

Quality of Life and Pain in Patients With Chronic Pancreatitis

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Introduction: The quality of life (QoL) of patients with chronic conditions is a function of factors associated with the illness, its natural course, and treatment as well as those related to the patient. Chronic pancreatitis (CP) is a critical public health problem. Chronic pancreatitis patients can experience chronic pain with different mechanisms, malabsorption, diabetes, and cachexia.

Objective: Chronic pancreatitis (CP) is a critical public health problem. CP patients can experience chronic pain with different mechanisms, malabsorption, diabetes, and cachexia. The aim of the study was to assess the Quality of Life (QoL) of patients with CP and identify factors affecting QoL.

Methods: 104 patients diagnosed with CP from the hospital in Wrocław, Poland, were included. The study was conducted using our own questionnaire, the World Health Organization Quality of Life-BREF (WHOQOL-BREF) scale, the 36-Item Short Form Health Survey (SF-36), and the Visual Analog Scale (VAS).

Results: The mean total SF-36 score was 47.7, with the highest mean rating for the physical functioning domain. The mean VAS pain score was 5.13. Pain intensity was significantly correlated with impairments in activities of daily living ($P = 0.001$), the need to reduce their duration ($P = 0.001$), and the performance of physical activity ($P = 0.003$). Comorbidities, education, and age have a significant relationship with only some domains of SF-36.

Conclusions: One aspect that has an impact on QoL impairment is pain which perception is governed by the same brain regions in which abnormalities result in depression and anxiety. QoL in CP patients also depends on the patient's age, comorbidities, and level of education.

Key Words: chronic pancreatitis, pain, quality of life, SF-36, WHOQOL-BREF

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The quality of life (QoL) assessment in patients with chronic conditions currently plays a multifaceted role. Regular quantitative studies directly evaluating the impact of the illness and medical interventions on patient QoL can be regarded as a source of feedback from patients, which they provide when communicating with medical personnel and scientists during the studies. It can help improve understanding of the needs of patients and their situation resulting from the change in lifestyle necessitated by their diagnosis. Moreover, QoL is a strong predictor of treatment success and is thus of prognostic significance.¹ In addition, recent developments in science have provided a wide range of treatment options, and to reduce medical costs, it is necessary to establish clear treatment selection criteria, with patient QoL being particularly relevant.^{1–3}

The following definition of QoL proposed by the WHO was used in the study: “an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns.”¹

Quality of life studies allow for assessing whether a patient's QoL is determined solely by factors related to the illness, its natural course, and treatment or whether it is also determined by patient-related factors, such as age, sex, place of residence, marital status, earnings, and education. This enables the development of personalized medicine, tailored to the needs of the individual patient, and the identification of those groups of patients who require special care.

The issue of QoL is being increasingly addressed in the literature on pancreatic diseases.⁴ Attention is drawn to the need to routinely assess QoL in patients with such diseases to identify patients requiring more intensive medical and psychological care and complement clinical assessment.² The studies about QoL in chronic pancreatitis (CP) use different tools and tackle different themes, so it seems important to provide new insights and summarize published results. The tools most commonly used to assess QoL in patients with pancreatic diseases are the World Health Organization Quality of Life-BREF (WHOQOL-BREF), the 36-Item Short Form Health Survey (SF-36), and its shortened version (SF-12) as well as other questionnaires with questions specific to pancreatic diseases, including the EORTC QLQ-C30 and EORTC QLQ-PAN26 questionnaires and the PANQOLI questionnaire, which includes a unique “self-worth” subscale.^{4,5–13}

From a practical point of view, the SF-12 questionnaire, which is an abbreviated form of the SF-36 questionnaire used in this study, is the most reliable and the easiest to use in clinical practice.⁴ The SF-36 is a generic psychometric tool and, as such, is not specific to CP.^{5,9} It is increasingly being emphasized that it is necessary to develop a validated questionnaire specific to CP, which would also take into account the patient's views on different treatment methods and which would thus provide feedback and help identify differences between the use of endoscopic and surgical methods.⁹ Many studies did not find a relationship between QoL and the treatment method chosen. Researchers recommend a longer follow-up between QoL assessment and procedures and advise that the right questionnaire should be chosen.^{2,8,10,11,14,15}

