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Selected Aspects of Mental Health of Elderly Patients with Chronic Back Pain Treated in Primary Care Centers

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Background: Improvement of the effectiveness and efficiency of chronic back pain therapy is a continuing challenge on an international scale. The aim of the present study was to tentatively assess mental health of patients with chronic back pain treated in primary care centers.





Material/Methods: The study enrolled 100 persons over 50 years of age. The back pain group consisted of 53 patients with chronic back pain and the control group consisted of 47 pain-free persons. The assessment of mental health used a Polish version of the international Goldberger's General Health Questionnaire (GHQ-28). ANOVA (1- and 2-factor) analysis of variance, Tukey's test, and Pearson's simple correlation were used to analyze the significance of differences, with the significance level set at $\alpha=0.05$.

Results: All patients with chronic back pain, regardless of their age and gender, displayed poorer mental well-being compared to the control group: their overall score was higher by over 7 points than in persons without back pain ($F_{1,96}=14.8$; $p<0.001$). Men with back pain were significantly more susceptible to depression than women ($F_{2,96}=5.5$; $p<0.05$), compared to the control group. The duration of back pain also showed a significant ($p<0.05$) direct correlation with the overall mental health score from the questionnaire. Mental health was considerably poorer among patients occasionally ($p<0.001$) and regularly ($p<0.05$) consuming analgesics than among persons who did not do so.

Conclusions: The study revealed that mental health was markedly poorer in patients with chronic back pain than in healthy controls. A preliminary assessment of aspects of mental health should be given more attention in the rehabilitation of patients with chronic back pain treated in primary care center outpatient clinics.

MeSH Keywords: **Diagnosis • Low Back Pain • Mental Health • Physical and Rehabilitation Medicine • Primary Health Care**

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Background

The scale of the problem of chronic pain, such as back pain, has been increasing at an alarming pace in societies worldwide. As Koszewski [1] reports, from 54% to 80% of citizens in developed countries suffer from pain along the spine and surrounding areas of the back, the pain being chronic in 25% to 60% of these patients. A study of the Polish population showed that ca. 70% of adults had experienced significant back pain in their lives [1]. On an international scale, the problem concerns millions of people worldwide in different age, even before 20 years of age, and it has been generating increasing costs [1–10]. In America alone, 116 million people suffer from back pain, the figure being larger than for metabolic, circulatory and neoplastic conditions combined [4]. There has been an increasing tendency to perceive back pain not only as an accompanying symptom, but as a condition in its own right, caused by an interaction of numerous somatic, psychological and social factors. Chronic back pain requires a multidisciplinary diagnosis and multidimensional treatment/ rehabilitation, regardless of its origin [5,9–18]. Diagnosis and selection of known and reliable therapeutic methods (physical, pharmacological and psychological) continues to pose certain challenges and problems [6,9,12–14,17,19,20]. Regrettably, as Brzezinski et al. [21] indicate, these may be due to incompetence and inadequate level of knowledge among the medical staff consulted by patients with chronic pain or to disturbed relations between patients and physicians/ therapists [16,19,21,22]. Unfortunately, incomplete diagnosis and an ineffective system of chronic pain therapy are a problem in numerous developed countries in Europe and elsewhere [21].

The complexity of chronic pain therapy pertains predominantly to its effectiveness and efficiency, starting from the correct diagnosis to comprehensive and lasting help for the patient. This paper focuses on an important element of comprehensive diagnosis of the health status, namely, psychosocial assessment of the patient. It seems obvious that such evaluation should accompany rehabilitation and therapy of chronic pain, but in numerous primary care centers this element tends to be neglected (insufficient time is devoted to it). Most emphasis is put on a wide range of physiotherapeutic procedures, including massage, exercises, and physical training. However, such procedures are effective only in the short term, which has been confirmed by various studies [1,3,23–28]. It is a challenge to ensure long-term effectiveness of therapy so that patients do not have to repeat similar cycles of treatments several times a year, generating greater costs of treatment and absence from work. Standard rehabilitation for patients with chronic back pain frequently fails to consider that the sense of pain is strongly dependent on previous experience, emotional responses, and cognitive processes, and that the intensity of pain does not always directly correlate with the degree

of structural changes. The above factors determine patterns of response to pain: its perception, undertaking treatment, and quality of cooperation with the medical staff [18,29,30]. Chronic pain may be accompanied by sleep disorders, loss of appetite, irritation, anxiety, decreased daily activity, and depression. If not identified early enough, such symptoms may considerably reduce the effect of therapy and exacerbate pain [5,11,17,27,29–33].

