Evidence - based Guidelines for Lung Cancer Palliation

Lung Cancer Palliation: Supplement

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Department of Health Research
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CONTENTS

FOR PATIENTS WITH LUNG CANCER, DOES EARLY INTEGRATION OF PALLIATIVE CARE WITH STANDARD ONCOLOGICAL CARE COMPARED TO STANDARD ONCOLOGICAL CARE ALONE, IMPROVE PATIENT OUTCOMES?

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Supplement

1. Key Question in PICO format

For patients with lung cancer, does early integration of palliative care with standard oncological care compared to standard oncological care alone, improve patient outcomes?

PICO

Framework	Description
Population	Patients with lung cancer Subgroups: 1. Stage (Early-stage vs Advanced stage) 2. Age 3. Comorbidities 4. Symptoms
Intervention	Standard oncological care with early integration of palliative care ***Subgroup***: 1. within 8 weeks of diagnosis of lung cancer vs later 2. Various components of palliative care
Comparator	Standard oncological care without early integration of palliative care
Outcome	Symptom burden control (*Critical outcome*) Quality of life (*Critical outcome*) Overall survival (*Critical outcome*) Documented advance care-plan (*Important outcome*) Aggressive interventions in last month of patients' life [emergency visits/ ICU utilization/oncological intervention] (*Important outcome*) Cost (*Important outcome*)

2. Search Strategy

a. PubMed: (As on date 15/06/2024)

Sr. No	Concept	Search Strategy	Hits
[1]	Lung Cancer	"lung cancer"[Title/Abstract] OR "lung neoplasm"[Title/Abstract] OR "lung carcinoma"[Title/Abstract] OR "Lung tumor"[Title/Abstract] OR "Malignant lung cancer"[Title/Abstract] OR "Pulmonary lung cancer"[Title/Abstract] OR "Pulmonary neoplasm"[Title/Abstract] OR "Pulmonary Cancer"[Title/Abstract] OR "Lung Neoplasms"[MeSH Terms] OR "Small Cell Lung Carcinoma"[MeSH Terms] OR "carcinoma, non-small cell lung"[MeSH Terms]	362,059 results
[2]	Palliative care	"Palliative care"[Title/Abstract] OR "Palliative treatment"[Title/Abstract] OR "Palliative therapy"[Title/Abstract] OR "Palliative supportive care"[Title/Abstract] OR "Palliative surgery"[Title/Abstract] OR "palliative medicine"[Title/Abstract] OR "EoLC"[Title/Abstract] OR "End of life care"[Title/Abstract] OR "terminal care"[Title/Abstract] OR "hospice* care"[Title/Abstract] OR "Life support care"[Title/Abstract]	908,398 results

		OR "Early integration"[Title/Abstract] OR "palliative care"[MeSH Terms] OR "Hospice and Palliative Care Nursing"[MeSH Terms] OR "palliative medicine"[MeSH Terms] OR "Hospice Care"[MeSH Terms] OR "terminal care"[MeSH Terms] OR "Terminally Ill"[MeSH Terms] OR "integrat*"[Title/Abstract]	
[3]	Treatment Outcome	"treatment outcome"[Title/Abstract] OR "treatment outcome"[MeSH Terms] OR "outcome*"[Title/Abstract] OR "quality of life"[Title/Abstract] OR "quality of life"[MeSH Terms] OR "QoL"[Title/Abstract] OR "Life quality"[Title/Abstract] OR "HRQOL"[Title/Abstract] OR "Health related quality of life"[Title/Abstract] OR "Symptom control"[Title/Abstract] OR "Overall survival"[Title/Abstract] OR "Documented advance care plan"[Title/Abstract] OR "emergency visits"[Title/Abstract] OR "Emergency Room Visits"[MeSH Terms] OR "ICU utilisation"[Title/Abstract] OR "ICU length of stay"[Title/Abstract] OR "Hospital length of stay"[Title/Abstract] OR "Length of Stay"[MeSH Terms] OR "Direct cost"[Title/Abstract] OR "Indirect cost"[Title/Abstract] OR "Cost"[Title/Abstract] OR "Health Expenditures"[MeSH Terms] OR "Disease-Free Survival"[MeSH Terms]	4,243,684 results
[4]	Study Design	"Clinical Trial"[Title/Abstract] OR "Observational Study"[Title/Abstract] OR "randomized controlled trial"[Publication Type] OR "Controlled Clinical Trial"[Publication Type] OR "randomized controlled trial"[Title/Abstract] OR "Observational Studies as Topic"[MeSH Terms] OR "Observational Study"[Publication Type] OR "Clinical Trial"[Publication Type] OR "Clinical Trials as Topic"[MeSH Terms] OR "Controlled Clinical Trial"[Publication Type] OR "Non-Randomized Controlled Trials as Topic"[MeSH Terms] OR "Clinical Trial Protocols as Topic"[MeSH Terms] OR "Clinical Trial Protocol"[Publication Type] OR "Non-Randomized Controlled Trials"[Title/Abstract] OR "Cohort Studies"[MeSH Terms] OR "Case-Control Studies"[MeSH Terms] OR "Randomized Controlled Trials as Topic"[MeSH Terms] OR "Case-Control Studies"[Title/Abstract] OR "Cohort Studies"[Title/Abstract]	4,127,524 results
[5]	[1] AND [2] AND [3] AND [4] AND ((humans [Filter]) AND (english[Filter]))		1,636 results

b. EMBASE: (As on date 15/06/2024)

Sr. No	Concept	Search Strategy	Hits
[1]	Lung cancer	'lung cancer':ti,ab OR 'lung neoplasm':ti,ab OR 'lung carcinoma':ti,ab OR 'Lung tumor':ti,ab OR 'Malignant lung cancer':ti,ab OR 'Pulmonary lung cancer':ti,ab OR 'Pulmonary neoplasm':ti,ab OR 'Pulmonary Cancer':ti,ab OR 'lung carcinoma'/exp OR 'small cell lung cancer'/exp OR 'non-small cell lung cancer'/exp OR 'lung tumor'/exp OR 'lung cancer'/exp OR 'non- small cell lung cancer':ti,ab OR 'small cell lung cancer':ti,ab	616,619 results
[2]	Palliative care	'Palliative care':ti,ab OR 'Palliative treatment':ti,ab OR 'Palliative therapy':ti,ab OR 'Palliative supportive care':ti,ab	1,141,182 results

		OR 'Palliative surgery':ti,ab OR 'palliative medicine':ti,ab OR EoLC:ti,ab OR 'End of life care':ti,ab OR 'terminal care':ti,ab OR 'hospice* care':ti,ab OR 'Life support care':ti,ab OR 'Early integration':ti,ab OR 'palliative care'/exp OR 'palliative nursing'/exp OR 'palliative medicine'/exp OR 'Hospice Care'/exp OR 'terminal care'/exp OR 'Terminally Ill'/exp OR integrat*:ti,ab	
[3]	Treatment Outcome	'treatment outcome':ti,ab OR 'treatment outcome'/exp OR outcome*:ti,ab OR 'quality of life':ti,ab OR 'quality of life'/exp OR QoL:ti,ab OR 'Life quality':ti,ab OR HRQOL:ti,ab OR 'Health related quality of life':ti,ab OR 'Symptom control':ti,ab OR 'Overall survival':ti,ab OR 'overall survival'/exp OR 'Documented advance care plan':ti,ab OR 'emergency visits':ti,ab OR 'Emergency Room Visits':ti,ab OR 'emergency department visit'/exp OR 'ICU utilisation':ti,ab OR 'ICU length of stay':ti,ab OR 'Hospital length of stay':ti,ab OR 'Length of Stay'/exp OR 'Direct cost':ti,ab OR 'Indirect cost':ti,ab OR Cost:ti,ab OR 'cost'/exp OR 'Health Expenditures':ti,ab OR 'health care cost'/exp OR 'Disease-Free Survival'/exp	6,654,426 results
[4]	Study Design	'Clinical Trial':ti,ab OR 'clinical trial'/exp OR 'clinical trial (topic)'/exp OR 'Observational Study':ti,ab OR 'observational study'/exp OR 'randomized controlled trial':ti,ab OR 'randomized controlled trial'/exp OR 'controlled clinical trial (topic)'/exp OR 'Non-Randomized Controlled Trials':ti,ab OR 'randomized controlled trial (topic)'/exp OR 'cohort analysis'/exp OR 'case control study'/exp OR 'Case-Control Studies':ti,ab OR 'Cohort Studies':ti,ab	3,960,904 results
[5]	[1] AND [2] AND [3] AND [4] AND [embase]/lim NOT ([embase]/lim AND [medline]/lim) AND ('article'/it OR 'article in press'/it OR 'short survey'/it)		542

c. SCOPUS: (As on date 15/06/2024)

