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Resources and coping styles utilized by Warsaw adolescents

The aim of the study was to establish relationships between perceived psychosocial resources and styles of coping with stress utilized by adolescents. A total of 1326 students (aged 15-20, mean age 17.0 years) of 16 randomly selected secondary schools were examined using a set of self-report questionnaires. Personal resources (sense of coherence and optimism), environmental resources (family affluence, family strengths, support from parents, teachers and peers), and styles of coping with stress were measured. Two groups differing significantly in their perceived resources were distinguished. The group with high resources (HR) consisted of 502, while the low-resource group (LR) - of 570 adolescents. The level of perceived resources (high vs. low) turned out to be associated with utilization of specific coping styles. High-resource adolescents as compared to their low-resource counterparts more often utilized task-oriented coping and seeking interpersonal contacts, at the same time less often using emotion- and distraction-oriented coping styles.

Keywords: *adolescents, stress, coping, resources*

In contemporary conceptions of stress two questions are often raised: 1. what resources (means or skills) are available to the individual under stress, and 2. what methods or strategies are used to cope with stress. Availability of sufficient resources and/or utilization of effective coping strategies are analyzed in the context of possible health risks. This study investigates the relationship between adolescents' resources and their coping with family and school stress.

Resources and coping with stress

According to psychosocial theories of stress (cf. Lazarus & Folkman, 1984; Lazarus, 1993; Moos & Billings, 1982; Hobfoll, 1989; Antonovsky,1995), the stress experience and coping attempts depend, among others, on the individual's available resources. In the transactional conception of stress by Lazarus and Folkman (1984), it is processes of primary and secondary appraisal described in terms of resources that define the situation as stressful and elicit coping behaviors[1]. While in primary appraisal resources may be associated with evaluating the situation as a harm, threat, or challenge, secondary appraisal indicates what personal and environmental resources are available to cope with the stressful event. The higher are the individual's resources, the stronger are his/her expectations of successful coping. Successful coping with stress implies that the individual adapts well to the stressful experience and maintains good health. Adaptation and good health are most often positively associated with problem- or task-oriented coping, and negatively – with coping focused on emotions (Cosway, Endler & Deary, 2000). Summarizing, higher self-assessed resources can be hypothesized to associate generally with more frequent utilization of task-or problem-focused coping.

According to Lazarus and Folkman (1984), the individual's resources denote everything he/she uses to cope with stress and influence the coping outcome. Three types of resources are distinguished: dispositional, health-related, and social (Herrington, Matheny, Curlette, McCarthy & Penick, 2005).

Dispositional resources include optimism defined by

1 Lazarus (1981) describes the role of resources in the process of primary appraisal as follows: *„A working hypothesis about the causal antecedents of threat and challenge is that the former is more likely when a person assumes that the specific environment is hostile and dangerous and that he or she lacks the resources for mastering it, while challenge arises when the environmental demands are seen as difficult but not impossible to manage, and that drawing upon existing or acquirable skills offers a genuine prospect for mastery"* (ibid., p. 198)

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Scheier and Carver (1985) as a generalized expectancy of desired outcomes. Optimistic individuals generally better adjust to stressful situations, probably due to their tendency to utilize problem-oriented rather than avoidance-oriented coping. Another important resource is the sense of coherence (SOC), defined as a belief that the world is meaningful, comprehensible and manageable (Antonovsky, 1995). Sense of coherence helps not only to find out personal and social resources that facilitate coping, but also to select alternative ways of coping. If a given situation is appraised as stressful, a strong SOC should promote the choice of the most effective coping strategies (Sęk, 2001).

Holahan, Holahan, Moos & Cronkite (1999) consider such social resources as emotional support, care and help of family members and friends to be crucial for stress resistance. Hobfoll (2002) believes the special role of resources to result from the fact that high-resource individuals firstly, probably encounter stressful situations less often , and secondly – are able to solve stress-induced problems more quickly.

In the literature the issue of relationships between resources and stress experience has been investigated more often (cf. the COR theory by Hobfoll, 2006), while the question of associations between personal and social resources on the one hand, and the process of coping with stress on the other seems to be less popular.

According to Holahan and Moos (2003), since social resources provide emotional support, they may influence the choice and utilization of certain ways of coping in specific stressful situations, thus increasing the individual's self-confidence and self-esteem and leading to coping efforts enhancement. Social support is of particular importance – persons having supportive families engage in more active and problem-focused coping than do those from less supportive families. Social support provides also cues and information facilitating the next step, i.e. the use of problem-oriented coping.

Studies on the relationship between personal resources and coping styles have revealed that people with a strong SOC tend to use a mature defense coping style rather than neurotic or immature defense coping[2] (Sammallahti, Holi, Komulainen & Aalberg, 1996).

Comments and solutions concerning the categorization, characteristics and role of resources most frequently pertain to the adult population. It should be noted that resources playing an important role in adolescence are not necessarily the same as those used in adulthood. On the other hand, such factors as the ways of construing reality by adolescents (SOC), their attitudes toward life events (optimism), or perceived family support (including the material aspect) can be assumed to be important in experiencing stress and in coping processes (cf. Lewis & Frydenberg, 2002).

2 categorization of coping styles proposed by the authors.

