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Personal attributes and coping processes in explaining psychosomatic symptoms in prisoners

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Within a framework of transactional stress and coping theory the study analyzes the determinants of inmate adjustment to imprisonment. Relevant demographic and criminological measures, and self-report instruments for the assessment of personality, i.e. dimensions of self-concept and neurotic syndrome factors, some situational features, and mediating processes - cognitive appraisals and coping, were taken in the sample of 475 males incarcerated in Croatian penal institutions. Self-report psychosomatic problems scale was administered as a short-term measure of inmate adjustment to the conditions of prison life. Relative predictive power of particular groups of individual, situational and mediating variables was estimated by hierarchical regression procedures, with the cognitive appraisal on event controllability taken as a moderator variable. With low level of perceived controllability, all groups of predictor variables accounted for significant portion of criterion variance, whereas significant additive contribution in the group with high perceived controllability was found for personality dimensions and two sets of mediating processes variables. Findings support theoretical views regarding mediating role of coping mechanisms, and the moderating role of perceived event controllability in establishing mutual relations among the components within the stress model.

There is extensive evidence for the role of stress emotions and coping efforts in the processes of humans' adjustment to major changes in their lives. Because of observable links with functioning and adaptation of people to various life circumstances, the research on stressful life events has been in a focus of interest within the scope of the determinants of psychological and physical health.

Lazarus's transactional theory of stress and coping (Folkman, Schaefer & Lazarus, 1979; Lazarus and Folkman, 1984; 1987; 1991), is to date best elaborated model of coping and adjustment to stressful events. The theory conceptualizes stress as a particular type of transaction with the environment where environmental and/or internal demands exceed the adaptive resources of the individual. Mediating cognitive processes of appraisals and coping are seen as the central constructs of the theory.

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The concept of *cognitive appraisal* implies the processes through which a person evaluates whether, and in what ways, a particular encounter is relevant for his/her well-being. Authors speak of two main types of appraisals: *primary* - which deals with perceived importance of an event, and *secondary* - which is concerned with one's resources to counteract situational demands. Both types of appraisals are presumed to influence *coping*, viewed as a stabilizing factor that can help individuals maintain psychosocial adaptation during stressful periods (Lazarus & Folkman, 1984, 1991). Two widely recognized major functions of coping are: alleviating feelings of distress (emotion-focused coping), and altering the troubled person-environment relation (problem-focused coping). Hence, the dynamics of adaptation is seen as an unfolding process of *causal antecedents*, i.e. individual resources and environmental factors, *mediators*, and *effects*.

Enormous body of research done within last two decades, aimed at establishing the basic dimensions of coping (e.g., Carver, Scheier & Weintraub, 1989; Endler & Parker, 1990; 1992; Pearlin & Schooler, 1978), exploring the efficacy of various strategies (e.g., Aldwin & Revenson, 1987; Blankfeld & Holahan, 1996; Carver & Scheier, 1994; Folkman, Lazarus, Gruen & DeLongis, 1986; Jerusalem, 1993; Moos, 1995; Thoits, 1995), or studying the determinants of the choice of coping mechanisms in particular stressful situations (e.g., Ebata & Moos, 1994; Jerusalem & Schwar-

zer, 1989; Moos, 1995; Parkes, 1986; Raffety, Smith & Ptacek, 1997; Scheier, Weintraub & Carver, 1989; Terry, 1994), speaks of the relevance given to the coping processes in contemporary theories of stress. Nevertheless, as emphasized by Valentiner, Holahan and Moos (1994), there is still a lack of adequate understanding of many basic coping mechanisms, e.g., the questions on the nature of relationships between coping and particular antecedent or stress-resistance factors, or the impact of situational factors on the role of coping in the stress process.

Contrary to Lazarus transactional view, some authors suggest that in prediction of coping and its outcomes, stable individual and environmental resources, as well as situational factors should be taken into account as separate and identifiable sources of influence (Holahan, Valentiner & Moos, 1995; Parkes, 1986; Terry, 1994; Valentiner et al., 1994). Moos and Schaefer (1993) proposed a model of coping where personal and social resources relate to subsequent mental health both directly and indirectly through adaptive coping responses.