Sr. No	Concept	Search Strategy	Hits
[1]	Lung cancer	TITLE-ABS ("lung cancer") OR TITLE-ABS ("lung neoplasm") OR TITLE-ABS ("lung carcinoma") OR TITLE-ABS ("Lung tumor") OR TITLE-ABS ("Malignant lung cancer") OR TITLE-ABS ("Pulmonary lung cancer") OR TITLE-ABS ("Pulmonary neoplasm") OR TITLE-ABS ("Pulmonary Cancer") OR INDEXTERMS ("Lung Neoplasms") OR INDEXTERMS ("Small Cell Lung Carcinoma") OR INDEXTERMS ("carcinoma, non-small cell lung")	380,528 results
[2]	Palliative care	TITLE-ABS(EoLC) OR TITLE-ABS("End of life care") OR TITLE-ABS("terminal care") OR TITLE-ABS("hospice* care") OR TITLE-ABS("palliative medicine") OR TITLE-ABS("palliative care") OR TITLE-ABS("Palliative treatment") OR TITLE-ABS("Palliative therapy") OR TITLE-ABS("Palliative supportive care") OR TITLE-ABS("Palliative surgery") OR TITLE-ABS("Life support care") OR TITLE-	3,496,410 results

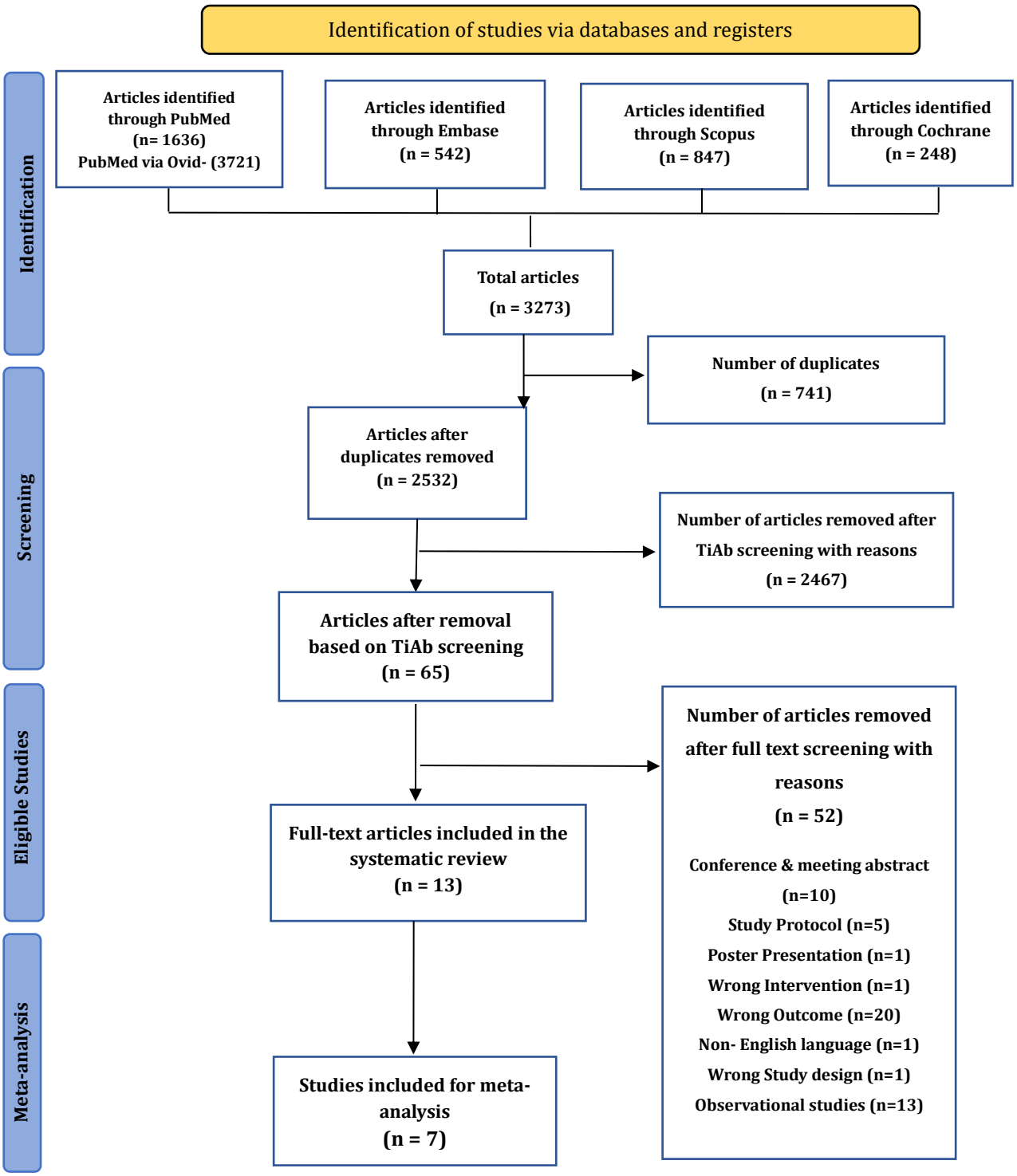
		ABS("Early integration") OR INDEXTERMS("palliative care") OR INDEXTERMS("Hospice and Palliative Care Nursing") OR INDEXTERMS("palliative medicine") OR INDEXTERMS("Hospice Care") OR INDEXTERMS("terminal care") OR INDEXTERMS("Terminally Ill") OR TITLE-ABS(integrat*)	
[3]	Treatment Outcome	TITLE-ABS("treatment outcome") OR INDEXTERMS("treatment outcome") OR TITLE-ABS(outcome*) OR TITLE-ABS("quality of life") OR INDEXTERMS("quality of life") OR TITLE-ABS(QoL) OR TITLE-ABS("Life quality") OR TITLE-ABS(HRQOL) OR TITLE-ABS("Health related quality of life") OR TITLE-ABS("Symptom control") OR TITLE-ABS("Overall survival") OR TITLE-ABS("Documented advance care plan") OR TITLE-ABS("emergency visits") OR INDEXTERMS("Emergency Room Visits") OR TITLE-ABS("ICU utilisation") OR TITLE-ABS("ICU length of stay") OR TITLE-ABS("Hospital length of stay") OR INDEXTERMS("Length of Stay") OR TITLE-ABS("Direct cost") OR TITLE-ABS("Indirect cost") OR TITLE-ABS(Cost) OR INDEXTERMS("Health Expenditures") OR INDEXTERMS("Disease-Free Survival")	8,115,032 results
[4]	Study Design	TITLE-ABS("Clinical Trial") OR TITLE-ABS("Observational Study") OR DOCTYPE("randomized controlled trial") OR DOCTYPE("Controlled Clinical Trial") OR TITLE-ABS("randomized controlled trial") OR INDEXTERMS("Observational Studies as Topic") OR DOCTYPE("Observational Study") OR DOCTYPE("Clinical Trial") OR INDEXTERMS("Clinical Trials as Topic") OR DOCTYPE("Controlled Clinical Trial") OR INDEXTERMS("Non-Randomized Controlled Trials as Topic") OR INDEXTERMS("Clinical Trial Protocols as Topic") OR DOCTYPE("Clinical Trial Protocol") OR TITLE-ABS("Non-Randomized Controlled Trials") OR INDEXTERMS("Cohort Studies") OR INDEXTERMS("Case-Control Studies") OR INDEXTERMS("Randomized Controlled Trials as Topic") OR TITLE-ABS("Case-Control Studies") OR TITLE-ABS("Cohort Studies")	1,962,749 results
[5]	[1] AND [2] AND [3] AND [4]		847 results

d. COCHRANE CENTRAL: (As on date 15/06/2024)

Sr. No	Concept	Search Strategy	Hits
[1]	Lung cancer	"lung cancer":ti,ab OR "lung neoplasm":ti,ab OR "lung carcinoma":ti,ab OR "Lung tumor":ti,ab OR "Malignant lung cancer":ti,ab OR "Pulmonary lung cancer":ti,ab OR "Pulmonary neoplasm":ti,ab OR "Pulmonary Cancer":ti,ab OR [mh "Lung Neoplasms"] OR [mh "Small Cell Lung Carcinoma"] OR [mh "carcinoma, non- small cell lung"] OR "Small Cell Lung Cancer":ti,ab OR "Non- small cell lung cancer":ti,ab	25704 results