Stress and coping in adolescence

Grant and co-workers (2003) point out that stress is construed in transactional models as a relationship between environmental events and the individual's cognitive appraisals (cf. Lazarus & Folkman,1984). The transactional perspective assumes that the presence of stress depends on the degree to which people perceive environmental demands as a threat, harm, or challenge.

Defining stress in adolescence Grant and collaborators (2003) focus on external changes and describe stress as environmental events or chronic conditions that objectively threaten physical and/or mental health or well-being of the individual at a given age and in a given community.

The role of stress in the onset of psychopathology in children and adolescents is encompassed by a general model based on 5 major assumptions:

1. stressors contribute to the presence of psychopathology (symptoms, syndromes, disorders);
2. moderators (characteristics of the child or its environment, such as age, gender) affect the relationships between stressors and psychopathology (an example of research findings: boys tend to present with externalizing rather than internalizing symptoms, while girls – vice versa[3]
3. mediators (biological, psychological and social processes) explain the relationship between stressors and psychopathology;
4. there is a specificity of the relationships between stressors, moderators, mediators, and psychopathology - e.g. a specific type of stressor (interpersonal rejection) is associated with a specific type of psychological problem (depression) via a specific mediating process (ruminative coping) in the context of a specific moderating variable (female gender, the adolescent's age);
5. relationships between stressors, moderators, mediators, and psychopathology are bilateral and dynamic. This means that any variable in the model may influence other variables (with minor exceptions, gender is not affected by any other variable).

Grant and co-workers (2003) point out that when investigating the relationship of a specific stressor (interpersonal rejection) with a specific psychological problem (depression), a specific mediating process (ruminative coping) and the role of specific moderators (the female gender, and adolescents' age) should be taken into account. The problem of gender as a moderator was dealt with by Wilson, Pritchard & Revalee (2005). In their sample of over 500 teenagers in the 10 -19 age range girls

3 externalizing symptoms – problem behaviors detrimental to health, such as alcohol and drug abuse, violation of law, active participation in violence against others;
internalizing symptoms – self-rated depressed mood, severity of psychological stress and frequency of malaise.

used generally more coping styles of all types (problem-, emotion- and avoidance-oriented) than did boys.

Age-related changes in the nature and structure of coping in adolescence were analyzed by Seiffge-Krenke, Weidemann, Fentner, Aegenheister & Poeblau (2001). The authors remind that in contradistinction to other developmental stages adolescence is a period of many changes – cognitive, emotional, social and physical – that may become a source of stress. There are gender differences in the perception of stress: girls experience more stress than boys do, especially in early adolescence. The proportion of variance explained by stressful events in the relationship between stressors and the presence of symptoms is generally low (under 15%). Adaptation in adolescence is probably explained by other factors involved in the relationship, e.g. the way of coping with stressful events. The process of coping is particularly important in adolescence, since adolescents confronted for the first time with various stressors have not developed yet many coping strategies that might be used. There are also age-related differences in coping. Research findings suggest that the age of 15 is a turning point in the utilization of more effective and adaptive coping strategies. Senior adolescents are more active, use a wider range of strategies, and perceive problems in a more complex, multi-perspective way. Coping strategies are also differentiated by gender – in coping with stress girls as compared to boys use more social support.

Healthy adolescents tend to use functional coping styles, while those with mental health problems (depression, substance dependence), irrespective of gender more often utilize withdrawal and avoidance when faced with school or family stress. In healthy populations a majority of adolescents turn out to efficiently cope with various normative stressors. The proportion of functional coping (i.e. active problem-solving, such as information- and guidance seeking) to dysfunctional coping style (withdrawal and avoidance) was 4:1 in culturally differentiated study samples (cf. Seiffge-Krenke et al., 2001).

The problem

In the transactional concept by Lazarus & Folkman (1984) coping is construed as a response to a specific stressful situation, while cognitive appraisal of the situation as a challenge, threat, or possible harm/loss is thought to mediate between stressors and the individual's behaviors. Coping is determined by the context or circumstances of a given stressful event. In the present study it was assumed after Holahan & Moos (2003) that the contextual and dispositional approaches to the coping process could be combined, i.e. coping may be defined both by characteristics of any given stressful situation and by the individual's stable traits.

Stable factors include social resources in certain areas of life (in this study – school and family), and personal resources, i.e. individual characteristics such as sense of coherence (SOC) and optimism. These two sets of stable factors may affect concrete coping styles, depending on the context. Such interrelations may be exemplified by the earlier outlined relationship between having a supportive family and preference for task-focused or problem-oriented coping, or between SOC and selecting a mature defense coping style. The presented data suggest that higher levels of personal and social resources should be associated with more frequent utilization of task-focused coping. In this study social resources included support (from the mother, father, teachers and peers), family strengths, and family affluence.

However, the question raised by Moos & Swindle (1990) remains open, namely: whether the strength of the relationship between personal or social resources and coping is similar, or perhaps one of the resource categories (either social or personal) is preferentially connected with particular coping styles.

