Chapter 23

RESOURCES IN COPING WITH A CHRONIC ILLNESS: THE EXAMPLE OF RECOVERY FROM MYOCARDIAL INFARCTION

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ABSTRACT

Chronic illness requires much adaptive effort and a wide range of psychosocial resources play a significant role in the recovery process. The authors examine the Resourcefulness for Recovery Inventory (RRI) comprising a variety of different factors to assess whether there is an one single overriding construct that could then make a valuable contribution (through its simplicity) to research in the field of psychological recovery. In the present study, we further advance the validation of the RRI by investigating correlates of such a global measure of resourcefulness. One hundred and thirty eight patients undergoing cardiac rehabilitation, after recent myocardial infarction, completed the RRI and a set of other well-established instruments measuring psychosocial resources. Building on the conservation of resources theory, we hypothesized that the multi-factor structure of recovery resources, as measured by the RRI, might yield a meaningful general factor. A confirmatory factor analysis supported the single factor solution, $\chi2(170) = 273.47$, CFI = .96, RMSEA = .07. We hypothesized that the results of the measurements would be intercorrelated, supporting convergent validity of the RRI. The results support the first hypothesis. However, the second hypothesis found support for resiliency, attitude towards illness and support seeking, but not for satisfaction with life. The results suggest that among cardiac patients, the RRI might be considered a measure of general resourcefulness, in addition to the traditional approach where various profiles of resources are subject to analysis.

Keywords: *Resourcefulness for Recovery Inventory, Coronary Heart Disease, Satisfaction with Life, Resiliency*

INTRODUCTION

Adjusting to a life with a chronic illness, such as ischemic heart disease, requires much adaptive effort as it irreversibly interferes with the sick person's everyday life and his or her immediate environment. Most chronic illnesses have a negative prognosis or their course is uncertain. Additionally, from the moment of diagnosis,

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they accompany a person until death, requiring constant contact with a doctor, control examinations and lengthy and very regular use of medicines (Ockene, 2001).

The chronic illness is a complex condition that is difficult cognitively, emotionally and existentially. It requires the sick person, and frequently the person's closest environment, to constantly adapt to a new and challenging life situation. The psychological consequences of a chronic illness may be analysed by using the transactional stress model (De Ridder, 2004; Heszen and Sek, 2007; Lazarus and Folkman 1984).

The method of adjusting to a chronic illness will, on the one hand, be determined by the characteristics of the illness itself and will be dependent on its course. Some diseases progress with periodic remissions or recurrences, others are characterised by a stabilised state of incomplete ability, yet others may lead to a deterioration of one's health. The time in which the illness appears (whether it is an innate illness, one acquired in childhood, or one that appeared in various stages of adulthood), will determine the method of adjusting to it (Heijmans et al., 2004; Lett et al., 2007). The character of the illness, which organ it affects and what limitations it causes, sets specific adaptive conditions (Moos and Holahan, 2007). Depending on the type of the illness, it interferes with different aspects of human life, frequently hindering everyday life, study, work, and participation in social life and will also impose learning many new competences and self-control skills, such as in diabetes.

On the other hand, the way that a person adapts to an illness is defined by the availability of resources he or she may use in the process of dealing with it. In stress psychology, measures refer to the organism's immunity, personal knowledge and skills, and social support. Most authors working with these resources (Antonovsky, 1987; Hobfoll, 2006; Heszen and Sek, 2007) agree that these resources help in coping with the demands (stressors) of life, including adaptation to chronic illness. Specifically, these resources are material goods and all personal features that are positive from a developmental point of view, along with characteristics of social relations and social environment. Their function may be based on the ability to avoid stressors, minimize their influence and improve the process of coping. Antoniazzi, Celiński, and Alcock (2002) attempted to determine if resourcefulness is equally recognized by the patients of a rehabilitation centre and its treating personnel, including the standpoint of doctors in care of chronically ill patients. Their work became a direct inspiration for the research described in this chapter.

