









Review Article

Sleep Disorders and Sleep Quality Among Patients with Chronic Pancreatitis: A Systematic Review Protocol

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Abstract

Introduction: Chronic Pancreatitis (CP) is a serious and prolonged condition where the pancreas becomes inflamed, resulting in ongoing discomfort that significantly impacts the patient's life. Individuals suffering from CP frequently experience sleep disorders, which further diminishes their quality of life. This systematic review will assess the prevalence and associated factors of sleep disorders, along with the sleep quality in chronic pancreatitis patients.

Methods and analysis: Multiple databases, including PubMed, Scopus, Embase, EBSCO (CINAHL), ScienceDirect and grey literature sources (Google Scholar, ProQuest, Shodhganga), will be searched for relevant studies. Eligible studies will include observational research on adult CP patients discussing sleep disorders or sleep quality. Data extraction will cover study characteristics, sleep disorder prevalence, assessment tools and sleep-related outcomes. The quality appraisal will be done using the Joanna Briggs Institute (JBI) checklist for observational studies and the results will be summarized in accordance with SWiM guidelines.

Discussion: The review seeks to offer a complete analysis of the prevalence and effects of sleep disorders in patients with chronic pancreatitis, exploring their influence on overall quality of life. The review will also highlight gaps in existing research, which could inform future clinical interventions and enhance patient well-being.

Keywords: Chronic Pancreatitis; Sleep Disorders; Sleep Quality; Systematic Review

Registration Details: PROSPERO CRD42024547787

Abbreviations

CP: Chronic Pancreatitis; QoL: Quality of Life; JBI: Joanna Briggs Institute; SWiM: Systematic review without Meta analysis; PRISMA: Preferred Reporting Items for Systematic reviews and Meta-Analysis; PRISMA-P: Preferred Reporting items for Systematic Review and Meta-Analysis-Protocols; MESH: Medical Subject Headings

Introduction

Chronic Pancreatitis (CP) is a persistent inflammation of the pancreas that causes permanent damage, leading to significant impairments in both its exocrine and endocrine functions. Individuals with CP often experience persistent abdominal pain, malabsorption issues and complications like diabetes mellitus, all of which greatly impact their Quality of Life (QoL) [1,2]. The ongoing pain, combined with the potential use of opioids for managing this pain, often results in sleep disturbances such as insomnia [2]. These sleep issues not only worsen the physical symptoms of CP but also add to emotional strain, creating a harmful cycle that further degrades sleep quality and overall health [3]. A study by Ahmed, et al., reported that 71% of CP patients experienced sleep disturbances, which were linked to notably lower QoL scores [2]. Sleep disorders place a heavy burden on individuals with CP, as these disruptions can lead to greater fatigue, anxiety and depression, intensifying the challenges faced by patients [2]. Research suggests that sleep disturbances are tied to poorer health outcomes and diminished QoL, highlighting

the importance of addressing these issues in CP management [4]. Furthermore, the presence of sleep disorders among CP patients has been shown to significantly affect their sleep quality, with 39% of patients in the same study reporting this issue alongside sleep disruptions [2]. Despite the well-known impact of sleep disorders on the QoL of CP patients, research remains limited regarding the specific mechanisms by which these disturbances influence patient outcomes. Most studies focus on the prevalence of sleep disorders rather than their causes or the efficacy of potential treatments [3]. Further research is necessary to explore the connection between chronic pain, opioid use and sleep quality in CP patients, as well as to evaluate the effectiveness of targeted treatments for sleep disorders. Closing this research gap could lead to better management strategies, enhancing the well-being, QoL and health outcomes of those living with chronic pancreatitis [2].

Objective

To assess the prevalence of sleep disorders, factors related to sleep disorders, quality of sleep and overall quality of life in chronic pancreatitis patients.

Research Question

What is the evidence on assessment of sleep disorders and sleep quality among patients with chronic pancreatitis?

Ethical Statement

The project did not meet the definition of human subject research under the purview of the IRB according to federal regulations and therefore, was exempt.

Methods

This systematic review will adhere to the guidelines outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [4]. We have documented the protocol in the PROSPERO database (CRD42024547787) prior to the completion of the main search and has been developed following the PRISMA for Systematic Review Protocols (PRISMA-P) statement [5].

