



Clinical characteristics and quality of life among Sri Lankan patients with chronic pancreatitis

Umesh Jayarajah¹ , Thisaru Widyaratne¹,
Metthananda Nawarathne²,
Sivananthan Raguvaran¹,
Nishanthan Subramaniam¹, Rishdha Riza¹ ,
Ishan De Zoysa¹ and Suranjith L Seneviratne¹

Abstract

Objective: We aimed to describe the clinical characteristics of chronic pancreatitis (CP) and patient quality of life (QOL) in a resource-limited setting.

Methods: We performed a cross-sectional study including patients with clinical and radiological features of CP. We collected clinical data and assessed QOL using the European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire.

Results: We included 103 patients (median age 44 years, 84 men). Median age at symptom onset was 36 (4–78) years. Around 70% of patients had diabetes mellitus and 62.1% had consumed alcohol; 36 (35%) were current smokers. The mean overall global QOL score was 68.7. Most patients (91.3%) sought treatment from multiple centers. Nineteen (18.5%) had pancreatic stone disease, 38 (36.9%) had persistent abdominal pain (median severity 7.8/10, 59 (57.3%) had steatorrhea, and 56 (54.4%) had jaundice. Poor QOL was significantly associated with weight loss, loss of appetite, and intractable pain. No correlation with age, sex, or alcohol consumption was noted.

Conclusion: A considerable proportion of patients with CP had troublesome symptoms. Intractable pain, loss of appetite, and weight loss were significantly associated with poor QOL. Further assessment is needed of patients' psychosocial well-being and its association with QOL.

¹Department of Surgery, Faculty of Medicine, University of Colombo, Sri Lanka

²Gastroenterology and Hepatology Unit, National Hospital of Sri Lanka, Colombo, Sri Lanka

Corresponding author:

Suranjith L Seneviratne, Faculty of Medicine, University of Colombo, P.O. Box 271, Kynsey Road, Colombo 8, Western Province, Sri Lanka.
Email: suran200@yahoo.co.uk



Keywords

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Introduction

Chronic pancreatitis (CP) is a long-term, often debilitating condition that can considerably impact quality of life (QOL). In CP, persistent inflammation of the pancreas causes severe abdominal pain with an array of gastrointestinal symptoms.^{1,2} The condition requires multidisciplinary management with a physician, surgeon, gastroenterologist, pain management specialist, psychiatrist, and social workers, which is often difficult in a developing country with limited resources.³ Owing to the relapsing nature of the disease, patients often seek alternative and multiple treatment providers, which in turn may affect proper follow-up in a single health care center.

Evidence is limited regarding the clinical characteristics of patients with CP in South Asia, and especially in Sri Lanka. Only one previous study conducted over 15 years ago describes the clinical characteristics of CP in Sri Lanka.⁴ Furthermore, QOL in Sri Lankan patients with CP has not been studied previously. Therefore, we aimed to describe the clinical characteristics and analyze QOL among patients with CP in a resource-limited setting, and to identify its contributing factors.

Methods

We carried out a cross-sectional study at the Gastroenterology Unit of National Hospital of Sri Lanka. We included all patients with clinical and radiological

features suggestive of definitive or probable CP, according to the American Pancreatic Association Practice Guidelines in Chronic Pancreatitis, during January 2017 to December 2018.⁵ This study was approved by the ethical review committee of the National Hospital of Sri Lanka (ETH/COM/2016). Signed informed consent was obtained from all participants before enrolling them in the study. We collected details on demographic and disease characteristics, as well as clinical features and treatment, in patient interviews and by reviewing the clinical records. We used a numerical rating scale ranging from 1 to 10 to quantify pain. Symptom control was assessed on a Likert scale (1–10). Scores 7 to 10, 4 to 6, and 1 to 3 were considered to indicate well controlled, moderately controlled, and poorly controlled symptoms, respectively.

QOL was assessed in a subset of patients using the European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ) C30, which is a validated tool consisting of one global QOL item, functional domains, and symptom scales.⁶ Although this tool was initially validated for cancers, it has been successfully validated for CP, showing good psychometric properties.⁷ All measures of the EORTC QLQ-C30 range in score from 0 to 100.⁶ A higher score indicates good QOL. Therefore, a high score on the global health and functional scales indicates a high-level QOL whereas a high score on the symptom scales indicates a high degree of symptoms.

We used a non-parametric test (Mann–Whitney U test) to determine statistical significance.

