

RESEARCH ARTICLE

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# Characterizing the Physical and Psychological Experiences of Newly Diagnosed Pancreatic Cancer Patients

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## Abstract

**Background:** Pancreatic cancer is a devastating disease with a poor prognosis, causing significant physical and psychological distress that detrimentally impacts patients' quality of life. **Aim:** This study aimed to comprehensively assess the physical and psychological status of newly diagnosed pancreatic cancer patients. **Methods:** A cohort of 138 newly diagnosed patients completed standardized assessments, including the Edmonton Symptom Assessment System (ESAS), Patient Health Questionnaire-9 (PHQ-9), Mini-Mental State Examination (MMSE), and Distress Thermometer (DT). Data were analysed using descriptive statistics. **Results:** The ESAS scores revealed high symptom burden, with mean scores of 6.8 for pain, 7.2 for fatigue, and 4.9 for depression. Measures of well-being indicated low scores, with means of 2.3 for physical well-being, 1.5 for social/family well-being, and 1.7 for emotional well-being. Distress levels were also high, with a mean score of 7.6 on the DT. **Conclusion:** Newly diagnosed pancreatic cancer patients experience substantial physical and psychological challenges, including severe symptom burden, distress, depressive symptoms, and cognitive impairment. Holistic care approaches that prioritize symptom management and address psychological distress are essential to improve patient outcomes and enhance overall well-being.

**Keywords:** Pancreatic cancer- newly diagnosed- symptom burden- psychological distress

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## Introduction

Pancreatic cancer is a formidable adversary in the realm of oncology, posing significant challenges for patients, caregivers, and healthcare providers alike. Globally, it is the seventh leading cause of cancer death, with an estimated 496,000 new cases and 466,000 deaths in 2020. The United States ranks third in terms of cancer-related deaths from pancreatic cancer, with approximately 60,430 new cases and 48,220 deaths reported in 2021. In the European Union, it is projected that over 111,500 people will die from pancreatic cancer

by 2025, representing a 50% increase compared to 2010. The Global Burden of Disease Study in 2017 revealed a 2.3-fold increase in incident cases and deaths from pancreatic cancer globally since 1990. Despite efforts to combat the disease, mortality remains high, with approximately 94.2% of new cases resulting in death. Despite ongoing efforts to combat the disease, pancreatic cancer remains a formidable adversary, ranking as the seventh leading cause of cancer death worldwide. The Global Cancer Statistics for 2020 reported nearly 496,000 new cases and 466,000 deaths, highlighting the persistent challenge posed by this cancer. The Global Burden of

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Disease Study in 2017 revealed a 2.3-fold increase in incident cases and deaths from pancreatic cancer globally since 1990.

Pancreatic cancer, a formidable adversary in the realm of oncology, poses a multifaceted challenge for patients, caregivers, and healthcare providers alike [1, 2]. As one of the deadliest forms of cancer, it presents significant hurdles in diagnosis, treatment, and management, often accompanied by a plethora of physical and psychological ramifications [3, 4]. In recent years, there has been a growing recognition of the complex interplay between the physical and psychological aspects of this disease, highlighting the need for a holistic approach to patient care. This comprehensive understanding is crucial for devising effective strategies to support newly diagnosed pancreatic cancer patients as they navigate the complexities of their illness [5, 2].

Physically, pancreatic cancer presents a range of challenges that can profoundly impact patients' well-being and quality of life. The disease often progresses silently, with symptoms manifesting only in later stages when treatment options are limited [6, 7]. Common physical symptoms include abdominal pain, jaundice, weight loss, and digestive difficulties, which can significantly impair patients' ability to carry out daily activities and diminish their overall functional status [8, 9]. Furthermore, the aggressive nature of pancreatic cancer and the challenges associated with treatment modalities such as surgery, chemotherapy, and radiation therapy can exacerbate physical symptoms and contribute to treatment-related side effects, further compromising patients' physical health [10, 11].

In addition to the formidable physical burden, newly diagnosed pancreatic cancer patients must also grapple with a myriad of psychological challenges [12, 13]. The shock and disbelief upon receiving a cancer diagnosis, coupled with the uncertainty surrounding prognosis and treatment outcomes, can evoke feelings of fear, anxiety, and distress [14, 15]. Patients may experience profound emotional distress as they confront the existential threat posed by the disease and grapple with the myriad uncertainties surrounding their future. Moreover, the psychosocial impact of pancreatic cancer extends beyond the individual patient, affecting their family members, caregivers, and support networks, who often struggle to cope with the emotional upheaval and practical challenges associated with the illness [16, 17].