[2]	Palliative care	"palliative care":ti,ab OR "Palliative treatment":ti,ab OR "Palliative therapy":ti,ab OR "Palliative supportive care":ti,ab OR "Palliative surgery":ti,ab OR EoLC:ti,ab OR "End of life care":ti,ab OR "terminal care":ti,ab OR "hospice care":ti,ab OR "palliative medicine":ti,ab OR "Life support care":ti,ab OR "Early integration":ti,ab OR [mh "Life support care"] OR [mh "Hospice and Palliative Care Nursing"] OR [mh "palliative medicine"] OR [mh "Hospice Care"] OR [mh "terminal care"] OR [mh "Terminally Ill"] OR integrat*:ti,ab	41254 results
[3]	Treatment Outcome	"treatment outcome":ti,ab OR [mh "treatment outcome"] OR outcome*:ti,ab OR "quality of life":ti,ab OR [mh "quality of life"] OR QoL:ti,ab OR "Life quality":ti,ab OR HRQOL:ti,ab OR "Health related quality of life":ti,ab OR "Symptom control":ti,ab OR "Overall survival":ti,ab OR "Documented advance care plan":ti,ab OR "emergency visits":ti,ab OR [mh "Emergency Room Visits"] OR "ICU utilisation":ti,ab OR "ICU length of stay":ti,ab OR "Hospital length of stay":ti,ab OR [mh "Length of Stay"] OR "oncological intervention":ti,ab OR "Direct cost":ti,ab OR "Indirect cost":ti,ab OR Cost:ti,ab OR [mh "Health Expenditures"] OR [mh "Disease-Free Survival"]	900570 results
[4]	Study Design	"Clinical Trial":ti,ab OR [mh "Clinical Trial"] OR "Observational Study":ti,ab OR [mh "Observational Study"] OR [mh "randomized controlled trial"] OR "randomized controlled trial":pt OR "Controlled Clinical Trial":pt OR "randomized controlled trial":ti,ab OR [mh "Observational Studies as Topic"] OR "Observational Study":pt OR "Clinical Trial":pt OR [mh "Clinical Trials as Topic"] OR "Controlled Clinical Trial":pt OR [mh "Non-Randomized Controlled Trials as Topic"] OR [mh "Clinical Trial Protocols as Topic"] OR "Clinical Trial Protocol":pt OR "Non-Randomized Controlled Trials":ti,ab OR [mh "Cohort Studies"] OR [mh "Case-Control Studies"] OR [mh "Randomized Controlled Trials as Topic"] OR "Case-Control Studies":ti,ab OR "Cohort Studies":ti,ab	647894 results
[5]	[1] AND [2] AND [3] AND [4]		257 results

3. PRISMA flow diagram



4. Summary of Included Studies

S. No	Study ID	Population- Inclusion criteria	Population- Exclusion criteria	Intervention	Comparator	Outcome reported with time points
1	Temel et al 2010	Pathologically confirmed metastatic non– small-cell lung cancer diagnosed within the previous 8 weeks and an Eastern Cooperative Oncology Group (ECOG) performance status of 0-2, and were able to read and respond to questions in English.	Patients already receiving care from the palliative care service were excluded.	Early Palliative Care (n=77) Palliative care visits with physician and nurse within 3 weeks of enrolment and then monthly till death.	Standard Care (n=74) Standard oncological treatment. Palliative care visits at request by the patient, the family, or the oncologist.	*Primary:* Change in QOL measured with FACT L and Trial outcome Index. *Secondary:* Mood measured with HADS, PHQ 9 and end of life preferences.
2	Temel et al 2017	Patients within 8 weeks of a diagnosis of incurable lung (NSCLC, small-cell, or mesothelioma); required to receive their care at MGH, be ≥18 years of age, no history of therapy for metastatic disease, Eastern Cooperative Oncology Group performance status of 0 to 2, and be able to read and respond to questions in English or	Excluded those who were already receiving PC services, needed immediate referral for PC or hospice, or who had significant psychiatric or other comorbid disease. Age and comorbidities reported. Presenting symptoms not reported.	Early Palliative care (PC) (n=95) Outpatient PC team Consisting of physicians and advanced practice nurses; patient seen within 4 weeks of enrolment and at least once per month until death."	Usual care (n=96) PC clinician only upon request by the oncologist, patient, or family.	*Primary:* Change in quality of life (QOL) as measured by FACT G at week 12. *Secondary:* Change in QOL from baseline to week 24, Change in depression: Patient Health Questionnaire-9 and HADS Differences in end-of-life communication

		complete questionnaires with minimal assistance.				Time points: Baseline, 12 weeks and 24 weeks.
3	Krug et al 2021	Newly diagnosed metastatic lung cancer (stage 4); Age ≥18 years; Adequate Knowledge in German.	Patients unwilling to participate and unable to give consent	Milestone Communication Approach (MCA) group (n=79) Structured, interprofessional (physician-nurse tandem) milestone conversations, follow-up phone calls by the nurse, and interprofessional communication training. It involved four milestone conversations in disease trajectory (diagnosis, stable phase, progression, transition to best supportive care) along with monthly phone calls on communication and symptoms and palliative care needs.	Standard oncological care (n=79) No follow up calls	*Primary:* Patient information needs (Health System and Information Needs subscale of the Short Form Supportive Care Needs Survey (SCNS-SF34-G) measured 3 months after inclusion in the study. *Secondary:* Physical and psychological supportive care needs (SCNS-SF34-G); Quality of life (SEIQoL and FACT-L); Distress (Distress thermometer); Depression and anxiety (PHQ 4- PHQ2 and GAD 2) Timepoints: Baseline, 3, 6, and 12 months

4	Reinke et al. 2022 Reinke et al 2024 (update)	Diagnosis of lung cancer (within eight weeks) or a recurrence of primary lung cancer within five years, >40 years of age, English literacy, and telephone access.	Excluded patients with cognitive impairment documented in the electronic medical record (EMR) or were actively receiving palliative or hospice care.	Nurse-led telephonic palliative care intervention (n=73): The intervention was based on the Chronic Care Model, which incorporates symptom assessment and management, person-centred care plans, and education on lung cancer treatments. It consisted of eight phone calls from the nurse over three months. The calls were scheduled weekly for four weeks and every other week for eight weeks. They included symptom assessment/management, education, discussion of goals of care, and psychosocial needs assessment.	Usual care (n=78) Chemotherapy, Radiation, surgery, Immunotherapy and stereotactic body radiotherapy (SBRT)	*Primary:* Quality of life and symptoms with Functional Assessment of Cancer Therapy-Lung Scale Total Outcome Index (FACT-L TOI) *Secondary:* Satisfaction of care with FAMCARE-P13. Timepoint: Baseline and 3 months Secondary analysis on advance care plans, health care use and nurses perceptions.

5	Chen et al 2023	Inpatients and outpatient patients who had Stage IIIB to IV advanced NSCLC within eight weeks of enrolment, treatment naïve or had not received disease-directed treatments, were 18 years or older, had a baseline Eastern Cooperative Oncology Group (ECOG) from 0 to 2, had expected survival time at least 24 weeks and had sufficient reading and cognitive skills.	Excluded patients who already received palliative care services.	Combined early palliative care model (n=140) E-warm model, which encompasses the principles of Early, Whole, Assessment, Re-evaluation, and MDT Management. Monthly visits with focus on QoL, nutrition level, pain management, and psychological support.	Standard oncology care (n=140) All oncological treatments	*Primary:* Overall survival (OS). *Secondary*: Changes in the QoL using FACT-L scale, including the lung-cancer subscale (LCS) and Trial Outcome Index (TOI), psychological functioning using HADS A, HADS D and PHQ 9, pain using numerical rating scale (NRS), and nutrition state using PG-SGA. Time points: Baseline and 6 months.
6	Dutta et al 2024	Diagnosed nonmetastatic lung cancer (stage II and III), receiving oncology care at the outpatient department within 8 weeks of diagnosis. Age group of >18 years to those not over 65 years; able to read and respond to the questions in Bengali; complete questionnaires with minimal assistance; and those who cooperated and	Excluded patients with one more palliative care consultation in the three months before diagnosis or disease progression, patients deemed cognitively impaired at the discretion of the oncologist and psychologist during the OPD or had a significant psychiatric	Early integration of palliative care service (EIPCS) with standard oncology care (n=64)	Standard oncology care (n=51) Chemotherapy or Radiation or both.	*Primary:* Physical symptoms as measured by Edmonton Symptom Assessment System (ESAS). *Secondary:* Psychosocial well-being as measured by the Warwick–Edinburgh Mental Well-Being Scale (WEMWBS).

		agreed to fill out the questionnaires during the interview.	or other disease that would interfere with participation.			Time points: Baseline and 3 months.
7	Allende et al 2024	Metastatic NSCLC without previous treatment, diagnosed within the last 8 weeks and could read and answer questions in Spanish	Patients who were already attending the palliative care clinic were excluded.	Early palliative care (EPC) with standard care (n=73) Programmed visits to meet with the palliative, nutrition, and psychological care specialists at baseline and after the 2nd, 4th, and 6th cycles	Standard of care (n=73) PC visits only when expressly requested by the patients, their primary caregiver, or their attending physician.	*Primary:* Overall survival. *Secondary:* Quality of life (QoL) with EORTC QLQ C30, anxiety and depression-HADS, caregiver burden with ZARIT scale and symptom intensity with ESAS.

