

# Psychosocial generalised resistance resources and clinical indicators of patients suffering from Osteoarthritis at the Institute of Rural Health in Lublin, Poland

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## Abstract

**Objective.** The aim of the study was investigation of the correlations between medical indicators of the course of illness and psychological factors, treated as generalised resistance resources, according to the Salutogenic Model by A. Antonovsky. The salutogenic orientation is one of the more viable paradigms for health promotion research and practice, and is offered as a useful theory for taking a salutogenic approach to health research.

**Materials and methods.** Data was used of 67 patients at Institute of Rural Health in Lublin, Poland, suffering from Osteoarthritis. Using psychological test methods: SOC-29, CISS, AIS, IZZ, KNS, GSES, BDI and The Index of Severity for Osteoarthritis of the Hip or the Knee and The Low Back Pain Rating Scale as medical indicators of the course of the illness.

**Results.** Analysis showed significance correlations between some psychosocial (sense of coherence, stress coping strategies, acceptance of illness, health behaviour, hope for success, self-efficacy and depression) and medical variables (intensity of the degenerative disease and low back spine).

**Conclusions.** Results of analysis showed that psychological factors within the meaning of psychosocial resources may be potential pathways for improving or disturbing the treatment effects in the course of hip and knee osteoarthritis treatment, and/or the patient's condition.

## Key words

Osteoarthritis, effectiveness of rehabilitation, generalised resistance resources

## INTRODUCTION

Regarding the growing number of people suffering from chronic diseases, as well as their substantial personal and social costs, there is a palpable demand to conduct studies in order to create the basics of understanding the factors behind effective rehabilitation [1, 2]. *Osteoarthritis* is the most common rheumatic disease in developed countries, and is becoming increasingly widespread due to the rise in the average life expectancy of the population in general. It is the source of most musculoskeletal pain and disability in adults aged 50 years and over [3, 4]. These reasons often lead to the search for other complementary or alternative therapies. The importance of setting and striving for goals has long been recognized in rehabilitation [5]. Moreover, the topic of goals has become increasingly salient with the growth of the positive psychology movement and its expansion into the realm of psychotherapeutic interventions [6, 7, 8, 9, 10, 11, 12].

The results of the above-mentioned studies should be the identification of those characteristics which may be treated as *immunogens*, rather than *pathogens* – characteristics bearing negative associations when considering the effectiveness of rehabilitation.

Among personality factors, *a sense of coherence* (SOC) is more and more often mentioned as the key variable. Acumen

is a key health variable, expressing the degree to which an individual has a strong, lasting, yet dynamic conviction of anticipation in the internal and external world, as well as the understanding that matters have a high probability of progressing in a positive direction, as anticipated on the basis of a rational premise. This sense of coherence is often treated as an 'organising method' (meta resource), a type of safety valve for resources which, in turn, can be utilised for stress relief. The SOC concept consists of three components: comprehensibility, manageability and meaningfulness [13, 14]. The term *strategies for coping with stress* implies that people deal differently with stressful situations. Among the commonly-mentioned strategies are *task oriented strategy* (based on action), *emotion oriented strategy* (with a tendency to concentrate on one's own experiences or to express emotions, in order to ease negative emotional tension, and reduce such symptoms as anger, guilt, and aggression, people using this strategy may use defensive mechanisms and fantasise), and *avoidant oriented strategy* (composed of two tendencies: avoidant distracted and avoidant social strategy). Effective strategies are those that actively attempt to cope with problems, of which task strategy is an example. Emotional and evasion strategies, on the other hand, are considered to be ineffective, due to the fact that they do not resolve the problem [15, 16].

An important factor seems to be the *acceptance of the illness* [17]. *Health behaviour* seems to play a major role in the course of the illness and shapes an individual's frame of mind. Health behaviour, being a part of the lifestyle chosen by the individual, is the action that shapes the conditions which

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are beneficial in terms of health, i.e. those human activities and actions, expressed by behavioural variables, which are related to health and illness. Therefore, health behaviour can be defined as those actions which, according to modern medicine, cause (positive or negative) health consequences for the people performing them; they are reactions to any health-related event in relation to an individual, and to habits and intentional actions. Among health-related actions should be included: healthy diet, absence of addictions, such as alcoholism or nicotinism, or overuse of other pharmacological substances, as well as a rational way of life, which includes exercise and physical activity, preventive treatment of diseases, use of healthcare, etc.

