Volume 25 Issue 19
Originally issued as A5

Global Journal of Human-Social Science: A
Arts & Humanities - Psychology
Volume 25 Issue 5 Version 1.0 Year 2025
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-460X & Print ISSN: 0975-587X

Subjective Well-being of Patients with Pain Syndrome

By Shvaiko Y.R.

Belarusian State University

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Purpose: Identification of intrapersonal factors that determine the subjective well-being of patients with pain syndrome.

Materials and Methods: The results of a survey of 118 outpatients regarding their subjective well-being were analyzed. The analysis included an assessment of the subjective experience of pain (its intensity, sensory and emotional components), the level of alexithymia, the severity of psychosomatic complaints and emotional state. Used: Subjective Well-Being Scale (A. Perrudet-Badoux, G. Mendelsohn, J. Chiche, 1988, McGill Pain Questionnaire (MPQ, adapted by Kuzmenko V.V. et al., 1986), Toronto Alexithymia Scale (G.J. Taylor 1985 and the Giessen Subjective Complaints List (GBB) in the adaptation of the V.M. Bekhterev Institute), the Differential Emotions Scale (DES, K. Izard) was used to search for statistically significant factors influencing the level of subjective well-being of patients. analysis of variance (One-Way ANOVA).

Keywords: *subjective well-being, subjective experience of pain, emotional state, psychosomatic complaints, painful affect, alexithymia.*

GJHSS-A Classification: *LCC Codes: RC355*



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Subjective Well-being of Patients with Pain Syndrome

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Results: Despite the fact that in the analyzed sample the level of alexithymia varies from 39 to 89 points ($M = 65.65$; $SD = 11.20$), ($F(9, 109) = 6.38$; $p < 0.001$), subjective well-being showed a tendency towards a directly proportional connection with deterioration of well-being and a statistically significant connection with almost all tested emotions according to the DES (indicated in the table), as well as with the coefficient of well-being ($M = 1.62$; $SD = 0.54$), ($F(9, 109) = 6.73$; $p < 0.001$).

Conclusion: The main intrapersonal factors that determine the subjective well-being of patients suffering from pain have been sufficiently identified. The scientific substantiation of the subjective picture of pain will expand the tools for psychological diagnosis of such patients, taking into account their emotional state, painful affect and the presence of concomitant psychosomatic complaints in order to qualitatively improve rehabilitation measures.

Keywords: *subjective well-being, subjective experience of pain, emotional state, psychosomatic complaints, painful affect, alexithymia.*

Author: *Belarusian State University, Minsk, Belarus.*
e-mail: yauhensh@yandex.ru
ORCID: https://orcid.org/0000-0002-6726-3476

I. Introduction

The main reason for seeking specialized help is pain in all its manifestations, and this remains the case. However, subjective views on the nature of pain lead to disagreements about strategies for establishing a systematic relationship between physical and mental factors underlying its manifestations. Despite this, subjective assessment of one's health status remains the main criterion for well-being at all ages. Preserving and restoring health are everyone's right, and largely depend on quality measures aimed at improving human function.

The World Health Organization defines health as complete physical, mental, and social well-being [1]. Accordingly, acute and chronic diseases not only worsen a person's physical condition, but also negatively affect their mental and social lives. In particular, when these conditions cause excruciating pain, the WHO pays special attention to the treatment of pain syndromes, which has implications for public health and socio-economic spheres due to the high cost of painkillers [2]. However, it is also important to note that analgesics do not always solve patients' problems completely in the long term.

Independent studies show that the social functioning of an individual, their psychological state and physical well-being are closely related [3, p.50-53; 4, p.60-72; 5, p.213-218], while they do not depend on gender or age [6, p.84-102]. According to the WHO, the solution is to improve the quality and duration of rehabilitation as part of a strategy to improve public health, including subjective well-being [7, p.6, 11, 20]. The issue of research into individual rehabilitation and habilitation for patients is also included in the list of objectives of the State Programme of the Republic of Belarus to improve public health and demographic security for 2021–2025, which indicates the importance of scientific research into the quality of life for people with pain syndromes. Analysis of scientific research conducted over a 20-year period on the interaction between subjective well-being and pain, based on data published in the PubMed (https://pubmed.ncbi.nlm.nih.gov) and CyberLeninka databases (https://cyberleninka.ru), revealed the interest of scientists in intrapersonal measurements of pain [9, p.120-129; 10, p.109-130; 11, p.569-597; 12, p.256-262; 13, p.477-487; 14, p.30]. Nevertheless, a quantitative assessment of

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the subjective emotional nature of pain is still difficult due to the individual nature of its experiences [15, p.106-110; 16, p.887-893; 17, p.88; 18, p.502-511; 19, p.98-101; 20, p.157-161; 21, p.2597-2607; 22, p.17-21; 23, p.23; 24, p.223-230; 25, p.942; 26, p.138; 27; 28, p.43-49; 29, p.17176]. Thus, it remains insufficiently studied in modern scientific discourse. Some scientists [10; 11; 22] note an underestimation of the role of psychological resources in the treatment and prevention of diseases. They point out the importance of separating intrapersonal and interpersonal resources. Other studies [30, p.166-168; 11] focus on the differentiation of structural elements within the internal picture of disease, as part of an individual rehabilitation program.