The role of psychosocial resources in coping with stress has been characterized by Hobfoll (1989, 2002, 2006) in the conservation of resources theory. Hobfoll defined resources as all those things that are valued by an individual. Resources are used for adaptation and maintaining well-being in a direct way, or they are invested to obtain other resources. Individuals make a lot of effort to obtain, retain and protect resources. Stress occurs when resources are threatened with loss or are in fact lost. There are three rules of managing resources: (1) The loss of resources has a stronger impact on the behavior and experience of individuals than the gain of resources; (2) Individuals, after a loss of resources, are less motivated to invest their resources; and (3) Individuals, with high level of resources, are less vulnerable to loss and more motivated to seek new resources. The situation of people following a myocardial infarction can be conceptualized in terms of the conservation of resources theory. Those individuals experience the loss of a resource such as somatic health and subjective well-being. As a consequence, this state may inhibit the process of conservations of their other psychosocial resources. In the long run, it can lead to overall deterioration of psychosocial resources. As a result, a general change in the availability of multiple resources (i.e., resourcefulness) might occur in parallel to the rises and falls of specific resources.

Analysis of the overall level of resources complements the analysis of specific resources, both from the theoretical and the practical perspective. First of all, it lies in the assumption that the structure of all relatively distinct resources is interrelated. As a consequence, in some situations, indirect strategies to increase a specific resource (via other resources) might be considered.

The difference in the level of changeability of some resources, in comparison with other resources, is fundamental for developing efficient health-promoting interventions (Bartholomew, Parcel, Kok, and Gottlieb, 2006). For this reason, a ratio between the importance of a resource to its changeability is preferred as a

guideline for choosing a component of a health-promoting intervention. Taking the general resourcefulness factor into account, one might expect that even those targeted resources low in changeability can be influenced by high changes in more modifiable resources (see Figure 1).

Elevating the changeable resources can be regarded as an indirect method of affecting the target resources. For instance, social support can be increased indirectly by enhancing positive emotionality (Gable, Reis, Impett, and Asher, 2004; Pressman and Cohen, 2005). A similar concept (i.e., one resource builds another), called upward spiral toward emotional well-being, was characterized in Fredrickson's broaden-and-build theory of positive emotions (Fredrickson, 2001).
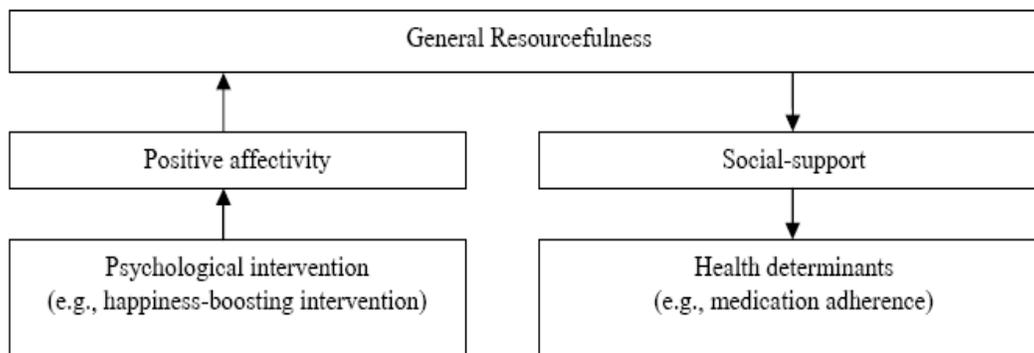
Note. In this hypothetical model, it is assumed that social-support is a less changeable resource, and positive affectivity is a more changeable resource. Although social support is the target resource, a psychological intervention (Lyubomirsky, Sheldon, and Schkade, 2005) is aimed at positive affectivity. Positive affectivity leads to upward spiral of building recourses. Increase in general resourcefulness might increase also social support, which is the target resource in this model.

Figure 1. An Indirect Intervention on Social Support through Positive Affectivity.

Thus we designed a study to explore the possibility of the existence of a an overarching single factor in the RRI, because such a measure might be able to be used as a control variable of general resourcefulness helping to distinguish the effects of general resourcefulness from more specific effects of distinct resources.

AIMS OF THE STUDY

The first aim of this study about myocardial infarction was to: (1) test the single factor structure of psychosocial resources measured by the RRI and (2) test the convergent validity of the possibility of an overarching single factor in the RRI scale. To address the second goal, we selected a number of constructs which are expected to correlate with resourcefulness: (a) the attitude towards therapy, (b) resiliency, and (c) satisfaction with life and social support.