Nowadays, *hope* is considered to be one of the most important factors influencing both the mood of an individual and his/her psycho-physical state and therapeutic effects [10]. It is made possible by the two components in the hope for success: strong will and the ability to find solutions. Many years of research on the subject also show that the intensity of hope for success is responsible for the individual's effectiveness of actions, methods of problem solving and persistence in the fulfilment of aspirations; and also influences the degree of adaptation to life [10, 11]. *A sense of self-efficacy* should also be taken into account. This involves readiness to choose more complex and/or new tasks, persistence in pursuing goals, ability to learn new things, and coping with fear and stress [18].

On the basis of the available literature on the subject, it is prudent to state that the acceptance of illness corresponds to the sense of self-efficacy, as this determines the true state of emotions which an individual is experiencing in such a situation (e.g. avoiding emotions of defiance, denial, or diminishing of the severity of illness), at the same time determining the appropriate behavioural responses in this situation [17, 19]. *Depression* is a factor abundantly mentioned as a companion element of somatic diseases and is suspected to have a negative influence on the state of the patient and his/her frame of mind, as well as on the effects of therapeutical and medical treatments [20]. In this context, it may be considered as an affective element, excessively accompanying chronic somatic diseases; however, it might constitute an important mechanism blocking psychosocial resources.

Those variables might be called a set of *generalised resistance resources*, and they may be important, not only in the course of many illnesses, but also in the healing and/or rehabilitation process. In light of numerous reports on the positive effects of psychosocial resources in sustaining an individuals' health, as well as in the treatment and rehabilitation processes, the authors of the presented study advance the hypothesis, that *they may be potential pathways for improving/impairing the effects* in the course of hip and knee osteoarthritis treatment.

## MATERIALS AND METHOD

The psychological variables considered in the presented study are *a sense of coherence* (by A. Antonovsky); *strategies of dealing with stressful situations*; *hope for success* (by C.R. Snyder); *acceptance of the illness*; *health behaviour*; *hope for success* (by C.R. Snyder); *self-efficacy* (immunogenes) and *depression* (pathogen), which form psychosocial resources.

The medical variables are *the intensity of the degenerative disease* (OA) of hip or/and knee joint (back pain and leg

pain, the degree of disability, physical impairment) and *low back spine* (pain or discomfort, maximum walking distance, daily routines).

The subject group consisted of 67 patients at the Institute of Rural Health in Lublin, Poland, who underwent rehabilitation at in-patient department, pension avoidance and rehabilitation day ward. Among the subjects were 49 women (73%) and 18 men (27%). The average age was 60.3 (M=60.29; SD=14.7). The majority of respondents were already using the treatment: 19.4% – the second time, 13.4% – for the third time, 11.9% – for the third time, and 40.3% – for the fourth time. 14.9% of respondents used the treatment for the first time.

The methods used, based on the salutogenic theoretical framework using the idea of Antonovsky [13] were:

- 1) Sense of Coherence Questionnaire (SOC-29) by A. Antonovsky [13], used for the measurement of a general sense of coherence and its components – comprehensibility, manageability and meaningfulness.
- 2) A Coping Inventory for Stressful Situations (CISS) by N. S. Endler and J. D. A. Parker, adapted by P. Szczepaniak, J. Strelau and K. Wrześniewski [21], is a four-factor model of human coping with adversity, used for studying the styles of coping with stressful situations. Their construct differentiates three types of coping: emotion-oriented, task oriented, and avoidant. The avoidant style has two dimensions: distraction and social diversion.
- 3) Acceptance of Illness Scale (AIS) of B. J. Felton, T. A. Revenson and G. A. Hinrichsen, adapted by Z. Juczynski. This scale describes negative consequences of bad state of health: restrictions caused by the illness, lack of self-sufficiency, a sense of dependency on other people and own low self-esteem. The authors claim that the scale can be applied for evaluation of the acceptance of every illness [22].
- 4) Inventory of Health Behaviour (IZZ) by Z. Juczynski, describing various health actions. Taking into consideration the incidence of individual actions indicated by the respondent, the general intensity of behaviour favouring health, and the degree of intensification of health behaviour, are also determined. The four elements of health behaviour are: proper eating habits, prophylactic behaviour, healthy practices and positive mental attitude [19].
- 5) Hope for Success Questionnaire (KNS) by M. Łąguna, J. Trzebiński and M. Zięba [23]. The hope for success measured by the KNS questionnaire refers to the strength with which people anticipate the positive results of their actions. The general result comprises two components: first, the conviction of having a strong will, which means awareness of self-efficacy demonstrated by persistence in pursuing goals; the second is the conviction about the ability to find solutions, which means awareness of one's knowledge and intellectual competence, demonstrated in situations which require devising or finding new ways leading to the achievement of one's goals.
- 6) Generalised Self-Efficacy Scale (GSES) by R. Schwarzer and M. Jerusalem, adapted by Z. Juczynski [19], which evaluates the level of efficacy of the examined patients. The sum of the points scored gives the general result – the index of self-efficacy.
- 7) Beck's Depression Inventory (BDI), used for the evaluation of the presence and intensity of symptoms of depression. Due to its simplicity and effectiveness it is one of the

most frequently-applied psychological tests. High points scored correspond to the increased intensity of symptoms [20].