A new mechanistic definition of CP proposed in 2016 states that CP “is a pathologic fibro-inflammatory syndrome of the

pancreas in individuals with genetic, environmental and/or other risk factors who develop persistent pathologic responses to parenchymal injury or stress.^{16,17} Prolonged inflammation leads to extensive replacement of pancreatic tissue by fibrosis, which results in chronic pain, endocrine and exocrine pancreatic insufficiency, and shorter life expectancy, with median survival reported to be 20 years.^{3,18–20} Despite increasing medical knowledge and new effective treatment options, the condition is still considered a critical public health problem.^{21–24}

Because no medical treatments can stop or prevent the condition's progression, therapy focuses on early detection and treatment of consequences.³ Current guidelines recommend a simple stepwise escalation of analgesic drugs with increasing potency until pain relief is obtained.²⁵ Antioxidants (including vitamins A, C, E, selenium, and methionine) and pancreatic enzyme therapy may be helpful as the first line of treatment.²⁵ Patients who show signs of ductal obstruction may benefit from endoscopic therapy, which can be supplemented with extracorporeal shock wave lithotripsy.²⁵ Surgery is generally only performed on individuals who experience persistent symptoms brought on by anatomical abnormalities.²⁵ Metformin has been recommended as first-line therapy for diabetes mellitus linked to CP, but insulin is recommended as second-line or first-line therapy for patients with severe hyperglycemia.³ Treatment guidelines for osteopathy linked to CP include quitting smoking, increasing calcium and vitamin D intake, weight-bearing activities, etc.³ When necessary, oral bisphosphonate medication should be closely watched to ensure that patients tolerate it.³ Endoscopic intervention using a cystgastrostomy and stent placement is generally preferred over surgical intervention to treat symptomatic pancreatic pseudocysts.³

The aim of the study was to assess the QoL of patients with CP and identify factors affecting QoL in CP patients, including disease activity-related factors and patient-related environmental and social factors.

MATERIALS AND METHODS

The study was carried out among 104 patients hospitalized in the Department of Surgery of the 4th Military Teaching Hospital in Wrocław, Poland, between December 2019 and February 2020. All participants provided informed consent to participate in the study and answered in writing the questions included in the questionnaires they were asked to complete. Participants included both women (42.3%) and men (57.7%), and their mean age was 43.3 years (SD = 13.76). The youngest participant was 16 years old and the oldest was 80 years old. Most participants lived in urban areas (72.1%), were in a relationship (68.3%), had higher education qualifications (52.9%), and had a monthly net salary of less than PLN 3000 (51.9%) (Table 1).

The criteria for inclusion in the study were as follows: having CP during the period of the study and agreeing to take part in the study. The only exclusion criterion was lack of consent to participate in the study. The study was approved by the Bioethics Committee of the Wrocław Medical University (no. KB-205/2020). Participation in the study was fully anonymous and voluntary.

Quality of life was assessed using the validated WHOQOL-BREF instrument, which is one of the most commonly used QoL assessment measures.^{1,26,27} The questionnaire produces scores for 4 domains of QoL: physical health, psychological, social relationships, and environment. It is scored on a 0–100 scale. The higher the score, the better the QoL in a given domain. According to literature, a cut-off point of <60 for overall QoL has excellent sensitivity and negative predictive value for identifying individuals with potentially worse QoL and dissatisfied with health.^{6,28}

TABLE 1. Sociodemographic Characteristics of the Study Group

	Frequency	Percentage
Sex		
Female	44	42.30%
Male	60	57.70%
Place of residence		
Urban area	75	72.10%
Rural area	29	27.90%
Marital status		
Single	20	19.20%
In a relationship	71	68.30%
Widow/widower	13	12.50%
Education		
Higher education degree in humanities	17	16.30%
Higher technical education degree	22	21.20%
Higher medical degree	16	15.40%
Secondary education	29	27.90%
Vocational education	20	19.20%
Net salary		
Less than PLN 3000	54	51.90%
More than PLN 3000	50	48.10%

