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Review Article

MAPPING PALLIATIVE CARE AND SUPPORT INTERVENTIONS FOR PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE: A SCOPING REVIEW

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ABSTRACT

Background. Chronic obstructive pulmonary disease (COPD) is a progressive disease that impacts respiratory function, activity tolerance, psychological well-being, pain levels, and quality of life. This scoping review aims to map the supportive and palliative care interventions that have been studied in patients with COPD, describe the populations, characteristics of the interventions, outcomes, and settings, and identify gaps in the evidence relevant to nursing practice and future research.

Research Methods. This scoping review using the PICOST framework (Population, Intervention, Comparison, Outcome, Study Design, and Time) to formulate the review question and determine the eligibility criteria. The literature search will be conducted using five main database: PubMed/MEDLINE, CINAHL, Scopus, Web of Science, and the Cochrane Library. Google Scholar will be used as a supplementary source. The review will include literature published between January 2021 and October 2026. The study selection process will involve title and abstract screening, full-text assessment, and data charting based on the established eligibility criteria.

Findings. The compilation includes eight intervention studies and one previous scoping review. Interventions included oxygen therapy, high-flow nasal cannula, inhaler adherence education, smartphone-based rehabilitation, music therapy, and muscle energy techniques. Outcomes evaluated included oxygenation, dyspnea, functional capacity, anxiety, pain, and quality of life. Heterogeneity in design, interventions, and instruments limits comparisons between studies.

Conclusion. Supportive and palliative approaches have the potential to support comprehensive COPD symptom management. However, a systematic and replicable scoping review is needed to strengthen evidence synthesis and determine research and nursing practice priorities.

Keywords: Chronic Obstructive Pulmonary Disease, Oxygen Therapy, Palliative Care, Pulmonary Rehabilitation, Supportive Care.

BACKGROUND

Chronic obstructive pulmonary disease (COPD) is a chronic respiratory condition characterized by persistent respiratory symptoms and airflow limitation. Its clinical impact

extends beyond the lungs, affecting physical function, emotional well-being, independence, and participation in daily activities. Shortness of breath, fatigue, decreased exercise tolerance, and fear of worsening symptoms can limit daily life and increase dependence on family members and healthcare providers [1-3].

For people with advanced or symptomatic COPD, care should not focus solely on respiratory physiology. Patients may also need support in managing anxiety, maintaining activity, properly using inhaled medications, managing pain, and adapting to progressive functional limitations. These needs are particularly relevant to palliative care, which emphasizes alleviating suffering, quality of life, patient-centered care, and support for patients and families, in addition to appropriate treatment tailored to the disease [5-8].

Several interventional approaches have been investigated to address these challenges. Oxygen therapy can help certain patients maintain adequate oxygenation during activity, while high-flow nasal cannula (HFNC) has been studied in patients experiencing acute exacerbations with mild hypercapnia. Education, behavioral support, and follow-up can help patients use inhaled medications more consistently. Pulmonary rehabilitation can address exercise intolerance, while digital platforms can provide alternative ways to deliver structured training at home. Music-based interventions can offer psychological and respiratory rehabilitation benefits, and targeted physical interventions can help patients experiencing chronic pain or musculoskeletal limitations [1-4,6-8].

Although these approaches address different aspects of COPD, their findings are not directly interchangeable. Studies on oxygen administration generally examine respiratory and functional outcomes, adherence interventions focus on medication-taking behavior, and rehabilitation or psychological interventions may assess exercise capacity, mood, pain, or quality of life. Consequently, an intervention that improves one outcome cannot automatically be assumed to improve other dimensions of patient well-being [1–8].

The available evidence also varies in design and scope. Randomized controlled trials can evaluate the effects of specific interventions under defined conditions, whereas scoping reviews identify and map the range and characteristics of existing evidence. For example, a previous scoping review by Zhu and colleagues mapped 24 studies evaluating interventions to improve inhaler adherence in patients with COPD, identifying educational, behavioral, technical, multicomponent, transitional care, and reminder-based approaches. However, this review

primarily focused on inhaler adherence, while other supportive and palliative care interventions addressing respiratory symptoms, functional limitations, psychological well-being, and pain also need to be considered. Therefore, a broader mapping of supportive and palliative care interventions is necessary to provide a more comprehensive understanding of the available evidence in patients with COPD [5].