We hypothesized that the structure of resources be rather single-factor due to the mechanism of the upward spiral of building resources stipulated by Fredrickson (2001). This characteristic might indicate that the RRI is unique among other measures of resources, which are mostly concentrated on specific resources. We also expected that the level of resources determines the attitude to therapy. This mechanism would rely on the so-called banker paradox, which shows that those persons who are in the greatest need do not get help, whereas those who are resourceful are open to gathering new psychological resources (Hobfoll, 2006, 2002). A growing body of research also shows that resiliency might be one of the most important personality traits, associated with positive outcomes, in the face of health adversities. Finally, we assumed that resources help to maintain satisfaction with life as an indicator of psychological well-being. This set of variables aids in testing

the convergent validity of the RRI scale, but at the same time these variables might shed new light on intercorrelations between resources among persons coping with the consequences of myocardial infarction.

METHOD

Participants

One hundred and thirty eight ($N = 138$) persons participated in the current study. They were patients of the Cardiology Rehabilitation Department where they were recovering from myocardial infarction. During their stay at the hospital, they were asked to complete a set of questionnaires. Participation in the research was voluntary and anonymous. Males predominated in the sample. There were 82 in total (59.4%); 56 females participated in the study (40.6%). The sample consisted of persons aged between 22 and 85 ($M = 57.21$; $SD = 9.91$). The average age of examined females ($M = 59.91$; $SD = 9.21$) was higher than that of examined males ($M = 55.29$; $SD = 10.02$) ($t_{(130)} = -2.70$; $p = .008$).

The RRI, which is validated in the study, consists of 241 questions. Because completing this questionnaire and an additional set of scales might be fatiguing for the participants, we aimed at minimizing the cognitive load on the participants. For this reason, we asked every patient in the sample to complete the RRI. But the other scales (e.g., satisfaction with life scale or the Ego Resiliency Scale) were randomly assigned to some participants, but not to others. In consequence, 4 groups were created. The RRI and Berlin Social Support Scales were completed by 35 participants, the RRI and Ego Resiliency Scale by 33 participants, the RRI and Satisfaction with Life Scale by 18 participants, the RRI and Satisfaction with Life and the Attitude Towards Illness Questionnaire by 47 participants.

The RRI was completed (with no missing data) by all of the 138 patients who participated in the study. However, 5 participants from the respective group (RRI plus Satisfaction with Life Scale) did not report their satisfaction with life.

Table 1. Descriptive Statistics and Reliability of the Measures

Variable	M	SD	Min-max	Cronbach's Alpha
RRI				
Emotional Competences				
Positive beliefs/Negative beliefs	35.38	7.63	18-50	.74
Positive emotions /Negative emotions	37.18	7.92	21-54	.69
Positive expectations, hope /Negative expectations, hopelessness	36.58	8.03	13-55	.75
Self-acceptance /Lack of self-acceptance	40.54	8.81	18-64	.67
Ability to express emotions /Alexithymia	28.66	5.62	7-41	.66
Minimizing losses /Maximizing losses	34.22	6.39	19-49	.53
Positive values /Negative values	76.13	13.79	44-108	.74

Competences of Control, Choice and Coping				
Maintenance of control/Lack of control	43.13	8.57	22-63	.65
Intentionality /Feeling of a lack of inner-directedness	44.09	8.54	24-65	.75
Freedom of choice /No freedom of choice	25.40	5.89	12-42	.47
Orientation to the present and future /Orientation to the past	37.42	7.24	20-55	.70
Self-reliance, responsibility /Dependence, lack of responsibility	33.78	6.46	19-52	.44
Adequate, effective coping with stress /Inadequate coping with stress	39.32	7.74	21-58	.60
Integration /Disintegration	42.90	8.92	20-65	.73
Health-Related Knowledge and Beliefs				

Table 1. Descriptive Statistics and Reliability of the Measures (Continued)

Variable	M	SD	Min-max	Cronbach's Alpha
Knowledgeability, awareness /Lacking in knowledge	32.23	6.80	17-50	.63
Caring for health /Neglecting health	33.59	5.43	22-47	.38
Positive relations with health care professionals /Negative relations with health care professionals	35.11	5.55	19-50	.71
Social Support and Self-Presentation				
Social support/Lack of social support, isolation	47.77	8.84	26-65	.74
Positive self-presentation	39.82	7.24	22-58	.67
Negative self-presentation	18.82	8.74	0-48	.67
Attitude towards Illness				
Global attitude	126.83	21.75	80-165	.73
Level of anxiety	30.40	6.96	17-42	.70
Current mood	21.70	4.20	12-28	.57
Future expectations	33.09	7.06	20-46	.70
Need of care	10.17	3.08	3-17	.57
Adequacy of possessed information about the illness	21.57	5.85	12-35	.73
Acceptance of diagnosis and doctor's orders	9.89	2.38	4-15	-.06
Social Support				