Different findings point that the degree of interrelationships or relative importance of particular components within general model of stress and coping, can vary depending on some contextual factors, including the appraisal on controllability or changeability of stressor (Vitaliano, DeWolfe, Maiuro, Russo & Katon, 1990; Conway & Terry, 1992; Terry, 1994; Thoits, 1995). Valentiner et al. (1994) point that event controllability may moderate the role of coping in the stress process both by shaping the choice of coping strategies and by influencing coping outcomes.

Hypotheses derived from Lazarus theory, and other related models, as well, were tested on samples from variously defined populations, and with regard to a large number of different kinds of stressors and outcome indices. Yet, considerable complexity and inconsistency can be found in studies on the relationships among personality resources, choice of coping strategies, and the efficacy of coping outcomes. Specific coping strategies were shown to reduce psychological symptoms in one stressful domain, but were ineffective or even detrimental when used to combat other problems (Pearlin & Schooler, 1978; Mattlin, Wethington & Kessler, 1990, *cited in* Thoits, 1995). As Thoits (1995) emphasizes, more work is still needed to identify the types of coping which reliably reduce distress or health symptoms in response to particular types of situations.

Among almost unexplored topics within the area is the study on the determinants and processes of adjustment to the conditions of prison life. Due to its specific features, such as the conditions of extreme restrictions, deprivations, and actually very narrowed potential for control over the events and their outcomes, as well as the permanent exposure to stressors of rather high intensity, prison environment appears to be stimulating and suitable setting for the testing of hypotheses from contemporary theories of stress and coping. Moreover, criminological and penological research on the impact of imprisonment on behavior and adaptation of incarcerated offenders fails to prove the assumptions on generally deleterious consequences of the prison experience (Bonta & Gendreau, 1990; Bukstel & Kilmann, 1980; Goodstein & Wright, 1989; Zamble & Porporino, 1988, etc.), which also points to the potential value and applicability of the stress and coping model in this context. Rather, the research evidence on the effects of incarceration speaks of great inter- and intraindividual differences in perceptions and reactions of inmates to the conditions of prison life (Bonta & Gendreau, 1990; Koenig, 1995; Sappington, 1996; Zamble & Porporino, 1988, 1990; Zamble, 1992, etc.).

This study sought to examine relative contribution of individual, situation, and mediating cognitive factors in accounting for subjective health symptoms or psychosomatic problems in prison inmates.

METHOD

Participants

The study was conducted on the sample of 475 males imprisoned in Croatian penal institutions of minimum (N=136), medium (N=132), and maximum (N=207) security level. Mean age of subjects was 34,5 years (SD=10,41), and roughly 68% of the sample were the first-time offenders. Amount of time served in the facility ranged from about 1 month to 9 years. Education level for the majority of participants was elementary school or less (63.8%), 32.6% had partial or complete secondary education, and 2.9% of the sample had achieved higher education levels. There were 37.5% of married, and 65.6% of subjects with one or more children. Sentence length for 18.9% of the sample was 12 month or less, 37.3% of subjects served sentences that lasted up to 3 years, 29.1% had terms from above 3 to 8 years, and 14.8% of the sample served more than 8 years prison terms. The demographic and criminological characteristics of the sample mainly correspond to those found in the male prison population in Croatia (*see* Knezović, Kulenović, Šakić, Zarevski & žužul, 1989).

Instruments

Variables included in the study were selected so to cover all main components of the stress and coping model. Antecedent factors were described by groups of *person variables* (demographic, criminological, and personality characteristics), and some *situational variables* (content, duration, and novelty of stressful events). Set of socio-

demographic variables comprised *age*, *education level* (defined on a 5 point scale, from 1 = no formal education, to 5 = two years of university level and more), and two variables taken as a measure of family concern - *marital status* (as a binary variable - married versus categories of unmarried, widowed, and divorced), and *number of children*. Criminological variables included *sentence length* (in months), *number of convictions* (first-time offenders versus multiple convicts), *previous time in prison* (in months), and *attitude toward sentence* (subject's appraisal on whether the sentence he serves is exceeded or merited with regard to offense he committed).