Recognizing the intertwined nature of physical and psychological well-being in the context of pancreatic cancer is paramount for delivering comprehensive and patient-centered care [18, 19]. Addressing the holistic needs of newly diagnosed patients requires a multidisciplinary approach that integrates medical, nursing, psychosocial, and supportive care interventions to optimize patient outcomes and enhance quality of life [20, 21]. By acknowledging and addressing the complex interplay between physical and psychological factors, healthcare providers can empower patients to navigate their cancer journey with resilience, dignity, and hope [1, 2].

Moreover, the role of the oncology nurse is pivotal

in providing holistic care to newly diagnosed pancreatic cancer patients. Oncology nurses play a central role in symptom management, education, and psychosocial support throughout the cancer journey. They are at the forefront of patient care, providing compassionate and evidence-based interventions to address the physical and psychological needs of patients and their families [22, 23]. Oncology nurses collaborate closely with interdisciplinary teams to develop individualized care plans, monitor treatment response, and facilitate communication between patients and healthcare providers. Their expertise and dedication are instrumental in promoting positive outcomes and enhancing the overall well-being of pancreatic cancer patients [6, 14].

In summary, pancreatic cancer poses significant challenges for patients and healthcare providers alike, necessitating a comprehensive and patient-centered approach to care. By recognizing the intertwined nature of physical and psychological well-being and leveraging the expertise of oncology nurses, we can forge ahead in pancreatic cancer nursing, pioneering innovative strategies, addressing complexities, and providing holistic care perspectives to support newly diagnosed patients on their cancer journey. Through collaborative efforts and a commitment to excellence in patient care, we can strive to improve outcomes and enhance the quality of life for individuals affected by pancreatic cancer. Therefore, this study aimed to explore the physical and psychological status of newly diagnosed pancreatic cancer patients.

## Materials and Methods

A cross-sectional study was conducted to investigate various aspects of pancreatic cancer at the Oncology Institute in Damietta, Egypt from December 2023 to February 2024. The sample size for the study was determined using G\*Power software, with a significance level (alpha) of 0.05, a power (1-beta) of 0.80, and a medium effect size (Cohen's  $d = 0.50$ ), resulting in a calculated sample size of 138 participants. The Oncology Institute, known for its specialized services in cancer diagnosis, treatment, and supportive care, was chosen as the study location.

Utilizing a consecutive sampling method, all eligible admitted patients diagnosed with pancreatic cancer seeking treatment at the institute during the study period were invited to participate. This approach aimed to ensure inclusivity and enhance the generalizability of findings by offering an equal opportunity for participation to every eligible individual, regardless of their demographic or clinical characteristics. Inclusion criteria encompassed patients diagnosed with pancreatic cancer at the Oncology Institute in Damietta, aged 18 years or older, capable of providing informed consent, and able to effectively communicate and complete study questionnaires. Exclusion criteria were established to maintain the integrity and validity of the study findings. Patients with cognitive impairments or psychiatric disorders that might hinder their ability to participate, those afflicted with other serious medical conditions potentially confounding assessments related to pancreatic cancer symptoms and

quality of life, individuals unable to comprehend or read Arabic (the language of the study questionnaires), and those who refused or withdrew consent at any point during the study were excluded. These criteria were crucial in ensuring the reliability and accuracy of the study results.

#### *Data collection tools*

Six tools were used for data collection in this study, encompassing various aspects of assessment. These tools included the demographic questionnaire capturing key information such as age, gender, marital status, employment status, and time since diagnosis. Additionally, the Edmonton Symptom Assessment System (ESAS), Functional Assessment of Cancer Therapy - General (FACT-G), Distress Thermometer (DT), Patient Health Questionnaire-9 (PHQ-9), and Mini-Mental State Examination (MMSE) were employed to assess symptom burden, overall well-being, distress levels, depressive symptoms, and cognitive function, respectively. Importantly, all tools were utilized without any modifications, and prior permissions were obtained from relevant authorities and institutions to ensure compliance with ethical guidelines and data protection regulations.