Therefore, a scoping review is appropriate for systematically mapping the available evidence on supportive and palliative care interventions for patients with COPD. This review aims to identify and describe the types of interventions, patient populations, intervention characteristics, outcomes, and healthcare settings reported in existing studies. By providing a comprehensive overview of the available evidence and identifying gaps in current research, this review is expected to contribute to nursing practice, advance scientific knowledge, and provide a foundation for future research directions.

RESEARCH METHOD

This study is designed as a scoping review to identify, map, and describe the range of supportive and palliative care interventions reported for adults with chronic obstructive pulmonary disease (COPD). The PICOST framework (Population, Intervention, Comparison, Outcome, Study Design, and Time) will guide the formulation of the review question and the development of the eligibility criteria. This approach is appropriate because the review seeks to describe the breadth and characteristics of the available evidence rather than determine the effectiveness of a single intervention.

The review will address the following question: “What supportive and palliative care interventions have been reported for adults with COPD, and how are these interventions characterized in terms of population, comparison, outcomes, study designs, and publication period?” The PICOST elements are defined as follows: Population (P): adults (18 years or older) diagnosed with COPD; Intervention (I): supportive or palliative care interventions intended to address respiratory symptoms, self-management, medication or inhaler adherence, physical function, psychological well-being, pain, or quality of life. Examples may include oxygen therapy or other respiratory support, inhaler-adherence support, pulmonary rehabilitation and digital health interventions, psychological or music-based interventions, and pain or musculoskeletal management. Comparison (C): usual care, no intervention, an alternative

intervention, or another method of delivering the same intervention; a comparison group will not be required for inclusion. Outcome (O): outcomes relevant to patients with COPD, including oxygenation and respiratory status, dyspnea, medication adherence, functional capacity, pain, anxiety or depression, quality of life, and other patient-centred outcomes. Study Design (S): quantitative, qualitative, and mixed-methods primary research, including experimental, quasi-experimental, and observational studies, as well as relevant evidence syntheses that meet the eligibility criteria. Time (T): publications dated from January 2021 to October 2026.

A comprehensive literature search will be conducted in PubMed/MEDLINE, CINAHL, Scopus, Web of Science, and the Cochrane Library. Google Scholar will be consulted as a supplementary source, and the reference lists of relevant publications will be checked to identify additional records. The search strategy will combine controlled vocabulary, where available, with free-text terms relating to COPD and supportive or palliative interventions. The main concepts will include terms such as "chronic obstructive pulmonary disease" OR COPD, combined with "palliative care", "supportive care", "oxygen therapy", "inhaler adherence", "pulmonary rehabilitation", "music therapy", "pain management", and "digital health". An example search string is: ("chronic obstructive pulmonary disease" OR COPD) AND ("palliative care" OR "supportive care" OR intervention* OR "oxygen therap*" OR "inhaler adherence" OR "pulmonary rehabilitation" OR "music therap*" OR "pain management" OR "digital health"). The search syntax will be adapted to the requirements of each database. The date of each search, the complete search strategy used in every database, and the number of records retrieved will be documented to support transparency and reproducibility.

Studies will be considered eligible if they involve adults diagnosed with COPD and report at least one supportive or palliative care intervention relevant to symptom management, respiratory support, self-management, physical function, psychological well-being, pain, or quality of life. Publications must fall within the specified period of January 2021 to October 2026 and be available as full-text articles in English. Eligible study designs will include quantitative, qualitative, and mixed-methods primary studies, together with relevant scoping or systematic reviews. Evidence syntheses will be recorded and presented separately from primary studies so that the same underlying evidence is not unintentionally counted more than once.

Records will be excluded if they do not involve people with COPD, do not address a relevant supportive or palliative intervention, or do not provide information related to the review

outcomes. Editorials, opinion papers, letters, study protocols without results, and conference abstracts that do not contain sufficient data will also be excluded. Duplicate records will be removed. Studies involving mixed respiratory populations will be excluded when findings specific to participants with COPD cannot be identified separately. A comparator will not be mandatory, as the purpose of this scoping review is to map the available evidence and describe its characteristics rather than calculate or compare intervention effects.

All records identified through the searches will be exported to a reference-management application, where duplicate entries will be identified and removed. Study selection will be conducted in two stages. First, titles and abstracts will be screened against the PICOST-based eligibility criteria. Second, the full texts of potentially relevant records will be assessed to determine whether they meet the inclusion criteria. Two reviewers will independently undertake the screening process. Any differences in decisions will be discussed until consensus is reached; a third reviewer may be consulted when agreement cannot be achieved. The reasons for excluding articles at the full-text stage will be documented.

