1,470	1,457	1,470	1,481
	r	-.180**	-.071**	-.069**	-.071**	-.185**
III.	Sig.	0.000	0.002	0.003	0.002	0.000
	N	1,839	1,835	1,840	1,839	1,857

Legend: a = somatic symptoms, I. = age group (12-14 years), II. = age group (14-16 years), III. = age group (16-19 years), IE = inconsistency of education, PI = parental interest, PS = parental supervision, PA = parental affection, SS = sense of security

#### 4 Discussion

All emotional situations are a source of experience. As a result of the reaction to experiences, physiological changes appear in the body and with a long-term accumulation of problems not only psychological disturbances, but also problems – somatization, may occur. A significant environment that builds emotional levels is the family environment, which is a source of social support (Šolcová, Kebza, 2003). Particularly parental love and expressions of interest are a source of positive emotions. Dysfunction of family factors may be seen as a psychogenic factor in the development of somatic problems. Our findings confirm the link between somatic issues and the family factors: inconsistency, emotional affection, parental interest, and a sense of security. The importance of family factors in the prevention of somatic problems is confirmed by Danzer (2001). In all three age groups, we found significant relationships between the presence of somatic problems and inconsistency in the family environment, parental interest, and a sense of security. Somatic problems are associated with a family environment where consistency, adherence to established rules and boundaries, is less well applied. Inconsistency may lead to a challenge to orientation in everyday situations, which may then be the reason for misunderstandings between parents and adolescents and one of the causes of somatic symptomatology. The importance of consistency and the formation of boundaries in education are found in the authors: Vymětal (2003) and Matějček (2001). They point to the fact that educational inconsistency does not contribute to the creation of a feeling of certainty which is necessary for the formation of adolescent self-acceptance. According to Vymětal (2004), feelings of insecurity can also be the source of inappropriate concerns, fear, and low self-esteem. A feeling of insecurity, concern, fear, and low levels of self-acceptance are some of the sources of negative emotions, which may result in somatic problems.

A significant relationship between emotional affection and somatic problems was only found in the youngest group surveyed (12-13-year-olds). We believe that at the beginning of the period of adolescence a child is more saturated with the need for emotional relationships with parents compared to the older groups studied (14-15, and 16-19-year-olds). The need to form social relationships outside the family is of particular importance at the end of the maturity period. The significance of emotional ties at the beginning of the period of adolescence is confirmed by Vymětal (2003, 2004) and the increasing importance of peers by (Mičková, 2015a, b).

Feelings of parental interest also proved to be a significant factor in the context of somatic problems. Matějček (2001) states that shared time strengthens relationships, trust, communication, and influences the formation of experiences that are accompanied by positive emotions. As Danzer (2001) points out, positive emotions can have a positive effect, but may also have a negative impact on the processing of emotional experiences.

We can conclude that positive emotional experience in family relationships prevents the occurrence of somatic problems and conversely the absence of parental interest, love, sense of security and educational consistency may represent a source of anxiety, nausea, vomiting and other physical pain and helplessness. Because of frustration and stress, self-doubt, self-blame, depressive moods, nervousness, and physical distress come to the fore. Emotions that act as behavioural regulators while developing somatic problems can be a cause of somatic problems. Vymětal (2004) states that one of the sources of

anxiety is the absence of parental understanding, affection, and love.

Only one family factor was found to have no significant relationship, namely that between parental supervision and somatic problems. It may be that with increasingly frequent interactions of adolescents outside the family there is a less intense experience of parental control. Autonomy and borders may be discussed by teenagers and their parents. In research, we revealed findings where inappropriately manifested parental interest is conceived as a restraint, which is the cause of many misunderstandings (Rogge, 2005; Verešová and Hušvetyová, 2005). Concerns and dissatisfaction about parental strictness were found by Prokopčáková (1999, 2000; in: Blatný et al., 2005). The importance of control emphasizes, for example, Dick et. al. (2007). Parental supervision can also be perceived from the point of view of parental interest. For example, Matoušek and Kroftová (1998, p. 45) define parental supervision as "the degree of parental awareness of what their children do in their free time, what kind of friends they meet, where they stay when they are not at home, when and in what condition they return home".