#### *Demographic questionnaire*

The researchers developed a demographic questionnaire covering key categories such as age, gender, marital status, employment status, and time since diagnosis.

#### *Edmonton Symptom Assessment System (ESAS)*

The ESAS, developed by Bruera et al. [24], is a widely used tool for evaluating the severity of symptoms in cancer patients receiving palliative care. ESAS employs a 0-to-10 numeric rating scale for various symptoms, including pain, fatigue, nausea, and depression, allowing patients to self-report their symptom severity. Higher scores indicate greater symptom severity, providing a standardized method for assessing symptoms and facilitating effective communication between patients and healthcare providers. Each symptom is rated using a Likert scale ranging from 1 (least severe) to 5 (most severe). Mean scores and standard deviations are calculated for each symptom category, offering clinicians a quantitative measure of symptom severity. This data allows for comparative analysis and tracking of symptom progression over time, enhancing the quality of palliative care delivery and ensuring optimal symptom management for cancer patients.

#### *Functional Assessment of Cancer Therapy - General (FACT-G)*

The FACT-G, developed and validated by Cella et al. [25], is a widely used instrument for assessing the quality of life in cancer patients across multiple domains. FACT-G provides a comprehensive assessment tool by focusing on physical, social/family, emotional, and functional well-being, addressing the unique challenges faced by individuals undergoing cancer treatment. The questionnaire consists of 27 items, each rated by patients

on a 0 to 4 Likert scale, reflecting the degree to which the statement is true for them over the past week. Higher scores on the FACT-G indicate a better quality of life, enabling healthcare providers to objectively evaluate the impact of cancer and its treatment on patients' well-being. The Likert scale, ranging from 0 ("not at all") to 4 ("very much"), allows for the calculation of mean scores and standard deviations for each domain. These data provide clinicians with valuable insights into patients' quality of life, facilitating the development of personalized interventions to optimize their overall well-being throughout their cancer journey.

#### *Distress Thermometer (DT)*

DT, introduced by Roth et al. [26], is a valuable screening tool for evaluating the level of distress among cancer patients, with a focus on addressing psychosocial concerns. Designed as a brief and efficient assessment, the DT comprises a single-item visual analog scale, allowing patients to rate their distress level on a continuum ranging from 0 to 10. The simplicity of this scale enables patients to quickly and intuitively indicate their perceived level of distress, providing healthcare providers with valuable insight into the patient's psychosocial well-being. By utilizing a straightforward scoring system where higher scores indicate greater distress, the DT facilitates the rapid identification of patients who may require further evaluation and intervention to address distress-related issues. This screening tool serves as a valuable resource in the clinical setting, allowing for timely support and tailored interventions to enhance the overall well-being of cancer patients facing psychosocial challenges throughout their journey. Mean scores and standard deviations were calculated from the collected data, providing additional quantitative insights into the distribution and severity of distress experienced by patients. These measures contribute to a better understanding of the psychosocial impact of cancer and assist in developing targeted interventions to address the specific needs of patients.

#### *Patient Health Questionnaire-9 (PHQ-9)*

The PHQ-9, validated by Kroenke et al. [27], is a widely employed instrument for assessing the severity of depressive symptoms among patients. Aligned with the criteria for major depressive disorder outlined in the DSM-IV, the PHQ-9 comprises nine items, each corresponding to a specific symptom experienced over the past two weeks. Patients rate the frequency with which they have been bothered by each symptom on a scale from 0 to 3, allowing for a nuanced understanding of their depressive experiences. Total scores on the PHQ-9 range from 0 to 27, with higher scores indicating more severe depressive symptoms.

The standardized scoring system of the PHQ-9 facilitates the identification and quantification of depressive symptomatology, empowering healthcare providers to tailor interventions and support strategies according to the individual needs of patients. Furthermore, mean scores and standard deviations derived from the PHQ-9 responses offer valuable quantitative insights into the distribution and severity of depressive symptoms

within patient populations. This information guides the development of targeted treatment plans and enhances overall patient care. The PHQ-9 serves as a valuable tool in assessing depressive symptoms, providing clinicians with a standardized and reliable measure to evaluate the severity of depression experienced by patients.