Results

We included 103 patients with CP in this study. Most patients were men ($n=84$, 81.6%), with a sex ratio of 4.42:1. The median age of participants was 44 years (range: 10–80), and the median age at symptom onset was 36 years (range: 4–78). A summary of patients' demographic and clinical characteristics is shown in Table 1. A higher proportion of Sinhalese (86.4%) and a lower proportion of Muslim (2.9%) patients was observed among our participants with CP, compared with the general ethnicity patterns in Sri Lanka (2012 census: Sinhalese: 75%, Muslim: 9.3%). Most patients had diabetes mellitus ($n=72$, 69.9%) and 19 (18.5%) had pancreatic stone disease (pancreatic ductal calculi). Most (62.1%) patients had a history of alcohol consumption and 36 (35%) were current smokers. Thirty-eight (36.9%) patients had persistent abdominal pain, with a median severity of 7.8/10 (range 2–10); 44 (42.7%) patients had persistent dyspepsia, 59 (57.3%) had steatorrhea, 56 (54.4%) had jaundice, 79 (76.7%) had loss of appetite, and 88 (85.4%) had weight loss. The median number of hospital admissions per year was 6.7 (range: 2–41). Most patients (91.3%, $n=94$) sought treatment in multiple (three or more) centers (median 5.9 centers; range: 1–25). Of those, 43 patients (41.8%) sought treatment in five or more centers, and 6 patients (5.8%) sought alternative treatment.

We assessed QOL in a subset of patients ($n=52$, 50.5%), according to EORTC QLQ-C30 scores. The mean overall global QOL score was 68.7 (range: 0–100), mean pain score was 37.2 (range: 0–100), overall symptom score was 23.1 (0–66.7), and the overall mean function score was

81.4 (37.8–100). We noted a significant association of poor QOL with weight loss (global QOL: $p=0.021$, overall symptoms: $p=0.002$, emotional and cognitive functioning: $p=0.011$ and 0.049, respectively), loss of appetite (overall symptoms: $p=0.028$; emotional, cognition, and social functioning: $p=0.047$, 0.032, and 0.009, respectively), and intractable pain (overall symptoms: $p=0.001$, physical and cognitive functioning: $p=0.023$ and 0.009, respectively). No correlation with age, age at symptom onset, sex, or alcohol consumption was noted (Tables 2 and 3).

Discussion

We investigated clinical characteristics and QOL in a cohort of patients with CP. Most patients were men and the median age at onset was 36 years. These findings may be explained by the higher prevalence of alcohol consumption and smoking among Sri Lankan men, which are risk factors of CP.⁸ However, similar studies in neighboring countries have shown varying disease characteristics and sex distributions.⁹ In the Sri Lankan context, because young men are the usual bread winners in the family, CP may cause a considerable socioeconomic burden to the patient and their family. The lack of cessation with respect to tobacco and alcohol use was an important finding, which should be addressed with intervention by a psychiatrist.

Our analysis of clinical symptoms revealed that a considerable proportion of patients with CP had troublesome symptoms. Persistent abdominal pain was present in 37% of patients; among them, the median severity was 7.8/10, indicating a high severity. Persistent dyspepsia, steatorrhea, and jaundice were present in 42.7%, 57.3%, and 54.4% of patients, respectively. A multidisciplinary approach that includes a pain management specialist, psychiatrist, and social worker may be needed to control

Table I. Demographic and clinical characteristics of chronic pancreatitis patients.

	n	%
Sex		
Male	84	81.5
Female	19	18.5
Civil status		
Single	27	26.2
Married	69	67.0
Other	7	6.8
Ethnicity		
Sinhala	89	86.4
Tamil	10	9.7
Muslim	3	2.9
Other	1	1.0
Occupation		
Unemployed or homemaker	15	14.6
Student	7	6.8
Employed	81	78.6
Body mass index, kg/m ² (median/range)	20.1 (13–28.6)	
Alcohol consumption		
Current	12	11.7
Never	39	37.8
Previous consumption	52	50.5
Smoking		
Current	36	35.0
Non-smoker	54	52.4
Former smoker	13	12.6
Other risk factors		
Abdominal trauma	4	3.9
Pancreatic divisum	1	1.0
Annular pancreas	1	1.0
Childhood malnutrition	11	10.7
Cassava consumption	5	4.9
Exposure to hydrocarbons	9	8.7
Hyperlipidemia	22	21.4
Hypercalcemia	2	1.9
Hospital admissions per year (median/range)	6.7 (2–41)	
Number of medical centers sought for treatment (median/range)	5.9 (1–25)	
Managed at		
One center	4	3.8
Three or more centers	94	91.3
Five or more centers	43	41.7
Age of onset of symptoms, years (median/range)	36 (4–78)	
Duration of symptoms, years (median/range)	2.9 (0.1–38)	
Age at diagnosis, years (median/range)	37 (10–79)	
Symptom profile		
Persistent abdominal pain	38	36.9
Persistent dyspeptic symptoms	44	42.7

