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Pain and Disability: Indirect Assessment of Quality of Life Using the WHODAS 2.0 Scale in Patients with Chronic Pain

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Background. Chronic pain is not merely a physical symptom, but a complex phenomenon that affects all aspects of a person's life. It impacts physical health, psycho-emotional well-being, social relationships, and professional functioning. Chronic pain significantly diminishes quality of life, often leading to both functional and psychological disability. There is an increasing need for objective measurement of how chronic pain influences functioning across different life domains. The WHODAS 2.0 provides both quantitative and qualitative insights into impaired functioning, serving as a crucial tool in the development of personalized treatment strategies. This is particularly relevant for multidisciplinary teams managing patients with chronic pain.

Materials and methods. The study involved 147 adult outpatients aged 18 to 70 years diagnosed with primary, secondary, or mixed chronic pain lasting more than three months, in accordance with ICD-11 criteria. Socio-demographic information and pain-related clinical characteristics were collected using a structured screening questionnaire. Psychological factors, including anxiety and depression, were assessed using the Hospital Anxiety and Depression Scale (HADS). The WHODAS 2.0 tool was employed to evaluate functional impairment and to indirectly assess pain-related quality of life. Data were processed and analyzed using MS Excel and Jamovi software on the Windows 11 platform, applying standard methods of statistical analysis.

Results. The majority of participants reported difficulties on the WHODAS 2.0 scale in the domains of «Life Activities» and «Participation in Society» (56.6% and 54.5%, respectively), although the levels of dysfunction were generally mild to moderate. Statistically significant gender differences were observed in the domains of «Understanding and Communicating», «Getting Around», and «Life Activities». Dysfunction scores on the WHODAS 2.0 scale were significantly associated with both financial status and the number of pain locations.

Participants experiencing pain in more than two locations demonstrated higher levels of dysfunction compared to those with pain confined to a single area ($W = 5.03$, $p = 0.001$). Correlation analysis revealed significant positive associations between dysfunction and all assessed variables: depression ($r_s = 0.647$, $p < .001$), anxiety ($r_s = 0.618$, $p < .001$), and pain intensity ($r_s = 0.379$, $p < .001$), with the strongest correlation observed between depression and functional impairment.

Group comparisons showed that participants who were physically inactive had significantly higher mean dysfunction scores ($M = 73.4$, $SD = 27.1$) than those who engaged in physical activity ($M = 62.8$, $SD = 19.8$), with a mean difference of 7 points ($U = 2035$, $p = 0.022$). Similarly, participants with sleep disturbances reported higher dysfunction scores ($M = 72.8$, $SD = 26.0$) compared to those without sleep issues ($M = 60.5$, $SD = 19.0$), with a mean difference of 9 points ($U = 1654$, $p = 0.003$).

Pain intensity was significantly associated with financial status ($\chi^2 = 7.31$, $df = 2$, $p = 0.026$), employment status ($\chi^2 = 8.32$, $df = 2$, $p = 0.016$), and number of pain locations ($\chi^2 = 9.00$, $df = 2$, $p = 0.011$). Participants with lower income, unemployment, and pain in multiple locations

reported higher levels of both pain and functional impairment.

Conclusions. Chronic pain substantially affects both the physical and mental health of patients. Its impact is not limited to pain characteristics alone, but is also strongly associated with psycho-emotional and social factors such as anxiety, depression, sleep disturbances, physical inactivity, and financial hardship. The WHODAS 2.0 scale serves as an effective instrument for comprehensive assessment of disability, enabling a deeper understanding of patients' needs and supporting the development of personalized, multimodal treatment strategies.

Materials and methods. The study included 147 adult outpatients aged 18 to 70 years with a diagnosis of primary, secondary or mixed chronic pain lasting more than three months according to ICD-11 criteria. Socio-demographic data and clinical characteristics related to pain were collected using a screening questionnaire, psychological factors, such as anxiety and depression, were assessed using the HADS scale. The WHODAS 2.0 scale was used to assess dysfunction and indirectly assess the quality of life associated with chronic pain. Data preparation and analysis were performed in MS Excel and Jamovi software on the Windows 11 platform using mathematical statistics methods.

Results. The majority of participants reported difficulties on the WHODAS 2.0 scale in the domains related to «Life activities» and «Participation in society» (56.6% and 54.5%), but the levels of dysfunction were mild to moderate. Differences were found between men and women in the domains of «Understanding and Communicating», «Getting around» and «Life Activities». The level of dysfunction on the WHODAS 2.0 scale significantly depends on financial status and the number of pain locations.