Personality characteristics were measured by three unidimensional scales for the assessment of some aspects of self-concept (Bezinović, 1988): *Perceived incompetence* scale consisted of 12 items, where higher scores on the scale reflect a sense of inadequacy or uncertainty regarding one's own capabilities (Cronbach α=.80); *Fear of negative evaluation* scale consisted of 10 items, and aimed at measuring the extent to which others are perceived as sources of one's own apprehension and discontent (α=.72); and *Externality* scale consisted of 10 items, where high scores reflect external personal orientation according to which the outcomes of person's behavior are determined by chance, destiny, luck or coincidence (α=.85). Items on each scale were rated from 1 (definitely true) to 4 (definitely false). *Cornell index* was also administered to measure personality traits related to neuroticism (Weider et all., 1945, *cited in* Momirović & Kovačević, 1970). Scores on this inventory were defined as the results obtained on each of three second-order neurotic syndrome factors: *Anxiety syndrome factor* (F1, α=.948), *Psychosomatic syndrome factor* (F2, α=.950), and *Aggressiveness syndrome factor* (F3, α=.879).

Sources of stress (content) were examined by a list of potential sources of problems in prison classified into following 7 categories: accommodation, relations with other prisoners, institutional regime, relations with prison staff, contacts with the outside, vagueness in institution, and health problems. Subjects were asked to choose one of presented and thoroughly described categories of problems - appraised as most stressful in the last two weeks.

Furthermore, subjects were asked to rate the *duration* of stressful events (0 - they have almost gone, 1 - they still persist), and the degree to which they were *surprised* by the problems within selected category (on a scale from 0 - I expected them, not surprised at all, to 3 - I was totally surprised, didn't expect them at all).

Central mediating processes were represented by measures of two main types of cognitive appraisals and the ways of coping. *Primary appraisal* was defined as the perception of stress intensity with reference to the selected category of problems, and measured by a 4-point scale (0 - didn't make me upset at all, 3 - it disturbed me very much). *Secondary appraisal* was defined as the perception of controllability of selected category of stressful events, and assessed by two 4-point scales related to perceived impact on the occurrence as well as the outcome of stressful event (0 - no impact, 3 - thorough).

Coping with prison stressors was assessed by an inventory composed of nine situation-specific 4-item coping scales (Buško, 1995; Buško & Kulenović, 1995), measuring: *Information seeking* (α=.77) - describing gathering information on the event, asking for advice and help from others; *Planning* (α=.61) - comprising mainly cognitive efforts directed to resolving the problem; *Direct action* (α=70) - that involves undertaking of concrete, practical actions aimed at problem solving; *Focus on emotions* (α=.51) - referring to the attempts at relieving distressing emotions by venting of feelings, sleeping, consuming medicine, food, drinks, etc.; *Pasivization* (α=.55) - reflecting an opposition to active coping, includes resignation, waiting for problems to be resolved by themselves; *Fatalism and religion* (α=.71) - turning to religion, confidence to the Act of God, or fortune; *Reinterpretation* (α=.57) - which describes efforts to create predominantly positive meaning on the stressful event; *Wishful thinking* (α=.66) - containing desires, day-dreaming and fantasies on change or withdrawal of stressful event; *Humor* (α=.79) - concerning attempts at lessening the relevance and severity of the event by introducing humor and recognizing amusing sides of the situation. On the items of this inventory subjects were to appraise how often they used each of presented ways of coping in previously selected stressful situations (on the scale from 1 - not at all, to 4 - often) within the two-week period. Scores on each coping scale were computed by summing the answers on corresponding items.

Finally, self-report *psychosomatic problems* scale (Vizek-Vidović, 1982) was administered as a short-term measure of inmate adjustment to the conditions of prison life. The scale is consisted of 26 items relating to typical health symptoms, most frequently cited as potential somatic responses to an exposure to stressful circumstances. Subjects were to appraise how often they felt each of presented symptoms during the last two weeks (1- not at all, 2 - sometimes, 3 - often). Scale scores were defined as linear combinations of appraisals given for each of 26 items (α=.94).

Procedure

The data were gathered in one maximum (Lepoglava), two medium (Požega and Turopolje), and two minimum security (Lipovica and Valtura) Croatian penitentiaries. The only criterion for the selection of participants was the basic literacy. Participants were guaranteed that their an-

swers would be treated with full confidentiality and that they had the option of withdrawing at any time. Instruments were administered in groups of 10-20 subjects. Participants completed the instruments following specific instructions given with each of the questionnaires, along with the supervision and, when needed, additional help from the examiner. Data gathering was conducted by the first author of the paper, in cooperation with psychologists and other members of the staff in the institutions. The entire procedure lasted 90-120 minutes per group including a short pause.