Another validated tool used to assess QoL in the patients studied was the SF-36 questionnaire. It covers many QoL domains and is currently considered the best instrument to assess QoL.^{6,29} It produces scores for 8 health domains of QoL. The domains can be aggregated into 2 summary measures—the physical component summary scale (physical functioning, role limitations due to physical health problems, bodily pain, and vitality) and the mental component summary scale (role limitations due to emotional problems, mental health, social functioning, and general health). The instrument also produces a total SF-36 score, which is calculated as the mean of the 2 scales. Domain scores are transformed into a 0–100 scale, where 0 represents the lowest QoL and 100 represents the highest QoL in a given domain.^{29,30}

Pain intensity was measured using the Visual Analog Scale (VAS). Patients were asked to rate their level of pain on a scale of 0 to 10, where 0 = no pain and 10 = worst possible pain. Visual Analog Scale scores were categorized as follows: 0–4, lowest pain intensity; 5–6, moderate pain intensity; 7–10, highest pain intensity.

Our own supplementary questionnaire consisted of sociodemographic questions concerning the characteristics of the patients studied as well as questions concerning pain and the respondent's subjective perception of their QoL in the context of their health and mood.

Based on our own supplementary questionnaire results, the respondents were categorized in terms of the following variables: sex, age, education qualifications, marital status, place of residence, presence or absence of comorbidities, relationship status, level of education, and net salary. Two sex and 3 age categories: up to 40, 41–50, and over 50 were distinguished. Education qualifications were divided into categories: higher education degree in humanities, higher technical education degree, higher medical degree, secondary education, and vocational education, which were merged into 2 categories—higher and secondary education. The salary level was divided into less than PLN 3000 or more than PLN 3000 monthly. Regarding relationship status, patients were divided into the following categories: single, in a relationship, and widow/widowed, merged into 2 categories—single and in a relationship. In terms of place of residence, people live in urban and rural areas. In these

TABLE 2. WHOQOL-BREF Results

	N	M	SD	Min	Max	Me
Physical health	104	53.31	9.11	19.00	69.00	56.00
Psychological	104	54.43	15.95	19.00	94.00	56.00
Social relationships	104	55.58	13.73	25.00	81.00	56.00
Environment	104	54.95	9.42	31.00	75.00	56.00

M indicates mean; Max, maximum value; Me, median; Min, minimum value; N, number; SD, standard deviation.

categories, patients were compared in terms of their scores in all 8 QoL domains, physical component summary, mental component summary, and total SF-36 score included in the SF-36 questionnaire, and scores for 4 domains of QoL in the WHOQOL-BREF tool.

Statistical Analysis

Data were analyzed using the R software package (version 3.6.0.), the SPSS software, and MS Office 2019. The significance level was set at $P = 0.05$. Tests were chosen based on the distribution of variables, which was tested using the Shapiro-Wilk test. Ordinal and nominal variables were analyzed using the chi-square test. The Fisher test was used if the conditions for the chi-square test were not met. Groups of quantitative variables were analyzed using parametric tests (Student *t* test or analysis of variance) or their nonparametric counterparts (the Mann-Whitney *U* test or the Kruskal-Wallis test).

RESULTS

The results of our own questionnaire showed that respondents most often rated their QoL as moderate (40.4%). The smallest proportion of respondents rated their QoL as poor (22.1%). The mean QoL ratings on the WHOQOL-BREF of the group studied were reduced and were as follows: psychological domain: 54.43 (SD = 15.95); physical health domain: 53.31 (SD = 9.11); social relationships domain: 55.58 (SD = 13.73); environment domain: 54.95 (SD = 9.42). No significant differences were found between the mean domain scores (Table 2).