Research by the Institute of Psychology of the Russian Academy of Sciences [6] has shown that subjective well-being is closely related to self-assessment of health and life satisfaction. It is interesting that, despite the presence of unfavourable circumstances such as disability or age-related changes, which can lead to deterioration of physical well-being, people are still able to maintain their life satisfaction through the use of internal hypercompensatory resources. This allows for individualization of the rehabilitation process and reduction of emotional suffering for the patient. Pain is not only limited to sensory discomfort but also associated with emotional, cognitive, and social functioning [17]. It is important to take this into account, as a decrease in physical well-being significantly affects an individual's daily life, their level of social and professional activity. This inevitably leads to feelings of subjective disadvantage. According to medical and psychological research (31, p.10-16; 32, p.5-12), it is worthwhile paying special attention to personalized approaches that take into account the individual characteristics of patients in order to facilitate the experience of pain as a marker for most pathological processes The problem of rehabilitation and habilitation of patients remains relevant and is the most important strategy for achieving the Sustainable Development Goals (7).

II. Purpose and Objectives

The aim of the study was to determine the intrapersonal factors that contribute to subjective well-being among patients with pain. Based on this aim, the following objectives were set:

1. Determination of the level of subjective well-being in patients with pain syndrome using the Subjective Well-Being Scale;
2. Assessment of the somatic state of subjects in terms of their subjective experience of pain (intensity, sensory and emotional components), severity of psychosomatic complaints;
3. Assessment of the emotional state of subjects and their ability to differentiate between their emotional experiences, as well as determination of the possible impact of alexithymia on subjective well-being;
4. Determination of the influence of the main indicators of emotional and somatic state on the subjective well-being of patients with pain syndrome.

III. Materials and Methods

The study was based on the results of voluntary participation of 118 patients aged 18 to 86 years, including 56 men (M=47.9, SD=18.09) and 62 women (M=46.5, SD=16.9). According to their medical history, 23% had degenerative-dystrophic diseases of the spine, 15% had injuries or fractures, and 37% indicated their diagnoses in the "other" column, while 25% did not provide any information about their health status. Pain was mainly localized in the extremities for 45% of respondents, back pain was reported by 18%, lumbar spine 13%, cervical and thoracic spines 9%, and headaches 6%. The rest noted "other" conditions. Only half (52%) of the respondents were taking medication at the time of the survey. The psychodiagnostic assessment of the patients' condition was carried out on the basis of a scale of subjective well-being (A. Perrudet-Badoux, G. Mendelsohn, J. Chiche, 1988). The assessment is carried out on an inverse scale, with high scores indicating marked emotional discomfort, and low scores indicating complete emotional well-being. This scale was adapted by M. V. Sokolova [33]. The assessment of the subjective experience of pain was carried out using the McGill Pain Questionnaire (MPQ, adapted by Kuzmenko V.V. et al., 1986) [34, p.36-39]. The ability to recognize and describe emotions was determined by the Toronto Alexithymic Scale (G.J. Taylor, 1985, adapted by the Bekhterev Institute). [35 p.163]. The emotional state of the subjects was studied according to the Scale of Differential Emotions (DES) by K. Izard [36, p. 226-227]. Somatic status and concomitant symptoms were assessed according to the scale of the Giessen questionnaire of psychosomatic complaints [35, p.17].

Statistical analysis of the data was carried out using SPSS Statistics 17.0 to search for statistically significant factors affecting the level of subjective well-being of patients in the experimental group. One-factor analysis of variance (ANOVA) was used to identify these factors.

IV. The Results and Their Discussion

According to the results of the statistical analysis (see the table in the appendix), the level of subjective well-being is affected by the emotional state of patients, their ability to understand their emotions, the presence of psychosomatic complaints, and the intensity of pain.