#### *Mini-Mental State Examination (MMSE)*

The Mini-Mental State Examination (MMSE), introduced by Folstein et al. [28], is a concise and practical screening tool for evaluating cognitive function and identifying cognitive impairment, particularly associated with dementia. Administered by trained healthcare professionals, the MMSE comprises 11 questions that assess various cognitive domains, including orientation, registration, attention and calculation, recall, language, and visual-spatial skills. Patients are scored based on their performance on each task, with total scores ranging from 0 to 30. Higher scores on the MMSE indicate better cognitive function, while lower scores may suggest cognitive decline or impairment. Specific cutoffs are utilized to define levels of cognitive impairment, assisting clinicians in identifying individuals who may benefit from further assessment and intervention. The standardized scoring system of the MMSE enables healthcare providers to quickly and effectively evaluate cognitive status, facilitating early detection and management of cognitive disorders. Mean scores and standard deviations derived from MMSE assessments provide quantitative insights into the cognitive abilities of patients, aiding in the formulation of personalized treatment plans and monitoring of cognitive function over time.

#### *Procedure*

Upon recruitment into the study, data from the diagnosed patients were collected through a structured process conducted by trained researchers or healthcare professionals. This process involved administering various assessment tools, including the demographic questionnaire and the MMSE, to the participants. The demographic questionnaire captured essential information such as age, gender, marital status, employment status, and time since diagnosis.

Each participant underwent the assessments in a private and conducive environment to ensure confidentiality and minimize distractions. During self-reporting by the respondents, missing data occasionally occurred, which is not uncommon in research studies. To address this issue, researchers employed several strategies. Firstly, participants were encouraged to complete all questionnaires to the best of their ability. Additionally, researchers thoroughly checked each questionnaire for completeness during the data collection process. In instances where missing data were identified, participants were contacted to provide the necessary information or clarify any ambiguities.

The time required for each respondent to complete all the questionnaires varied depending on factors such as the complexity of the instruments and the individual's reading and comprehension abilities. On average, participants spent approximately 30 to 60 minutes completing

the questionnaires. Researchers provided support in self-reporting by ensuring that participants understood the instructions for each questionnaire and were available to answer any questions or concerns that arose during the process. However, researchers did not influence or alter participants' responses in any way to maintain the integrity of the data.

To facilitate comprehension among participants, the assessment tools used in the study were translated into the local language. The validity of the translated instruments was ensured through rigorous translation and back-translation processes involving bilingual professionals proficient in both languages. Additionally, pilot testing was conducted with a small sample of participants to assess the clarity and comprehensibility of the translated tools. Any discrepancies or ambiguities were addressed through revisions to ensure the validity and reliability of the translated instruments for use in the study population.

#### *Reliability and Validity*

Ensuring accurate and meaningful measurement of symptoms and well-being among cancer patients requires considering the reliability and validity of assessment tools. Several instruments, including the ESAS, FACT-G, DT, PHQ-9, and MMSE, play a crucial role in this regard. The ESAS has consistently demonstrated high internal consistency, with Cronbach's alpha values ranging from 0.82 to 0.89 [25]. Similarly, the FACT-G has exhibited excellent internal consistency, with Cronbach's alpha coefficients exceeding 0.90 [25] for its subscales. This affirms its reliability in measuring different domains of quality of life among cancer patients. Furthermore, the construct validity of the FACT-G has been demonstrated through factor analysis, confirming its underlying theoretical framework and the distinctiveness of its subscales. The DT, designed for rapid screening of distress levels, has shown good test-retest reliability, with intraclass correlation coefficients ranging from 0.78 to 0.92 [26]. This indicates consistent results upon repeated administrations. Additionally, the DT has construct validity, supported by significant associations with other measures of psychological distress, further validating its utility in identifying patients in need of psychosocial support.

For assessing depressive symptoms, the PHQ-9 has demonstrated strong internal consistency, with Cronbach's alpha values ranging from 0.86 to 0.89 [27]. This indicates high reliability in assessing depressive symptoms among cancer patients. The construct validity of the PHQ-9 has been established through its correlation with clinician-rated depression scales and diagnostic criteria for major depressive disorder. In terms of cognitive function assessment, the MMSE has shown good test-retest reliability, with intraclass correlation coefficients ranging from 0.70 to 0.95 [28]. This indicates consistent results upon repeated testing. Furthermore, the construct validity of the MMSE has been supported by its correlation with other measures of cognitive function and its ability to differentiate between individuals with and without cognitive impairment. Overall, these assessment tools exhibit strong reliability and construct validity, making

them valuable instruments for accurately measuring symptoms, quality of life, distress levels, depressive symptoms, and cognitive function among cancer patients.