The mean total SF-36 score of respondents was 47.7 (SD = 16.87). The highest mean rating was recorded for the physical functioning (PF) domain (65.34; SD = 25.91), and the lowest was recorded for the role-emotional (RE) domain (35.49; SD = 28.06). The mean score for the general health (GH) domain was 37.64

(SD = 14.89), whereas the mean score for the role-physical (RP) domain was 39.42 (SD = 40.58) (Table 3).

The majority of respondents (53.8%) reported moderate pain intensity levels, as measured using the VAS. Of the respondents, 35.6% reported the lowest pain intensity levels and 10.6% reported the highest pain intensity levels. The mean VAS pain score of the group studied was 5.13 (SD = 2.25). The lowest score was 0 and the highest was 9. The intensity of pain was correlated with its impact on the activities of daily living ($P = 0.001$). Increased pain intensity impairs the activities of daily living. A statically significant relationship ($P = 0.003$) was demonstrated between pain intensity and performance of physical activity. A positive correlation ($P = 0.001$) was also found between pain intensity and the need to reduce the duration of the activities of daily living (Table 4).

Respondents without comorbidities reported a significantly lower QoL in the physical health domain of the WHOQOL-BREF ($P = 0.012$) and a significantly better QoL in the psychological ($P < 0.001$) and social relationships domains ($P = 0.011$) of the WHOQOL-BREF. No significant relationship was found between the presence of comorbidities and QoL in the environment domain of the WHOQOL-BREF ($P = 0.412$). A statistically significant relationship was found between the presence of comorbidities and the SF-36 physical component summary ($P < 0.001$) and mental component summary ($P = 0.001$) scores and the total SF-36 score ($P < 0.001$). Respondents without comorbidities had better scores on these measures.

No statistically significant relationship ($P > 0.05$) was found between sex and the WHOQOL-BREF physical health ($P = 0.471$), psychological ($P = 0.123$), social relationships ($P = 0.094$), and environment ($P = 0.057$) domain scores. Moreover, no significant relationship was found between sex and the SF-36 physical component summary ($P = 0.306$) and mental component summary ($P = 0.439$) scores and the total SF-36 score ($P = 0.743$).

Statistically significant relationships were found between age and the SF-36 physical component summary ($P < 0.001$) and mental component summary ($P = 0.005$) scores, the total SF-36 score ($P < 0.001$) and the WHOQOL-BREF psychological ($P < 0.001$) and social relationships ($P = 0.002$) domain scores. Younger respondents had higher scores on these measures. No statistically significant relationship was found between age and the WHOQOL-BREF physical health and environment domain scores ($P > 0.05$).

In general, no significant relationship was demonstrated between place of residence and the WHOQOL-BREF physical health, psychological, social relationships, and environment domain scores and the SF-36 physical and mental component summary scores

TABLE 3. SF-36 Results

	N	M	SD	Min	Max	Me
Physical functioning	104	65.34	25.91	0.00	100.00	70.00
RP	104	39.42	40.58	0.00	100.00	25.00
RE	104	35.49	28.06	0.00	100.00	33.00
Vitality	104	46.78	16.63	0.00	90.00	50.00
Mental health	104	51.77	17.97	4.00	100.00	48.00
Social functioning	104	53.66	24.09	0.00	100.00	50.00
Bodily pain	104	48.23	25.79	0.00	100.00	48.00
GH	104	37.64	14.89	0.00	80.00	40.00
Physical component summary	104	50.07	22.44	0.00	96.00	47.50
Mental component summary	104	44.85	14.98	16.00	84.00	42.50
Total SF-36 score	104	47.70	16.87	9.00	85.00	45.50

M indicates mean; Max, maximum value; Me, median; Min, minimum value; N, number; SD, standard deviation.

TABLE 4. Age and Pain Intensity

	N	M	SD	Min	Max	Me
Age	104	43.34	13.76	16.00	80.00	45.00
Pain intensity	104	5.13	2.25	0.00	9.00	5.00

M indicates mean; Max, maximum value; Me, median; Min, minimum value; N, number; SD, standard deviation.