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Alexithymia manifests itself in difficulty differentiating between emotional experiences and can become a risk factor for maladaptive conditions [37, p. 165-176]. In the analyzed sample, the level of alexithymia varied from 39 to 89 points (M = 65.65; SD = 11.20). Based on the data obtained, increased values of the alexithymic level were associated with emotional discomfort, difficulty controlling emotions, and imbalance and inflexibility in attitudes ($F(9,109) = 6.38$, $p < 0.001$). Consequently, important components for achieving subjective well-being in patients are the ability to recognize their feelings and physical sensations, express emotional experiences with others [25], and have a sufficient level of imagination for psychological coping with pain [21]. A recent meta-analysis of the effects of mindfulness techniques on pain reduction conducted by German scientists [27] has shown the importance of awareness and acceptance of pain, as well as the possibility of conscious control over pain perception. Therefore, reflexive tools such as the "pain diary" are useful for patients with pain syndromes for self-analysis to better recognize, understand their pain and mood, and improve their life satisfaction [13].

As for the emotional state of patients, subjective well-being showed a statistically significant relationship with almost all the emotions tested according to DES, as well as with the coefficient of well-being ($F(9, 109) = 6.73$; $p < 0.001$). Despite the fact that all subjects had a positive well-being coefficient (M = 1.62; SD = 0.54), there was a directly proportional trend for a decrease in subjective well- being with a deterioration in wellbeing. Among positive emotions, interest had the greatest impact on the level of subjective wellbeing ($F(9, 109) = 2.13$; $p < 0$ .05) and joy had (F 9, 109 = 3.08; $P < 0.01$). At the same time, an analysis of the dynamics of indicators revealed that while the level of interest changed slightly with deterioration of subjective well - being, the level of joy decreased consistently. This means that when a person is experiencing severe emotional discomfort and little joy can bring them, they may show arbitrary and involuntary interest in something, becoming distracted from painful experiences [12; 26]. Acute negative emotions such as grief ($F(9, 109) = 2.296$; $p < 0.05$), anger ($F(9, 109) = 3.27$; $p < 0.01$), disgust ($F(9, 109) = 3.25$; $p < 0.01$), contempt ($F(9, 109) = 2.14$; $p < 0.05$), tend to increase sequentially with a deterioration in the patient's subjective well-being. The presence of anxiety-depressive emotions, such as fear ($F(9, 109) = 3.49$; $p < 0.01$), guilt ($F(9, 109) = 4.13$; $p < 0.001$), is also more pronounced in subjective distress. In the case of acute negative and anxiety-depressive emotions, it is difficult to talk about the causal nature of the relationship with the level of subjective well-being, since this dependence can work bilaterally. On the one hand, pronounced emotional discomfort worsens the experience of negative and anxiety-depressive emotions, and on the other hand, subjective well—being worsens in the presence of pronounced feelings of anger, grief, disgust, contempt, fear, and guilt. At the phenomenological level, pain and emotional state in themselves have no content (are not intentional), but possess only phenomenal properties characterizing subjective sensation [9]. If we approach it from the point of view of externalistic representationalism, then the phenomenal properties of pain and emotions will be determined by the direction of experiences, that is, they are determined by the external (social) context (for example, the socio-psychological benefits of illness) [11]. From the standpoint of internalist representationism, on the contrary, the content of inner sensations depends only on the subject [9; 26], that is, different patients may experience the same level of pain in different ways. This is why there is a paradox between the internal image of the disease and the subjective complaints of the patient [11; 15]. Such a dialectical approach can be useful instead of the objective approach in medicine in the selection of psychological tools [11; 22], since externalism emphasizes coping strategies and internalism emphasizes harmonizing the internal state.

Life satisfaction is influenced by psychosocial factors, which can be divided into psychological factors (emotional state, presence of affective disorders) and social factors (marital status, socio-economic status, chronic stress at work and home) [10]. As a result, a relationship was found between all indicators of the Scale of subjective well-being. Accordingly, the level of well-being of an individual directly depends on the levels of tension and sensitivity ($F(9, 109) = 9.14$, $p<0.001$), severity of signs of psychoemotional symptoms ($F(9, 109) = 11.297$; $p < 0.001$), tendency to mood swings ($F(9, 109) = 15.37$; $p < 0.001$) importance of social environment ($F(9, 109) = 11.39$; $p < 0.001$), self-assessment of health ($F(9, 109) = 11.28$; $p < 0.001$), and satisfaction with daily activities $F(9, 109) = 11.63$; $p < 0.001$).