Emotional support	13.20	4.09	0-16	.52
Instrumental support	13.23	4.05	0-16	.76
Need for support	11.26	3.67	0-16	.31
Support seeking	14.77	4.92	0-20	.73
Other Resources				
Resiliency	126.83	21.75	0-52	.73
Satisfaction with life	22.34	6.80	10-36	.80

Measures

The respondents were tasked with individually completing a set of questionnaires. The following research tools were utilised in this study: (i) The Resourcefulness for Recovery Inventory (ii) The Life Satisfaction Scale, (iii) The Berlin Scale of Social Support, and (iv) The Ego Resiliency Scale. The reliability of the scales (Cronbach's alphas) in the present study is presented in Table 1.

The Resourcefulness for Recovery Inventory (RRI) (Celinski, Antoniazzi, and Allen, 2006) refers to the resources for coping with the illness. The revised Questionnaire consists of 241 questions, allowing for measurement of 18 resources facilitating coping with a chronic illness. These resources were divided into five categories: (1) emotional competences, (2) control, choice and coping competences, (3) knowledge and beliefs about health, (4) self-presentation, and (5) social support. The emotional competences category included the following resources: (a) positive beliefs /negative beliefs about health condition (b) experiencing positive emotions /experiencing negative emotions, (c) positive expectations /negative expectations, hope/lack of hope, (d) self-acceptance /lack of self-acceptance, (e) expressing emotions /alexithymia, (f) minimisation of loss /maximisation of loss, and (g) positive values /negative values.

The control, choice and coping category consisted of seven resources; namely: (I) staying in control /being controlled, (II) intentionality /feeling of lack of inner direction, (III) freedom of choice /no freedom of choice, (IV) being present and future oriented /being past oriented, (V) self-dependence, responsibility /dependence lack of responsibility, (VI) adequate, effective coping with stress /inadequate coping with stress, (VII) sense of integration /sense of disintegration.

The knowledge and beliefs about health consisted of three resources: (i) possession of knowledge, awareness /lack of information, (ii) caring for health /neglecting health, (iii) positive relations with healthcare providers /negative relations with healthcare providers.

Auto-presentation reflects the tendency to report certain aspects of the self. (A) positive auto-presentation is manifested by reporting behaviours that meet social approval (e.g., always telling the truth, never getting angry), (B) negative auto-presentation is manifested by reporting the absence of success in life, not taking any responsibility for oneself or devaluating relationships with others. The social support category consisted of one resource regarding social support /lack of social life and isolation.

A high score on each subscale of the RRI (consisting of both health promoting and health inhibiting items) indicates a higher level of a particular resource; except for the scale of negative auto-presentation, in which the lower the score, the better.

Life Satisfaction Scale (Diener, Emmonos, Larsen, and Griffin, 1985). The scale consists of five items measuring the level of respondents' satisfaction with life (e.g. *I am happy with my life*). Answers are given on a seven-point scale in which 1 means "I definitely disagree" and 7 means "I definitely agree".

Attitude Towards Illness Questionnaire (Wrześniewski and Dobrolubow, 1984). This questionnaire consists of 53 statements (e.g., Each person after a heart attack will always have to take heart medicines) to

which the respondents give their opinions on a five-point scale – from "I definitely agree" to "I definitely disagree". The questionnaire contains six theoretical scales measuring; (1) the anxiety level, (2) current mood, (3) future expectations, (4) need of care (5) adequacy of possessed information about the illness, and (6) acceptance of doctor's diagnosis and orders. Summing all results in the test allows the researchers to count a global attitude towards a person's own illness, and on this basis to qualify the respondents as a group of persons having a positive, ambivalent or negative attitude towards treatment. According to the Polish norms (Wrześniewski and Dobrolubow, 1984), scores below 80 points represents negative attitude towards therapy and rehabilitation, scores between 81 and 116 represents ambivalent attitude, and scores above 177 indicate a positive attitude.