Patients with pain in more than two locations have a higher level of dysfunction compared to those with pain in only one area ($W = 5.03$, $p = 0.001$). Correlation analysis showed that the level of dysfunction on the WHODAS 2.0 scale had significant positive correlations with all the variables studied: depression ($rs = 0.647$, $p < .001$), anxiety ($rs = 0.618$, $p < .001$) and pain intensity ($rs = 0.379$, $p < .001$). The strongest correlation was observed between depression and the level of dysfunction.

Statistically significant differences were found between groups ($U = 2035$, $p = 0.022$), where participants who did not engage in physical activity had a higher mean level of dysfunction ($M = 73.4$, $SD = 27.1$) compared to those who did engage in physical activity ($M = 62.8$, $SD = 19.8$). The mean difference between the groups was 7 points. Differences were also present between the groups of participants with and without sleep disturbances ($U = 1654$, $p = 0.003$). Participants with sleep disturbances had a higher level of dysfunction on the WHODAS 2.0 ($M = 72.8$, $SD = 26.0$) compared to those without sleep disorders ($M = 60.5$, $SD = 19.0$). The mean difference between the groups was 9 points.

Pain intensity was significantly associated with financial status ($\chi^2 = 7.31$, $df = 2$, $p = 0.026$), employment ($\chi^2 = 8.32$, $df = 2$, $p = 0.016$), and number of pain locations ($\chi^2 = 9.00$, $df = 2$, $p = 0.011$). Participants with lower financial status, unemployed, with chronic pain in more than two locations had higher levels of pain and dysfunction.

Conclusions. Chronic pain has a significant impact on patients physical and mental health and is associated not only with pain characteristics, but also with psycho-emotional and social factors such as anxiety, depression, sleep disturbances, physical inactivity and financial difficulties. The WHODAS 2.0 scale is an effective tool for a comprehensive assessment of dysfunction, which allows for a better understanding of patients' needs and the development of personalised multimodal treatment strategies.

Introduction

Chronic pain is a serious medical and social issue that significantly affects patients' quality of life. Unlike acute pain, which serves as a temporary protective response of the body, chronic pain may persist for months or even years, evolving into an independent pathological condition. It impacts physical health, psycho-emotional well-being, social relationships, and professional activity [1,2]. However, many aspects of this impact remain underexplored or simply overlooked by both patients and healthcare providers.

One of the most evident consequences of chronic pain is physical limitation [3]. Patients often experience reduced mobility, sleep disturbances, and general fatigue [4]. Pain leads to the avoidance of physical activity, which may result in muscle atrophy, impaired coordination, and an increased risk of cardiovascular diseases. British researchers emphasize that not only physical limitation, but also the number of pain localizations significantly increases cardiovascular risk — the greater the number of pain sites, the higher the risk [5]. Moreover, reduced physical activity contributes to weight gain, which may further complicate the course of comorbid conditions such as diabetes mellitus and hypertension [6,7].

Chronic pain is frequently associated with depression, anxiety, and sleep disturbances [8,9,10,11]. Pain becomes a constant background in a person's life, exhausting the psyche and contributing to the development of hopelessness [12]. Patients often experience pain catastrophizing — an excessive focus on painful sensations, which only exacerbates their condition [13]. Furthermore, chronic pain can affect cognitive functions, leading to difficulties with memory, attention, and decision-making [14,15].

It often goes unnoticed that chronic pain alters a person's social activity [16]. Many patients are forced to withdraw from social interactions, favorite hobbies, and even professional responsibilities due to an inability to endure physical or emotional strain. This leads to social isolation, loss of independence, and a decline in quality of life. Family members and colleagues may fail to understand the seriousness of the patient's condition, which contributes to feelings of guilt and loneliness [17,18].

Another aspect that is often overlooked is the economic impact of chronic pain. Ongoing expenses for medication, physiotherapy, doctor visits, and consultations with specialists can become a significant financial burden for both the patient and their family [19]. A study conducted by Spanish researchers found that patients with lower socioeconomic status experience more severe and disabling pain, which negatively affects daily functioning and leads to increased medication use [20]. Moreover, reduced work capacity or complete loss of the ability to work results in economic instability [21].