($P > 0.05$). A borderline significant relationship, however, was found between living in a rural area and a higher total SF-36 score ($P = 0.04$).

No statistically significant relationship was demonstrated between marital status and the WHOQOL-BREF physical health, psychological, social relationships, and environment domain scores ($P > 0.05$). Moreover, no significant relationship was found between marital status and the SF-36 physical component summary and mental component summary scores and the total SF-36 score.

Respondents with higher education qualifications had significantly higher WHOQOL-BREF psychological domain ($P < 0.001$) and SF-36 physical component summary ($P < 0.001$) scores and a significantly higher total SF-36 score ($P = 0.004$). However, they scored significantly lower on the WHOQOL-BREF physical health domain ($P = 0.023$). No statistically significant relationship was found between education and the WHOQOL-BREF social relationships and environment domain scores and the SF-36 mental component summary score ($P > 0.05$).

No statistically significant relationship was demonstrated between salary level and QoL in the physical health, psychological, social relationships, and environment domains of the WHOQOL-BREF ($P > 0.05$).

One of the questions included in our own questionnaire, aimed at assessing the mood of respondents, was “How often do you feel sad or depressed?” The most common answer was “sometimes” (47.1%). Of the respondents, 43.2% answered “often” and 9.6% answered “rarely.” Differences in proportions of responses to this question were statistically significant ($P = 0.001$).

DISCUSSION

Findings from the present study showed that the QoL scores of the CP patients studied were similar for all the domains of the WHOQOL-BREF. The scores were below the cut-off point of 60, indicating reduced QoL and dissatisfaction with health.²⁸ The patients included in our study reported a lower QoL in all domains of the questionnaire compared with the results of other studies in which the same diagnostic tool was used.^{6,9,10,31} As regards the results of the SF-36 questionnaire used in the present study, the highest mean rating was recorded for the physical functioning domain, which is consistent with a study by Pezzilli et al,³¹ whereas the lowest mean rating was recorded for the RE domain. The mean score for the RE domain differed significantly from the scores recorded for this domain in similar studies (35.49 vs 75 vs 70.7 vs 74 vs 55.2, respectively).^{6,9,10,31} Participants in the present study also reported significantly reduced QoL in the GH domain, which is consistent with the results of studies by other authors.^{6,9,10,31} The disparity in the results is an interesting finding. However, it is difficult to explain and requires further research.

Quality of life impairment is a common finding in all studies on the QoL of CP patients, regardless of the type of assessment tool used.^{4-6,8-13,31,32} However, it is a moot point as to which domain of QoL is most affected by the disease. In their multicenter study, Fitzsimmons et al⁵ used a directed interview, which focused

on changes in lifestyle necessitated by CP and addressed the issue of the use of alcohol. The study showed that the illness, its treatment, and the fight with the addiction resulted in the isolation of the patients studied from their previous communities. The progressive nature of the disease and its complications contributed to the loss of motivation and control and resulted in a strong fear about the future. This led to anxiety and depression, resulting in increased isolation. The illness-related factors identified by patients as having a negative impact on their functioning were pain, food intolerance, diabetes, steatorrhea, bloating, malnutrition, and loss of weight. The study found a statistically significant relationship between QoL and fear of future health problems, sleep problems, pain, the feeling of guilt about continuing to use alcohol, and the burden of trying to abstain.⁵ The association between the alcohol etiology of CP and QoL was also addressed in a number of other studies^{5,6,11,32} (Fig. 1).