(continued)

Table I. Continued.

	n	%
Steatorrhea	59	57.3
Diabetes mellitus	72	69.9
Jaundice	56	54.4
Loss of appetite	79	76.7
Weight loss	88	85.4
Sleep disturbance	84	81.6
Pancreatic stone disease (ductal calculi)	19	18.4
Diagnosis made by		
General practitioner	10	9.7
Consultant physician	68	66.0
Consultant surgeon	19	18.4
Traditional medical practitioner	6	5.8
Management		
Analgesics	103	100.0
Oral hypoglycemic drugs	38	36.9
Insulin	27	26.2
Endoscopic sphincterotomy	9	8.7
Endoscopic stone extraction	5	4.9
Pseudocyst drainage with endosonography	3	2.9
Endoscopic stent insertion	2	1.9
Pancreaticoduodenectomy	1	1.0
Symptom control		
Well controlled	13	12.6
Moderately controlled	52	50.5
Poorly controlled	38	36.9

debilitating symptoms in patients with CP, to minimize follow-up non-attendance rates and ensure proper follow-up.

A previous study on CP in Sri Lanka was conducted during 2001 to 2003 among 50 patients with chronic calcific pancreatitis.⁴ The patient age and male predominance was comparable to the findings of the present study. Around 44% of patients in that previous study had a history of alcohol consumption whereas the proportion in our study was much higher (62%). In that past study, the prevalence of diabetes was 22% in the group with alcoholic pancreatitis and 43% in the non-alcoholic group, which was considerably lower than the proportions in the present study (70%). The authors of the previous study showed that the onset of diabetes was earlier in the non-

alcoholic group than in the alcoholic group,⁴ the symptom profile and QOL were not studied.⁴

QOL in Sri Lankan patients with CP has not been previously studied. Among our study participants, QOL was moderate to poor, with the lowest QOL scores for pain and overall symptom subscales. The QOL in our patients with CP was considerably low, in comparison with that of the normal population.¹⁰ However, QOL in the present study was comparable to that with other gastrointestinal conditions in Sri Lankan populations.¹¹⁻¹⁵ We found that intractable pain, loss of appetite, and weight loss were significantly associated with poor QOL. The presence of such symptoms in patients with CP should alert clinicians to the possibility of poor patient

Table 2. Factors associated with quality of life (QOL).

	Global QOL		Symptom		Physical function		Role function		Emotional function		Cognitive function		Social function	
	QOL	p value	QOL	p value	QOL	p value	QOL	p value	QOL	p value	QOL	p value	QOL	p value
Sex														
Male	70.73	0.269	24.39	0.386	83.74	0.474	80.08	0.386	79.07	0.982	89.43	0.742	80.89	0.508
Female	61.36		18.18		81.82		71.21		75.00		87.88		83.33	
Dyspepsia														
Present	73.39	0.148	24.40	0.358	82.58	0.992	78.49	0.879	76.61	0.327	89.25	0.850	77.42	0.071
Absent	61.90		21.12		84.44		77.78		80.56		88.89		87.30	
Steatorrhea														
Present	67.06	0.757	22.96	0.903	84.44	0.686	82.54	0.522	77.78	0.820	88.89	0.841	77.78	0.318
Absent	69.89		23.16		82.58		75.27		78.49		89.25		83.87	
Diabetes mellitus														
Present	68.43	0.546	24.01	0.486	81.41	0.327	81.82	0.378	77.27	0.555	90.40	0.676	81.31	0.816
Absent	69.30		21.46		86.67		71.93		79.82		86.84		81.58	
Jaundice														
Present	67.26	0.950	23.99	0.555	82.38	0.807	85.71	0.328	73.21	0.298	90.48	0.529	71.43	0.103
Absent	69.30		22.74		83.68		75.44		80.04		88.60		85.09	
Loss of appetite														
Present	66.05	0.297	28.58	0.028	80.99	0.253	76.54	0.281	72.22	0.047	85.18	0.032	72.84	0.009
Absent	71.67		17.13		85.87		80.00		84.67		93.33		90.67	
Weight loss														
Present	59.92	0.021	33.21	0.002	83.81	0.780	73.02	0.135	68.65	0.011	84.13	0.049	75.40	0.149
Absent	74.73		16.21		83.01		81.72		84.68		92.47		85.48	
Intractable pain														
Present	66.36	0.124	32.00	0.001	78.27	0.023	69.14	0.005	76.54	0.727	83.95	0.009	74.69	0.075
Absent	73.02		13.68		88.89		88.89		78.97		94.44		89.68	
Alcohol consumption														
Present	66.11	0.356	27.44	0.111	80.89	0.316	80.00	0.592	78.61	0.813	86.67	0.206	78.33	0.265
Absent	72.35		17.13		86.67		75.76		77.65		92.42		85.61	
Smoking														
Present	63.49	0.284	26.86	0.269	79.68	0.290	78.57	0.959	79.37	0.549	84.92	0.146	71.43	0.034
Absent	72.31		20.51		85.81		77.96		77.42		91.94		88.17	

Table 3. Correlation of quality of life (QOL) and continuous variables.