Chronic pain is not merely a physical symptom, but a complex phenomenon that affects all areas of a person's life [22]. Patients themselves often fail to realize the extent to which pain impacts their physical, emotional, and social well-being. Therefore, we aimed to investigate the impact of chronic pain on functional status and, indirectly, on patients' quality of life. To achieve this, we selected a reliable instrument developed by the World Health Organization — WHODAS 2.0 — which enables a comprehensive assessment of functioning and the degree of impairment across the most critical domains of human life [23].

The WHODAS 2.0 scale has demonstrated strong psychometric properties, including high internal consistency and reliability, making it a valuable tool for assessing health, disability, as well as for determining the mediated impact on quality of life in patients with chronic pain [24].

It should be noted that the correlation between disability in patients with chronic pain and their

WHODAS 2.0 scores represents a complex interaction of various factors, including physical (biological), psychological, and social dimensions [25].

The WHODAS 2.0 scale provides insight into how chronic pain affects patients' daily activities and overall well-being. Beyond its physical and psychological consequences, an important aspect of chronic pain is its impact on autonomy in everyday life. Patients often face difficulties with self-care, mobility, fulfilling professional responsibilities, and maintaining interpersonal relationships. The resulting dependence on others for assistance lowers self-esteem and evokes feelings of shame, which further complicate rehabilitation and social reintegration.

Thus, chronic pain significantly impacts patients' quality of life, often leading not only to functional impairments and physical disability but also to psychological disability, as reflected in WHODAS 2.0 scores.

At present, there is a growing need for objective measurement of chronic pain impact on patient functioning across various domains of life. The WHODAS 2.0 scale enables both quantitative and qualitative assessment of these impairments, representing a critical step toward the development of personalized treatment approaches. This is especially relevant for multidisciplinary teams working with patients suffering from chronic pain.

Aim

Examine the impact of chronic pain on patients' quality of life by assessing disability across key life domains.

Research Objectives

1. To examine the impact of chronic pain on patients' quality of life by analyzing disability using the WHODAS 2.0 scale.
2. To identify key associations between clinical (biological), socio-demographic (social), and psychological factors and disability in chronic pain.

Materials and Methods

The study involved 147 adult outpatients aged 18 years and older who were diagnosed with primary, secondary, or mixed chronic pain lasting for more than three months, according to the ICD-11 criteria [26]. The chronic pain syndromes included in the study encompassed the following conditions: fibromyalgia, migraines, chronic tension-type headaches, complex regional pain syndrome (temporomandibular disorder), chronic pelvic pain syndrome (including irritable bowel syndrome, interstitial/bladder pain syndrome, and others); muscle spasm, chronic postoperative pain, osteoarthritis, rheumatoid arthritis, chronic post-traumatic pain, and nerve compression syndromes.

Inclusion Criteria:

1. Age between 18 and 70 years.
2. Presence of chronic pain lasting more than three months.
3. Written informed consent to participate in the study.

Exclusion Criteria:

1. Severe uncontrolled chronic non-communicable diseases.
2. Presence of serious cognitive impairments.
3. Confirmed, suspected, or planned pregnancy at the time of screening.

4. Women during the lactation period.
5. Scheduled surgical intervention at the time of screening.
6. Severe or total disability.

Informed consent was obtained from all participants.

Data Collection

Sociodemographic data and clinical characteristics related to pain were collected using a screening questionnaire. Sociodemographic information included participants' sex, age, education level, marital and financial status, employment, and place of residence (urban or rural). Clinical data related to pain included duration of the pain condition, pain intensity, the primary diagnosis causing the pain, and the number of pain localizations. Additionally, information was gathered on comorbid conditions, history of traumatic brain injury (TBI), adverse childhood experiences, current post-traumatic stress disorder (PTSD), physical activity level, presence of sleep disturbances, and use of psychoactive substances.

Psychological assessment

Hospital Anxiety and Depression Scale (HADS). The HADS is a validated instrument for detecting and assessing the severity of anxiety and depression in general somatic care settings. It consists of 14 statements divided into two subscales: subscale A – "Anxiety" (odd-numbered items: 1, 3, 5, 7, 9, 11, 13), and subscale D – "Depression" (even-numbered items: 2, 4, 6, 8, 10, 12, 14). Each item has four response options reflecting the intensity of the symptom, ranging from 0 (absence) to 3 (maximum severity). Interpretation is based on the total score for each subscale (A and D). Three clinical ranges are identified: 0–7 points – normal; 8–10 points – borderline (subclinical) anxiety/depression; 11 points or more – clinically significant anxiety/depression. The maximum score per subscale is 21 [27].

World Health Organization Disability Assessment Schedule 2.0 (WHODAS 2.0).