RESULTS

To assess relative contribution of selected groups of predictor variables in accounting for psychosomatic problems scores we performed hierarchical regression procedures. The means, standard deviations, and intercorrelations among all the variables included into regression analyses are given in table 1.

Several control statistical procedures preceded the regression analyses in order to determine the position of particular variables within the analyses, as well as to ascertain the legitimacy of doing the analyses on the total sample. These included canonical discriminant analysis of the results on cognitive appraisals, situation features, and coping measures among 7 subgroups formed according to selected category of stressors (Buško & Kulenović, 1995). The analysis revealed that neither coping mechanisms nor cognitive appraisals were particularly strongly determined by specific stressors, hence, justifying taking these seven groups together in further analyses.

Regression analyses were executed through several previously specified steps, and the blocks of variables that

Table 1.

Means (M), standard deviations (SD), and intercorrelations of measures

	M	*SD*	*N*	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
Demographic characteristics																	
1. Age	34.5	10.4	474														
2. Marital status	.38	0.48	467	.27													
3. Number of children	1.07	1.19	468	.44	.62												
4. Educational level	2.23	1.17	472	.03	-.02	-.01											
Criminological characteristics																	
5. Sentence length	50.18	45.13	473	.14	-.09	.02	.02										
6. Number of convictions	1.31	0.46	475	.08	.00	.01	.05	-.08									
7. Attitude toward sentence	1.24	0.42	469	-.14	-.08	-.12	-.01	-.16	.04								
8. Previous time in prison	14.36	36.86	469	.14	-.03	.05	.13	-.03	.58	.02							
Personality measures																	
9. Fear of negative evaluation	22.29	5.41	469	-.01	-.11	-.07	-.09	.09	-.05	.03	-.03						
10. Perceived incompetence	21.92	6.21	469	.11	-.09	-.02	-.18	.08	.06	.05	.06	.59					
11. Externality	22.51	6.97	469	.08	-.08	-.01	-.18	.09	.05	-.04	.11	.40	.53				
12. CN4_F1	14.99	10.96	457	.07	-.07	.00	-.11	.11	.08	-.02	.05	.48	.56	.39			
13.CN4_F2	9.31	9.37	456	.12	-.03	.02	.00	.13	.07	-.09	.06	.25	.40	.24	.78		
14. CN4_F3	6.49	4.76	457	-.04	-.14	-.09	-.09	.05	.19	-.01	.13	.32	.44	.39	.74	.65	
Situational features and cognitive appraisals																	
15. Stress intensity	2.16	0.92	467	-.03	.02	.06	.01	.14	-.02	-.04	-.05	.24	.11	.06	.23	.20	.07
16. Impact of occurrence	1.06	1.05	463	-.01	.08	.04	-.09	-.11	.01	-.02	-.08	.16	.15	.08	.16	.05	.11
17. Outcome control	1.04	0.96	465	-.09	.05	.02	-.09	-.10	-.07	-.01	-.17	.11	.06	.04	.07	.00	.01
18. Novelty of event	1.46	1.2	465	.05	-.02	.06	-.07	.11	-.03	-.12	-.01	.14	.08	.08	.20	.16	.10
19. Duration of event	0.69	0.46	465	.05	-.08	.00	.09	.20	.09	-.05	.08	.16	.11	.07	.23	.18	.22
Ways of coping																	
20. Information seeking	9.55	3.53	465	.15	.05	.15	-.02	.12	-.06	-.09	-.03	.22	.08	.14	.23	.19	.09
21. Planning	10.49	3.02	465	-.09	-.04	.02	.08	.04	-.03	-.05	.00	.23	-.04	.09	.07	.08	.04
22. Direct actions	11.22	3.14	465	.04	.06	.06	.08	.01	-.02	-.02	-.02	.08	-.11	.06	-.01	.01	-.01
23. Focus on emotions	7.5	2.54	464	.00	-.1	.02	-.02	.01	.06	-.06	.02	.26	.30	.23	.34	.31	.35
24. Pasivization	9.72	3.09	465	.04	-.05	.02	-.05	.02	.01	.05	-.05	.13	.14	.26	.12	.04	.11
25. Fatalism and religion	8.94	3.58	465	.09	.04	.10	-.17	.09	.01	-.04	.00	.23	.24	.40	.28	.17	.16
26. Reinterpretation	11.11	2.96	465	.02	.01	.12	-.06	.01	-.07	.06	.00	.20	.05	.22	.09	.03	.07
27. Wishful thinking	10.43	3.17	465	-.05	-.06	-.01	.01	.02	-.01	-.05	.02	.27	.15	.28	.27	.22	.23
28. Humor	8.57	3.45	465	-.04	.00	.02	.09	-.03	.06	-.04	.06	-.03	-.01	.12	.02	.05	.08
Criterion																	
29. Psychosomatic symptoms	41.91	11	462	.13	.02	.03	.09	.14	.03	-.11	.06	.29	.33	.27	.59	.76	.45