The findings from the present study showed that pain is a major driver of reduced QoL in CP patients. Chronic pancreatitis pain impairs the activities of daily living, especially those that require physical effort, and forces patients to reduce their duration. This finding is consistent with other studies where pain was found to be the only clinical variable having a negative impact on all the domains investigated in the SF-36 questionnaire.^{4-8,10-14,33,34} Both the present study and other studies have shown that the intensity of pain is of key significance and that it is positively correlated with the degree of impairment of QoL.^{6,11,33,34} The intensity of pain is of greater significance than its frequency.^{10,11} The issue of the relationship between pain and the QoL of patients with CP was more broadly addressed by Dunbar et al,³⁴ who found that it is constant pain that drives poor QoL, which is in line with findings from studies by other authors.^{11,35,36}

Keller et al³⁷ found in their study that apart from pain intensity, significant predictors of QoL impairment include perceived self-blame for pain. A number of studies have found that there is no correlation between pain and the presence of structural changes in the pancreas, whereas the patient's perception of disease progression is positively correlated with the pain index, which may be associated with the correlation between pain beliefs and QoL impairment found by Keller et al.^{9,35,37} In the context of this finding, Faghiih et al³⁸ demonstrated that hyperalgesia, too, impairs the QoL of CP patients.

Chronic pancreatitis pain has both peripheral and central elements and is often due to nociceptive stimulation caused by chronic inflammation and fibrosis of the pancreas.^{37,39,40} In many cases, patients rapidly progress to requiring opioid analgesia, despite the risks associated with its long-term use.⁴⁰ This may be one of the causes of correlations between the intensity of pain and its impact on QoL, which has been confirmed by the results of studies by Fitzsimmons et al⁵ and Solomina et al,⁴¹ which showed that patients who take opioids have a poorer QoL.^{5,41}

Pain management is the main and predominant therapeutic challenge in CP, requiring a biopsychosocial approach focusing on interventions tailored to the needs of the individual patient.^{10,34,42} Mokrowiecka et al¹⁰ recommend, in this respect, that strong doctor-patient communication should be established and that patients should be referred to a patient support group (eg, the National Pancreas Foundation) because it is usually not possible to achieve full pain relief.^{10,43} In addition, Mokrowiecka et al¹⁰ and Teo et al⁴⁴ noted that it is necessary to develop a dedicated, uniform, and validated tool for assessing pain in CP patients.^{10,44} Attempts have already been made to develop such an instrument.³⁸

The present study found significant differences in mood in the CP patients studied. Studies on the relationship between CP pain and mental ill health have shown that pain perception in CP is governed by the same regions of the brain that process

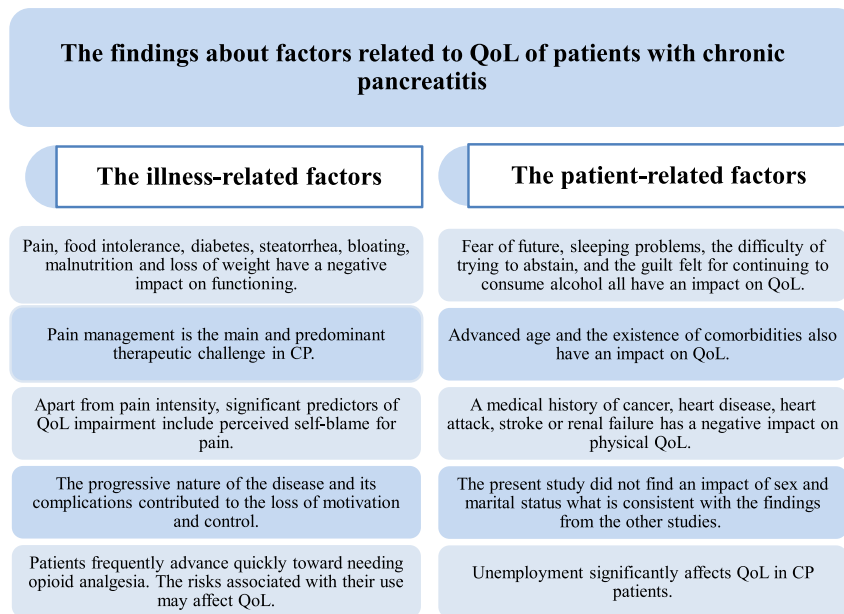


FIGURE 1. The findings about factors related to QoL of the patients with CP.

emotions and cognition. Abnormalities in these regions result in depression and anxiety.⁴⁵⁻⁴⁷ A significant proportion of CP patients develop depression. Moreover, CP patients with depression have a higher risk of suicidal ideation. Depression has been found to be correlated with QoL impairment in CP patients.⁴⁵⁻⁴⁹ It has also been found to be a major cofounder in the experience of pain in CP patients, which warrants the use of antidepressant therapy for pain management in these patients.^{45,49} Patients with CP should be closely monitored for psychiatric symptoms and, if necessary, offered a consultation with a specialist in the field, which may improve their QoL.