As regards coping, the dispositional approach[4] proposed by Endler & Parker (1990) was used, where task-, emotion- and avoidance-oriented coping styles are distinguished. Task-oriented coping involves efforts aimed at solving the problem through cognitive reframing or change of the stressful situation. Emotion-oriented coping consists in focusing on the self, and on such subjective emotional experiences as e.g. anger, guilt feelings, or tension. Utilization of this style helps to reduce emotional tension evoked by the stressful situation. Avoidance-oriented coping, typical of individuals who try not to think about the problem and experience no situational stress, takes two forms: diverting attention from the problem by engaging in substitute activities, and seeking social contacts (Szczepaniak, Strelau & Wrześniewski, 1996).

In the present study stress was defined as a loss and/or threat in terms of the cognitive appraisal proposed by Lazarus), and examples of stressful situations in the family and at school were provided[5].

Gender seems to be an important factor in the research on stress in adolescence. The existing data show that girls more often than boys experience difficult life events and daily hassles (Elgar, Arlett & Groves, 2003), or seek help from other people more often than boys do (Lessard,

4 The dispositional approach focuses on identifying different coping strategies that people may use in different types of stressful situations (Cosway, Endler, Sadler & Deary, 2000)

5 A part of the questionnaire "*AREAS OF YOUR LIFE* " developed for research purposes by Jelonkiewicz, Kosińska-Dec and Zwoliński (2005) was used to estimate the amount of stress experienced in the family and in the school. In the questionnaire stress is defined as a threat or loss, and examples of stressful situations in the family and in the school are given. The current family/school stress is to be rated on the 7-point scale for its frequency (from *Never* to *Almost always*).

1998). As suggested by the reported gender differences regarding the perception of stress and utilization of both social resources (e.g. social support) and various coping strategies, the variable of gender was taken into account in the study.

The following assumptions were made:

- psychosocial theories of stress and regularities discovered so far are valid also for the adolescent population;
- in adolescence family resources are still important for stress adaptation;
- differences in personal and environmental resources may be related to preferences in coping styles utilization;
- investigation of relationships between perceived resources and particular coping styles utilization required that groups differing in the pattern of perceived resources (high vs. low resources) be distinguished.

It was hypothesized that:

Personal and social resources are associated with the utilization of particular coping styles: the more resources are available to the individual, the more often he/she would use task-oriented coping and the less often – emotion- or avoidance-oriented coping styles.

Moreover, the following research questions were explored:

a. What is the level of resources perceived by youth?
b. Which coping styles are most often used by the adolescents under study?
c. Are there gender differences in styles of coping with stress and in perceived resources?

Method

Study sample and procedure

In the year 2005 a total of 1326 students of 16 randomly selected high schools in Warsaw were examined using a set of questionnaires. It was a group examination during regular class time, confidentiality was ensured, and the students could refuse to participate. The survey was conducted by trained staff, i.e. teachers collaborating with the research team and not employed in the schools under study.

The participants aged 15-20 (mean age:17.0 years; *SD* = 0.91), were in grades 10th (35%), 11th (31%) or 12th (34%). There were 599 (45%) boys, and 727 (55%) girls. The majority, i.e. 82% of the adolescents lived with both parents, and the remaining 18% with a single parent or other caregiver(s). In the sample 253 participants (19%) were the only child, 754 (57%) had one sibling, 245 (18%) - two siblings, and 71 (5%) three or more siblings. The majority of parents were employed: 1091 (83%) mothers and 1132 (90%) fathers.

Tools

A set of self-report questionnaires *AREAS OF YOUR LIFE* was used. A more detailed description of instruments used in the study to measure personal and environmental resources is presented below.

Sense of coherence (SOC) was measured using the SOC-13M scale for adolescents, in the Polish adaptation by Zwoliński, Jelonkiewicz & Kosińska-Dec (2001). The tool consists of 13 items selected from the scale for adults (Antonovsky, 1995); and, in accordance with the adaptation by Torsheim & Wold (1998), each item was provided with a 5-point rating scale. In a separate study conducted on a sample of 876 students of middle- or upper secondary schools in Warsaw (Zwoliński et al., 2001), the scale turned out to have a satisfactory internal consistency (Cronbach's $\alpha = 0.82$) and a good construct and factorial validity.

Optimism was measured using the *Y&H* questionnaire, consisting of 11 items selected from the *You and Health* scale (R. Jessor, J.E. Donovan and F.M. Costa, in the Polish adaptation by A. Frączek and E. Stępień, 1991), and from a questionnaire *You and Health II* developed by E. Stępień (1999).The respondents were asked to assess on 5-point rating scales their chances of attaining various important personal goals in the future, such as a well-paid job, happy family life, etc. In a sample of post-primary school students (N = 851) a good internal consistency of the global scale was found ($\alpha = 0.81$) in a separate study (Zwoliński, 2008). Hierarchical factor analysis indicated that the global scale measures quite well a common secondary factor that can be termed "life optimism" (factor loadings from 0.43 to 0.63),

Family affluence or the family's economic situation was estimated on a 7-point rating scale (from "very bad" to "very good"). Studies by Zwoliński (2000) and Zwoliński, Jelonkiewicz & Kosińska-Dec (2003) indicate that the scale is a valid measure of the family economic status as a resource.