5 Data Extraction

Name	Early Palliative Care for Patients with Metastatic Non–Small-Cell Lung Cancer
Author	Temel et al, 2010
Study Type	Non-Blinded Randomised controlled trial
Countries and setting	USA
Number of Participants	151
Duration of study follow up (in months)	Median follow up 5.7 months.
Inclusion Criteria	Pathologically confirmed metastatic non-small-cell lung cancer diagnosed within the previous 8 weeks and an Eastern Cooperative Oncology Group (ECOG) performance status of 0-2, and were able to read and respond to questions in English.
Exclusion Criteria	Patients already receiving care from the palliative care service were excluded.
Recruitment/Selection of Patients	Massachusetts General Hospital, Boston
Intervention	Early Palliative Care
Outcome reported with time points	The study showed improvement in quality of life (98 vs 91.1, p=0.03), lesser depressive symptoms, fewer received aggressive end of life care and median survival was longer with early palliative care (11.6 vs 8.9 months, p=0.02)
Funding	Funded by the American Society of Clinical Oncology Career Development Award and philanthropic gifts
ROB 2 Assessment	1. Randomisation process- *Some concerns* 2. Deviations from intended interventions- *Low* 3. Missing outcome data- *Some concerns* 4. Measurement of outcome- *Some concerns*

	5. Selection of the reported result- *Low* 6. Overall- *Come concerns*

Name	**Effects of Early Integrated Palliative Care in Patients with Lung and GI Cancer: A Randomized Clinical Trial**
Author	Temel et al, 2017
Study Type	Non-Blinded Randomised controlled trial
Countries and setting	USA
Number of Participants	350
Duration of study follow up (in months)	Not mentioned
Inclusion Criteria	Patients within 8 weeks of a diagnosis of incurable lung (NSCLC, small-cell, or mesothelioma); required to receive their care at MGH, be ≥18 years of age, no history of therapy for metastatic disease, Eastern Cooperative Oncology Group performance status of 0 to 2, and be able to read and respond to questions in English or complete questionnaires with minimal assistance
Exclusion Criteria	Excluded those who were already receiving PC services, needed immediate referral for PC or hospice, or who had significant psychiatric or other comorbid disease. Age and comorbidities reported. Presenting symptoms not reported.
Recruitment/Selection of Patients	Massachusetts General Hospital, Boston
Intervention	Early integrate Palliative Care and oncology care
Outcome reported with time points	The study showed improvement in QOL and lower depression at 24 weeks with early integration of palliative care.

Funding	Funded by National Institutes of Health Grant No. NCT01401907 and National Institute of Nursing Research Grant No. R01- NR012735.
ROB 2 Assessment	1. Randomisation process- *Low* *2.* Deviations from intended interventions- *Some concerns* 3. Missing outcome data- *Low* *4.* Measurement of outcome- *Some concerns* 5. Selection of the reported result- *Low* 6. Overall- *Some concerns*

Name	**Effects of an Interprofessional Communication Approach on Support Needs, Quality of Life, and Mood of Patients with Advanced Lung Cancer: A Randomized Trial**
Author	Krug et al, 2021
Study Type	Non-Blinded Randomised controlled trial
Countries and setting	Germany
Number of Participants	174
Duration of study follow up (in months)	Not mentioned.
Inclusion Criteria	Newly diagnosed metastatic lung cancer (stage 4); Age ≥18 years; Adequate Knowledge in German.
Exclusion Criteria	Patients unwilling to participate and unable to give consent.
Recruitment/Selection of Patients	Department of Thoracic Oncology in Heidelberg
Intervention	Milestone Communication Approach
Outcome reported with time points	The study showed improvement in QOL and lower depression at 24 weeks with early integration of palliative care.

Funding	Funded by the German Federal Ministry of Health and the National Centre for Tumor Diseases
ROB 2 Assessment	1. Randomisation process- *Low* 2. Deviations from intended interventions- *Low* 3. Missing outcome data- *Low* 4. Measurement of outcome-*Some concerns* 5. Selection of the reported result- *Low* 6. Overall- *Some concerns*

Name	**A Randomized Trial of a Nurse-Led Palliative Care Intervention for Patients with Newly Diagnosed Lung Cancer**
Author	Reinke et al. 2022
Study Type	Multi-site Non-Blinded Randomised controlled trial
Countries and setting	USA
Number of Participants	151
Duration of study follow up (in months)	Not mentioned
Inclusion Criteria	Diagnosis of lung cancer (within eight weeks) or a recurrence of primary lung cancer within five years, >40 years of age, English literacy, and telephone access.
Exclusion Criteria	Excluded patients with cognitive impairment documented in the electronic medical record (EMR) or were actively receiving palliative or hospice care.
Recruitment/Selection of Patients	VA Medical Centres in Seattle, WA, Birmingham, AL, and Portland VA Medical Centre, USA
Intervention	Nurse-led telephonic palliative care intervention

Outcome reported with time points	The study showed nurse palliative care intervention did not improve quality of care, symptoms or satisfaction. Advance care directives improved with palliative care.
Funding	Funded by Funded by Department of Veterans Affairs, Health Services Research and Development, NRI no. 15-456.
ROB 2 Assessment	1. Randomisation process-*Low* 2. Deviations from intended interventions- *Low* 3. Missing outcome data- *Low* 4. Measurement of outcome-*Some concerns* 5. Selection of the reported result- *High* 6. Overall- *High*

Name	**Early Palliative Care in Patients with Non–Small-Cell Lung Cancer: A Randomized Controlled Trial in Southwest China**
Author	Chen et al 2023
Study Type	Non-Blinded Randomised controlled trial
Countries and setting	China
Number of Participants	280
Duration of study follow up (in months)	Not mentioned
Inclusion Criteria	Inpatients and outpatient patients who had Stage IIIB to IV advanced NSCLC within eight weeks of enrolment, treatment naïve or had not received disease-directed treatments, were 18 years or older, had a baseline Eastern Cooperative Oncology Group (ECOG) from 0 to 2, had expected survival time at least 24 weeks and had sufficient reading and cognitive skills.
Exclusion Criteria	Excluded patients who already received palliative care services.

Recruitment/Selection of Patients	Chongqing University Cancer Hospital, Chongqing, China
Intervention	Combined early palliative care model
Outcome reported with time points	The study showed patients receiving early palliative care had better QOl, lower depressive symptoms, better nutritional status and better pain management. The overall survival was also higher with early palliative care (20.4 vs. 24.6 months, p = 0.042).
Funding	Supported by Chongqing Talents Innovation Leading Talents Program (cstc2021ycjh-bgzxm0256), Natural Science Foundation of Chongqing of China (cstc2021jcyjmsxmX0400), Chongqing medicinal biotech association of scientific research projects(cmba2022kyym-zkxmQ0011), Chongqing Scientific Research Institutions Performance Incentive and guidance Project (cstc2022jxjl0221),Chongqing Municipal Education Commission of Science and Technology Research Project (KJQN202300120), and Technology innovation and application development projects of Shapingba district, Chongqing, China (202394).
ROB 2 Assessment	1. Randomisation process-*Some concerns* 2. Deviations from intended interventions- *Low* 3. Missing outcome data- *High* 4. Measurement of outcome-*Some concerns* 5. Selection of the reported result- *Low* 6. Overall- *High*

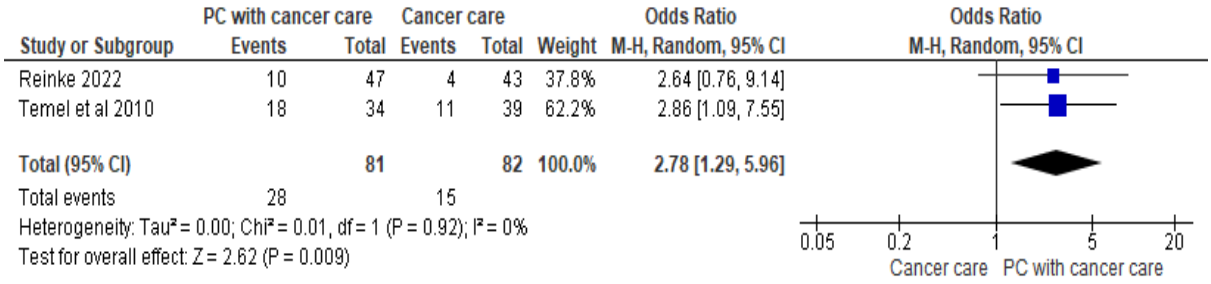
Name	Role of Symptomatic Management in Understanding Effects of Early Integration of Palliative Care among Nonmetastatic Lung Cancer Patients on Psychological Well-Being
Author	Dutta et al 2024
Study Type	Non-Blinded Randomised controlled trial
Countries and setting	India
Number of Participants	115
Duration of study follow up (in months)	Not mentioned
Inclusion Criteria	Diagnosed nonmetastatic lung cancer (stage II and III), receiving oncology care at the outpatient department within 8 weeks of diagnosis. Age group of >18 years to those not over 65 years; able to read and respond to the questions in Bengali; complete questionnaires with minimal assistance; and those who cooperated and agreed to fill out the questionnaires during the interview.
Exclusion Criteria	Excluded patients with one more palliative care consultation in the three months before diagnosis or disease progression, patients deemed cognitively impaired at the discretion of the oncologist and psychologist during the OPD or had a significant psychiatric or other disease that would interfere with participation.
Recruitment/Selection of Patients	Medical oncology clinic at Super Specialty Hospital in West Bengal, India.
Intervention	Early integration of palliative care service (EIPCS) with standard oncology care
Outcome reported with time points	The study showed that early integration of palliative care was associated with better psychological well-being and lower symptoms (ESAS - 51.84±0.01 vs 97.64±2.18).
Funding	Self-funded.
ROB 2 Assessment	1. Randomisation process-High 2. Deviations from intended interventions- Low 3. Missing outcome data- High