Data from each included source will be charted using a standardized data-extraction form developed in line with the review question and PICOST framework. The form will record the author(s), year of publication, country, publication type, study design, healthcare setting, participant characteristics, sample size, intervention name and components, intervention duration and frequency, comparator (if applicable), outcomes assessed, measurement instruments, key findings, and limitations reported by the study authors. For scoping or systematic reviews, the type of review and the number of studies included will also be recorded. Information from evidence syntheses will remain distinguishable from findings reported by primary studies.

The extracted information will be presented in tables and summarized descriptively through a narrative synthesis. The interventions will be organized into categories based on their characteristics and the areas of care they address. These categories may include respiratory support, inhaler-adherence support, pulmonary rehabilitation and digital health, psychological support, and pain or musculoskeletal management. The outcomes will also be mapped according to the population, intervention, healthcare setting, and study design.

FINDINGS

The provided compilation contains summaries of eight intervention studies and one scoping review of existing ones (Table 1). These sources cover a wide range of interventions, not just one standardized palliative care model. The evidence includes studies of portable oxygen-sparing systems in severe COPD, HFNC during acute exacerbations with mild hypercapnia, oxygen optimization during activities of daily living, inhaler adherence interventions, smartphone-based music rehabilitation, music-based psychological support, and muscle energy techniques for chronic pain and neck-related musculoskeletal problems. The nine source records in the given document represent the material available for this preliminary mapping.

Table 1. Result of Scoping Review based on PICOST Framewor (n=9)

Source	Type of design or evidence	The population/sample reported in the material provided	Focus of intervention	Domain of results or evidence
Majorski et al. (2023) [1]	Randomized cross-sectional test	25 patients with severe COPD	Constant minute volume versus constant bolus portable oxygen conserving system.	Oxygen titration, oxygenation, dyspnea, and walking performance.
Xia et al. (2022) [2]	Multicenter randomized controlled trial	330 participants were analyzed	HFNC versus conventional oxygen therapy in acute exacerbations with mild hypercapnia	Intubation criteria, treatment failure, and other clinical outcomes
Kofod et al. (2025) [3]	Randomized cross-sectional test	31 patients with COPD who received long-term oxygen therapy, as reported in the given compilation.	Optimal oxygenation during daily activities	Functional capacity during daily activities
Zhu et al. (2026) [5]	Preliminary review	24 studies were included in this review	Interventions to improve adherence to inhaler use.	Compliance strategies, intervention delivery, and urban-rural evidence
Jiang et al. (2025) [6]	Comparative intervention study; described as retrospective	170 participants, as reported in the provided compilation.	A five-element music-based psychological intervention combined with specialized	Negative emotions and lung function

	in the materials provided.		breathing treatment.	
Shi et al. (2026) [4]	Multicenter randomized controlled trial	70 participants	Smartphone-based pulmonary rehabilitation facilitated by music, combining walking and singing with rhythmic guidance.	Exercise capacity, shortness of breath, quality of life, and psychological outcomes.
Mıhçıoğlu (2025) [7]	Randomized controlled longitudinal study	52 patients were included in the reported analysis.	Muscle energy techniques for COPD with chronic pain	Pain, kinesiophobia, and health-related quality of life
Mıhçıoğlu and Malkoç (2025) [8]	Experimental randomized controlled study, as described in the provided materials.	A total of 64 patients were initially enrolled; attrition was reported during follow-up.	Muscle energy techniques for chronic neck pain	Pain, perception of physical activity, self-confidence, and body posture.
Binda et al. (2024) [9]	Single-center prospective observational study; pre-test/post-test assessment	123 clinically stable patients with COPD participating in a pulmonary rehabilitation program; 140 inhalers assessed	Nurse-led inhaler education using explanation, slides, images, videos, and practical demonstration; one-hour sessions repeated weekly	Total inhaler errors decreased from 72.1% to 35.0%; critical errors decreased from 35.0% to 12.9%; error-free use increased from 27.9% to 65.0%

Study characteristics were taken from the provided article summaries. Full-text verification is required before final publication, particularly for study design labeling, sample definitions, results, and bibliographic details. Zhu's review is a synthesis of evidence and should not be considered a primary intervention study.