Family Strengths were assessed using the 12-item scale developed by Olson, Larsen and McCubbin (1985) in the Polish adaptation by Jelonkiewicz, Kosińska-Dec & Zwoliński (1997). The respondents assess on 5-point rating scales the degree to which they agree with statements concerning family pride (e.g. "We are proud of our family") and family harmony (e.g. "There are many conflicts in our family"). In the above-mentioned Polish sample of post-primary school students (N = 864) the internal consistency of the global scale was similar (Cronbach's $\alpha = 0.82$) to that reported by Olson et al. (1985).

Table 1
Perceived resources by gender - mean scores, SD and t-test results.

	Whole sample		Boys		Girls		t	df	p<
	Mean	SD	Mean	SD	Mean	SD			
SOC	42.53	6.54	43.17	6.76	42.01	6.32	3.18	1290	0.001
Optimism	41.08	5.57	40.96	5.71	41.18	5.46	-0.69	1290	0.487
Family affluence	5.30	1.05	5.26	0.99	5.27	1.09	-0.03	1314	0.975
Family Strengths	41.37	7.20	41.85	6.87	40.98	7.44	2.16	1279	0.031
Mother support	47.55	12.34	46.05	12.22	48.79	12.30	-3.98	1284	0.001
Father support	39.19	15.52	40.04	14.62	38.48	16.22	1.77	1236	0.077
Teacher support	23.32	9.76	23.13	10.07	23.48	9.51	-0.65	1284	0.518
Peer support	47.64	10.48	44.14	11.18	50.44	9.93	-11.24	1285	0.001

Social support was investigated using a 12-item *Perceived Social Support (PSS)* scale. Three items were based on the *Skala Wsparcia Społecznego [Social Support Scale]* (Kmiecik-Baran, 1995), while 2 items on the *Berlin Social Support Scales* (Łuszczyńska, Kowalska, Schwarzer & Schulz, 2002).Using 7-point rating scales the respondents assessed separately the level of support received from their father, mother, teachers and peers. In a sample of Warsaw secondary school students (N = 1.237) the *PSS* scale turned out to have a very good internal consistency for all the four sources of support: mother, father, teachers, and peers (Cronbach's α = 0.95, 0.96, 0.92, and 0.94, respectively).

Styles of coping with **stress** were assessed using the CISS-S by N. S. Endler & J. D. A. Parker in the Polish adaptation by K. Wrześniewski, who correlated the CISS-S items with these of the COPE by Carver & Scheier and found the Polish version to have a satisfactory theoretical validity (K. Wrześniewski, 2002, personal communication). The CISS-S, selected as a shortened version of the CISS, was used in this study with the instruction taken from the latter tool. Namely, respondents told that "people respond to difficult, stressful or upsetting situations in various ways" were asked to "indicate how often you engage in these types of activities when you encounter a difficult, stressful or upsetting situation" by rating their utilization of each coping behavior on a 5-point scale from "never" to "very often"[6]. In the Polish sample of 880 adolescents the scale turned out to have a very good factorial validity (four factors corresponding to four styles: task-oriented, emotion-oriented, seeking interpersonal contacts, and distraction). The four subscales had a good internal consistency - Cronbach's α ranging from 0.68 to 0.82 (Zwoliński, 2005).

6 Although the adult version of the CISS-S was used, both its psychometric properties and comprehensibility of the instructions assessed by the respondents were satisfactory in the study sample, where 94% of subjects were in the 16-18 age range

Statistical analysis

For all the analyses including descriptive statistics, *t*-tests, correlations, and other procedures the computer program STATISTICA 7 was used, with the assumed significance level of $p \leq 0.05$.

The results are presented in the following order: in the first step personal and environmental resources perceived by adolescents are described. Individual resources included sense of coherence and optimism operationalized as the aggregate scores on the 13-item and 11-item scales, respectively; the former ranging from 13 to 65, and the latter - from 11 to 55 points. As regards environmental resources: the family affluence was rated on a 7-point scale, the Family Strengths indicator was the sum of scores on the 12-item scale (ranging between 12 and 60), while perceived support indicators were aggregate scores (from 9 to 63) allotted on 9-item scales to the father, mother, peers and teachers. In the next step cluster analysis was conducted to distinguish groups differing in perceived resources level. Further, frequencies of various coping styles utilization were analyzed. The coping styles were operationalized as aggregate scores on the following CISS-S subscales: task-oriented coping - 7 items (7 to 35 points); emotion-oriented coping – 7 items (the 7-35 score range), seeking interpersonal contacts – 3 items (in the 3-15 range), and distraction coping – 4 items (within the 4-20 range).

Relationships between resources and frequencies of particular coping styles utilization were explored using correlation and variance analyses.

The final step was to investigate the relationships of resources with the frequencies of various coping styles utilization, and to establish which of the resources explains to the greatest extent the coping style utilization. In the majority of analyses gender differences were taken into account.