Eligibility Criteria

| PICO | Keywords |
|------------------|---|
| P (Population) | Patients diagnosed with chronic pancreatitis irrespective of age, gender, ethnicity and nationality |
| I (Intervention) | N/A |
| C (Comparator) | N/A |
| O (Outcome) | Sleep disorders and sleep quality among patients with chronic pancreatitis |

Inclusion Criteria

- Original articles with observational study design including sleep disorders or sleep quality among patients with chronic pancreatitis
- Studies published in academic journals
- Research published in English language
- Full-text articles must be accessible

Exclusion Criteria

- Studies with participants diagnosed with other pancreatic diseases (e.g., pancreatic cancer)
- Studies without data on sleep disorders or sleep quality
- Conference abstracts, case reports and animal studies
- Any kind of reviews (systematic review, narrative review, scoping review)

Search Methodology

Digital databases including EMBASE, CINAHL (EBSCO version), MEDLINE via PubMed, Scopus, Web of Science and ScienceDirect will be utilized for the search. Grey literature such as Google Scholar, ProQuest and Shodhganga will be explored. Search terms pertaining to sleep disorders (such as insomnia, sleep apnea, hypersomnia and parasomnia), overall sleep quality

and chronic pancreatitis (like chronic pancreatic inflammation and recurrent pancreatitis) will be employed. A comprehensive search plan will be created using a combination of MeSH terms and appropriate keywords. This strategy will be tailored for each specific database.

Study Selection

The studies will be gathered, extracted and saved as CSV, RIS, etc. Next, the articles will be imported through Rayyan QCRI software to eliminate duplication [6]. Following the elimination of duplicates, the screening process will be divided into two phases: primary and secondary screening. Three reviewers shall independently perform title and abstract screening and assess them based on the eligibility criteria using Rayyan software [6]. The included studies will be retrieved in full-text format once the conflict resolution process is finished. Following the first screening, the qualifying studies will be obtained in full text and carefully evaluated by the reviewers in relation to the eligibility criteria. The articles selected after secondary screening according to the inclusion criteria will be recorded and included in the final analysis. Reasons for excluding any full-text studies that do not fulfil the inclusion criteria will also be noted and presented in the final analysis. Any discrepancies or conflicts among the reviewers shall be addressed through discussion or by seeking the decision of a designated expert if needed.

Data Extraction

Data extraction sheet will be utilized to gather information from the studies that are included. This will include study characteristics like publication year, authors' location, setting, population, period and sample size of the study, participant characteristics, sleep assessment methods, prevalence of different sleep disorders and sleep quality measures. Data extraction shall be performed by two reviewers independently. Any discrepancies shall be resolved by consulting a third reviewer.

Quality and Risk of Bias Assessment

The quality appraisal will be done using the Joanna Briggs Institute (JBI) checklist for observational studies [7]. The quality appraisal will be performed by three reviewers; each reviewer will carry out their assessment independently to ensure a comprehensive evaluation of the study quality.

Data Synthesis

A narrative synthesis will be performed to outline the results of included studies. This review will follow the SWiM (Systematic Review without Meta-analysis) guidelines for the narrative synthesis [8]. Based on the availability of sufficient studies with comparable outcomes, a meta-analysis will be conducted. Heterogeneity will be evaluated using statistical tests (such as chi-square, I²) [2,9]. Subgroup analysis will be done if significant heterogeneity is found.

Discussion

This systematic review on sleep disorders and sleep quality among patients with chronic pancreatitis aims to provide insights into the prevalence and types of sleep disturbances in this population. By examining existing literature, seeks to clarify how various factors contribute to poor sleep quality among CP patients. The findings are expected to highlight the importance of addressing sleep disturbances to improve patient outcomes, suggesting multidisciplinary strategies involving psychological and pharmacological interventions.

Strengths and Limitations of this Study

Strengths

- Comprehensive search strategy using multiple databases and grey literature sources, maximizing the likelihood of capturing relevant studies
- Use of PRISMA and SWiM guidelines ensures methodological rigor and enhances the transparency of study selection and synthesis processes
- Application of the Joanna Briggs Institute (JBI) checklist for critical appraisal, which aids in systematically assessing the quality of included observational studies

Limitations

- Limiting studies to English-language publications may introduce language bias, potentially excluding relevant non-English research
- Variability in definitions and diagnostic tools for sleep disorders across studies could hinder consistency and comparability of findings, complicating synthesis
- High heterogeneity among study populations and methodologies may restrict the potential for meta-analysis and limit generalizability of the conclusions

Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Consent to Participate

Informed consent was also obtained from each subject who participated in the study.

Financial Disclosure

This research did not receive any specific grant from funding agencies in the public, commercial or not-for-profit sectors.

Data Availability

Data is available for the journal. Informed consents were not necessary for this paper.

Author's Contribution

Conception and design of the work - AP, JIS

Acquisition of data - JIS, AP, SSM, PB, RSD, PS, NS

Analysis and/or interpretation of data: AP, JIS, SP

Drafting of the manuscript: JIS, AP

Critical revision of the manuscript for important intellectual content: AP, JIS, SSM, PB, RSD, PS, NS, SP

Approval of the version of the manuscript to be published: JIS, AP, SSM, PB, RSD, PS, NS, SP

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