Table 2. Analytical Review of Studies (n=9)

Source	**The methodological features that are visible from the summary**	**Important things to verify in the original article**	**Temporary interpretation**
Majorski et al. (2023)	Randomized crossover design; comparison within participants.	Randomization sequence, crossover procedures, follow-up	This design is suitable for comparing devices in the same patient, but the results depend on

		effects, completeness of results, and analyses.	the appropriate titration and crossover methods.
Xia et al. (2022)	Multicenter randomized controlled trial; clinical outcomes determined	Concealment of allocation, deviation from assigned treatment, missing data, and accuracy of outcome estimates.	Provides comparative evidence for HFNC and conventional oxygen therapy in a defined acute care population.
Kofod et al. (2025)	A random crossover approach focused on everyday functions	Randomization, period effects, outcome measures, and completeness of follow-up	Relevant to functional objectives, but conclusions should reflect the sample and trial design.
Zhu et al. (2026)	Preliminary review; 24 studies mapped.	Search completeness, consistency of eligibility, duplicate filtering, data graphing methods, and synthesis transparency.	Useful for mapping adherence interventions; conclusions are still limited due to the heterogeneity of the included studies.
Jiang et al. (2025)	Comparative intervention study, described as retrospective in the summary provided.	Appropriate design, participant selection, baseline data comparison, confounding factors, intervention fidelity, and outcome measurement.	Potentially informative for psychological support, but design verification is essential before interpreting causal effects.
Shi et al. (2026)	A three-arm multicenter randomized controlled trial; rehabilitation program and predetermined outcomes.	Allocation, missing data, program adherence, intervention accuracy, and estimate precision.	There is promising evidence for combined digital rehabilitation programs, which requires confirmation in larger, longer-term studies.
Mıhçıoğlu (2025)	Randomized controlled longitudinal study; symptom-focused intervention.	Randomization, control group comparison, reduction in the number of participants, blinding if possible, and outcome measurement.	Relation to pain and quality of life in specific COPD subgroups
Mıhçıoğlu and Malkoç (2025)	Experimental randomized controlled studies with reported study dropout rates during follow-up.	Participant flow, missing data, completeness of follow-up, intervention fidelity, and measurement validity.	In relation to musculoskeletal symptoms, but dropout rates and specific clinical populations should be considered.
Binda et al.	Prospective single-	Participant selection,	Provides evidence that nurse-led

(2024)	center observational study with within-patient comparison before (T0) and after education (T1); no separate control group	completeness of follow-up, consistency of education sessions, inhaler-specific checklist validity, and potential effects of repeated training	education can reduce inhaler-use errors; because there was no separate control group, findings should be interpreted as pre–post changes rather than definitive comparative effectiveness.

Summary of mapped evidence

The initial mapping identified five key intervention domains: respiratory support, inhaler adherence, rehabilitation and digital health, psychological support, and pain or musculoskeletal management. Each domain addresses a different aspect of the COPD experience. Respiratory support studies primarily focused on oxygenation and clinical outcomes. Adherence interventions addressed medication-taking behaviors and inhaler techniques. Rehabilitation studies focused on functional capacity, dyspnea, and quality of life. Music-based interventions addressed psychological and functional outcomes, while muscle energy techniques targeted pain and movement-related limitations. The key finding is not that one intervention is universally superior (Table 2). Rather, the mapped sources demonstrate that COPD care involves interrelated but distinct needs, and that the evidence base utilizes a variety of intervention models and outcome measures. A comprehensive scoping review is needed to establish how widely these patterns occur across the broader literature.

DISCUSSIONS

This initial evidence map highlights the breadth of supportive interventions being studied in COPD. Respiratory symptoms are central to the disease experience, but they do not fully reflect the burden experienced by patients. Reduced mobility, psychological distress, pain, difficulty managing medications, and limited access to rehabilitation can also impact independence and quality of life. For palliative care, these findings support an approach that considers what is important to patients in their daily lives. Clinical assessment should extend beyond respiratory measures to include symptom burden, activity tolerance, emotional well-being, self-management needs, and available support from family members and healthcare professionals. The available evidence does not indicate that all patients require every

intervention. Rather, care should be individualized according to disease severity, symptom profile, preferences, functional goals, and clinical appropriateness [1–8].