WHODAS 2.0 is a self-administered questionnaire developed by the World Health Organization (version 2.0) to assess health and disability in individuals over the age of 18. It consists of 36 items and evaluates functional impairment across six domains of functioning, including **"Understanding and Communicating"** (cognitive functioning, such as concentrating, remembering, understanding what others say, initiating and maintaining conversations), **"Getting around"** (aspects of physical mobility, such as standing for long periods over 30 minutes, getting up from sitting, leaving the house, walking long distances), **"Self-Care"** (aspects of personal hygiene and ability to take care of oneself, including dressing, eating, and living independently), **"Getting Along with People"** (interacting with familiar and unfamiliar people, maintaining friendships, engaging in sexual activity), **"Life Activities"** (everyday activities, including work, study, and household responsibilities), and **"Participation in Society"** (functioning in the community and the impact of health on it, overcoming challenges and barriers, living according to personal values, managing time to cope with health-related consequences, maintaining emotional balance and financial stability, not burdening family, and independently engaging in relaxation and pleasurable activities).

In each item of the WHODAS 2.0 questionnaire, respondents are asked to rate how difficult it was for them to function in specific areas over the past 30 days. Each question has a single response option on a scale from 0 to 4, where "0" indicates "no difficulty," "1" – "mild difficulty," "2" – "moderate difficulty," "3" – "severe difficulty," and "4" – "extreme difficulty or inability to perform the activity." Scoring can be performed in two ways:

"Simple scoring" refers to the method in which item scores are mathematically summed without applying weights to individual items. This approach is practical and time-efficient. The total sum of

scores across all domains is sufficient to determine the overall level of functional impairment. “Complex scoring” is a more advanced method based on modern test theory (Item Response Theory, IRT). It accounts for multiple levels of difficulty for each item. The final score is calculated using a computer algorithm that applies differential weighting to each questionnaire item and response. The scoring software is available on the WHO website. The scoring process consists of three stages:

Step 1 – Summing the recoded item scores within each domain.

Step 2 – Summing the scores across all six domains.

Step 3 – Converting the total score into a percentage ranging from 0 to 100 (where 0 = no disability; 100 = maximum dysfunction) [28, 29].

Statistical Analysis

Data preparation and analysis were performed using MS Excel and Jamovi software on the Windows 11 platform. Descriptive statistics included calculations of frequencies and percentages for the questionnaire responses. For metric variables such as age, pain intensity, and questionnaire scores, means and standard deviations were computed; for ordinal variables, the interquartile range (IQR) was calculated. To test for statistically significant differences between groups, non-parametric tests were used — the Kruskal–Wallis test and the Mann–Whitney U test — as the data did not meet the assumptions of normality (Shapiro–Wilk test) or violated homogeneity of variance (Levene’s test). Post hoc analysis was conducted using the Dwass–Steel–Critchlow–Fligner pairwise comparison method. Spearman’s rank correlation was used to assess relationships between variables. For the analysis of categorical variables and frequency comparisons, Pearson’s chi-square test was applied. Effect size was measured using Cramér's V index.

Results

The study population consisted of 147 participants, with women comprising the majority (63.3%) and men representing 36.7%. Most participants had a higher education (76.9%), while 21.8% had completed secondary education, and only 1.4% had incomplete secondary education. The participants' ages ranged from 18 to 67 years, with a mean age of 34.3 years (SD = 12.1). The average pain intensity was 5.87 points (SD = 1.92) on a scale from 1 to 10. The duration of the pain condition ranged from 0 to 30 years, with a mean duration of 5.70 years (SD = 6.10).

In terms of marital status, the largest proportions were married (42.9%) and single (42.2%), while 15.0% were divorced. A total of 56.5% of participants reported being satisfied with their financial status, 32.7% were dissatisfied, and 10.9% were completely dissatisfied. The majority of respondents lived in urban areas (89.1%), while 10.9% resided in rural areas. Regarding employment status, 72.1% of participants were employed, 21.1% were unemployed, and 6.8% were active military personnel.