	4. Measurement of outcome-High 5. Selection of the reported result- Low 6. Overall- High

Name	**Early Incorporation to Palliative Care (EPC) in Patients With Advanced Non-Small Cell Lung Cancer: The PACO Randomized Clinical Trial**
Author	Allende et al 2024
Study Type	Non-blinded single centre Randomised controlled trial
Countries and setting	Mexico
Number of Participants	146
Duration of study follow up (in months)	Not mentioned
Inclusion Criteria	Metastatic NSCLC without previous treatment, diagnosed within the last 8 weeks and could read and answer questions in Spanish.
Exclusion Criteria	Patients who were already attending the palliative care clinic were excluded.
Recruitment/Selection of Patients	Thoracic Oncology Unit at the Instituto Nacional de Cancerología (INCan), Mexico
Intervention	Early palliative care (EPC) with standard care
Outcome reported with time points	The study showed significant improvement in survival with addition of early palliative care (18.1 months vs 10.5 months, P = .029). The mean QOL improved but was not significant. There was no impact on anxiety and depression.
Funding	Funding information is not available.
ROB 2 Assessment	1. Randomisation process-*Some concerns* 2. Deviations from intended interventions- *Low* 3. Missing outcome data- *High* 4. Measurement of outcome-*High* 5. Selection of the reported result- *Green* 6. Overall- *High*

6 Forest Plots of Important Outcomes

Figure 1: Documented Advance Care Plan



Aggressive Intervention in the last month of Patient's Care

Figure 2: Aggressive Interventions

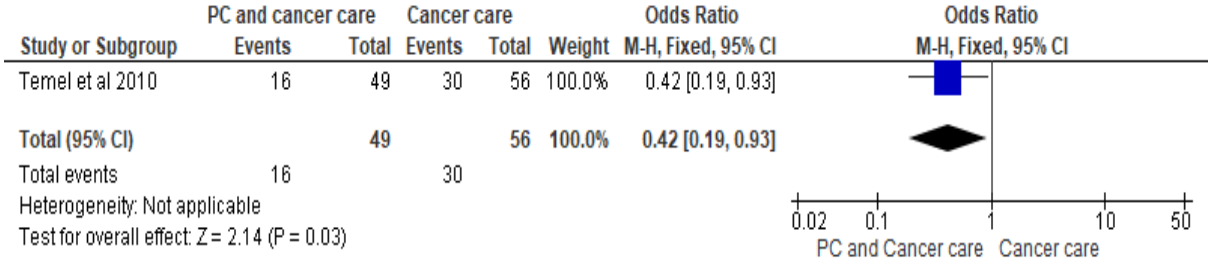


Figure 3: Emergency Department Visits

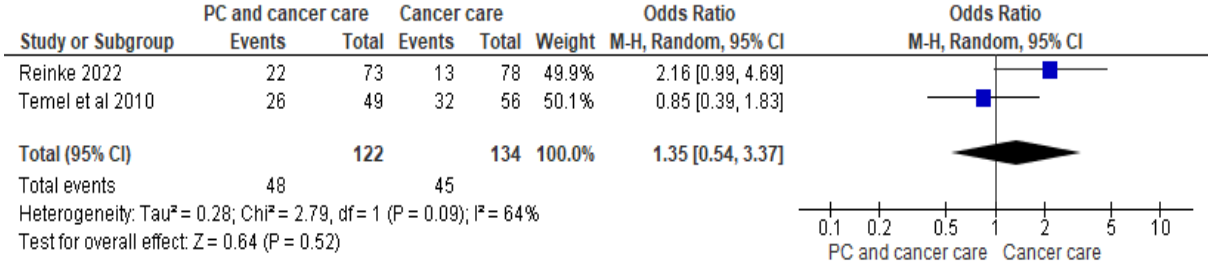
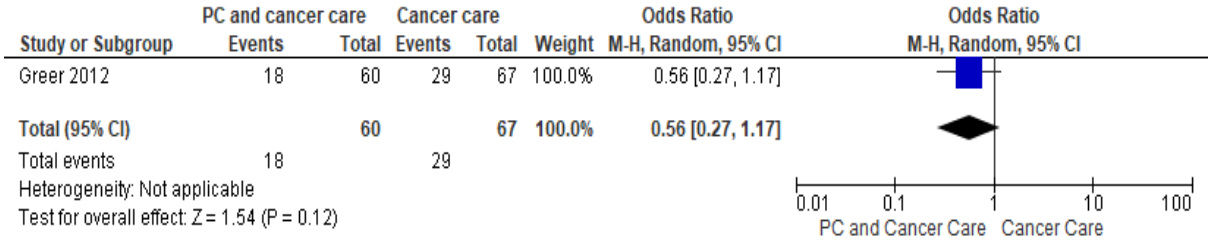


Figure 4: Use of Systemic treatment in last month of life



7.Summary of Findings

Early Integration of Palliative Care along with Standard Oncological Care versus Standard Oncological Care alone

Patient or population: Patients with Lung Cancer

Intervention: Palliative care with standard oncological care

Comparison: Standard Oncological Care

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	No. of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with standard oncological care alone	Risk with Early integration of Palliative care with standard oncological care				
Documented advanced care planning	18 per 100	**38 per 100** (22 to 57)	**OR 2.78** (1.29 to 5.96)	163 (2 RCTs)	⊕◯◯◯ Very Low[a,b]	Early integration of Palliative care with standard oncological care may increase documented advanced care planning.
Aggressive intervention overall	54 per 100	**33 per 100** (18 to 52)	**OR 0.42** (0.19 to 0.93)	105 (1 RCT)	⊕◯◯◯ Vey Low[c,d,b]	Early integration of Palliative care with standard oncological care may reduce aggressive intervention overall slightly.

Emergency Department visits	34 per 100	**41 per 100** (21 to 63)	**OR 1.35** (0.54 to 3.37)	256 (2 RCTs)	⊕◯◯◯ Very Low[a,e,f]	Early integration of Palliative care with standard oncological care may increase/have little to no effect on emergency department visits but the evidence is very uncertain.
Use of systemic treatment in last month of life	43 per 100	**30 per 100** (17 to 47)	**OR 0.56** (0.27 to 1.17)	127 (1 RCT)	⊕◯◯◯ very Low[c,d,f]	Early integration of Palliative care with standard oncological care may reduce/have little to no effect on use of systemic treatment in last month of life but the evidence is very uncertain.

*__The risk in the intervention group__ (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: *Confidence Interval*; **HR:** *Hazard Ratio*; **MD:** *Mean Difference*; **OR:** *Odds Ratio*

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of effect.

Explanations:

a. *Downgraded by two levels for risk of bias as less than 1/3rd studies (by weight) were at low risk of bias*
b. *Small sample size, Optimal Information size (OIS) is not met.*
c. *Some concerns were identified in the study included for this outcome*
d. *Single study was downgraded one level for inconsistency as it was in evaluable*
e. *High heterogeneity is present with significant I^2.*
f. *Downgraded one level for imprecision as the 95% CI crossed the null effect line*

8.Evidence Profile Table

Early Integration of Palliative Care along with Standard Oncological Care versus Standard Oncological Care alone

Patient or population: Patients with Lung Cancer

Intervention: Palliative care with standard oncological care

Comparison: Standard Oncological Care

Certainty Assessment							No. of Patients		Effect		Certainty	Importance
No. of studies	Study Design	Risk of Bias	Inconsistency	Indirectness	Imprecision	Other Considerations	Early Integration of Palliative Care with Standard Oncological Care	Standard Oncological Care Alone	Relative (95% CI)	Absolute (95% CI)		
Documented Advanced Care Planning												
2	randomised trials	Very serious [a]	not serious	not serious	serious[b]	none	28/81 (34.6%)	15/82 (18.3%)	**OR 2.78** (1.29 to 5.96)	**20 more per 100** (from 4 more to 39 more)	⊕◯◯◯ Very Low[a,b]	IMPORTANT
Aggressive Intervention Overall												
1	randomised trials	serious[c]	serious[d]	not serious	serious[b]	none	16/49 (32.7%)	30/56 (53.6%)	**OR 0.42** (0.19 to 0.93)	**21 fewer per 100** (from 36 fewer to 2 fewer)	⊕◯◯◯ Vey Low[c,d,b]	IMPORTANT