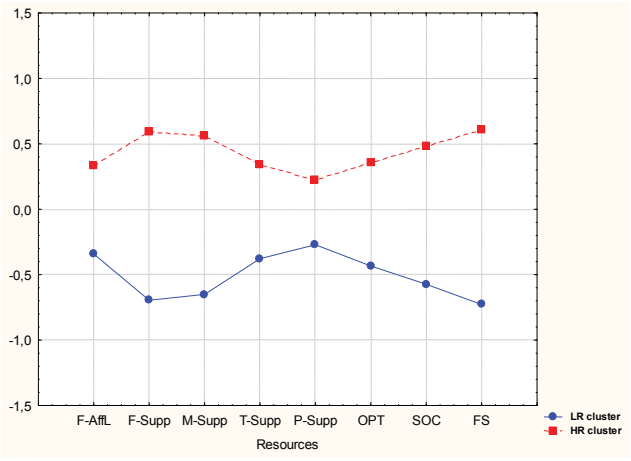

Figure 1. Mean standard scores of perceived resources in low- and high- resource clusters.

Results

Resources

Table 1 presents the basic descriptive statistics concerning resources perceived by boys and girls, as well as significance of gender differences in this respect assessed using the *t*-test. Two of the resources, i.e. SOC and Family Strengths were estimated by boys significantly higher than by girls, while girls as compared to boys assessed higher their support from the mother and peers. No gender differences were found as regards estimated family affluence, the respondents' optimism, and support received from the father and teachers. Since gender turned out to differentiate some of the perceived resources, it was consequently taken into account in further analyses concerning coping and relationships between resources and utilized coping styles.

An attempt was made to distinguish subgroups of adolescents differing in the levels of perceived personal and environmental resources. Using k-means cluster analysis a two-cluster solution was obtained dividing the sample into two homogeneous subgroups with respect to the adolescents' psychosocial resources (see Fig. 1).

The first cluster (N = 570) consists of adolescents with low scores on all the resources under study. Low-resource (LR) adolescents are characterized by low levels of their personal and environmental resources. The second cluster (N = 502) includes participants who perceived both these types of resources as high. They can be called a "high-resource" (HR) group, since not only personal resources, but also these of the environment they live and study in are at their disposal.

The two empirically distinguished groups differ significantly in terms of all the analyzed indicators. Table 2 shows mean scores for the variables defining LR I HR clusters, and independent samples *t*-test values to assess the significance of the intergroup differences. Scores on the variables forming the two clusters were standardized.

Low-resource adolescents as compared to the high-resource group have significantly lower levels of all the individual and environmental resources.

Table 2
Comparison of resource mean scores defining LR and HR clusters.

Resource	Mean scores		t	p<	df
	Cluster LR (N = 570)	Cluster HR (N = 502)			
SOC	-0.54	0.45	-18.43	0.001	1070
Optimism	-0.41	0.33	-12.94	0.001	1070
Family affluence	-0.33	0.34	-11.97	0.001	1070
Family Strengths	-0.73	0.59	-28.09	0.001	1070
Support from mother	-0.65	0.54	-24.36	0.001	1070
Support from father	-0.73	0.63	-29.90	0.001	1070
Peer support	-0.24	0.21	-7.68	0.001	1070
Teacher support	-0.37	0.33	-12.31	0.001	1070

Table 3
Gender differences in coping styles – mean scores and t–test values.

Coping style oriented to:	Mean scores		df	t	p <
	Boys(N = 556)	Girls(N = 683)			
Task	24.33	24.63	1237	-1.13	0.261
Emotion	19.49	22.43	1237	-9.86	0.001
Contact-seeking	7.87	9.67	1237	-10.07	0.001
Distraction	8.91	10.35	1237	-7.41	0.001

Table 4
Pearson's *r* coefficients of correlation between adolescents' resources and frequency of their coping styles by gender.

Resources	Boys (N=445)				Girls (N=570)			
	Style oriented to:				Style oriented to:			
	task	emotion	contact-seeking	distraction	task	emotion	contact-seeking	distraction
SOC	0.15*	-0.52*	0.03	-0.20*	0.29*	-0.51*	0.13*	-0.26*
Optimism	0.28*	-0.30*	0.20*	-0.11*	0.31*	-0.30*	0.26*	-0.13*
Family affluence	0.05	-0.06	0.08	-0.06	0.15*	-0.15*	0.13*	0.03
Family Strengths	0.20*	-0.21*	0.08	-0.15*	0.24*	-0.24*	0.15*	-0.13*
Mother support	0.28*	0.01	0.19*	0.01	0.21*	-0.11*	0.14*	-0.13*
Father support	0.19*	0.01	0.08	0.01	0.24*	-0.17*	0.16*	-0.12*
Peer support	0.18*	-0.10*	0.36*	-0.05	0.05	-0.09*	0.40*	0.10*
Teacher support	0.13*	0.07	0.03	0.01	0.22*	-0.07	0.06	-0.14*

* $p < 0.05$ SOC – sense of coherence

Table 5
Mean scores on coping styles by gender and cluster membership, and results of 2 × 2 ANOVA.

	Factor level	Coping style oriented to:							
		task	$F_{(1,1014)}$	emotion	$F_{(1,1014)}$	contact-seeking	$F_{(1,1014)}$	distraction	$F_{(1,1014)}$
Gender	M	24.24	0.55	19.58	91.13***	7.89	81.35***	8.89	54.82***
	F	24.49		22.59		9.66		10.43	
Cluster	LR	23.11	70.09***	22.42	43.43***	8.25	34.85***	10.09	7.68**
	HR	25.46		20.28		9.42		9.46	
gender x cluster	MLR	23.06	0.18	20.44	2.27	7.24	0.12	8.94	5.14*
	MHR	25.28		18.80		8.46		8.84	
	FLR	23.15		24.01		9.07		11.02	
	FHR	25.60		21.40		10.15		9.94	

*p<0.05, ** p<0.01, ***p<0.001
M – men, F – female, LR - low resources, HR – high resources

Coping styles

Significance of gender differences in the four coping styles utilization were assessed using t-test for independent samples (see Table 3).