The duration of pain exceeded three months in the majority of participants (98.6%). Comorbid general medical conditions were identified in 72.5% of participants, neurological disorders in 10.8%, and musculoskeletal conditions in 16.7%. Pain localization also varied: 36.1% of participants reported a single pain site, 28.6% reported two pain sites, and 35.4% reported more than two pain sites (see Table 1 for details).

	n	%
Sex		
Female	93	63.30%
Male	54	36.70%

Education		
Incomplete secondary	2	1.40%
Secondary	32	21.80%
Higher	113	76.90%
Marital Status		
Single	62	42.20%
Married	63	42.90%
Divorced	22	15.00%
Financial Status		
Completely dissatisfied	16	10.90%
Dissatisfied	48	32.70%
Satisfied	83	56.50%
Place of Residence		
Village	16	10.90%
City	131	89.10%
Employment Status		
Unemployed	31	21.10%
Employed	106	72.10%
Military personnel	10	6.80%
Duration of Pain		
Less than 3 months	2	1.40%
More than 3 months	145	98.60%
Comorbid Conditions		
General medical	74	72.50%
Neurological	11	10.80%
Musculoskeletal	17	16.70%
Pain Localization		
One site	53	36.10%
Two sites	42	28.60%
More than two sites	52	35.40%

Table 1. *Sociodemographic characteristics of study population n – number of participants.*

Additionally, 13.6% of participants reported a history of traumatic brain injury (TBI). Adverse childhood experiences were reported by 47.6% of respondents, and 13.6% had a diagnosis of post-traumatic stress disorder (PTSD). Approximately half of the population (46.9%) engaged in physical activity, while 53.1% did not.

Sleep disturbances were reported by 64.6% of respondents, while 35.4% did not experience such problems. Alcohol or nicotine use was common among 42.2% of participants, whereas 57.8% did not use these substances.

According to the HADS scale results, the mean level of depression (HADS_D) was 7.41 (SD = 4.29), with a median of 7 and a range from 0 to 18. The Shapiro–Wilk test for normality showed statistical significance ($W = 0.957$, $p < .001$), indicating a deviation from the normal distribution (see Table 2). The mean level of anxiety (HADS_A) was 10.4 (SD = 4.46), with a median of 11 and a range from 0 to 20. The distribution of scores for this variable did not significantly differ from normality ($W = 0.986$, $p = 0.146$).

The study revealed that 50.3% of participants had clinically significant depression, 22.1% had subclinical depression, and 27.6% fell within the normal range. Regarding anxiety, 24.8% of participants had a clinically significant level, 17.9% had a subclinical level, and 57.2% were within the normal range.

	HADS_D	HADS_A
N	145	145
Mean	7.41	10.4
Median	7	11
Standard Deviation	4.29	4.46
Minimum Value	0	0
Maximum Value	18	20
Shapiro-Wilk W	0.957	0.986
Shapiro-Wilk p	<.001	0.146

Table 2. *HADS Scale Results*

According to the WHODAS 2.0 scale, the mean level of dysfunction was 1.88 (SD = 0.815), with a median of 2 and a range from 1 to 4 (see Table 3). The highest scores were observed in the domains of “Participation in Society” (M = 2.22, SD = 0.786) and “Life Activities” (M = 2.09, SD = 0.889), reflecting the negative impact of chronic pain on social functioning and daily activity.

	Understanding and Communicating	Getting around	Self-Care	Getting Along with People	Life Activities	Participation in Society	OverallScore
N	145	145	145	145	145	145	145
Mean	1.81	1.8	1.39	1.81	2.09	2.22	1.88
Median	2	2	1	2	2	2	2
Standard Deviation	0.923	0.871	0.699	0.905	0.889	0.786	0.815
Interquartile Range (IQR)	1	1	1	1	0	1	1
Minimum Value	1	1	1	1	1	1	1
Maximum Value	5	5	4	4	5	4	4

Table 3. *WHODAS 2.0 Scale Results*

According to the frequency analysis of the overall WHODAS 2.0 scores (see Table 4), the majority of participants reported no difficulties in the domains of “Understanding and Communicating” (46.9%), “Getting around” (44.1%), “Self-Care” (71.0%), and “Getting Along with People” (44.8%). The greatest difficulties were observed in the domains related to “Life Activities” and “Participation in Society” — 56.6% and 54.5% of participants, respectively, reported mild levels of dysability. The least common were extreme levels of dysability (level 5), which were reported only in the domains of “Understanding and Communicating” (1.4%), “Getting around” (1.4%), and “Life Activities” (1.4%).