Emergency Department Visits												
2	randomised trials	Very serious[a]	serious[e]	not serious	Serious[f]	none	48/122 (39.3%)	45/134 (33.6%)	**OR 1.35** (0.54 to 3.37)	**7 more per 100** (from 12 fewer to 29 more)	⊕◯◯◯ Very Low[a,e,f]	IMPORTANT
Use of Systemic Treatment in last month of life												
1	randomised trials	serious[c]	Serious[d]	not serious	Serious[f]	none	18/60 (30.0%)	29/67 (43.3%)	**OR 0.56** (0.27 to 1.17)	**13 fewer per 100** (from 26 fewer to 4 more)	⊕◯◯◯ very Low[c,d,f]	IMPORTANT

CI: *Confidence Interval*

Explanations:

a. *Downgraded by two levels for risk of bias as less than 1/3rd studies (by weight) were at low risk of bias*
b. *Small sample size, Optimal Information size (OIS) is not met.*
c. *Some concerns were identified in the study included for this outcome*
d. *Single study was downgraded one level for inconsistency as it was in evaluable*
e. *High heterogeneity is present with significant I^2.*
f. *Downgraded one level for imprecision as the 95% CI crossed the null effect line*

9.Evidence to Decision Framework

Should Early integration of palliative care with standard oncological care vs. standard oncological care alone be used for patients with lung cancer?	
Population:	Patients with lung cancer
Intervention:	Early integration of palliative care with standard oncological care
Comparison:	standard oncological care alone

Assessment

Problem Is the problem a priority?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ No ○ Probably no ○ Probably yes ● Yes ○ Varies ○ Don't know	Lung cancer remains the most prevalent cancer globally and is frequently diagnosed at advanced or metastatic stages, often accompanied by severe symptom burden such as pain, dyspnoea, fatigue, and anorexia. Despite growing evidence suggesting that early palliative care may improve patient outcomes-including symptom control, quality of life, and end-of-life care decisions-there remains a critical gap in cancer-specific data, especially for lung cancer. Meta-analyses have generally combined heterogeneous cancer types, limiting the applicability of their findings to lung cancer specifically. While some randomized controlled trials demonstrate benefits, others yield inconclusive results, underscoring the need for targeted evidence. Moreover, the high morbidity associated with lung cancer, its global disease burden, and the potential for EPC to reduce aggressive end-of-life	No additional consideration
Desirable Effects How substantial are the desirable anticipated effects?		

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Trivial ○ Small ● Moderate ○ Large ○ Varies ○ Don't know	The desirable effects of early integration of palliative care indicate modest but potentially meaningful improvements in symptom burden, QoL, and overall survival. The evidence suggests a reduction in symptom burden (ESAS: MD 45.8 lower) and improvement in depression (HADS D: MD 2.01 lower), as well as slight improvements in distress score and anxiety scores (DT and HADS A), though these findings are not statistically significant. Furthermore, patients experienced better overall quality of life as measured by FACT-L, FACT-G, and TOI, with increases ranging from 4.52 to 6.11 points. Importantly, overall survival was prolonged by approximately 4.27 months (95% CI: 2.48 higher to 0.06 higher).	The panel discussed the overlap between Fact G and Fact L and raised a query for the possibility of FACT L scores being better than FACT G scores provided that FACT L questionnaire contains questions which are common to FACT G and questions which are more specific to Lung Cancer. It was further mentioned that such an occurrence is possible as the detailing of questions in FACT L would have allowed the patients to respond better. Further, the baseline increase of overall survival was explored, inferring to almost 25% increase in average from the baseline values, which contributed to the judgement of moderate level of desirable effects.

Outcomes	Anticipated absolute effects* (95% CI)		Relative Effect (95% CI)	No. of Participants (Studies)	Certainty of the Evidence (GRADE)
	Risk with standard oncological care alone	Risk with Early integration of Palliative care with standard oncological care			
HADS A	Mean score 4.33	MD **0.09 lower** (2.26 lower to 2.07 higher)	-	426 (2 RCTs)	⊕◯◯◯ Very low[a,b,c]
HADS D	Mean score 5.77	MD **2.01 lower** (2.46 lower to 1.56 lower)	-	426 (2 RCTs)	⊕◯◯◯ Very low[a,d]
ESAS	Mean score 97.64	MD **45.8 lower** (46.4 lower to 45.2 lower)	-	115 (1 RCT)	⊕◯◯◯ Very low[a,d,e]
DT SCORE	Mean score 5.5	MD **0.6 lower** (1.58 lower to 0.38 higher)	-	97 (1 RCT)	⊕⊕◯◯ Low[c,e,f]
FACT L	Mean score 97.29	MD **6.11 higher** (3.53 higher to 8.69 higher)	-	485 (3 RCTs)	⊕⊕◯◯ Low[a,d]
FACT G	Mean score 71.73	MD **4.52 higher** (1.47 lower to 10.5 higher)	-	289 (2 RCTs)	⊕⊕◯◯ Low[a,c]
Quality of life assessed with: TOI	Mean score 58.92	MD **4.53 higher** (2.23 higher to 6.83 higher)	-	489 (3 RCTs)	⊕◯◯◯ Very low[a,d]
Overall survival	The median overall survival was **13.2** months	MD **4.27 months higher** (2.48 higher to 6.06 higher)	-	577 (3 RCTs)	⊕◯◯◯ Very low[a,d]

Undesirable Effects How substantial are the undesirable anticipated effects?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Trivial ○ Small ○ Moderate ○ Large ○ Varies ● Don't know	None of the included studies reported serious harms or deterioration.	No studies reported adverse effects. The GDG discussed the possibility of the intervention not to have any potential side effects or harm. The judgement options were discussed in the context of early palliation as there was no option of choosing no harm as a choice. The GDG deliberated on the need of gathering evidence despite of the awareness that there are no potential harmful effects associated with early palliation. The GDG further pointed out that from clinician's perspective, if it is well known that intervention like early palliation is associated with no potential side effect is there a need to find evidence for such an intervention. It was mentioned that the studies which exclusively study the adverse effects of interventions as their critical outcome include this criterion. The GDG discussed the dilemma of choosing 'trivial' as the option of judgement because it translates to an

		increase, which is slight in nature as side effect which may not by true for intervention like integration of palliation where the increase in side effect in this case is zero. Further, it was mentioned that none of the included studies for the systematic review discussed any side effects. The GDG then discussed that, in the purist perspective, the status of evidence for undesirable effects in unknown as none of the studies have reported it. It was mentioned that the worst possible scenario for the integration of early palliation would be that patients may stop the standard of care because of the symptomatic relief and comfort that from the intervention, which is not a good outcome. As per the GDG, since this outcome is significant and not studied, it should be an area to be considered for research.
Certainty of evidence What is the overall certainty of the evidence of effects?		

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
● Very low ○ Low ○ Moderate ○ High ○ No included studies	Overall certainty of evidence is very low due to risk of bias, inconsistency and imprecision	No additional considerations.
Values Is there important uncertainty about or variability in how much people value the main outcomes?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Important uncertainty or variability ○ Possibly important uncertainty or variability ○ Probably no important uncertainty or variability ● No important uncertainty or variability	Symptom management emerged as a top concern for both patients and caregivers in a qualitative study of 26 patients and 14 caregivers, underscoring its importance from the very start of palliative engagement (Hannon B et al. Palliat Med. 2017;31(1):72–81). Freedom from pain, sense of completion, and maintaining dignity were the highest-ranked end-of-life priorities: among seriously ill patients (n = 340), recently bereaved family members (n = 332), physicians (n = 361), and other care providers (n = 429), over 70% rated these attributes as important (Steinhauser KE et al. JAMA. 2000;284(19):2476–2482) A systematic review and meta-analysis of 43 RCTs involving 12,731 patients and 2,479 caregivers on association between Palliative Care and patient and caregiver outcomes,	Based on the available evidence, the panel unanimously agreed that the intervention is valued by patients, caregivers and physicians with no important uncertainty or variability.

	early palliative care interventions were consistently associated with significant improvements in quality of life and reductions in symptom burden (Dio Kavalieratos et al, JAMA. 2016 November 22; 316(20): 2104–2114)	

Balance of effects Does the balance between desirable and undesirable effects favour the intervention or the comparison?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Favors the comparison ○ Probably favors the comparison ○ Does not favor either the intervention or the comparison ○ Probably favors the intervention ● Favors the intervention ○ Varies ○ Don't know	The balance of effects favors the early integration of palliative care with standard oncological treatment over standard oncological treatment alone. Despite the very low to moderate certainty of evidence, consistent improvements were observed: symptom relief was evident with reductions in distress (DT score: MD 0.6 lower; moderate certainty) and symptom burden (ESAS: MD 4.58 lower), quality of life improved as measured by FACT-L (MD 6.11 higher), FACT-G (MD 4.52 higher), and TOI (MD 3.63 higher) with low certainty, and overall survival increased by a mean of 4.27 months (95% CI: 2.48 to 0.06 months higher). Given that undesirable effects are trivial, these desirable effects are likely to outweigh potential harms, supporting the early integration of palliative care in lung cancer management	The panel decided that the desirable effects of the early integration of palliative care improved for the overall outcomes whereas no significant harms were reported in the evidence and included studies resulting in an overall balance that favoured the intervention.