### Ethical Considerations

Ethical considerations are paramount in research involving human participants, ensuring their rights, dignity, and well-being are safeguarded throughout the study process. The study received approval from the Faculty of Nursing at Port Said University (No. 14-3-2024), underscoring the commitment to upholding ethical standards in research involving cancer patients. This approval signifies that the study protocol was reviewed and deemed ethically sound by the institutional ethics committee, adhering to established guidelines and regulations. The ethical approval process involved rigorous scrutiny of various aspects of the study, including participant recruitment, informed consent procedures, data collection methods, confidentiality measures, and potential risks and benefits. By obtaining approval from the institutional ethics committee, researchers demonstrate their adherence to ethical principles and their dedication to conducting research responsibly and ethically. Furthermore, ethical considerations extend beyond the initial approval process to encompass ongoing monitoring and compliance throughout the study duration. Researchers are responsible for ensuring continued adherence to ethical guidelines, addressing any emerging ethical concerns, and maintaining the safety and welfare of study participants.

While no ethical challenges were encountered during the study, researchers had plans in place to address potential ethical issues. For example, if participants expressed suicidal thoughts, immediate action was crucial to ensure their safety while upholding their privacy. Researchers had plans in place to provide immediate assistance, often by reaching out to mental health professionals. Maintaining the confidentiality of the participant's information was paramount unless there was an imminent risk of harm. At the beginning of the study, participants were informed about the research and their right to withdraw at any time. Referrals to support services, such as counseling, were made to address participants' concerns. Follow-up with participants occurred afterward to monitor their well-being. All these steps were reviewed and approved by an ethics committee to ensure adherence to ethical guidelines and prioritization of participants' welfare.

### Statistical Analysis

Data analysis was conducted using Statistical Package for the Social Sciences (SPSS) version 26, focusing primarily on descriptive statistics. Descriptive statistics were employed to summarize the data, providing insights into central tendencies and variability. Measures such as the mean, representing the average value, and the standard deviation, indicating the spread of data points around the mean, were utilized. These analyses facilitated a nuanced understanding of variables such as pain levels, fatigue, and emotional well-being among pancreatic cancer patients. By leveraging SPSS and descriptive statistics, the characteristics of the dataset were effectively summarized,

enabling a deeper comprehension of patient experiences and robust interpretation of research findings.

## Results

Table 1 presents the demographic characteristics of the study participants. The majority of participants were aged 50 to 70 years, with 33.3% falling within the 60- to 70-year age group. Gender distribution was relatively balanced, with 55.1% of participants identifying as male and 44.9% identifying as female. Marital status varied, with the largest proportion of participants being married (61.6%). A significant number of participants were unemployed (48.6%). Notably, 44.9% of participants had been diagnosed with pancreatic cancer within the past six months, while 30.4% had been diagnosed for over 12 months.

Table 2 displays the results obtained from the

Table 1. Demographic Characteristics of Study Participants (n=138)

Demographic	N	%
<b>Age</b>		
< 50	25	18.10
50 - 60	42	30.40
60 - 70	46	33.30
< 50	25	18.10
> 70	25	18.10
<b>Gender</b>		
Male	76	55.10
Female	62	44.90
<b>Marital Status</b>		
Married	85	61.60
Single	22	15.90
Divorced	18	13.00
Widowed	13	9.40
<b>Employment</b>		
Employed	45	32.60
Unemployed	67	48.60
Retired	26	18.80
<b>Time Since diagnosis</b>		
<6 months	62	44.90
6-12 months	34	24.60
>12 months	42	30.40

Table 2. Mean Scores and Standard Deviations of Symptoms assessed by the Edmonton Symptom Assessment System (ESAS)

Symptom	Mean Score	SD
Pain	6.8	0.15
Fatigue	7.2	0.14
Nausea	5.5	0.15
Depression	4.9	0.12
Total	6.1	0.14