- 8) Index of Severity for Osteoarthritis of the Hip or Knee by M. Lequesne et al. [25], an examination especially intended for patients with Osteoarthritis of the knee or hip. The examination consists of three parts: Part I – evaluates pain or discomfort, Part II – concerns maximum walking distance, Part III – concerns daily routines. The purpose of this examination is better diagnosis of the ailments. High points scored correspond to increased intensity of symptoms.
- 9) Low Back Pain Rating Scale by C. Manniche et al [24], is an examination especially intended for patients with low back pain. The examination consists of three stages with questions assigned to each of them: 1) back pain and leg pain intensity measurements, 2) disability index and 3) physical fitness impairment. The scale was designed to monitor the results of clinical research in pain treatment of the low back spine and to evaluate the patient’s condition. High points scored correspond to the increased intensity of symptoms.

**RESULTS**

As a result of applying correlation analysis (r-Pearson) in the examined group, it was possible to show the presence of statistically-significant connections between examined variables (Tab. 1). The observed connections show intra-test correlations, e.g. positive correlations between the indices on the Mannich Scale and the Lequesne Scale, or between the variables examined by both devices, and also the correlations between the psychological variables. Apart from relatively obvious correlations of this type (which provide both the information on subjects and devices – intra-test correlations indicate satisfactory parameters for the research tool), there were also observed correlations which indicated relationships between an illness, its image/course and psychological variables.

The strongest and the most significant correlations between psychological and medical variables were observed between: the *disability index* and *depression* (+.436); *daily routines*

and *depression* (-0.502); *physical impairment* and *depression* (0.477); *physical impairment* and *positive mental attitude as health behaviour* (-0.410); *physical impairment* and *health practices* (-0.310); *physical impairment* and *avoidant social strategy* in stress coping (0.315); *maximum walking distance* and *avoidant distracted strategy* (-0.455); *daily routines* and *hope for success* (0.343); *daily routines* and *avoidant social strategy* (0.393); *discomfort* and *sense of self-efficacy* (-0.624); *acceptance of the illness* and *depression* (-0.642); *acceptance of the illness* and *discomfort* (-0.443); *acceptance of the illness* and the *disability index* (-0.417); and *acceptance of the illness* and *physical impairment* (-0.522).

In conclusion. it can be stated that there are connections between the variables which describe the image or course of the illness, the degree to which it troubles the patient, and certain variables connected with psychosocial resources.

**DISCUSSION**

Nowadays, the role of psychological factors in the course of an illness is regarded as being increasingly important. The presented study confirms this hypothesis, but it should be noted that the study did not confirm a number of earlier empirically-stated relationships.

Hope is a global, relatively resilient set of beliefs about the self and the future. These beliefs influence positive views of the self that culminate in activities directed at pursuing personal goals [10, 11]. Thus, hopeful individuals believe that present circumstances are impermanent and can be transformed into better circumstances; it is this hallmark that may buffer them from pain and depression. Higher levels of hope are associated with less depression and less psychosocial impairment after spinal cord injury. Hopeful individuals also tend to report less physical symptoms, increased mobility after disability, and a greater sense of control over their symptoms [26]. In psychiatric research, ‘hope’ is often treated as a rehabilitative strategy [27]. Other researchers have noted that ‘hope’ is an important self-defined factor in recovery [28], and the presented study partially confirms its importance in the area of its vital role in the patient’s engagement in activities, especially their coping with daily routines.