In view of the above, a tentative psychological diagnosis of health status seems indispensable, even in the case of patients seeking treatment for chronic somatic dysfunctions accompanied by pain. Such a diagnosis may be obtained easily and objectively using, for example, Goldberger's GHQ questionnaire [34], which is an internationally recommended and reliable instrument in screening for a preliminary diagnosis of non-psychotic mental disorders, temporary depression of mental state, and measurement of non-specific mental suffering. It predominantly targets primary care patients [34,35–40] and is used in over 50 countries (adapted and translated).

The present analysis was prompted by the need to unravel the essence of mental health importance as a major value in contemporary society, identify the largest possible number of health-related factors that may influence cooperation between patient and therapist, their mutual understanding, and communication, and, consequently, to enhance the effectiveness of the therapeutic process. Statistics indicate that about 45% of adult Poles are worried about their mental health and as many as 85% are convinced that the current living conditions in the country are deleterious to their mental health [41]. Chronic illness and undiagnosed mental disorders or other psychological problems may impede patients' daily activity and relation with the therapeutic team in a particular way. We set out to identify potential symptoms of deterioration of mental health among patients attending primary care centers. The main objective of the study was to obtain a tentative diagnosis of general mental health among persons undergoing long-term rehabilitation due to chronic back pain.

Material and Methods

The study was performed as an anonymous screening study. Informed consent forms were signed both by heads of the participating outpatient care centers and the study subjects. The study enrolled 100 persons over 50 years of age, 53 of whom (36 women and 18 men), aged on average 65.5 years (SD 10.7), formed the experimental group. The study was conducted in 2 large public rehabilitation-oriented primary care centers in Warsaw in the period 2009–2010. Patients with chronic back pain were enrolled after an examination by a physician, immediately before commencing a cycle of physiotherapeutic

Table 1. Mean (\pm SD) subscale and overall scores in the General Health Questionnaire (GHQ-28).

Variable	Patients		Control group	
	Women (n=35)	Men (n=18)	Women (n=35)	Men (n=12)
Subscale A ^a	9.5 \pm 2.8	7.6 \pm 3.0	5.6 \pm 2.9	5.2 \pm 2.5
Subscale B ^a	7.8 \pm 3.6	7.4 \pm 3.0	6.4 \pm 4.1	5.3 \pm 1.9
Subscale C ^a	8.0 \pm 2.7	8.5 \pm 2.3	7.7 \pm 2.6	6.1 \pm 2.1
Subscale D ^{a,b}	1.9 \pm 2.0	2.8 \pm 2.7*	2.0 \pm 2.8	0.5 \pm 0.7
Overall score ^a	27.2 \pm 8.1	26.3 \pm 9.1	21.7 \pm 9.8	17.1 \pm 4.2

^a Significantly ($p < 0.05$) higher than the control group, ^b significant ($p < 0.05$) group \times gender interaction; * significantly ($p < 0.05$) higher than men in the control group.

procedures prescribed for them (kinesiotherapy, electrotherapy, magnetotherapy, laser therapy and cryotherapy). The control group consisted of 47 persons free of pain (35 women and 12 men) with the average age of 69.6 years (SD 6.6). Participants from both groups were residents of a large agglomeration and its outskirts. Exclusion criteria were as follows: age less than 50 years and concomitant acute pain in areas other than the back for the control group and incidence of any type of acute pain in the month preceding the study or any chronic pain for the control group. Demographic data were collected during an interview preceding the questionnaire completion, in a form prepared especially for this purpose. The form for the study group also included information on the previous history of rehabilitation and the time since the first pain episode (10.3 years among women and 11.2 years among men on average). The patients participated in a cycle of rehabilitation procedures offered to back pain sufferers on average 3 times a year. The medical examination revealed advanced degeneration of the lumbosacral spine in 65% of patients, disk disease in 27% and scoliosis, shortening of a lower limb or spondylolisthesis in 11% of them. During their therapies to date, the patients had not been subjected to diagnostic work-up for psychosocial disorders. A modified Laitinen pain indicator questionnaire was used for assessment of pain intensity and frequency, limitation in daily life activities and consumption of analgesics.