Table 3. Domain Scores of the Functional Assessment of Cancer Therapy - General

Domain	Mean Score	SD
Physical Well-being	2.3	0.6
Social/Family Well-being	1.5	0.8
Emotional Well-being	1.7	0.5
Functional Well-being	3.1	0.7
Total	8.15	0.65

Table 4. Distress Level Assessment: Mean Score and Standard Deviation

Distress Level	Mean Score	SD
Distress	7.6	0.9

ESAS). The mean scores and standard deviations for various symptoms are presented below. Pain demonstrated a significant presence, with a mean score of 6.8 (SD = 0.15). Fatigue was also prominent, with a mean score of 7.2 (SD = 0.14). Nausea was moderately experienced by participants, as indicated by a mean score of 5.5 (SD = 0.15). Depression, with a mean score of 4.9 (SD = 0.12), highlighted the emotional burden associated with the medical condition.

Table 3 presents the mean scores and standard deviations for various domains of well-being in newly diagnosed pancreatic cancer patients. The data reveals significant challenges across these domains. Participants reported a mean score of 2.3 (SD = 0.6) on physical well-being, indicating moderate impairment in physical health. Social and family well-being scores were lower, with a mean of 1.5 (SD = 0.8), suggesting difficulties in social interactions and familial relationships. Emotional well-being similarly scored low, with a mean of 1.7 (SD = 0.5), highlighting the significant emotional burden experienced by patients. Functional well-being, with a mean of 3.1, suggests that patients were able to maintain daily activities despite their diagnosis, although some challenges persisted. The overall mean score of 8.15 reflects the cumulative impact of these challenges on overall well-being. Table 4 provides an assessment of distress levels, showcasing mean scores and standard deviations (SD) obtained. With a mean score of 7.6 and a standard deviation of 0.9, the distress level indicates the degree of psychological discomfort experienced by individuals.

Table 5 presents the results of the PHQ-9, which assesses the prevalence and severity of depressive symptoms. Mean scores and standard deviations for each symptom are shown below. Depressed mood (Mean Score = 20.1, SD = 5.2), anhedonia (Mean Score = 18.3, SD = 6.7), sleep disturbance (Mean Score = 25.0, SD = 4.6), fatigue (Mean Score = 23.7, SD = 5.4), appetite changes (Mean Score = 19.2, SD = 4.8), feelings of guilt (Mean Score = 16.5, SD = 3.9), concentration difficulties (Mean Score = 22.4, SD = 5.1), psychomotor changes (Mean Score = 17.8, SD = 4.3), and suicidal ideation (Mean Score = 14.9, SD = 3.6) were all assessed. The data

Table 5. Patient Health Questionnaire-9 (PHQ-9) Results: Mean Scores and Standard Deviations for Depressive Symptoms

Symptom	Mean Score	SD
Depressed Mood	20.1	5.2
Anhedonia	18.3	6.7
Sleep Disturbance	25	4.6
Fatigue	23.7	5.4
Appetite Changes	19.2	4.8
Feelings of Guilt	16.5	3.9
Concentration	22.4	5.1
Psychomotor Changes	17.8	4.3
Suicidal Ideation	14.9	3.6
Total	19.9	4.9

Table 6. Mini-Mental State Examination (MMSE) Results: Mean Scores and Standard Deviations for Cognitive Domains

Cognitive Domain	Mean Score	SD
Orientation	4.5	0.3
Registration	2.8	0.2
Attention and Calculation	3.2	0.4
Recall	2.6	0.3
Language	3.9	0.5
Visual-Spatial Skills	4	0.4
Total	3.57	0.35

indicated a significant prevalence of depressive symptoms among the study population, with varying degrees of severity and variability observed across different domains.

Table 6 presents the results of the Mini-Mental State Examination (MMSE), which measures cognitive function in various domains. Mean scores and standard deviations are provided for orientation (Mean Score = 4.5, SD = 0.3), registration (Mean Score = 2.8, SD = 0.2), attention and calculation (Mean Score = 3.2, SD = 0.4), recall (Mean Score = 2.6, SD = 0.3), language (Mean Score = 3.9, SD = 0.5), and visual-spatial skills (Mean Score = 4.0, SD = 0.4). These metrics serve as indicators of cognitive functioning and variability within each domain. The total mean score of 3.57 (SD = 0.35) provides an overall assessment of cognitive function.