No significant gender differences were found for the task-oriented coping. As regards the remaining three styles focused on emotions, contact-seeking, and distraction, girls turned out to use these styles significantly more often than boys.

Resources and coping styles

The next step was to analyze relationships between resources and coping styles. Table 4 presents Pearson's *r* coefficients of correlation between resources and frequency of the four coping styles utilization by boys and girls.

In the group of boys as many as 7 out of the 8 analyzed correlation coefficients were statistically significant for task-oriented coping. The higher were the boys' SOC, optimism, family strengths, support from parents, peers and teachers, the more often this coping style was used. Four resources were associated with emotion-oriented coping: SOC, optimism, family strengths, and peer support – the lower were these resources, the more frequent utilization of this style. Three resources: optimism, maternal support and peer support were related to contact-seeking as a coping style – the higher resources, the more frequent utilization of the style in question. Likewise, three resources (SOC, optimism, and family strengths) were correlated with distraction: the lower resources, the more often coping by distraction was used.

In girls almost all the resources, except for peer support, were positively correlated with task-oriented coping. Similarly, almost all resources (except for teacher support) were negatively associated with emotion-oriented coping. Coping with stress by contact-seeking was positively correlated with 7 resources: SOC, optimism, family affluence and strengths, as well as with parental and peer support. Finally, coping by distraction was negatively correlated with almost all resources (only the relationship with family affluence was not significant) – the lower were personal and environmental resources, the more often this style was used. The direction of the relationship between peer support and distraction coping seems interesting: the higher was this type of support, the more often distraction

Table 6
Multiple regression β coefficients for the relationship between adolescents' resources and frequency of their coping styles - boys.

Resources	Style oriented to: B=			
	Task (N=482)	Emotion (N=487)	Contact-seeking (N=492)	Distraction (N=492)
SOC	-0.05	-0.53*	-0.11*	-0.16*
Optimism	0.26*	-0.07	0.12*	-0.01
Family affluence	-0.03	0.04	0.03	-0.01
Family Strengths	0.01	-0.15*	-0.02	-0.14*
Mother support	0.15*	0.16*	0.16*	0.10
Father support	0.03	0.10	-0.04	0.08
Peer support	0.04	-0.02	0.33*	-0.01
Teacher support	0.08	0.15*	-0.03	-0.00
R	0.36	0.57	0.41	0.22
R^2	0.13	0.33	0.17	0.05
F	$F_{(8.473)}$=8.89, p<0.001	$F_{(8.478)}$=29.10, p<0.001	$F_{(8.483)}$=12.25, p<0.001	$F_{(8.483)}$=3.18 p<0.002

*p<0.05

Table 7
Multiple regression β coefficients for the relationship between adolescents' resources and frequency of their coping styles - girls.

Resources	Style oriented to:B=			
	Task (N=601)	Emotion (N=601)	Contact-seeking (N=607)	Distraction (N=600)
SOC	0.10*	-0.50*	-0.02	-0.23*
Optimism	0.22*	-0.09*	0.14*	-0.05
Family affluence	-0.01	-0.02	0.06	0.10*
Family Strengths	-0.01	0.05	-0.01	0.01
Mother support	0.05	0.08	0.07	-0.03
Father support	0.10*	0.00	0.04	-0.03
Peer support	-0.05	0.04	0.35*	0.15*
Teacher support	0.12*	0.09*	-0.02	-0.06
R	0.38	0.53	0.44	0.31
R^2	0.15	0.28	0.19	0.10
F	$F_{(8.592)}$=12.61 p<0.001	$F_{(8.592)}$=29.32, p<0.001	$F_{(8.598)}$=17.81, p<0.001	$F_{(8.591)}$=7.85 p<0.001

*p<0.05

was utilized by girls.

The overview of correlation coefficients shows that the statistically significant relationships between resources and coping styles are more numerous in girls than in boys.

Multivariate analysis of variance (MANOVA) was used to check whether coping styles were dependent on gender and LR or HR cluster membership. A significant main effect was obtained for each independent variable, i.e. gender [$F(4,1008) = 43.37$, $p < 0.001$, $\eta^2 = 0.147$, observed power = 1.00] and cluster membership [$F(4,1008) = 37.02$, $p < 0.001$, $\eta^2 = 0.128$, observed power = 1.00]. The effect of their interaction was not significant. In the next step a series of one-way analyses of variance (ANOVAs) was performed on coping style indicators to answer the question whether the use of particular coping styles depends on gender and on a specific configuration of perceived personal and environmental resources (low vs. high resources, LR vs. HR) See Table 5.