were entered into equation at the particular steps, and their sequence, were defined according to the hypothesized status of these variables within the stress and coping model. Accordingly, contribution of the groups of antecedent variables was assessed prior to additive contribution of mediating processes variables, with precedence given to stable individual characteristics. Within each step, predictor variables are entered together into analysis which provides the means for control of their interrelationships.

Hence, the first step of the analysis included the set of *demographic* characteristics: age, education level, marital status, and number of children; *criminological* variables, i.e., sentence length, number of convictions, previous time in prison, and attitude toward sentence, were entered at the second step; third step involved personality, i.e., three *self-concept* measures; forth step comprised *situation* variables - duration and novelty of stressful events, and the measures of *cognitive appraisals* - stress intensity and perceived impact on event occurrence; finally, nine *coping* measures were entered at the fifth step of the analysis. *Neurotic syndrome* measures derived from Cornell index were entered into regression equation as a separate block of variables at the last step of the analysis. Namely, because of, in our opinion, inflated correlations obtained between Cornell index variables and the criterion, which is at least partly due to content similarity or overlapping between the scales used, block of personality variables appears to account for illusory high proportion of criterion variance. Obviously, under these conditions the chances for potentially significant additive effects of variables at further steps of the analysis to be proved, would be considerably reduced.

Also, in accord with research findings on moderator effects of cognitive appraisal on event controllability, and the 'goodness-of-fit' hypothesis (Moos & Schaefer, 1993; Vitaliano et al., 1990, etc.), the analyses were performed separately for the groups of subjects with low (scores 0 - no impact, and 1 - a little) and high (scores 2 - large, and 3 - thorough) appraisals of controllability of outcome of stressful events.

Main results of the regression analyses are summarized in Table 2. For easy reference, along with multiple correlation coefficients (R) and successive changes in squared multiple correlations (ΔR^2) computed at each step of the analysis, table contains standardized regression coefficients (β) that proved significant, and which refer to the variables entered into equation at particular steps, solely, as well as simple zero-order correlations between these variables and the criterion (r). All significant beta values obtained at the final step of the analysis (β^a) are given in the last columns of the table. Also, presented are adjusted squared multiple correlation values for the equations derived at the final steps of the analyses (total ${}_cR^2$), with corresponding significance test.

Demographic characteristics account for statistically significant portion of criterion variance, though only in the group with low level of perceived event controllability (R^2=.04, p<.05). Criminological features explain additional 4% of the criterion which is also true just with low level of controllability (p<.05). Bringing self-concept measures into equation explains extra 12% of variance with low (p<.001), and 18% of criterion variance with high level of perceived outcome control (p<.001). Block of situational features and cognitive appraisals accounts for further 6% (p<.001), and 7% (p<.05) of variance in psychosomatic problems scores with low and high controllability level, respectively. After the inclusion of the ways of coping into regression equation, additional 7% of the criterion was explained in the group with low outcome control

Table 1 (continued)

	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.
Situational features and cognitive appraisals														
15. Stress intensity														
16. Impact of occurrence	.05													
17. Outcome control	.02	.55												
18. Novelty of event	.40	.11	.06											
19. Duration of event	.32	-.02	-.09	.15										
Ways of coping														
20. Information seeking	.23	.11	.02	.32	.08									
21. Planning	.23	.11	.04	.15	.09	.50								
22. Direct actions	.18	.15	.11	.17	.07	.54	.60							
23. Focus on emotions	.13	.20	.06	.13	.14	.26	.22	.19						
24. Pasivization	.00	.10	.00	-.02	.00	.07	.08	.06	.35					
25. Fatalism and religion	.10	.15	.05	.19	-.03	.28	.17	.18	.29	.39				
26. Reinterpretation	.15	.20	.11	.06	.02	.39	.47	.46	.33	.34	.39			
27. Wishful thinking	.29	.04	.00	.20	.14	.29	.39	.30	.40	.33	.39	.46		
28. Humor	-.02	-.06	-.03	-.16	.05	.07	.18	.14	.22	.22	.11	.28	.26	
Criterion														
29. Psychosomatic symptoms	.27	-.01	-.06	.14	.22	.25	.17	.11	.35	.06	.16	.11	.31	.09