In terms of the positive influence of control, it is therefore possible to highlight control in the sense of emotional guidelines. An adequate function of both the family relationship and organizational system, namely parental supervision, is one of the prerequisites for overcoming the problems of teenagers. Finding a relationship between family factors and somatic issues led us to examine the frequency of somatic symptoms. It is important to note that somatic problems of psychological origin or conditioned by psychogenic factors in the family were examined in the study. We examined the frequency of somatic symptoms in adolescence of three age cohorts. In our research, in relation to specific adolescence ages, no differences in the frequency of somatic symptoms were found, but differences were found in a somatic picture of specific problems. In this context, we were only concerned by those symptoms whose occurrence within the groups was statistically significant. Symptomatically specific somatic problems are highest among 16-19-year-olds, followed by 14-15-year-olds and the lowest incidence among 12-13-year-olds. According to Paulík (2017), the period of adolescence is determined by genetic factors, physiological and hormonal changes. It may be thought that hormonal changes, in particular, increase the frequency of somatic problems at the end of adolescence. For example, the higher frequency of skin problems in our sample occurred in the cohort of 16-19-year-olds. Headaches and abdominal pain are reported as the most common symptoms of adolescence by Vymětal (2004), Morschitzky, Sator (2007). We focused our psychological interpretation on somatic problems that were most commonly recorded. Gastrointestinal symptoms are an expression of emotional motives, for example, loss of appetite, vomiting. The psychosomatic reaction of the stomach can express a symbolic "hunger" for love, the absence of caresses. Somatic problems are associated with conflicting situations where, on the one hand, independence stands forth, and a strong desire for relation, love, and help exist on the other. Short-term headaches can represent hostility, anger, strain. Wrong decisions lead to the differentiation of conscious mistakes and those that are displaced into the unconscious with the subsequent complexes. The recognition of faulty steps can lead to depression from exhaustion. The skin forms the border of an individual. An unwanted penetration beyond the intimate border of an individual may also have life-long consequences, e.g. by violence. The skin is one of the most essential organs for the expression of emotions. Most of that which we are able to observe appears on the face that is always uncovered. The skin, especially its facial changes, reveals emotions even when we are trying to conceal our emotions. The skin reacts and reveals the state of internal organs and mirrors the psychic processes and reactions.

It is rightly considered to be a projection screen that highlights on-going processes (Kučírek, 2006). Another significant somatic symptom found in the research was eye problems. Kleinmann

(2011) states that the eyes are an important means of communication and that any psychosocial problem can transform into somatic problems. The causes of these difficulties in the family climate can be chronic stress, difficult life changes, negative experiences, etc. The research found that activities done with parents serve as a source of positive experiences (Mičková, 2015b). The importance of social relationships in the prevention of somatic problems is described by Kučírek (2006). The author emphasizes that psychosomatic symptoms are especially manifested in times of increased demands on an individual. We may regard these times as a period of transit as is adolescence. The individual must cope with the specific complications in family relationships and the method of dealing with them determines, to some extent, the emergence of somatic problems. As Křivohlavý (2001) points out, there are differences in the approach to problems.

Based on our findings, we can conclude that the quality of family factors is a prerequisite for the absence of somatic problems in adolescents. It is important to note that in the study we consider somatic problems in the context of somatoform disorders. We find support for the importance of parental affection in, for example, (Kučírek, 2006; Husovská, 2013; Siqueland, Rynn, Diamond, 2004; et al.). The significance of the quality of the family environment and its relationship to somatic problems is found in many other authors, (Dahlke, 1992; Baštecký, Šavlík, Šimek, 1993; Ponešický, 1999; Rattner, 2001; Trapková, Chvála, 2004; Kleinmann, 2011; et al.). The authors agree that a good personal relationship is important in the prevention of somatic problems as well as in therapy.

Based on the above it can be concluded that the quality of the emotional relationship, sufficient time for the adolescent and consistent education represent protective psychosocial factors in the prevention of somatic problems. It is important to state the limits of our research. The emergence of somatic problems is multifactorial. Different factors may act as a trigger for somatic difficulties. The experience and subsequent interpretation of problems affect emotional responses that can trigger somatic difficulties, for example, personality characteristics (Novotný, 2015; Šolcová, 2009), frustration tolerance, self-understanding (Vymětal, 2004), biological, social, and psychological influences (Fenichel in Danzer, 2001).

Based on our research findings, therefore, there is no clear causal relationship between family factors and somatic difficulties as only linear relationships were examined and other factors that contribute to the development of the disorders were not part of our research. However, based on linear causality, family factors can be considered as predictors of somatic problems. These factors act in causal contexts, specific causative factors may be determined by diagnostics. The study did not examine the causal relationships, but the somatic condition during the last month. Kleinmann (2011) states that even if there are no organic causes, we cannot prematurely talk about psychogenic effective factors as the only and true causes. We also emphasize this aspect with regard to our results, as we cannot rule out the emergence of health problems during the administration of the questionnaires. A pilot verification of the Slovak version of SAHA is currently underway and the results will be published (Rojková, 2016).

## 5 Conclusion

The study reveals significant links between family factors and somatic issues. Family factors such as parental interest, affection, family inconsistency, and a sense of security are involved in the emergence of somatic problems and can therefore be considered as risk factors for somatoform disorders.

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#### Primary Paper Section: A

#### Secondary Paper Section: AN