Resources Required		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Large costs ● Moderate costs ○ Negligible costs	**Trained human resources** Hospital support team: 136.20 Euros for first visit & 346.50 Euros for follow up cost	The GDG mentioned that the systematic review mentioned no. of advanced medical directive which

and savings ○ Moderate savings ○ Large savings ○ Varies ○ Don't know	Home care team: 183.20 Euros for first visit & 74.40 Euros for follow up cost Day care centre: 435.08 Euros per day & 2319 Euros per month (Ostgathe et al, 2007, German study) Implementing early palliative care requires additional human resources (e.g., trained palliative care specialists, nurses, and psychosocial support staff), infrastructure for outpatient or home-based palliative services, and coordination with oncology teams. Outpatient palliative care visits: $250–$500 per patient per month (Temel et al., 2010; May et al., 2015) Inpatient palliative care consult $300–$400 per consult (Morrison et al., 2008)	were documented as a consequence of palliative care intervention. It was also mentioned that in India, 70-80% patients spend out of pocket, hence, there is a need to consider OOPE and insurance cost for the judgement. The GDG further extrapolated the existing evidence and decided that the resources required for the intervention would incur moderate costs.

Certainty of evidence of required resources What is the certainty of the evidence of resource requirements (costs)?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Very low ● Low ○ Moderate ○ High ○ No included studies	For the palliative care cost estimates, the overall certainty of evidence is low, for the following reasons: • All cost data derive from observational costing studies and secondary analyses rather than randomized comparisons, introducing potential selection and measurement biases. • The figures come from single-centre U.S. studies that may not generalize to other health-care systems or patient populations. • Wide cost ranges (e.g., $250–$500/month; $300–$400/consult) reflect substantial uncertainty in average per-patient expenditures. • Few studies have reported these costs, and those that have used differing methodologies for resource accounting.	The GDG discussed that since there is indirect evidence which has mentioned costs of resources pertaining to additional costs with the intervention but since there are no studies found in the Indian context, the certainty is low.

Cost effectiveness Does the cost-effectiveness of the intervention favor the intervention or the comparison?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Favors the comparison ○ Probably favors the comparison ○ Does not favor either the intervention or the comparison ● Probably favors the intervention ○ Favors the intervention ○ Varies ○ No included studies	We did not get any direct evidence on cost effectiveness of early integration of palliative care in lung cancer patients. 'Palliative care services were related to decreasing hospital costs by 28.6% (P < .001)' (Jinwook Hwang. Ten-Year Trends of Utilization of Palliative Care Services and Life-Sustaining Treatments and Hospital Costs Associated with Patients with Terminally Ill Lung Cancer in the United States From 2005 to 2014. American Journal of Hospice and Palliative Medicine) Early PC was associated with a lower mean total cost per day of $117 (p = 0.13) compared to SC' (Greer JA, Tramontano AC, McMahon PM, Pirl WF, Jackson VA, El-Jawahri A, Parikh RB, Muzikansky A, Gallagher ER, Temel JS, Cost Analysis of a Randomized Trial of Early Palliative Care in Patients with Metastatic Nonsmall-Cell Lung Cancer: J Palliat Med, 2016 19(8):842-8.) There are no published incremental cost-effectiveness analyses with Quality Adjusted Life-Years (QALY) outcomes exclusively in lung cancer patients.	There is no direct evidence associated with cost effectiveness of the intervention. The GDG mentioned that there is no uncertainty of net benefit and the benefits from all the desirable outcomes needs to be considered. It was further discussed, based on observation that the benefit has very important in the Indian scenario and absence of integration has led to very high costs during the last few days with poor symptom management and quality of life. It was further discussed that; effectiveness should be considered at the given threshold of the payer or the society as a whole. There is no doubt in terms of clinical effectiveness that the intervention purely favours the comparator, but considering the additional costs associated with the intervention, the extremities of uncertainty analysis and differences in functional setting to facilitate the intervention, the GDG

		deliberated whether the cost effectiveness purely favours the intervention despite of the large benefit associated with it. Further, it was established that although the efficacy of the intervention is clear, effectiveness is what happens when the research data is attempted to be translated into the real world. Even if, an efficacious intervention turns out to be effective, its costs are still unknown as the certainty of evidence is low. Therefore, considering all the parameters to balance and look at the effectiveness in terms of INR or USD vs the costs to be going into the intervention, the effectiveness is unknown as there are no included studies. Therefore, choosing a judgement in the favour of intervention would require a reasoning behind choosing the option. The panel discussed that though the indirect evidence shows cost effectiveness, it would require a substantial reasoning for choosing a judgement that entirely favours the intervention but the availability of low certainty of evidence and

		indirect evidence on resources required led towards choosing the mentioned judgement.
Equity What would be the impact on health equity?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Reduced ● Probably reduced ○ Probably no impact ○ Probably increased ○ Increased ○ Varies ○ Don't know	No direct evidence on the effects of health equity of early integrated palliative care were identified.	Early integration of palliative care can help close gaps in lung cancer outcomes by ensuring all patients especially those from underserved, rural, or low-income backgrounds receive timely symptom relief, psychosocial support, and advance-care planning. If services remain limited to major centres or hindered by coverage, transportation, or staffing barriers, disparities may worsen. To promote equity, programs should expand into community settings, leverage telehealth, train local providers, and secure payer support so that every patient benefits equally. The panel discussed that accessing the intervention in India has a low incidence. Hence, it was pointed out that the intervention would potentially reduce equity as the access to the intervention is low

		in India. Therefore, the people who are closer to the institution where the intervention can be delivered or be referred and find a care pathway to reach those institutions are those who would receive the treatment, excluding the rest.
Acceptability Is the intervention acceptable to key stakeholders?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ No ○ Probably no ○ Probably yes ● Yes ○ Varies ○ Don't know	Clinicians: In a qualitative study of 28 lung cancer clinicians, the majority reported that routine early involvement of palliative care was acceptable-provided that teams demonstrate competence, clear care coordination, and easy referral pathways. (Le BH, Mileshkin et al. Acceptability of early integration of palliative care in patients with incurable lung cancer. J Palliat Med. 2014 May;17(5):553-8.) Patients: Qualitative study of 48 patients and caregivers showed that they value early palliative consultations for symptom relief and psychosocial support and do not perceive them as "giving up" on treatment (Camilla Zimmermann et al. Perceptions of palliative care among patients with advanced cancer and their caregivers. CMAJ July 12, 2016 188 (10) E217-E227)	There were no studies in the Indian context. On the basis of existing evidence, the panel judged that the intervention is accepted by clinicians and patients.
Feasibility Is the intervention feasible to implement?		

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ No ○ Probably no ○ Probably yes ● Yes ○ Varies ○ Don't know	Project ENABLE II achieved over 90% of participants completing at least half of their scheduled visits during the first 12 weeks, demonstrating that dedicated coordination teams and referral protocols can support timely engagement (Bakitas M,etal). The project ENABLE II randomized controlled trial to improve palliative care for rural patients with advanced cancer: baseline findings, methodological challenges, and solutions. Palliat Support Care. 2009 Mar;7(1):75-86) The completion rate was 70% out of 50 patients enrolled (Matsumoto et al. Early specialized palliative care for patients with metastatic lung cancer receiving chemotherapy: a feasibility study of a nurse-led screening-triggered programme. Jpn J Clin Oncol. 2022 Apr 6;52(4):375-382.) In a longitudinal, single–arm, and single-center study, 50 patients were recruited and followed up every 3-4 weeks for 6 months, measuring the symptom burden using ESAS and QoL. The primary end point of feasibility was that at least 60% of the patients should complete 50% of the planned palliative care visits and over 50% of the patients should complete QoL questionnaires. 48% completed the planned follow-up visits. (Deodhar JK, et al). A Study to Assess the Feasibility of Introducing Early Palliative Care in Ambulatory Patients with Advanced Lung Cancer. Indian J Palliat Care. 2017 Jul-Sep;23(3):261-267)	The GDG mentioned that follow up from certain centres where patients from neighbouring states and region visit is feasible. Additionally, home care visits are also a part of palliative care delivery mechanism which further strengthens the feasibility. It was mentioned that there are NGOs which also support in providing palliative care services.