Domain / Score level	None	Mild	Moderate	Severe	Extremely severe	Total
Understanding and communicating	68 (46.9%)	45 (31.0%)	26 (17.9%)	4 (2.8%)	2 (1.4%)	145
Getting around	64 (44.1%)	52 (35.9%)	25 (17.2%)	2 (1.4%)	2 (1.4%)	145
Self-Care	103 (71.0%)	32 (22.1%)	6 (4.1%)	4 (2.8%)	—	145
Getting Along with People	65 (44.8%)	52 (35.9%)	18 (12.4%)	10 (6.9%)	—	145
Life Activities	33 (22.8%)	82 (56.6%)	16 (11.0%)	12 (8.3%)	2 (1.4%)	145
Participation in Society	22 (15.2%)	79 (54.5%)	34 (23.4%)	10 (6.9%)	—	145

Table 4. *Frequency Distribution of WHODAS 2.0 Score Levels Number of participants (n) = 145*

We examined the relationship between pain intensity and sex as well as other sociodemographic variables using the Mann–Whitney U test and Kruskal–Wallis test, as the distribution across groups significantly deviated from normality (Shapiro–Wilk's $p < .05$). The results indicated statistically significant differences between groups based on financial status ($\chi^2 = 7.31$, $df = 2$, $p = 0.026$). However, post hoc analysis revealed no statistically significant differences in pairwise comparisons. These findings suggest that although the overall difference among groups is significant, individual pairwise comparisons do not reach statistical significance. Three patients were excluded from further statistical analysis, as only those with pain lasting more than 3 months were included in the study.

Employment status was also significantly associated with reported pain intensity ($\chi^2 = 8.32$, $df = 2$, $p = 0.016$). Post hoc analysis revealed that participants who were unemployed reported higher levels of pain compared to those who were employed. The relationship with the number of pain localizations was also statistically significant ($\chi^2 = 9.00$, $df = 2$, $p = 0.011$). Pairwise analysis indicated that as the number of pain localizations increased, the perceived intensity of pain also increased accordingly.

To compare levels of dysfunction measured by the WHODAS 2.0 between participants who engaged in physical activity and those who did not, an independent Mann–Whitney U test was conducted. The use of this test was justified by violations of the normality assumption and heterogeneity of variance. The results indicated a statistically significant difference between the groups ($U = 2035$, $p = 0.022$), with participants who did not engage in physical activity showing a higher mean level of dysfunction ($M = 73.4$, $SD = 27.1$) compared to those who were physically active ($M = 62.8$, $SD = 19.8$). The average difference between the groups was 7 points.

Significant differences were also observed between participants with and without sleep disturbances ($U = 1654$, $p = 0.003$). Participants who reported sleep disturbances had a higher mean WHODAS score ($M = 72.8$, $SD = 26.0$) compared to those without sleep problems ($M = 60.5$, $SD = 19.0$), with an average difference of 9 points.

The Kruskal–Wallis analysis of variance showed that the level of dysfunction measured by the WHODAS 2.0 significantly depends on both financial status and pain localization. Specifically, financial status had a statistically significant effect on the level of dysfunction ($\chi^2 = 20.8$, $df = 2$, $p < .001$, $\varepsilon^2 = 0.145$). Post hoc analysis revealed that participants who were satisfied with their financial status had a lower level of dysfunction compared to those who were dissatisfied ($W = -4.68$, $p = 0.003$) and completely dissatisfied ($W = -5.30$, $p < .001$), whereas the difference between the "completely dissatisfied" and "dissatisfied" groups was not statistically significant ($W = -2.64$, $p = 0.148$).

Similarly, pain localization proved to be a significant factor influencing the level of dysfunction ($\chi^2 = 13.1$, $df = 2$, $p = 0.001$, $\varepsilon^2 = 0.0907$). Post hoc analysis showed that participants with pain in more than two locations had significantly higher levels of dysfunction compared to those with pain localized in a single area ($W = 5.03$, $p = 0.001$). However, the differences between the "one pain localization – two pain localizations" group ($W = 2.96$, $p = 0.091$) and the "two pain localizations – more than two pain localizations" group ($W = 1.94$, $p = 0.357$) were not statistically significant.

Spearman's correlation analysis revealed significant positive correlations between the level of dysability measured by the WHODAS 2.0 and all examined variables: depression ($rs = 0.647$, $p < .001$), anxiety ($rs = 0.618$, $p < .001$), and pain intensity ($rs = 0.379$, $p < .001$). These findings indicate that higher levels of depression, anxiety, and pain are associated with greater dysability according to the WHODAS 2.0. A moderate positive correlation was also found between depression and anxiety ($rs = 0.564$, $p < .001$), and pain intensity was correlated with both depression ($rs = 0.325$, $p < .001$) and anxiety ($rs = 0.278$, $p < .001$). Overall, the results demonstrate that all variables studied are interrelated, with the strongest association observed between depression and WHODAS 2.0 dysfunction.