Oxygen-related studies emphasize the need to evaluate respiratory support in relation to the individual patient. Oxygen delivery systems that meet physiological criteria may still differ in terms of ease of use, mobility, or practical suitability. Similarly, newer respiratory technologies should not be considered superior simply because they have potential physiological advantages. These differences are important for nursing practice. Patients may value the ability to walk to the bathroom, perform personal care, spend time with family, or participate in meaningful activities. Therefore, assessments should consider symptom relief and functional goals alongside appropriate clinical measures. The HFNC trial also illustrates the importance of interpreting findings according to the actual outcomes measured. When a trial does not demonstrate a significant difference in the primary clinical outcome, the results should be reported accurately and not presented as evidence of superiority or equivalence [1–3].

Inhaler adherence is influenced by more than just a patient's willingness to follow treatment. Understanding the prescribed regimen, correct use of the device, managing routines, access to medication, and follow-up can all impact adherence. Evidence mapped by Zhu et al [5] suggests that interventions can be delivered through several approaches, including education, behavioral strategies, technique training, reminders, and transitional care. This diversity of approaches suggests that adherence support is not a single, standardized intervention.

Nurses can contribute by observing inhaler use techniques, checking understanding, reinforcing education, exploring barriers without blame, and arranging follow-up when necessary. Family involvement and digital support may be beneficial for some patients, but should be tailored to individual needs and preferences. The scarcity of studies in rural areas identified in existing adherence reviews also raises equity concerns. Interventions that rely on stable connectivity, digital trust, or frequent access to specialist services may not be suitable for every patient [10]. Future research should examine how adherence support can be adapted to less resourced settings.

The smartphone-based rehabilitation trial by Shi et al. [4] provides an example of a program combining several components: structured education, rhythm-guided walking, and singing. The reported findings suggest that the combined program may improve several functional and psychological outcomes compared with usual care. However, these findings

should be interpreted with caution. Multicomponent interventions may be beneficial as a package without demonstrating which components are responsible for the observed changes. The relatively small sample size and limited follow-up also limit conclusions about long-term effects, sustainability, and broader implementation.

In nursing practice, digital service delivery should be seen as one option within a broader rehabilitation pathway. This can help patients access structured activities at home, but it should not eliminate the need for assessment, individualized exercise recommendations, safety monitoring, and professional follow-up. Future studies need to examine not only clinical outcomes, but also feasibility, patient engagement, digital accessibility, adherence to the intervention, caregiver engagement, and the resources needed for sustainable implementation.

Strengths and limitations

The main strength of the approach proposed in this review is its breadth of scope. It brings together intervention areas often discussed separately and organizes them according to their relevance to respiratory support, self-management, function, psychological well-being, and symptom management. However, the current manuscript has important limitations. First, the evidence mapping is based on summaries of articles contained in provided educational documents, rather than on comprehensive and reproducible database searches. Therefore, these sources may not represent the full range of relevant literature. Second, bibliographic details and characteristics of selected studies require verification against original publications. Fourth, the intervention and outcome categories are heterogeneous, preventing meaningful direct comparisons or pooled estimates. Finally, the inclusion of existing scoping reviews alongside primary studies requires separate reporting to avoid double-counting. These limitations mean that the current results should be interpreted as a preliminary mapping of the material presented, not as a definitive account of all available evidence. Completion of database searches, study selection, full-text verification, data charting, and item-level assessment are necessary before the manuscript can be presented as a complete scoping review.

CONCLUSION

This initial evidence map identifies a range of interventions relevant to supportive and palliative nursing care for people with COPD. The resources mapped include respiratory support, inhaler adherence, pulmonary rehabilitation, digital information delivery, psychological well-

being, pain, and musculoskeletal limitations. Together, this demonstrates that COPD care goes beyond respiratory assessment and requires attention to the symptoms and functional challenges that shape daily life. Evidence supports the importance of individualized respiratory management, ongoing education and adherence support, accessible rehabilitation, psychological care, and appropriate symptom management. However, interventions and outcomes vary widely, and available summaries do not demonstrate the superiority of a single integrated care model. A comprehensive scoping review using a transparent search and selection process is needed to establish the breadth of evidence, clarify methodological limitations, and identify gaps in patient-centered and palliative nursing research. Future studies should prioritize meaningful patient outcomes, longer follow-up, equitable access, and careful evaluation of multicomponent approaches.

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Conflict of Interest. The authors declare that there is no conflict of interest in the preparation until publication of this article.

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