The Berlin Scale of Social Support (Luszczynska, Mazurkiewicz, Kowalska, and Schwarzer, 2006; Schulz and Schwarzer, 2003). This scale measures four aspects of social life: perceived instrumental support, perceived emotional support, need for support and support seeking. It consists of 18 items (e.g., "There always is someone to comfort me when I need it"). The respondents answer on a four-point scale (from 1 = definitely true, through to 4 = definitely false).

The Ego Resiliency Scale ER89 (Block and Kremen, 1996; Kaczmarek, 2007) was constructed in order to measure the intensity of resiliency. The scale consists of 14 items examining the intensity of resiliency (e.g., "I quickly get over and recover from being startled"). The respondents answer on a four-point scale (where 1 = does not apply at all; and 4 = applies very strongly).

RESULTS

The data describing the measured variables is compiled in Table 1.

Some of the methods were characterized by low reliability ratio, therefore in further analysis, only sub-scales characterized by acceptable reliability ($\alpha > .60$) were taken into consideration[1]. In the further analysis, variables regarding resources (minimizing losses /maximizing losses, freedom of choice /no freedom of choice, self-reliance, responsibility /dependence, lack of responsibility, caring for health /neglecting health, attitudes towards the illness: current mood, need of being cared for, acceptance of the doctor's diagnosis and orders, and social support: emotional support and demand for support) were excluded.[2]

Exploring the Factorial Structure of Psychosocial Resources Measured With the RRI

The first aim of the study was to confirm the single-factor structure of the RRI. The structure of resources measured with the RRI was analysed in two steps. First, exploratory factor analysis (EFA) was performed. Factor analysis of all 241 RRI items would require a very large sample (number of items x 5). Therefore only the overall mean scores (combining health promoting and health inhibiting subscales) for the 18 previously identified factors (Celinski, Antoniazzi, and Allen, 2006) were included in the FA in order to identify an overall factor.

It was expected that resources could yield correlated factors. For this reason, EFA with oblimin rotation was chosen[3]; this type of rotation allows for correlations among the factors. The results yielded a single factor

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[1] It may seem like these findings are contrary to common sense of what is relevant and also oppositional to the literature which refers to these factors. As the scale questions were slightly rearranged and the group was different - psychotraumatic - and this could explain our differences in alpha levels, as the original psychometric alphas for the RRI are high.

[2] This procedure is different from the recommended method of utilizing the scale and needs further exploration between the researchers and the scale designers.

[3] Here again, we acknowledge that the use of Oblimin and scales may produce different outcomes from that expected by the scale designers; and that others might consider that larger datasets might produce different results when items are used (our method of

with eigenvalues of at least 1.0. The obtained single factor solution accounted for 64.11% of the total variance. Various Deltas (0.2-0.6) were explored and 0.2 was selected, because it resulted in the strongest loadings on the factor. The final factor loadings were in a satisfactory range from .51 to .91.

Secondly, to confirm the single-factor structure of the coping resources, confirmatory factor analysis (CFA) was performed with AMOS 18 (Arbuckle, 2009). A solution with one latent factor reached the acceptable level of two fit parameters $\chi 2(170) = 273.47$, CFI = .96, RMSEA = .07. The regression paths from the latent factor to the measured resources scores were in the range of .48 to .91. One of the fit parameters, the goodness of fit (GFI) was not as high as other reported outcomes, GFI = .84. It could be attributed to strong intercorrelations between error variance of the measured resources. Such an effect shows that there are other unobserved correlations between the scales. After introducing 13 of such error variance correlations, as suggested by modification indices, the GFI increased to an acceptable level of .90. The other fit parameters also increased after the modification, $\chi 2(155) = 164.94$, CFI = .99, RMSEA = .02.

The increase in fit parameters shows that, despite a single structure of the resources, there can be other correlations between them. These can be due to a measurement error (for instance specific wording of some items), but the error variance correlations can also reflect correlations between resources which are not captured directly by the RRI. As a result of this analysis, it has been indicated that the RRI can capture the general resourcefulness, that is, the common variance in the level of wide range of different resources.

We acknowledge that the designers of the RRI created the subscales to give both positive and negative factors, and that by using the RRI subscales in the factor analysis as intended by the designers, we would be losing information which is important in clinical settings. However, we were interested only in verifying the role that the overall scale scores might produce and we refer you to the work by Casey, Gow and colleagues in this text, as proof that such a full scale score, or factor score in our case, may play a valuable role in measuring change where other measures may not detect such changes.

Convergent Validity of the RRI

In order to support the convergent validity of the RRI, we measured to what extent the RRI scores allow for prediction of resources measured with other scales.