Chronic pancreatitis is more common in men than women.^{5,6,8-10,12,20,31,50} Men have a higher risk of developing recurrent acute pancreatitis, which can lead to CP through the healing of the areas of necrosis with fibrous tissue.⁵⁰ In a study by Durga Prasad et al,¹² 57% of the patients were found to have had acute pancreatitis in the past. Most cases of CP are alcohol related.²⁰ The incidence of alcoholic CP is higher in men, which is believed to be due to the differences in lifestyle between men and women.^{12,20,50-52} The present study did not find a relationship between sex and QoL in the analyzed domains of the SF-36 questionnaire. This is consistent with the findings from a number of other studies.^{5,6,11,32} However, in a study by Pezzilli et al,³¹ impairment of QoL in the general health domain, vitality domain, and social functioning domain was more pronounced in women, which, according to the authors, can be explained by cultural issues and the fact that Italian women with CP have low illness acceptance levels. A study by Machicado et al,¹¹ too, found that female patients with CP have a lower QoL.

The mean age of the patients included in the present study was lower than that of patients in other European population studies.^{6,9,10,31} This contrasts with the findings from 1 Danish population-based nationwide study on trends in incidence and prevalence of CP, which found that the mean age at CP diagnosis increased from 52 to 60 years during the 25-year period covered by the study.⁵³ The present study found a significant correlation between patient age and the SF-36 physical and mental component summary scores and the total SF-36 score. Younger patients had higher scores on these measures. In a study by Wehler et al,⁶

patients younger than 46 years had a better QoL, which can be explained by the better health status of the younger patients. This finding is contrary to the observations of Pezzilli et al³¹ and Machicado et al,¹¹ who noted that younger age is associated with a lower QoL in CP patients. In their studies, Mokrowiecka et al¹⁰ and Jayarajah et al³² did not find a relationship between age and QoL.^{10,32}

The present study showed that patients without comorbidities had better QoL scores, except for the WHOQOL-BREF physical health domain. A study by Machicado et al¹¹ showed that a medical history of cancer, heart disease, heart attack, stroke, or renal failure has a negative impact on physical QoL. The authors of studies in which no significant relationship was found between the presence of comorbidities and QoL in CP patients suggest that CP itself is a determinant of a significant impairment of QoL.^{4,9,31}

The present study did not find a statistically significant relationship between QoL and marital status, which is consistent with the findings from a study by Mokrowiecka et al,¹⁰ and did not demonstrate any statistically significant relationship between QoL and salary level. Findings relating to education and its impact on QoL in CP patients are not clear. There is a shortage in the literature of studies on the issue. On the other hand, the issue of unemployment in CP and its impact on impairment in all domains of QoL is frequently raised in the literature.^{6,10,11} In their study, Wehler et al⁹ identified unemployed patients as the most difficult cases. Machicado et al found that pain-related disability/unemployment significantly affects QoL in CP patients.¹¹ It has been found that CP has an impact on employment patterns, which highlights even more the need to improve the healthcare of CP patients and focus on preventing occupational disability and assisting CP patients with their reintegration into the labor market.^{10,11}

CONCLUSIONS

Our study confirms that there is a relationship between CP and impairment of QoL, especially in the physical domain. Pain intensity, older age, and the presence of comorbidities are key variables that have a negative impact on QoL in CP patients. As pain is an important factor negatively affecting the comfort of patients

with CP, it is a major therapeutic challenge in this condition. Moreover, patients with CP differ in terms of mood, which may suggest that they should be closely monitored and offered a consultation with a relevant specialist.

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