	Global QOL	Symptom QOL	Physical function QOL	Role function QOL	Emotional function QOL	Cognitive function QOL	Social function QOL
Age at symptom onset							
Spearman's rho	-.119	.125	-.227	.039	.085	-.147	-.128
P value	.400	.377	.105	.785	.550	.297	.366
Duration of symptoms							
Spearman's rho	-.119	.060	-.181	-.046	-.068	-.143	-.255
P value	.401	.672	.199	.744	.630	.310	.068
Age							
Spearman's rho	-.113	.149	-.241	-.027	-.039	-.267	-.263
P value	.429	.295	.089	.849	.786	.058	.062
No. of hospital admissions in past year							
Spearman's rho	-.068	.071	-.061	-.061	-.160	-.287*	-.153
P value	.634	.622	.669	.671	.263	.041	.285
Body mass index							
Spearman's rho	.210	-.286	.115	.087	.258	.315*	.230
P value	.188	.070	.476	.589	.103	.045	.148

*Significance at $p < 0.05$.

QOL. Data on QOL among patients with CP is scarce in South Asia and especially in Sri Lanka. Several previous studies conducted in Europe and investigating QOL in patients with CP have found poorer QOL in younger than older patients, leading to considerable socioeconomic consequences for the patient and society.¹⁶⁻¹⁹ In our study, we did not find a significant association between QOL and the patient age. Further large-scale studies are required to assess psychosocial well-being and its association with QOL in this patient population.

Previous studies have examined clinical variables such as pseudocyst, pancreatic calcification, main pancreatic duct dilatation, diabetes, and pancreatic insufficiency as possible factors contributing to poor QOL among patients with CP.²⁰ Pain was the only consistent factor related to poor QOL in such studies and impaired all domains of the Short Form Health Survey (SF-36) QOL scoring system.²⁰ We also found intractable pain to be significantly

associated with QOL parameters. Thus, pain control is one of the most important therapeutic options for improving patients' QOL, and extra effort is needed by clinicians to address this issue.

Sri Lanka has a free health care system predominantly run by the state, with nationwide availability of primary to tertiary level health care. Most of the population benefits from health care services free of charge. A considerable proportion of the patients in this study sought treatment from multiple health care centers. Inadequate symptom relief and anxiety associated with persistent symptoms despite treatment may have contributed to patients' seeking treatment from multiple centers. The lack of proper long-term follow-up and adequate patient education about CP may also be contributing factors.

There are several limitations in the present study. This study was performed over 2 years and included just over 100 patients. A multicenter prospective study over a longer period and including a larger

number of patients would help to clarify and expand our initial findings. QOL assessment is not routinely carried out in the current local clinical setting and is a rather neglected area of clinical practice in Sri Lanka. It is important that clinicians objectively assess QOL measures in patients with chronic disorders such as CP, to better identify factors that affect QOL. This would in turn help clinicians to focus on improving such factors and overall QOL of the patient.

Conclusion

In this study, QOL was moderate to poor among patients with CP, with the lowest scores for pain and overall symptom subscales. We found that intractable pain, loss of appetite, and weight loss were significantly associated with poor QOL. Among our patients with CP, the lack of smoking and drinking cessation was an important finding, which should be addressed with intervention by a psychiatrist. A multidisciplinary approach that includes a pain management specialist, psychiatrist, and social worker may be necessary to control symptoms, minimize follow-up non-attendance rates, and ensure proper follow-up in this patient population. Clinicians should objectively assess QOL measures in patients with CP, to better identify the contributing factors, which will help them to improve these factors and thus, the overall QOL of the patient.

Authors' contributions

UJ, IDZ, and SLS formulated the concept and design of study, acquired the data, and analyzed and drafted the manuscript. UJ, TW, MN, SR, NS, and RR collected, analyzed, and interpreted the data and wrote the manuscript. MN, IDZ, and SLS contributed to the design and concept of the study and critically revised the manuscript for important intellectual content. All authors

have read and approved the final version of the manuscript.