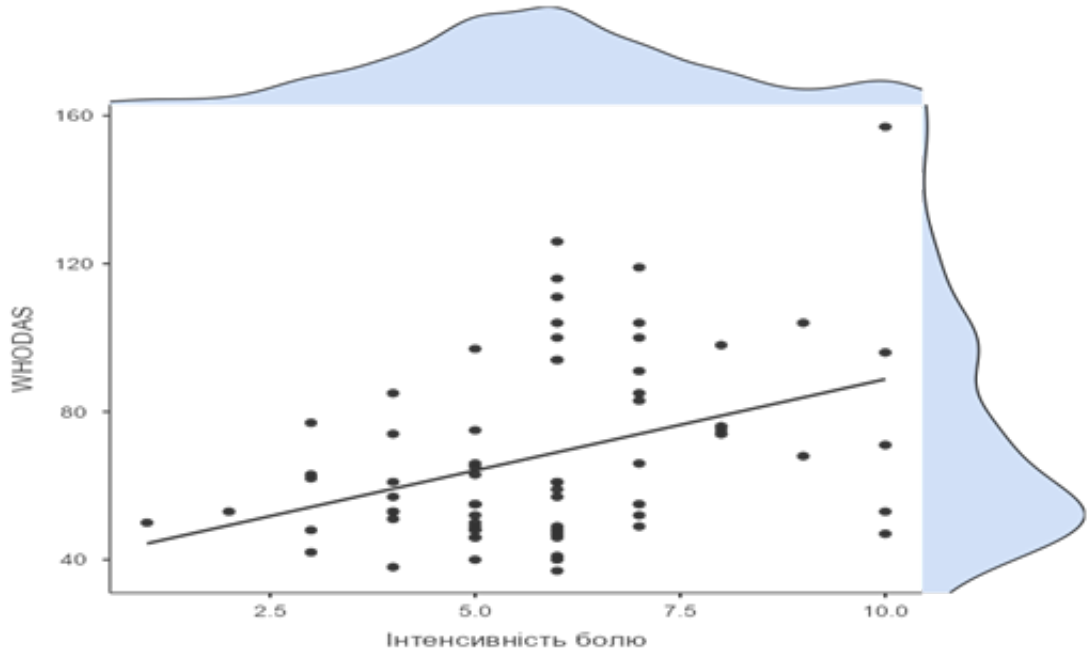

Figure 1. *Relationship Between WHODAS 2.0 Scores and Pain Intensity*

Pearson's xi-square analysis revealed statistically significant differences between women and men in three WHODAS domains: "Understanding and Communicating," "Getting around" and "Life Activities.

First, in the domain of "Understanding and Communicating," a significant difference between sexes was found ($\chi^2 = 22.7$, df = 4, $p < .001$), with a Cramér's V of 0.396, indicating a moderate effect size. Women were more likely to report higher levels of dysfunction compared to men. In the "Mobility" domain (which includes standing and movement), significant differences were also observed ($\chi^2 = 11.4$, df = 4, $p = 0.022$), with a Cramér's V of 0.280, indicating a small effect size. Men more frequently reported no or lower levels of dysfunction compared to women. In the "Life Activities" domain, a significant difference between sexes was identified ($\chi^2 = 10.6$, df = 4, $p = 0.032$), with a Cramér's V of 0.270, again indicating a small effect size. Women more often reported greater difficulties in everyday activities compared to men.

Discussion

The results obtained confirm the multifactorial impact of chronic pain on patient functioning, aligning with previous research findings. Specifically, low financial status, unemployment, and pain in multiple body sites were significantly associated with higher pain intensity and overall dysability. Similar findings were reported by Breivik et al. (2006), who noted that patients with lower income levels were significantly more likely to report more severe pain and lower quality of life [30]. A study conducted by Greek researchers demonstrated that individuals with low income reported more intense lower back pain, indicating a correlation between financial status and pain intensity [31]. Another study on musculoskeletal pain conducted in Northern Finland found that unemployment was significantly associated with the number of pain localizations, with unemployed individuals reporting pain in a greater number of body regions [32].

The analysis also revealed that the number of pain localizations and financial well-being are key factors determining the level of functional limitations as measured by the WHODAS 2.0. This finding is consistent with the conclusions of Gureje et al. (1998), where pain in multiple locations was associated with a more severe course of the condition and a higher level of disability [32].