One of the interests of the research was a focus on examining whether having a complex knowledge of one's own illness favours the use of resources useful in its treatment. Out of 44 persons in this subgroup, 5 declared a negative attitude towards the illness, 28 an ambivalent attitude towards the illness and 14 a positive attitude towards the illness according to Polish norms (Wrześniewski and Dobrolubow, 1984). Distinguished groups were compared in terms of the scope of their declaration of using the resources (see Table 2). Out of 16 resources considered in the analysis, 11 showed a statistically significant difference between the compared groups. In these 11 cases, a difference between persons characterized by a positive and negative attitude towards treatment was noticed, in 7 cases between persons presenting an ambivalent and positive attitude towards treatment, and in 1 case between persons characterized by a negative and ambivalent attitude towards treatment.

Table 2. Type of Disease and Self-Reported Utilization of Resources

Variable[a]	Attitude towards illness			Between-group effects	F-test statistics	
	Negative (N)	Ambivalent (A)	Positive (P)		F	p

rotation minimizes total factors) at the expense of the variance explained. Further discussions are taking place with Celinski and Allen on these matters.

	M (SD)	M (SD)	M (SD)			
Emotional competences						
Positive beliefs/Negative beliefs	26.80 (8.58)	32.82 (5.81)	37.57 (4.09)	N<P; A<P	7.25	.002
Positive emotions /Negative emotions ditto	30.80 (4.66)	34.32 (6.21)	40.00 (4.62)	N<P; A<P	6.75	.003
Positive expectations, hope /Negative expectations, hopelessness	31.40 (6.88)	33.18 (6.23)	39.07 (4.92)	N<P , A<P	5.48	.007
Self-acceptance /Lack of self-acceptance	32.20 (7.19)	37.93 (7.45)	43.21 (6.70)	N<P	4.91	.012
Ability to express emotions /Alexithymia	24.60 (6.39)	27.54 (5.26)	30.43 (4.55)	---	2.72	.077
Positive values /Negative values	67.80 (12.26)	70.96 (11.39)	82.79 (7.07)	N<P; A<P	7.08	.002
Competences of control, choice and coping						
Maintenance of control/Lack of control	40.20 (10.78)	41.04 (7.45)	45.43 (6.07)	---	1.83	.172
Intentionality /Feeling of a lack of inner-directedness	35.00 (5.52)	41.96 (6.83)	45.71 (4.61)	N<P	5.74	.006
Orientation to the present and future /Orientation to the past	30.60 (8.56)	34.79 (5.84)	39.07 (4.94)	N<P	4.49	.017
Adequate, effective coping with stress /Inadequate coping with stress	33.20 (4.55)	37.32 (6.80)	44.21 (5.81)	N<P; A<P	7.79	.001
Integration /Disintegration	32.40 (7.16)	42.50 (8.42)	43.93 (7.15)	N<P; N<P	4.10	.023
Health-related knowledge and beliefs						
Knowledgeability, awareness /Lacking in knowledge	25.80 (3.96)	30.64 (6.70)	34.50 (3.76)	N<P	4.63	.015
Variable[a]	Attitude towards illness			Between-group effects	F-test statistics	
	Negative (N)	Ambivalent (A)	Positive (P)		F	p
	M (SD)	M (SD)	M (SD)			
Positive relations with health care professionals /Negative relations with health care professionals	32.40 (2.70)	32.82 (5.02)	35.07 (3.17)	---	1.40	.258
Social support and self-presentation						
Social support/Lack of social support, isolation	39.60 (8.91)	44.61 (8.41)	49.21 (5.52)	---	3.26	.048
Positive self-presentation	37.20 (5.40)	37.82 (7.84)	38.29 (6.39)	---	0.04	.956
Negative self-presentation	24.20 (9.83)	23.39 (9.21)	18.29 (6.14)	---	1.89	.164

Note: [a] higher values indicate more positive level of the variable; The Tukey post-hoc test was used in the analysis of between-group effects. Assumed significance level for differences between means: $p < .05$.

Emotional competences separated the sub-groups in respect of five resources (see Table 2). The strongest differences were recorded in the scope of positive values /negative values and positive values /negative values. In the scope of competences of control, choice and coping, four differences were recorded, out of which the most important applied to adequate, effective coping with stress /inadequate coping with stress. The recorded differences also applied to one resource from the health-related knowledge and beliefs group, namely knowledgeability, awareness /lacking in knowledge, and one from the social support and self-presentation group, namely isolation: social support /lack of social support.