Availability of data and materials

The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

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Declaration of conflicting interest

The authors declare that there is no conflict of interest.

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ORCID iDs

Umesh Jayarajah  <https://orcid.org/0000-0002-0398-5197>

Rishdha Riza  <https://orcid.org/0000-0003-4011-0880>

References

1. Andrén-Sandberg Å, Hoem D and Gislason H. Pain management in chronic pancreatitis. *Eur J Gastroenterol Hepatol* 2002; 14: 957–970.
2. Sohn TA, Campbell KA, Pitt HA, et al. Quality of life and long-term survival after surgery for chronic pancreatitis. *J Gastrointest Surg* 2000; 4: 355–365.
3. Karanjia N and Reber H. The cause and management of the pain of chronic pancreatitis. *Gastroenterol Clin North Am* 1990; 19: 895–904.
4. De Silva M, Selliah S and Thabrew I. Descriptive study of chronic calcific pancreatitis in Sri Lanka. *Ceylon Med J* 2010; 50: 5–10.
5. Conwell DL, Lee LS, Yadav D, et al. American Pancreatic Association Practice Guidelines in Chronic Pancreatitis: evidence-based report on diagnostic guidelines. *Pancreas* 2014; 43: 1143–1162.

6. Aaronson NK, Ahmedzai S, Bergman B, et al. The European Organization for Research and Treatment of Cancer QLQ-C30: a quality-of-life instrument for use in international clinical trials in oncology. *J Natl Cancer Inst* 1993; 85: 365–376.
7. Pezzilli R, Morselli-Labate A, Fantini L, et al. Assessment of the quality of life in chronic pancreatitis using Sf-12 and EORTC QLQ-C30 questionnaires. *Dig Liver Dis* 2007; 39: 1077–1086.
8. Perera B, Fonseka P, Ekanayake R, et al. Smoking in adults in Sri Lanka: prevalence and attitudes. *Asia Pac J Public Health* 2005; 17: 40–45.
9. Udayakumar N and Jayanthi V. Chronic pancreatitis in India: the changing spectrum. *Postgrad Med J* 2007; 83: 562–563.
10. Kularatna S, Whitty JA, Johnson NW, et al. EQ-5D-3L derived population norms for health related quality of life in Sri Lanka. *PLoS One* 2014; 9: e108434.
11. Jayarajah U and Samarasekera DN. A cross-sectional study of quality of life in a cohort of enteral ostomy patients presenting to a tertiary care hospital in a developing country in South Asia. *BMC Res Notes* 2017; 10: 75.
12. Jayarajah U, Navarathne N, De Zoysa I, et al. Crohn's disease in South Asia. *International Journal of Progressive Sciences and Technologies* 2017; 6: 193–204.
13. Jayarajah U, Wickramasinghe DP and Samarasekera DN. Anal incontinence and quality of life following operative treatment of simple cryptoglandular fistula-in-ano: a prospective study. *BMC Res Notes* 2017; 10: 572.
14. Jayarajah U, Nawarathne M, Riza R, et al. Quality of life in patients with inflammatory bowel disease in a tertiary care hospital in Sri Lanka. *J Gastroenterol Hepatol* 2019; 34: 207.
15. Jayarajah U, Navarathne N, Samarasekera N, et al. Epidemiology, pathogenesis and treatment of ulcerative colitis in South Asia. *International Journal of Progressive Sciences and Technologies* 2017; 6: 205–212.
16. Wehler M, Nichterlein R, Fischer B, et al. Factors associated with health-related quality of life in chronic pancreatitis. *Am J Gastroenterol* 2004; 99: 138–146.
17. Pezzilli R, Labate AM, Ceciliato R, et al. Quality of life in patients with chronic pancreatitis. *Dig Liver Dis* 2005; 37: 181–189.
18. Fitzsimmons D, Kahl S, Butturini G, et al. Symptoms and quality of life in chronic pancreatitis assessed by structured interview and the EORTC QLQ-C30 and QLQ-PAN26. *Am J Gastroenterol* 2005; 100: 918–926.
19. Rath S, Meher S, Basu A, et al. Quality of Life after Frey's Procedure in Patients with Chronic Pancreatitis. *J Clin Diagn Res* 2016; 10: PC10–PC15.
20. Pezzilli R, Bini L, Fantini L, et al. Quality of life in chronic pancreatitis. *World J Gastroenterol* 2006; 12: 6249–6251.
21. Jayarajah U, Widiyarathne T, Nawarathne M, et al. Quality of life in Sri Lankan chronic pancreatitis patients. *J Gastroenterol Hepatol* 2019; 34: 807.