Table 2

Hierarchical regression analyses on Psychosomatic problems scores with different levels of appraised controllability

Low perceived outcome control				
Predictor sets of variables		β	r	β^a
Demographic characteristics				
Education level		.13*	.14	.12**
Age		.14*	.15	
R=.20	R^2=.04*			
Criminological characteristics				
Attitude toward sentence		-.13*	-.16	-.09*
Sentence length		.12*	.16	
R=.27	ΔR^2=.04*			
Self-concept measures				
Externality		.17**	.28	.12*
Perceived incompetence		.16*	.29	
R=.44	ΔR^2=.12***			
Situational features and Cognitive appraisals				
Stress intensity		.20***	.29	
R=.50	ΔR^2=.06***			
Ways of coping				
Focus on emotion		.15**	.28	
Wishful thinking		.15*	.30	
R=.57	ΔR^2=.07**			
Cornell index				
F2		.70***	.74	.70***
R=.79	ΔR^2=.31***			
Total R^2=.60	F=18.16***		N=330	

High perceived outcome control				
Predictor sets of variables		β	r	β^a
Demographic characteristics				
R=.09	R^2=.01			
Criminological characteristics				
Attitude toward sentence			.01	.19**
R=.15	ΔR^2=.01			
Self-concept measures				
Perceived incompetence		.32*	.40	
R=.45	ΔR^2=.18***			
Situational features and Cognitive appraisals				
Stress intensity		.19*	.22	
R=.52	ΔR^2=.07*			
Ways of coping				
Focus on emotion		.39***	.46	.20**
Reinterpretation		-.21*	-.01	
R=.69	ΔR^2=.20***			
Cornell index				
F2		.87***	.79	.87***
R=.87	ΔR^2=.29***			
Total R^2=.69	F=11.57***		N=135	

Note: * p<.05; ** p<.01; *** p<.001;
ΔR^2 - increment in R^2 after the inclusion of new block of predictors into regression equation;
β^a - significant beta weights at the final step of the analysis

(p<.01), and even 20% of variance in the group with high perceived controllability (p<.001). Cornell index variables increased the amount of explained criterion variance for 31% (p<.001) with low, and 29% (p<.001) with high controllability level. Total amount of variance in psychosomatic problems scores explained by the whole system of employed predictor variables was 60% and 69%, for the low and high controllability groups, respectively.

In the situation of low level of perceived controllability, the extent of psychosomatic problems appears to be related, to some degree, to all groups of predictor variables. Out of demographic features, results show that age and higher education level are in this subsample significant predictors of the amount of psychosomatic problems. Furthermore, longer-term prisoners and those with negative attitude toward sentence tend to report on dilated psychosomatic problems. According to the contribution of self-concept measures, the amount of psychosomatic problems is related to higher results on externality and perceived incompetence scales. Higher stress intensity and higher results on coping scales describing wishful thinking and emotion focused strategies also contribute to the level of psychosomatic symptoms. Psychosomatic syndrome factor, i.e., F2 scale from Cornell index, shares around 55% of common variance with the criterion (r=.74), and multiple correlation obtained at the last step of the analysis is only slightly higher than single correlation between F2 scale and psychosomatic problems scores. Contribution of this scale to the criterion variance is incomparably higher than that of any other variable included into equation, which indeed, "shades" the contribution of most of significant predictors proved at the previous steps of the analysis. According to significant beta values found in the final equation, variables that besides F2 factor contribute to the explanation of psychosomatic problems scores are education level (β^a =.12, p<.01), attitude toward sentence (β^a= -.09, p<.05), and externality (β^a=.12, p.05), whereas the contribution of two sets of variables defining mediating processes, entirely diminished.