Correlations matrix analysis was used to test hypotheses about the association between satisfaction with life and coping resources measured with the RRI. The results in Table 3 show that the resources were most strongly correlated with resiliency. A correlation of resiliency and every resource measured in the study was observed. Resiliency most strongly correlated with positive relations with health care professionals and positive-negative emotions. Against our expectations, there were no associations between particular resources and satisfaction with life, (other than the significant correlation between satisfaction with life and positive beliefs).

In the analysis of relationships between resources and social support, two aspects were taken into account: instrumental social support and social support seeking. Ten out of the 16 resources were positively correlated with instrumental social support (the strongest correlation: positive emotions) and one was correlated negatively (negative self-presentation). Moreover 11 positive correlations between social support seeking and the resources were identified (the strongest with Positive emotions) and one negative correlation (negative self-presentation).

Table. 3. Correlations between Different Measures of Resources ($n = 138$)

	Attitude towards illness				Social support		SL	Res
	GA	LA	FE	AI	IS	SS		
Emotional competences								
Positive beliefs/Negative beliefs	.402**	.161	.087	.365*	.349*	.408*	.266*	.482**
Positive emotions /Negative emotions	.406**	.199	.052	.363*	.602**	.619**	.158	.512**
Positive expectations, hope /Negative expectations, hopelessness	.382**	.151	.110	.268	.286	.363*	.153	.400*
Self-acceptance /Lack of self-acceptance	.409**	.282	.094	.196	.177	.237	.056	.367*
Ability to express emotions /Alexithymia	.430**	.312*	.188	.230	.455**	.436**	.167	.367*
Positive values /Negative values	.420**	.169	.070	.270	.395*	.352*	.148	.416*
Competences of control, choice and coping								
Maintenance of control/Lack of control	.348*	.117	.069	.247	.344*	.322	.083	.424*
Intentionality /Feeling of a lack of inner-directedness	.332*	.151	.063	.369*	.290	.366*	.226	.505**

Orientation to the present and future /Orientation to the past	.55**	.416**	.171	.299*	.339*	.395*	.136	.398*
Adequate, effective coping with stress /Inadequate coping with stress	.216	.186	-.071	.149	.422*	.391*	.135	.358*
Integration /disintegration	.275	.173	.134	.228	.234	.198	.158	.363*
Health-related knowledge and beliefs								
Knowledgeability, awareness /Lacking in knowledge	.201	.058	-.005	.281	.377*	.399*	.087	.459**
Positive relations with health care providers /Negative relations with health care providers	.225	.158	-.022	.177	.209	.317	.088	.519**
Social support and self-presentation								
Social support/Lack of social support, isolation	.295*	.087	.024	.271	.410*	.408*	.162	.483**
Positive self-presentation	.160	.197	-.068	.074	.459**	.420*	.147	.348*
Negative self-presentation	-.424**	-.145	-.146	-.421**	-.551**	-.554**	-.095	-.435*

Note: GA = global attitude, LA = level of anxiety, FE = future expectations; AI = adequacy of information about the illness; IS = Instrumental support; SS = support seeking; SL =Satisfaction with life; Res = resiliency. * $p < .05$, ** $p < .01$.

Most resources from the group of emotional competences and competences of control,[4] choice and coping were positively correlated with the attitude towards one's illness. Variables from the group of health-related knowledge and beliefs, social support and self-presentation, did not generally correlate attitude towards illness, with the exception of the crucial variable of resiliency which correlates well with awareness/knowledgeability, and positive relations with health care providers.

In sum, as expected, the higher the resources measured by the RRI, the more positive the attitude towards illness. These results support the convergent validity of the RRI scale.