It is important to note the pronounced relationship between the subjective well-being of patients and the signs of main psychosomatic symptoms, assessed using the Giessen questionnaire. The more intense the pressure of complaints ($F(9, 109) = 8,89$; $p < 0,001$, the more unhappy the patient feels. In this aspect, somatopsychic influence can be assumed. The presence of severe somatic pathology can aggravate emotional state [10]. In proportion to the deterioration of subjective well-being, the indicator of exhaustion increases ($F(9, 109) = 11.57$; $p < 0.001$), characterizing apathy and the need for rest. The presence of gastric complaints ($F(9, 109) = 3.99$; $p < 0.001$) significantly affects emotional discomfort. Cardiac complaints ($F(9, 109) = 5.76$; $p < 0.001$), are also accompanied by emotional distress. The rheumatic factor ($F(9, 109) = 3.8$, $p < 0.001$) in this questionnaire

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directly characterizes pain and spastic symptoms, and its increase is proportional to the deterioration of subjective well-being in patients. Since it has been scientifically confirmed [10; 16; 23] that there is both somatopsychic and psychosomatic influence on the clinical dynamics of a disease, a personalized approach taking into account subjective picture of disease will increase effectiveness of therapeutic and rehabilitation measures.

Among the scales of the McGill Pain Questionnaire, the ranking index of pain on the Affective Scale ($F(9, 109) = 3.27$, $p < 0.01$) showed the greatest impact on patients' subjective well-being. However, neither the index of selected emotional descriptors nor the index of sensory sensations revealed significant relationships. This may mean that the patient's subjective well-being depends more on the intensity of pain affect than on sensory characteristics of pain perception. This observation can be used in the psychological rehabilitation of patients, directing therapeutic work on the emotional aspect of pain. According to the McGill Pain questionnaire, the dynamics of decreasing pain affect can be illustrated as follows: from "tiring" to "exhausting", from "terrifying" to "frightening", from "despairing" to "depressing", from "pain as torture" to "pain as a hindrance" and so on. Comparing the data obtained from scientific research [23; 29; 38, p. 9-13], we can conclude that rational-emotional psychotherapy or other variants of cognitive-behavioral approaches for working out irrational attitudes (dramatizating or catastrophizing painful experiences) can improve the subjective well-being of patients and accelerate their recovery. Relaxation techniques and meditative practices at the psycho-physiological level, by stimulating neuroendocrine processes, can not only reduce the intensity of affective experiences, but also increase the subjective sense of well-being [10; 18; 20]. The development of constructive pain management strategies, taking into account the psychological resources of the individual, will contribute to the assistance of patients to prescribed treatment and rehabilitation regimens.

It is worth noting that statistical analysis did not reveal the influence of gender or age on the level of subjective well-being, which coincides with the results of research conducted by the Institute of Psychology of the Russian Academy of Sciences [6].

Thus, according to the results of the study, subjective well-being in patients is determined by their emotional state. This includes the severity of positive and negative emotions, as well as anxiety and depressive emotions. It also includes the ability of patients to understand and express these emotions. In addition, the presence of a history of psychosomatic complaints worsens the assessment of subjective well-being. Stress levels, psychoemotional symptoms, mood swings, the importance of the social environment, self-assessment of health and satisfaction with daily activities also naturally affect. The affective experience of pain has a particularly negative effect on the patient's well-being. That is, it is the emotional component of pain, not the sensory discomfort of it.

V. Conclusion

Based on the conducted research, it is possible to not only judge the main intrapersonal factors that determine the subjective well-being of patients suffering from pain syndromes but also to develop an individual approach to their rehabilitation. This approach takes into account the emotional state of the patient, their level of alexithymia, the presence of concomitant psycho-somatic complaints, and pain affect. Thus, the relevance of the results obtained lies in the scientific substantiation of the subjective picture of pain and the expansion of tools for psychological diagnostics in order to personalize rehabilitation measures. Understanding the patient's emotional state, their ability to differentiate their emotions, and the affective component of pain experience can all form the basis for psychological work aimed at correcting the main factors affecting an individual's subjective wellbeing, improving their quality of life, and increasing the effectiveness of rehabilitation.

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Application

Table 1: The Results of a One-factor Analysis of Variance: The Effect of Indicators of Emotional and Somatic State, Affective and Sensory Characteristics of Pain on the Level of Subjective Well-Being in Patients with Pain Syndrome as well as Alexithymia.