**Table 1.** Significant correlations between psychosocial<sup>(a)</sup> and medical<sup>(b)</sup> variables (n=67)

Depres-sion <sup>(a)</sup>													<b>-.377**</b>
Discom-fort <sup>(b)</sup>													<b>-.624**</b>
Max. wal-king distance <sup>(b)</sup>		<b>-.455**</b>											.807**
Daily routines <sup>(b)</sup>		<b>.393*</b>	<b>.343*</b>	<b>-.502**</b>	.884**	.835**							
Disability index <sup>(b)</sup>				<b>.436**</b>									.611**
Physical impair-ment <sup>(b)</sup>		<b>.315*</b>		<b>.477**</b>	.440*	-.438*							.507**
Health behavior – eating habits <sup>(a)</sup>													<b>-.427*</b>
Health behaviour – prophylactic <sup>(a)</sup>													<b>-.446**</b>
Health behaviour – positive mental attitude <sup>(a)</sup>													<b>-.410**</b>
Health behaviour – healthy practices <sup>(a)</sup>													<b>-.451*</b>
Acceptance of the illness <sup>(a)</sup>					-.642**	<b>-.443**</b>	<b>-.342*</b>					<b>-.417**</b>	<b>-.522**</b>
	Avoidant distracted strategy <sup>(a)</sup>	Avoidant social strategy <sup>(a)</sup>	Self-efficacy <sup>(a)</sup>	Hope for success <sup>(a)</sup>	Depres-sion <sup>(a)</sup>	Dis-com-fort <sup>(b)</sup>	Max. walking distance <sup>(b)</sup>	Daily routines <sup>(b)</sup>	Low back pain <sup>(b)</sup>	Disability index <sup>(b)</sup>	Physical impair-ment <sup>(b)</sup>		

\*\* – level of significance <0.01, \* – level of significance < 0,05  
Underline medical – psychological correlations



The sense of coherence, which means the resources possessed by a unit or system, often described as an important resource of an immunogenic nature [13, 14], did not play a significant role in the examined group of patients suffering from Osteoarthritis.

Self-efficacy proved to be a resource of vital importance. It was repeatedly underlined in numerous researches as being of an immunogenic nature.

Although hopeful individuals believe that present circumstances can change for the better, those with strong self-efficacy believe they possess specific skills to make changes given a specific situation. The stronger one's self-efficacy beliefs concerning abilities to perform a specific course of action and concerning the positive outcomes of those actions, the greater the likelihood of a desirable and appropriate behavioural response [18]. In rehabilitation, those individuals with higher levels of self-efficacy perceive they are better able to accomplish the tasks requested by the physical and occupational therapists, believing their actions will produce positive results [29]. Fortinsky et al. [30] demonstrated that in rehabilitation therapy for hip fracture, self-efficacy was associated with the likelihood of recovery of walking and stair-climbing ability; this relationship occurred independently of depression, suggesting that self-efficacy may buffer one from depression and possibly pain. Furthermore, global self-efficacy has been shown to also predict domain-specific self-efficacy for self-care [31], self-efficacy for exercise [32], and self-efficacy for rehabilitation [30, 33]. From this, individuals with higher self-efficacy may believe that participating in their rehabilitation will result in improved functioning, despite having pain or depression. The presented study revealed that it plays an equally significant role in blocking the examined patients' depression and sense of discomfort, or in dealing with the necessity of everyday activity.

The current and other studies [17] demonstrate that acceptance of the illness has an immunogenic nature. It not only lessens the distress connected with the disease, such as the disability factor, physical impairment and discomfort (which indicates its 'toning' character) but also, which is especially important, it is shown as a depression blocker. Acceptance of the disease is probably manifested as a less severe negative reaction and emotions associated with the course of the illness, to.

General health behaviour seems to be of immense importance here – actions, attitudes and health practices, which can hinder the sense of physical impairment. This is in accordance with the results of studies which confirm the immunogenic property of this resource [34, 35]. Of some importance also seems to be the specific strategy of dealing with a difficult situation – avoidant social strategy, which means searching for social interaction. This is entirely explicable, since the subjects probably engage other people in their life, which lessens their sense of physical impairment (however, this can be explained rather by the possibility of using another person's help).

The pathogenic nature of depression was confirmed, since it correlates positively with the disability factor and physical impairment, and negatively with daily routines, by restricting them. It can be a 'mediating path' which blocks psychosocial resources. This is in accordance with the results of studies carried out to-date [7, 8, 36], which has demonstrated that individuals with rheumatic diseases are more likely to be

depressed than healthy individuals [6], and patients with elevated levels of depressed mood and anxiety report worse physical functioning and increased levels of pain [7, 8, 9, 12], maladaptive illness cognitions and passive pain coping strategies [1, 15, 37]. The results of the presented study are similar, and also emphasize the pathogenic role of depression, and therefore confirmed the conclusions in patients with Osteoarthritis.

The obtained results suggest that in the case of chronic diseases, such as Osteoarthritis, it is advisable to perform comprehensive psychological examinations, since there exists the probability that the condition of the patients, their mood, and their engagement in rehabilitation and its effects, can be connected with variables of a psychological nature, which confirms the need to undertake research in this area.

The presented study should be considered as an introduction to further research, which will take into account variables such as the gender of respondents, length of the disease process, and other socio-demographic variables which, for technical reasons, were not included here due to the study size restrictions.

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