The assessment of mental health employed the Polish version of the General Health Questionnaire (GHQ-28) [40,42]. The version consists of 28 questions and additionally allows for an analysis of the state of health on 4 sub-scales: A – somatic symptoms (7 questions), B – anxiety, fear and insomnia (7 questions), C – social /daily activity dysfunctions (7 questions) and D – symptoms of depression (7 questions) [34,39]. The results are presented in Table 1. The Likert scale (0-1-2-3 points) was used for each response; hence, the minimal score was 0 and the maximal score was 84. Based on the

questionnaire author's recommendation, the final score obtained for each patient should be considered as a measure of non-psychotic mental dysfunction (GHQ value as an estimator of probability of a mental disorder). A lower score is a superior result, signifying a lower probability of health disorders [34,37,40]. Reference ranges in standard tens are available for the Polish population [42]. As they have been determined for professionally active persons aged 18–65 years, detailed comparisons with the present results were not performed.

The study results were described using basic statistical measures: means and standard deviations for continuous variables and percentages for variables expressed on an ordinal scale. The assumption of a normal distribution of data was verified using the Shapiro-Wilk test and homogeneity of variance, by Levene's test. For subscales where the assumptions were not met (C and D subscales), logarithmic transformations were used. The significance of differences for individual subscales of GHQ-28 was assessed using a 2-factor ANOVA analysis of variance (group \times gender), and differences between specific pairs of averages were assessed post-hoc using Tukey's test for unequal sample sizes. In the experimental group, differences in average ratings for GHQ-28 subscales depending on physical activity, frequency and intensity of pain episodes and consumption of analgesics were analyzed by one-factor analysis of variance and Tukey's test for unequal sample sizes (post hoc). Correlations between age and time since the first pain episode on the one hand and GHQ-28 subscale scores on the other were determined using Pearson's simple correlation. The significance level was set at $\alpha = 0.05$.

Results

The first stage of the analysis sought to determine the correlation between age and scores in the mental health questionnaire.

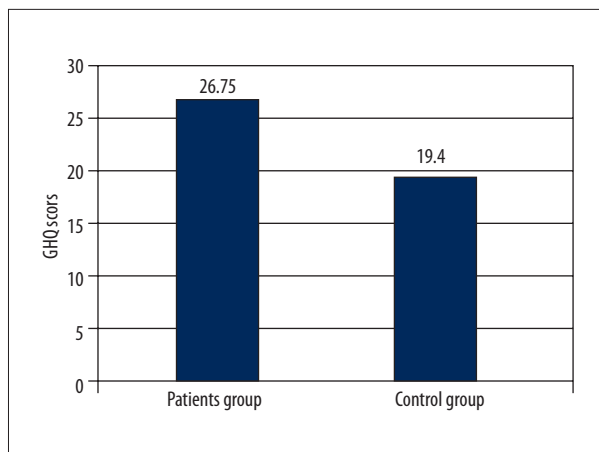


Figure 1. Difference in GHQ-28 overall score between patients and controls ($p < 0.05$).

The estimated correlation coefficients were very low among patients with chronic back pain ($-0.070 < r < 0.122$) and healthy persons ($-0.158 < r < 0.059$) and they did not reach statistical significance. Therefore, for the purpose of further analyses, age was not considered as a continuous predictor (an accompanying variable) that could have a potential effect on mental health scores, and only a 2-factor analysis of variance was performed. Table 1 presents the GHQ-28 scores of patients with chronic back pain and healthy persons. The analyses did not reveal a significant impact of gender for any of the subscales or the overall score. On the other hand, patients with chronic back pain had significantly inferior scores (obtained more points) compared to their healthy peers both in the overall assessment of mental health and on individual subscales, with the overall score being over 7 points higher among back pain sufferers than among the controls ($F_{1,96} = 14.8$; $p < 0.001$). The significantly poorer mental well-being of the persons with back pain was predominantly due to somatic symptoms (subscale A, $F_{1,96} = 25.0$; $p < 0.001$) and social dysfunction (subscale C, $F_{1,96} = 5.9$; $p < 0.05$). The back pain sufferers and controls also differed with regard to anxiety, fear, and sleep disorders (subscale B, $F_{1,96} = 5.2$; $p < 0.05$). Gender differentiated scores in the back pain and control groups only on Subscale D, i.e. symptoms