In the group with high appraisals of outcome control, perceived incompetence shows to be the only significant predictor within block of self-concept measures, and after the coping measures were entered into analysis, its contribution gets statistically insignificant (β=.15, ns). Within

situation and cognitive appraisals block, perceived stress intensity turned out to be the single significant predictor in this subsample as well, which beta value upon the inclusion of coping measures also lessened under the level of significance (from β=.12, p<.05, to β=.15, ns). According to the contribution of coping measures, higher level of psychosomatic symptoms seems to be followed by more frequent reliance on emotion focused strategies. As can be seen, psychosomatic syndrome factor (F2) proved to be the strongest single predictor of the outcome measure with high perceived controllability, as well. The contribution of the focus on emotion coping scale, however, remains significant in this subgroup even at the last step of the analysis (β^a=.20, p<.01).

DISCUSSION

Based on main propositions of the transactional stress and coping theory, this study tried to examine the role or the relative importance of particular individual and situational factors, and the processes of cognitive appraisals and coping, in determining a short-term adaptational outcome defined as the extent of current psychosomatic symptoms in prison inmates. Presented findings generally speak in behalf of theoretical views on the relevance of central mediating processes in explaining the variability in manifestations of the outcome of stressful encounters. Moreover, the results seem to support the assumptions on the mediating role of coping mechanisms, and the 'moderating' role of the cognitive appraisal on event controllability in clarifying the relationships among the components of the stress and coping model.

As it was shown, the results point to the differences in the structure of used predictor variables that take part in the explanation of outcome measure, depending on the level of appraised event controllability. In the situations of low appraised controllability, all three groups of antecedent variables, to a lesser or greater extent, seem to directly contribute to psychosomatic symptoms variance. Absence of significant contribution of the two groups of mediating processes variables in the final regression equation could partly be due to overrated proportion of shared variance between traits or syndromes of neuroticism measured by Cornell index, and the criterion aimed to measure temporary or transient psychosomatic annoyances. Nevertheless, these results may also indicate that the ways of coping, as well as the cognitive appraisal on stress intensity have indeed no distinctive and straight role in determining adaptational outcome operationalized as it was done in our study. Instead, they could merely reflect characteristics of personality.

The results obtained for the group which perception of outcome control is higher, seem to support this interpretation. As already stated, with high level of controllability the contribution of self-concept and cognitive appraisal variables becomes insignificant after the inclusion of coping measures, whereas emotion focused coping at the final step of the analysis still significantly contributes to the explanation of the criterion. In addition, unique additive contribution of the ways of coping to the explanation of psychosomatic problems variance, is larger with high level of controllability (20% versus 7% with low appraised control). Accordingly, our results demonstrate rather clearly that relative predictive "power" and the kind of contribution of particular antecedent or mediating factors in determining the adaptational outcomes, can vary as a function of perceived control over these outcomes. Thus, the hypothesized mediating role of coping strategies, as with reference to antecedent factors, i.e. self-concept measures, so in relation to cognitive appraisal measures, proved to be evident for situations perceived as controllable, solely. This is also true for previously commented findings on the unique or direct contribution of coping in accounting for the outcome measure.

These results are consistent to those reported by Pearlin and Schooler (1978) who found higher importance of coping mechanisms in determining the outcomes of more controllable stressful events (related to e.g. interpersonal relations), whereas personality traits had larger predictive value in situations less amenable to control (occupation and household economics). Valentiner, Holahan and Moos (1994) also proved the moderating effects of appraised controllability, demonstrated both in the degree to which social resources influenced coping and in the effectiveness of coping responses. With controllable events, antecedent factors defined as parental support predicted adaptive coping, and coping predicted changes in adjustment. With uncontrollable events, family support related directly to changes in adjustment.

Our findings, however, do not give much ground to the 'goodness of fit' hypothesis, i.e., the assumption on differential effectiveness of particular strategies depending on appraised event controllability (Folkman et al., 1979). Focus on emotion and wishful thinking are the only strategies in our study found to be significantly, and also positively, related to the amount of psychosomatic problems, irrespective of the level of appraised controllability. Although expected direction of relationship was proved for controllable situations, there was no support for the proposal that the use of emotion-focused strategies would be adaptive in uncontrollable situations.

Some other research revealed findings partly comparable to ours. Vitaliano et al. (1990), for instance, did not find clear support for the moderating effects of appraised

changeability of stressor on the relationship between the use of emotion-focused strategies and depression. In the research of Conway and Terry (1992), negative effects of self-denigration were more marked in controllable than uncontrollable situations, and also, the use of escapism as an emotion-focused strategy was associated to poorer adjustment regardless of the level of appraised control.

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