Cluster membership turned out to be associated with particular coping styles utilization. A comparison of the two clusters, LR and HR, revealed the following regularities: in the HR cluster (with generally many resources) emotion-oriented and distraction coping styles were used less often, while task-oriented coping and seeking social contacts were more frequent than in the LR cluster (with generally rather few resources). Emotion-oriented coping and seeking social contacts were related both to gender and to cluster membership, but there was no interaction between the two variables. Task-oriented coping was associated with cluster membership, but was unrelated to gender. In contrast, distraction coping was not only related to both gender and cluster membership, but also there was a significant interaction effect between these variables. Using Tukey's HSD post-hoc test (for unequal sample sizes) pair-matched groups of boys and girls with high or low resources (MLR, MHR, FLR and FHR) were compared for the latter style utilization. LR and HR boys turned out to use this style less

often than did girls in both clusters. Moreover, there was a statistically significant difference between the two groups of girls – namely, those with more numerous perceived resources (HR) less often utilized the distraction coping style.

Multiple regression analyses were preformed to find out to what extent the utilization of particular coping styles was explained by perceived personal and environmental resources. In successive regression models a coping style was the dependent variable, while the perceived resources were explanatory variables. Beta regression coefficients indicated the "pure" relationship between a given resource and the dependent variable, controlling for the other types of resources. Beta weights, multiple correlation coefficients and *F* values are presented in Tables 6 and 7.

The frequency of task-oriented coping utilization was associated with optimism and maternal support (13% of the explained variance) in boys, and with optimism, SOC, and support from the father and teachers (15% of the explained variance) in girls. The emotion-oriented coping style was explained by SOC, Family Strengths, and support received from the mother and teachers (33% of the explained variance) in boys, and by SOC, optimism, and teacher support (28% of the explained variance) in girls. Seeking social contacts as a coping style was explained by SOC, optimism, and support from the mother and peers (17% of the explained variance) in boys, and by optimism and peer support (19% of the explained variance) in girls. Distraction coping was explained by SOC and Family Strengths (only 5% of the explained variance) in boys, and by SOC, family economic status and peer support (10% of the explained variance) in girls.

An interesting result was obtained in regression analysis of the emotion-oriented coping: as evidenced by the positive sign of the β coefficient, this style was the more often used the higher was the perceived teacher support (irrespective of the respondents' gender) and maternal support (in boys). As regards distraction coping in girls, it was enhanced by some resources, and reduced by others. Girls utilized distraction coping the less often the stronger was their SOC, and the more often the higher was their family affluence and perceived peer support.

Discussion

The obtained data allowed to verify the hypothesis posed and to answer the research questions.

Perceived resources

The level of some perceived resources turned out to differentiate between boys and girls. Boys as compared to girls estimated higher their sense of coherence (SOC) and Family Strengths, while girls rated higher than boys did the support received from the mother and peers. On the other hand, there were no gender differences in perceived family affluence, own optimism, and support from the father and teachers. Higher SOC levels in boys corroborate the results reported in other studies (cf. Ericsson & Lindstrom, 2005), including our earlier research (Kosińska–Dec & Jelonkiewicz, 1997; Jelonkiewicz & Kosińska-Dec, 2004). Moreover, higher estimates of peer and maternal support among girls in this study are concordant with findings reported by other authors (Van Beest & Baerveldt, 1999; Cheng & Chan, 2004).

Two groups differing significantly in their perceived resources were distinguished, of high-resource (HR) and low-resource (LR) adolescents (N = 502 and 570, respectively). A mirror profile of standard scores in these two clusters shown in Fig. 1 seems interesting. In the LR cluster lower parental support and Family Strengths levels are accompanied by higher peer support, teacher support and family affluence. The profile is reversed in the HR cluster: higher parental support and Family Strengths scores are accompanied by lower peer support, teacher support, and family affluence levels. This might imply that at this developmental stage some resource categories (e.g. family-related) are more important, while others are pushed into the background. However, deficiency of the important resources can be compensated by the remaining ones (e.g. by support from peers and teachers, or by perceived family affluence). The idea of compensation seems logical from the perspective of adolescents' life cycle. Children becoming teenagers begin to spend more and more time with peers beyond adult control. At this stage friendships often satisfy developmental needs to a greater extent than do relations with parents. If teenagers perceive parental support as inappropriate (irrespective of the amount received), they may seek substitute support from their peers. This is consistent with the COR theory by Hobfoll (2006), assuming that people strive to obtain, build, and protect their resources, and replenish them after a significant investment.

Styles of coping with stress

No gender differences were found in this study as regards task-oriented coping. This finding is somewhat discrepant from these reported e.g. by Wilson, Pritchard & Revalee (2005) – in their sample of over 500 adolescents aged 10-19 years generally more coping strategies (including problem-focused coping) were used by girls than by boys. Similarly, among adolescents aged 17-21, women scored significantly higher than men on task-oriented coping (Rafnsson et.al., 2006).

However, similar results were obtained as regards the utilization of the remaining styles (emotion-oriented, contact-seeking and distraction-oriented) – more often used by girls than by boys. Task-oriented coping was used by

both genders more often than the other styles (as indicated by a comparison of standard scores on all the coping styles in boys and girls). This style can be assumed to exemplify the so-called functional coping. According to Seiffge-Krenke et al. (2001), more functional coping is typical of healthy teenagers.