of depression ($F_{2,96} = 5.5$; $p < 0.05$): the scores were significantly ($p < 0.05$) higher among male patients than among healthy men (2.8 vs. 0.5), while among women from both groups the scores were comparable (1.9 vs. 2.0).

The difference in the general mental health between back pain sufferers and controls is shown in Figure 1.

Time since the first pain episode showed a significant positive ($p < 0.05$) correlation with the overall mental health score but the correlation coefficient was relatively low ($r = 0.288$). Similar correlations were not found for individual subscales. Moreover, the patient group was assessed with regard to intensity and frequency of pain episodes, frequency of analgesics consumption in the year preceding the study and physical activity (Laitinen pain indicator questionnaire). Fifty-six percent of the patients experienced severe pain, 14% described the pain as very severe or unbearable, 24% reported moderate pain, and only 6% stated that currently they did not have pain. Pain was frequent in 36% of the study group, intermittent in 34% of patients, and very frequent or constant in 28%. Approximately 30% of the patients with chronic back pain declared continuous consumption of analgesics, 42% used them on an as-needed basis, and 26% did not use any analgesics. Thirty per cent of the patients exercised once a week, with the same proportion reporting physical activity 2–3 times a week and about 17% stating that they exercised more frequently. Less than 10% of patients exercised only occasionally and not regularly. The study did not find significant differences in mean GHQ-28 scores with regard to pain intensity and frequency and physical activity. Mental health scores were only correlated with the frequency of analgesic consumption. For all the subscales, persons not using analgesics at all obtained superior scores. The trend was strongest for depression and the overall score (Table 2).

Discussion

As evidence-based research suggests, psychological factors unquestionably play a role in chronic back pain. Back pain,

Table 2. Average (\pm SD) subscale scores and the overall GHQ-28 score among patients vs. frequency of analgesics consumption.

Variable	No analgesics (n=13)	As needed (n=21)	Constantly (n=16)
Subscale A	7.0 \pm 2.7	8.9 \pm 3.0	9.9 \pm 2.8*
Subscale B	5.3 \pm 3.1	8.8 \pm 3.2*	7.9 \pm 3.4
Subscale C	6.8 \pm 1.4	8.9 \pm 3.2*	7.9 \pm 1.6
Subscale D	0.8 \pm 0.9	3.1 \pm 2.9**	2.0 \pm 1.5
Overall score	19.8 \pm 5.8	29.7 \pm 9.3**	27.7 \pm 5.9*

Significantly different from the score of patients not using analgesics: * $p < 0.05$; ** $p < 0.01$.

especially when chronic, represents a common cause of considerable changes in personal, social, and professional life, especially since therapy frequently fails to be effective [7,18,19,33]. This may be due to inadequate (incomplete) diagnosis and neglected prevention of the condition. As indicated by, for example, Henszen-Sęk et al. [33], diagnosis of psychological aspects of overall health plays an important role in the study of effectiveness of various interventions and it is necessary for monitoring health-promoting behaviors. In the case of chronic back pain, this element does not have to generate additional costs; it is a matter of a well-considered and well-planned, customized and comprehensive therapy.