The Source of the Variation		Sum of Squares	Number of Degrees of Freedom	The Value of Squares	The F-Criterion	The Level of Significance
Tension/Sensitivity	Within groups	551,541	9	61,282	9,137	0,000**
	Between groups	731,047	109	6,707		
	Total	1282,588	118			
Signs of the main psycho-emotional symptoms	Within groups	1036,912	9	115,212	11,297	0,000**
	Between groups	1111,643	109	10,199		
	Total	2148,555	118			
Mood changes	Within groups	486,889	9	54,099	15,374	0,000**
	Between groups	383,548	109	3,519		
	Total	870,437	118			
The importance of the social environment	Within groups	651,621	9	72,402	11,387	0,000**
	Between groups	693,085	109	6,359		
	Total	1344,706	118			
Self-assessment of health	Within groups	563,749	9	62,639	11,275	0,000**
	Between groups	605,528	109	5,555		
	Total	1169,277	118			
The degree of satisfaction with daily activities	Within groups	832,093	9	92,455	11,629	0,000**
	Between groups	866,613	109	7,951		
	Total	1698,706	118			
Interest	Within groups	105,436	9	11,715	2,133	0,032*
	Between groups	598,547	109	5,491		
	Total	703,983	118			
Joy	Within groups	196,126	9	21,792	3,078	0,003**
	Between groups	771,740	109	7,080		
	Total	967,866	118			
Surprise	Within groups	92,803	9	10,311	1,228	0,285
	Between groups	915,062	109	8,395		
	Total	1007,866	118			
Grief	Within groups	125,519	9	13,947	2,296	0,021*
	Between groups	661,976	109	6,073		
	Total	787,496	118			
Anger	Within groups	221,218	9	24,580	3,266	0,001**
	Between groups	820,245	109	7,525		
	Total	1041,462	118			
Disgust	Within groups	183,920	9	20,436	3,251	0,002**
	Between groups	685,239	109	6,287		
	Total	869,160	118			
Contempt	Within groups	143,865	9	15,985	2,142	0,032*
	Between groups	813,295	109	7,461		
	Total	957,160	118			
Fear	Within groups	218,971	9	24,330	3,493	0,001**
	Between groups	759,248	109	6,966		
	Total	978,218	118			
Shame	Within groups	126,195	9	14,022	1,755	0,085
	Between groups	870,914	109	7,990		

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	Total	997,109	118			
Fault	Within groups	275,421	9	30,602	4,130	0,000**
	Between groups	807,721	109	7,410		
	Total	1083,143	118			
The index of positive emotions	Within groups	864,075	9	96,008	3,300	0,001**
	Between groups	3171,320	109	29,095		
	Total	4035,395	118			
The index of acute negative emotions	Within groups	2321,905	9	257,989	3,568	0,001**
	Between groups	7882,061	109	72,312		
	Total	10203,966	118			
Index of anxiety-depressive emotions	Within groups	1591,928	9	176,881	3,802	0,000**
	Between groups	5070,660	109	46,520		
	Total	6662,588	118			
The coefficient of well-being	Within groups	12,097	9	1,344	6,733	0,000**
	Between groups	21,759	109	,200		
	Total	33,856	118			
Exhaustion	Within groups	1742,469	9	193,608	11,573	0,000**
	Between groups	1823,497	109	16,729		
	Total	3565,966	118			
Stomach Complaints	Within groups	328,318	9	36,480	3,988	0,000**
	Between groups	997,094	109	9,148		
	Total	1325,412	118			
Rheumatic Factor	Within groups	649,360	9	72,151	3,809	0,000**
	Between groups	2064,607	109	18,941		
	Total	2713,966	118			
Heart Complaints	Within groups	517,375	9	57,486	5,760	0,000**
	Between groups	1087,919	109	9,981		
	Total	1605,294	118			
Pressure of Complaints	Within groups	11174,760	9	1241,640	8,894	0,000**
	Between groups	15216,651	109	139,602		
	Total	26391,412	118			
Rank index of sensory pain sensations	Within groups	381,025	9	42,336	1,200	0,302
	Between groups	3845,563	109	35,280		
	Total	4226,588	118			
Index of the number of selected sensory descriptors	Within groups	76,018	9	8,446	1,203	0,301
	Between groups	765,377	109	7,022		
	Total	841,395	118			
The ranking index of emotional pain	Within groups	153,043	9	17,005	3,271	0,001**
	Between groups	566,655	109	5,199		
	Total	719,697	118			
The index of the number of selected descriptors of emotional sensations	Within groups	26,958	9	2,995	1,909	0,058
	Between groups	171,025	109	1,569		
	Total	197,983	118			
The real intensity of the pain	Within groups	17,079	9	1,898	1,576	0,131
	Between groups	131,241	109	1,204		
	Total	148,319	118			
The level of alexithymia	Within groups	5120,351	9	568,928	6,382	0,000**
	Between groups	9716,826	109	89,145		
	Total	14837,176	118			

*Note: * p<0,05; ** p<0,01*

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Conflict of Interest: None declared.

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