Resources and coping

Analyses of the relationships between perceived resources and frequency of particular coping styles confirmed the hypothesis posed in the study. Higher personal and environmental resources were associated with more frequent task-oriented style and contact-seeking utilization, and with a less frequent use of emotion-oriented and distraction coping. It was assumed that in Polish samples only one of the two subscales (distraction) measures the true avoidant coping, while the other (contact-seeking) estimates rather how to obtain social support and so may be regarded as an adaptive coping style (Mroziak, 2003)

The relationship between perceived resources and coping styles found in the present study can be compared with the model proposed by Grant, Compas, Stuhlmacher, Thurm, McMahon & Halpert (2003). Having defined resources (i.e. characteristics of the adolescent or of his/her social environment preceding the stressor) as moderators, and coping styles (the adolescent's characteristics revealed in response to the stressor) as mediators, the authors attempted to establish bilateral relationships between these variables, and more precisely – possible determinants of particular coping styles utilization.

Their results fit into the traditional stress concept (Lazarus & Folkman,1984). The individual making primary and secondary appraisals tries to decide whether the situation just encountered is stressful or not, and next, whether he/she can cope with stress having his/her present capacities. The capacities include the availability of certain resources and use of particular coping styles. The greater capacities, the more likely the situation will be evaluated as non-stressful and the stronger is the individual's belief that he/she will successfully cope with stress. Therefore, the higher are the individual's appraisals of his/her resources, the more likely he/she will use adaptive coping styles and experience no stress.

The obtained pattern of results (i.e. the higher resources, the more/less often particular coping styles are utilized) can be associated with the positive approach to stress gaining popularity in the literature. Well-developed psychosocial resources (a sense of control, high self-esteem, optimism) facilitate proactive coping that minimizes the effects of stress (Greenglass & Fiksenbaum, 2009). Proactive coping denotes a positive attitude in dealing with stress. Individuals with higher coping resources more frequently utilize proactive coping strategies.

However, the question raised by Moos and Swindle (1990) remains open, namely – whether the strength of the relationship of personal and social resources with coping is similar, or perhaps one of the resource categories (either social or personal) is connected with particular coping styles more strongly.

It is difficult to obtain a clear-cut answer to this question when comparing coefficients of correlation between particular resources and each of the four coping styles analyzed. However, two results seem interesting. The first pertains to the negative association between SOC, a personal resource, and emotion-oriented coping style (in both genders similarly high negative Pearson's correlation coefficients were found, r =-0.52 and -0.51). In other words, the stronger SOC, the less often emotion-oriented coping is utilized. The other result links peer support with coping through contact-seeking (r =0.36 and 0.40): the higher peer support, the more often this style is used. Summarizing, two resources, one personal, and the other social, are correlated with two coping styles.

Regression analyses show that the set of predictors introduced in the models explains to the greatest extent the utilization of emotion-oriented coping (33% of the explained variance in boys and 28% in girls). The positive association of this style with some resources and negative with others suggests more complicated relationships between resources and coping than those hypothesized (namely, higher resources were supposed to enhance task-oriented coping and decrease utilization of the other coping styles).

The strong relationship between SOC and emotion-oriented coping can be explained in terms of the SOC association with negative affectivity described earlier in the literature (Łuszczyńska-Cieślak, 2001). In a stressful situation with low demands, a strong sense of coherence may reduce the level of the experienced negative emotional states (Kaczmarek, 2006), although this effect is rather weak.

Moreover, a question arises whether the SOC content perhaps overlaps the core self-evaluation (CSE) construct including self-evaluation, sense of control, and emotional stability (cf. Kammeyer-Mueller, Judge, Scott, 2009). CSE explains individual differences in the appraisal of stressors and in the process of responding to stress. Besides, CSE influences coping: individuals with higher CSE more often choose problem-oriented coping, and less often – avoidance coping.

Of course, utilization of task-oriented coping by itself does not lead to a better adaptation to stress and better health. Additional factors play an important role there. E.g. according to Compas et al. (2001), children and adolescents with greater social competences, lower depressed mood and anxiety levels, and less behavioral problems, can solve problems more easily and maintain a positive outcome of the stressful transaction.

Limitations and implications of the study

Limitations resulting from the research method used should be mentioned. Since a cross-sectional paradigm naturally does not allow to investigate causal relationships, an attempt was made in the study to establish only coincidence of personal and environmental resources with coping styles utilization.

Of course, the selection of resources may be questioned. It was a compromise between the data from a careful overview of the literature, and the researchers' personal interests.

Moreover, self-report measures used in the study implicate a limited knowledge about the real character of the participants' resources, even though data obtained from subjective self-reports are often used in psychological research.

The study sample was randomly selected, but the participants came from a large city, the capital of Poland. It is difficult to generalize the study findings on adolescents living in little towns and rural areas.

At the same time it should be noted that studies of this type are of exploratory character and provide some interesting practical implications. What should we focus on in the development of a preventive stress-management program? Perhaps instead of practicing effective coping styles we should strive to enhance adolescents' personal resources, e.g. their sense of coherence, optimism, available support. Resource enhancement would be propitious to their using task-oriented coping style more often, and less often – the style focused on stress-related negative emotions.

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