The objective of this paper was to perform a tentative assessment of mental health of primary care patients suffering from chronic back pain (on average for 11 years). Despite long treatment, the patients had not been diagnosed with regard to their mental health and social function. Interviews and medical records suggest that rehabilitation in the form of physiotherapeutic procedures aiming to correct structural/ somatic dysfunctions of the back had been recommended for the patients on numerous occasions. The patients attended rehabilitation several times a year due to persistence of the back pain. Selected aspects of mental health were assessed using the General Health Questionnaire-28, which is recommended for primary care centers as an adjunct to medical diagnosis, and does not make patients anxious about being examined for a psychiatric condition. The assessment focuses more on instances of temporary disruption of normal functioning than on permanent features [34]. It aims to detect 2 important factors which may strongly affect the quality and effectiveness of therapy: inability to function normally and distress. For this reason, patients were investigated before commencing a cycle of rehabilitation procedures, on average after 3 months of waiting for the rehabilitation. The authors' assumption was that chronic pain could affect patients' mental well-being over the time of waiting for therapy, which should be considered during the treatment. The study found that patients with chronic back pain enjoyed considerably poorer mental health than the control group. Interpretation of the data may use reference ranges in standard tens available for the Polish population [42]. According to these reference values, 0–16 points is a low score, 17–27 is a medium score, and a score of more than 28 points represents a high score. With regard to the above ranges, the patients with chronic back pain obtained a medium mental health score compared to the healthy population. Patients with back pain demonstrated a considerably poorer mental well-being (mean score of 26.7 points for both genders) than the control group (19.4 points). Comparable differences were found both among women and men with chronic pain, with men being more susceptible to depression. Krzych et al. [43] obtained similar results in a study of cardiac surgery patients with an average age of 71 years. The overall GHQ-28 score was 26.4 points. Makowska

and Merecz [42] obtained a better overall mental health score (23.7) in their study of primary care patients with a diagnosis of a known somatic condition who were professionally active and on average 43 years old. The General Health Questionnaire also revealed mental and social disorders among patients with back pain in a study of Iranian women [44] and in a Greek study conducted in primary care centers [45].

A further health-related aspect investigated in the present study was the consumption of analgesics by back pain sufferers. In our study, patients who pointed to a predominance of somatic disturbances in themselves consumed analgesics on a continuous basis. Unfortunately, such patients and those using the drugs on an as-needed basis demonstrated considerably worse mental health than persons using no analgesics at all. Use of analgesics may be explained by a strong need to relieve the pain but at the same time this behavior is associated with a high risk of adverse effects. This medical problem is not limited to chronic back pain sufferers. Poles rank third in the world in analgesic consumption. According to a study by Woron, 75% of Poles declare unrestrained use of analgesics without medical advice [46]. Prolonged analgesic consumption may lead to addiction and various adverse effects. Patients are not cautioned against rebound pain caused by discontinuation of analgesics. Careless use of drugs without a medical consultation may lead to exacerbation of mental problems and, consequently, deterioration of health. Viewed in this way, combining medical and psychological therapy becomes even more important. Raising patients' awareness of the nature of their condition, education on prevention, psychoeducation, and cooperation with the family enhance the effectiveness of rehabilitation and improve the quality of life among pain sufferers.

Identification of alarming symptoms in a patient's behavior by the physician or physiotherapist and early diagnosis of mental disorders may help refer the patient to a psychologist or a psychiatrist early enough and reduce secondary consequences of somatic disorders. The above considerations have both short-term and long-term importance, as the aging society requires professional, better-prepared medical care to minimize costs, enhance effectiveness of therapy, and ensure physical and mental ability, as well as unconstrained functioning for the elderly. Medical care should not be limited to treatment and rehabilitation of patients' primary conditions (which are frequently chronic and incurable) but it should be open to wider needs of its beneficiaries in order to improve the quality of life even in very old age.

Conclusions

1. Patients with somatic conditions and chronic pain showed significantly poorer mental well-being, manifested by poorer

social function, anxiety, fear, and insomnia, than healthy persons. If undiagnosed, these symptoms may reduce the effectiveness of rehabilitation.

- Men with chronic back pain were more susceptible to depression than women.
- Patients with the most serious somatic conditions constantly turned to analgesics. This finding should be taken into account in physiotherapy. It is also necessary to reduce analgesic consumption and control their abuse after completion of the therapy.

- Time elapsed since the first pain episode was inversely correlated with patients' mental health, regardless of their age and gender.
- A comprehensive medical diagnosis taking into account aspects of mental health should be more respected in the practice of primary care and rehabilitation of patients with chronic back pain.

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