Physical activity and sleep quality are important factors for maintaining good functional status. Our study demonstrated that patients who engaged in regular physical activity and did not experience sleep disturbances had significantly lower levels of dysability according to the WHODAS 2.0 scale. These findings are supported by the work of Geneen et al. (2017), who emphasized that physical activity reduces pain sensitivity and improves functional capacity [33]. Conversely, sleep disturbances in individuals with chronic pain are closely associated with increased pain perception and reduced psycho-emotional well-being, as confirmed by Finan et al. (2013) [34].

The presence of anxiety, depression, and high pain intensity also showed clear correlations with higher levels of dysability, with the strongest association found between depressive symptoms and overall functional status. This is consistent with the findings of Linton & Bergbom (2011), who reported that depression not only intensifies pain perception but also contributes to diminished social functioning [35]. The study also revealed that the greatest difficulties were experienced in the domains of “Life Activities” and “Participation in Society,” indicating the substantial social impact of chronic pain. Similar findings were reported by Dueñas et al. (2016), who emphasized the role of chronic pain in generating social limitations in patients’ lives [36].

Interestingly, women more frequently reported higher levels of dysfunction in the domains of “Understanding and Communicating,” “Getting around” and “Life Activities.” This finding is supported by the study of Bartley & Fillingim (2013), which described sex differences in pain perception and associated functional impairments [37].

Thus, the findings of this study confirm the necessity of an integrated approach to the assessment and treatment of chronic pain, with mandatory consideration not only of biological but also psychosocial and economic factors.

Limitations

The study did not include patients with severe chronic pain syndromes associated with the following conditions: central neuropathic pain (including autoimmune, vascular [post-stroke], neurodegenerative, and inflammatory disorders); peripheral neuropathic pain (including infectious, genetic, autoimmune, toxic [e.g., chemotherapy-induced], ischemic [e.g., peripheral vascular disease, diabetes], and metabolic causes [e.g., amyloidosis, nutrient deficiency-related disorders]); nociceptive pain (e.g., cirrhosis, ischemic heart disease); obstructive pain conditions (e.g., urolithiasis, cholelithiasis); peptic ulcer disease; cancer-related pain; and burn-related pain.

Conclusions

Chronic pain disrupts human functioning across multiple life domains, indirectly reducing overall quality of life. Most participants reported difficulties on the WHODAS 2.0 scale in the domains of “Life Activities” and “Participation in Society”; however, the levels of dysfunction were generally mild to moderate. These mild and moderate dysfunctions were likely mitigated by existing protective biological and psychosocial factors. The majority of patients were young adults, married, held higher education degrees, lived in urban areas, were employed, and reported satisfaction with their financial status.

Observed gender differences in the domains of “Understanding and Communicating,” “Getting around” and “Life Activities” indicate that women more frequently reported higher levels of dysfunction in these areas compared to men.

The level of dysability measured by the WHODAS 2.0 scale was significantly associated with financial status. The more satisfied a patient was with their financial situation, the lower their level of dysfunction, highlighting the important role of financial well-being in human functioning.

The level of dysability also significantly depended on the number of pain localizations. Patients experiencing pain in more than two areas had higher levels of dysability compared to those with pain localized in only one region. Spearman’s correlation analysis showed that increased levels of depression, anxiety, and pain intensity were associated with higher levels of dysability on the WHODAS 2.0 scale. The strongest correlation was observed between depression and dysability, indicating that depression had the greatest negative impact on patient functioning.

Lower levels of disability on the WHODAS 2.0 scale were associated with adequate sleep and sufficient physical activity, indicating the positive impact of an active lifestyle and good sleep quality on overall functioning.

Pain intensity was significantly associated with financial status, employment, and the number of pain localizations. Participants who were financially dissatisfied, unemployed, and reported pain in more than two body areas exhibited higher levels of both pain and dysfunction.

The results of this study confirm that chronic pain is a multifactorial phenomenon that significantly affects patients’ functioning across various domains of life. A high level of dysfunction is associated not only with clinical characteristics of pain (such as intensity and number of pain localizations), but also with psychosocial factors — particularly depression, anxiety, physical inactivity, sleep disturbances, and financial dissatisfaction. The WHODAS 2.0 scale proved to be an effective tool for comprehensive quantitative assessment of functional limitations associated with chronic pain. These findings emphasize the need for a multidisciplinary, personalized approach to the diagnosis and treatment of chronic pain, with a focus on improving patient functional status and quality of life.

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