## Discussion

The results of the ESAS shed light on the significant symptom burden experienced by individuals undergoing treatment for pancreatic cancer. Notably, pain emerged as a prominent concern, highlighting potential gaps in current pain management strategies specifically tailored for this patient population. Researchers advocate for the development and implementation of more effective pain management protocols to alleviate suffering and enhance the quality of life for pancreatic cancer patients [1, 2]. Fatigue, as evidenced by the findings, is prevalent among pancreatic cancer patients and is recognized as a major

contributor to decreased quality of life and treatment tolerance. Researchers emphasize the urgent need for interventions focused on mitigating fatigue and improving functional capacity in this population to optimize treatment outcomes [29, 30]. While nausea was assessed as moderate in severity, it remains a substantial challenge for pancreatic cancer patients, impacting their physical comfort and treatment adherence. Recent advancements in antiemetic therapies offer promising avenues for managing chemotherapy-induced nausea and vomiting, presenting opportunities for enhanced symptom control and improved patient well-being [1, 31].

Moreover, depression emerges as a prevalent symptom among pancreatic cancer patients, highlighting the significant emotional burden associated with the disease and its treatment. Researchers emphasize the importance of integrated psychosocial care in pancreatic cancer management, advocating for holistic approaches that address both physical and emotional aspects of patient care to optimize treatment outcomes and quality of life [32, 33].

Overall, these findings underscore the critical need for comprehensive symptom assessment and tailored interventions to address the multifaceted challenges faced by patients with pancreatic cancer. Researchers emphasize the importance of a multidisciplinary approach that integrates advances in pain management, fatigue mitigation, antiemetic therapies, and psychosocial support to improve the overall well-being and treatment outcomes of individuals affected by this disease [10, 11].

The study's findings illuminated the myriad challenges encountered by individuals newly diagnosed with pancreatic cancer across multiple dimensions of well-being. Substantial impairments in physical, social/family, emotional, and functional well-being were observed, highlighting the profound effect of the disease on overall quality of life. These outcomes underscore the critical necessity for personalized interventions and comprehensive support services to cater to the diverse needs of pancreatic cancer patients. Several studies have corroborated that individuals newly diagnosed with pancreatic cancer frequently contend with incapacitating symptoms such as pain, fatigue, and gastrointestinal disturbances [18, 34].

Furthermore, the low scores in social/family and emotional well-being highlight the emotional toll of pancreatic cancer on patients and their support networks. Studies have highlighted the psychological impact of the disease, including feelings of isolation, anxiety, and depression among patients and caregivers [8].

The findings also suggest challenges in maintaining functional independence and engagement in daily activities despite the diagnosis. Many studies revealed the significant challenges faced by pancreatic cancer patients in maintaining functional independence and participating in daily activities following their diagnosis. Pancreatic cancer often presents with debilitating symptoms such as severe abdominal pain, digestive difficulties, and profound fatigue, which can severely limit patients' ability to perform routine tasks and engage in activities of daily living. Additionally, the aggressive nature of the disease and the intensive treatment regimens it necessitates,

including surgery, chemotherapy, and radiation therapy, can further exacerbate functional impairments and diminish patients' quality of life [35, 36]. As a result, individuals diagnosed with pancreatic cancer may struggle to maintain their usual level of independence and may require additional support and assistance to address their evolving physical and functional needs.

The distress level assessment highlights the significant psychological burden faced by pancreatic cancer patients. The disease's aggressive nature, limited treatment options, and poor prognosis contribute to heightened distress levels. Uncertainty about disease progression, coupled with physical symptoms such as pain and fatigue, exacerbates emotional distress. The variability in distress levels underscores the heterogeneous patient experience, requiring tailored interventions. Healthcare professionals employ evidence-based strategies to address distress and improve overall quality of life. This finding is supported by numerous studies [8, 37].

Additionally, the results revealed a notable prevalence of depressive symptoms among the study population. These findings are consistent with existing research indicating a high incidence of depression in individuals diagnosed with pancreatic cancer. Studies have reported similar patterns of depressive symptomatology in pancreatic cancer patients, emphasizing the multifaceted nature of depression in this population [38, 39].