DISCUSSION

The results did seem to indicate that in the RRI, there may be an underlying general factor – a general level of resources, as well as the specific factors outlined in the tables. As indicated in our earlier discussions in this chapter, the idea of a single-factor structure of resources can be of assistance in terms of research and clinical practice. One could assume that those patients who are low on one coping resource level might also display relatively lower levels in other resources; and having strong and stable resources in one domain might increase the probability of having high level of resources in other domains. Our study was cross-sectional rather than longitudinal; therefore any generalised implications should be made with caution. However, one conclusion for health professionals is that it might be important to work with the client towards increasing their general levels of psychosocial resources. Further longitudinal studies might test the effectiveness of an indirect strategy of building health-related resources (see Figure 1). One of the possible approaches towards psychological interventions would be to start with resources that are the easiest to modify as an alternative to

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[4] The authors acknowledge that we, as researchers, have eliminated the variables Choices and Responsibility from the RRI data input in the analysis which the designers considered to be the core concepts of the RRI scale. To understand more about the development of the RRI over a decade of research, refer to Chapter 21 by Celinski and Allen in this text. Our part was in investigating the RRI on the first version of the RRI which was a much larger version than the revised version available today.

interventions aimed at those resources that have been proven to be the most significant in the process of coping with disease, for example, social support (Uchino, Cacioppo, and Kiecolt-Glaser, 1996). If there is an underlying factor contributing to all psychosocial resources (as the factorial structure of the RRI indicates), an increase in one resource might resonate positively on other dimensions. For instance, a high increase in positive emotions, although not directly associated with coping with a chronic illness, might lead to a long-term increase in social support (Gable, Reis, Impett, and Asher, 2004; Pressman and Cohen, 2005). Such indirect interventions should start an upward spiral of recovering resources in patients who are exhausted following a stressful event such as myocardial infarction.

Along with the upward spiral theory is the finding that coping resources are associated with a better attitude towards illness and therapy. Those patients who are equipped with coping resources are open to further improvement. As a consequence, we can expect better adherence to health regimes and quicker recovery of physical resources (Wrześniewski and Dobrolubow, 1984). On the other hand, those who are low in coping resources exhibit negativity and might be less cooperative and thus receive less efficient treatment.

Nonetheless, it is again noteworthy that our study was cross-sectional rather than longitudinal, so the direction of causal relations underlying the observed correlations is not empirically tested. We might also assume the opposing directions in the process described above. Those patients, who become discouraged towards therapy, are prone to losing their coping resources. Their life-threatening chronic illness often becomes a central issue in their lives. Therefore, having it is essential that they have positive experiences with therapy which are necessary for better health; that is, for the process of building coping resources.

The present study has found further evidence for the central role of the personality trait of resiliency in building coping resources (Tugade and Fredrickson, 2004). As a "meta-resource", it can govern the dynamic structure of coping resources. One of the main functions of resiliency is to both tighten and to loosen control over impulses as situation dictates (Block and Kremen, 1996). In a chronic illness, such as ischemic heart disease, dynamic management of control may be required. There are situations in which over-control is expected (e. g., medical adherence). However, there are situations in which it is important to be spontaneous and not to inhibit impulses (e.g., relaxation techniques). The process of loosening control can be important in regard to negative impulses (suppressed strong emotions associated with illness), but also in regard to positive impulses. This notion is in line with Carstensen's socioemotional selectivity theory (Carstensen and Mikels, 2005). The theory stipulates that people, when faced with death (or a serious threat to their health), re-evaluate their lives. As a result, they very often start to appreciate the social domain of their existence. Those cardiac patients, who are highly resilient, may find it easier to express their social impulses and to initiate the process of building social resources.

CONCLUSION

The present study sheds new light on the coping resources of cardiac patients as measured with the Resourcefulness for Recovery Resources Inventory. Besides relatively distinct subscales, validated in previous studies (Celinski, Antoniazzi, and Allen, 2006), our analyses indicated an additional underlying general factor – a general level of resources; that is, the RRI is measuring something greater than what a study of its parts may indicate. Whereas the individual scale scores are important in the therapeutic situation, an overall score may well serve research goals better.

To sum up, the results suggest that, as a psychometric tool used in health psychology studies, the RRI might serve as a measure of general resourcefulness. The measure might be recommended as a control variable of general resourcefulness helping to distinguish the effects of general resourcefulness from more specific effects of distinct resources. It could further advance our understanding of the extent to which different resources have a unique effect on outcome variables distinguishable from the effects of general resourcefulness. For instance, persons high in social support can undergo a faster recovery process because of

socially supportive interactions. But also high social support (as any other psychosocial resource) can be regarded as an indicator of higher levels of other resources. Therefore before drawing conclusions about the unique effects of social support, it is worthwhile to control for general resourcefulness. In other cases, it is impossible to distinguish if people high in social support have better health because of the supportive interaction or due to the influences of other resources indicated by their level of social support.

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