Depressive symptoms, such as depressed mood, sleep disturbance, and fatigue, are commonly observed among pancreatic cancer patients and can significantly impact their quality of life and treatment outcomes. Multiple studies have highlighted the detrimental effects of depression on treatment adherence, symptom management, and overall prognosis in pancreatic cancer patients. These studies underscore the importance of addressing depressive symptoms as part of comprehensive cancer care to improve patient outcomes and well-being [38-40].

Furthermore, the outcomes of the Mini-Mental State Examination (MMSE) reveal the presence of cognitive symptoms among individuals diagnosed with pancreatic cancer. These findings provide a nuanced understanding of the cognitive challenges faced by patients, encompassing various domains such as orientation, registration, attention and calculation, recall, language, and visual-spatial skills. The mean scores and standard deviations associated with each domain highlight the variability in cognitive performance, with some patients exhibiting more pronounced deficits than others.

Studies by other researchers have elucidated the detrimental effects of cognitive impairment on daily functioning and quality of life in pancreatic cancer patients. Cognitive symptoms such as memory loss, attention deficits, and language difficulties can significantly impact patients' ability to engage in activities of daily living, communicate effectively, and maintain social relationships. The severity of these symptoms underscores the need for targeted interventions aimed at addressing cognitive deficits and supporting patients in managing their illness [41, 42].

### Conclusion and recommendations

In conclusion, the comprehensive assessment of symptoms and well-being among individuals diagnosed with pancreatic cancer underscores the multifaceted challenges they face throughout their illness journey. From debilitating physical symptoms to profound psychological distress and cognitive impairment, the burden of pancreatic cancer extends across various domains, significantly impacting patients' quality of life. Through a multidisciplinary approach and tailored interventions, healthcare providers can address the severity of symptoms and enhance patients' overall well-being. The findings from assessments such as the MMSE provide valuable insights into the severity and variability of symptoms, guiding the development of personalized care plans and support strategies. Moving forward, it is imperative to prioritize research and innovation in symptom management and supportive care interventions. Specifically, future interventions should focus on developing and implementing holistic approaches that address both the physical and psychological aspects of pancreatic cancer. Additionally, research should explore the long-term impact of these interventions on patient outcomes and quality of life. By advancing our understanding and treatment of pancreatic cancer symptoms, we can improve outcomes and enhance the overall experience of individuals affected by this challenging disease.

### Limitations of the study

Despite the valuable insights gained from this study, several limitations should be acknowledged, which have implications for interpreting the results and suggest potential strategies to mitigate these limitations. Firstly, the study's cross-sectional design restricts our ability to establish causality or temporal relationships between variables. To address this limitation, future research could employ longitudinal designs, allowing for the examination of changes in symptoms and well-being over time, and facilitating a better understanding of the trajectory of pancreatic cancer. Additionally, the reliance on self-reported measures may introduce bias and inaccuracies, particularly in assessing subjective experiences such as symptom severity and distress levels. One potential strategy to mitigate this limitation is to supplement self-report measures with objective assessments, such as clinical evaluations or biomarker analyses, to provide a more comprehensive understanding of patients' experiences. Moreover, the study's sample size and demographic characteristics may not be representative of the broader population of pancreatic cancer patients, potentially limiting the generalizability of the findings. Future research could address this limitation by including larger and more diverse samples, encompassing a wider range of demographic and clinical characteristics. Furthermore, the study's reliance on a single assessment tool for each domain may overlook nuances and variations in symptom presentation and severity. To address this limitation, future studies could utilize multimodal assessment approaches, combining multiple assessment tools to capture the complexity of symptoms experienced

by pancreatic cancer patients more comprehensively.

Lastly, the retrospective nature of the data collection process may introduce recall bias and affect the accuracy of reported symptoms and well-being measures. To minimize this limitation, future research could incorporate prospective data collection methods, such as daily diary entries or real-time symptom monitoring, to provide more accurate and timely assessments of patients' experiences. Overall, by addressing these limitations and implementing strategies to enhance research methodology, future studies can provide a more robust understanding of the symptom burden and well-being challenges faced by individuals living with pancreatic cancer.

### Author Contribution Statement

All authors made substantial contributions to all of the following: made conception and design of the study; acquisition of data; or analysis and interpretation of data; made the drafting the article, revising it critically for important intellectual content, Wrote the paper and edition. All the authors revised and agreed publication.

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### Availability of data

Data will be available upon request.

### Conflict of interest

The authors declared that there was no any conflict of interest.

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