SUMMARY OF JUDGEMENTS

	JUDGEMENT						
PROBLEM	No	Probably no	Probably yes	**Yes**		Varies	Don't know
DESIRABLE EFFECTS	Trivial	Small	**Moderate**	Large		Varies	Don't know
UNDESIRABLE EFFECTS	Trivial	Small	Moderate	Large		Varies	**Don't know**
CERTAINTY OF EVIDENCE	**Very low**	Low	Moderate	High			No included studies
VALUES	Important uncertainty or variability	Possibly important uncertainty or variability	Probably no important uncertainty or variability	**No important uncertainty or variability**			
BALANCE OF EFFECTS	Favors the comparison	Probably favors the comparison	Does not favor either the intervention or the comparison	Probably favors the intervention	**Favors the intervention**	Varies	Don't know
RESOURCES REQUIRED	Large costs	**Moderate costs**	Negligible costs and savings	Moderate savings	Large savings	Varies	Don't know
CERTAINTY OF EVIDENCE OF REQUIRED RESOURCES	Very low	**Low**	Moderate	High			No included studies
COST EFFECTIVENESS	Favors the comparison	Probably favors the comparison	Does not favor either the intervention or the comparison	**Probably favors the intervention**	Favors the intervention	Varies	No included studies
EQUITY	Reduced	**Probably reduced**	Probably no impact	Probably increased	Increased	Varies	Don't know
ACCEPTABILITY	No	Probably no	Probably yes	**Yes**		Varies	Don't know

	JUDGEMENT						
FEASIBILITY	No	Probably no	Probably yes	**Yes**		Varies	Don't know

TYPE OF RECOMMENDATION

Strong recommendation against the intervention	Conditional recommendation against the intervention	Conditional recommendation for either the intervention or the comparison	Conditional recommendation for the intervention	Strong recommendation for the intervention
○	○	○	○	●

CONCLUSIONS

Recommendation
Early integration of palliative care with standard oncological care is ***recommended*** as compared to standard oncological care alone for patients with lung cancer. **Strength**: Strong **Certainty of evidence**: Very low
Justification
The evidence showed moderate desirable effects, along with acceptability, feasibility, and cost-effectiveness probably favouring the early integration of palliative care. Despite very low certainty of evidence, the panel judged that the benefits clearly outweigh minimal harms. Given strong patient values and preferences for early supportive care, a strong recommendation was issued, while recognizing the need to address moderate resource requirements and potential equity concerns during implementation.

10.List of Excluded Studies

Sr. No.	Citation of the study (Vancouver style only)	Reasons for exclusion
1.	Chen M, Yu H, Yang L, Wang S, Tian L, Liu S. 1453P Early interdisciplinary supportive care in patients with non-small cell lung cancer: a randomised controlled trial. Ann Oncol. 2021;32:S1080.	Conference abstract, wrong publication
2.	Chen M, Yu H. 1593MO Combined early palliative care in patients with non-small cell lung cancer: a randomised controlled trial in Chongqing, China. Ann Oncol. 2023;34:S886.	Conference abstract, wrong publication
3.	Chen M, Yu H. 61P Early palliative care in patients with non-small cell lung cancer: a 36-weeks randomised controlled trial in China. J Thorac Oncol. 2023;18(4):S76.	Conference abstract, wrong publication
4.	Korfage IJ, Carreras G, Christensen CMA, Billekens P, Bramley L, Briggs L, et al. Advance care planning in patients with advanced cancer: A 6-country, clusterrandomised clinical trial. PLoS Med [Internet]. 2020;17(11). Available from: https://www.embase.com/search/results?subaction=viewrecord&id=L2010216004&from=export U2 - L2010216004	No PC and No outcomes separately for Lung cancer, wrong outcome.
5.	ChiCTR-IOR-16008521. A randomized, open clinical trial to compare the effects of conventional care and conventional care combined with palliative care on the symptoms and quality of life of patients who had diagnosed with therioma. HttpstrialsearchwhointTrial2aspxTrialIDChiCTR-IOR-16008521 [Internet]. 2016; Available from: https://www.cochranelibrary.com/central/doi/10.1002/central/CN-01854600/full	Protocol, Wrong Publication
6.	NCT01983956. A Structured Early Palliative Care Intervention for Patients With Advanced Cancer - a Randomized Controlled Trial With a Nested Qualitative Study (SENS Trial). https://clinicaltrials.gov/show/NCT01983956 [Internet]. 2013; Available from: https://www.cochranelibrary.com/central/doi/10.1002/central/CN-01479007/full	Protocol, Wrong Publication
7.	Jacobsen J, Jackson V, Dahlin C, Greer J, Perez-Cruz P, Billings JA, et al. Components of early outpatient palliative care consultation in patients with metastatic nonsmall cell lung cancer. J Palliat Med. 2011;14(4):459–64.	Wrong outcome
8.	Mulvenna P, Nankivell M, Barton R, Faivre-Finn C, Wilson P, McColl E, et al. Dexamethasone and supportive care with or without whole brain radiotherapy in treating patients with non-small cell lung cancer with brain metastases unsuitable for resection or stereotactic radiotherapy (QUARTZ): results from a phase 3, non-inferiority, randomised trial. Lancet Lond Engl. 2016;388(10055):2004–14.	wrong outcome
9.	Chen N, Chen M, Yu H. Early interdisciplinary palliative care in patients with non-small cell lung cancer: a 24-weeks randomised controlled trial in Southwest China. Ann Oncol. 2022;33:S1578.	conference abstract, Wrong Publication
10.	Chen M, Yu H, Yang L, Wang S, Tian L, Liu S. Early palliative care based on warm model in patients with non-small-cell lung cancer: a randomised controlled trial. Clin Nutr ESPEN. 2021;46:S568.	conference abstract, Wrong Publication

11.	Chen M, Yu H. Early Palliative Care Focus On Nutritional Status In Patients With Non-Small-Cell Lung Cancer: a Randomised Controlled Trial In Southwest China. Clin Nutr ESPEN. 2023;54:487.	conference abstract, Wrong Publication
12.	Eschbach C, Heigener D, Nehls W, Villalobos M, van Oorschot B. Early palliative care: Fourth modality in metastasic lung cancer. Frühe Palliat Interv Vierte Modalität Beim Metastasierten Lungenkarzinom. 2014;20(10):998–1002.	foreign language
13.	Yoong J, Park ER, Greer JA, Jackson VA, Gallagher ER, Pirl WF, et al. Early palliative care in advanced lung cancer: a qualitative study. JAMA Intern Med. 2013;173(4):283–90.	Qualitative study, wrong study design
14.	Matsumoto Y, Okizaki A, Kiuchi D, Umemura S, Yamaguchi T, Oyamada S, et al. Effectiveness of a nurse-led, screening-triggered, early specialized palliative care intervention program for patients with advanced lung cancer: a multicenter randomized controlled trial. J Clin Oncol [Internet]. 2021;39(15). Available from: https://www.cochranelibrary.com/central/doi/10.1002/central/CN-02305748/full	meeting abstract, wrong publication type
15.	Greer J, McMahon P, Tramontano A, Gallagher E, Pirl W, Jackson V, et al. Effect of early palliative care on health care costs in patients with metastatic NSCLC. J Clin Oncol [Internet]. 2012;30(15). Available from: https://www.cochranelibrary.com/central/doi/10.1002/central/CN-01008200/full	conference abstract, Wrong publication type
16.	El-Jawahri A, Greer JA, Pirl WF, Park ER, Jackson VA, Back AL, et al. Effects of Early Integrated Palliative Care on Caregivers of Patients with Lung and Gastrointestinal Cancer: A Randomized Clinical Trial. The oncologist. 2017;22(12):1528–34.	wrong outcome
17.	Fidyk C, Popat S, Tay N, Smith L, Bowen R, Khawaja S, et al. Electronic collection of cancer patient-reported outcomes using a novel digital oncology platform: a multi-site randomized controlled trial. J Clin Oncol. 2023;41(16):TPS1614.	poster presentation, wrong publication type
18.	Dai W, Wang Y, Liao J, Wei X, Dai Z, Xu W, et al. Electronic Patient-Reported Outcome-Based Symptom Management Versus Usual Care After Lung Cancer Surgery: long-Term Results of a Multicenter, Randomized, Controlled Trial. J Clin Oncol. 2024;JCO2301854.	wrong intervention
19.	Gast KC, Benedict JA, Grogan M, Janse S, Saphire M, Kumar P, et al. Impact of an Embedded Palliative Care Clinic on Healthcare Utilization for Patients With a New Thoracic Malignancy. Front Oncol [Internet]. 2022;12. Available from: https://www.scopus.com/inward/record.uri?eid=2-s2.085127022315&doi=10.3389%2ffonc.2022.835881&partnerID=40&md5=666a72a23a1ab26ca6f66f7d4b3db32d	wrong outcome
20.	Costantini M, Apolone G, Tanzi S, Falco F, Rondini E, Guberti M, et al. Is early integration of palliative care feasible and acceptable for advanced respiratory and gastrointestinal cancer patients? A phase 2 mixed-methods study. Palliat Med. 2018;32(1):46–58.	wrong outcome
21.	Smith S, Sapkaroski D, Brand M, Tran A, Zalcberg J, Stirling RG. Mapping the clinical care pathways for advanced stage non-small cell lung cancer patients in Victoria: A retrospective cohort study of supportive and palliative care. Nurs Health Sci. 2023;25(3):411–23.	wrong outcome
22.	UMIN000025491. Nurse-led, screening-triggered early specialized palliative care intervention program for advanced lung cancer patients: a	Study protocol, Wrong publication type

	randomized controlled trial. HttpstrialsearchwhointTrial2aspxTrialIDJPRN-UMIN000025491 [Internet]. 2017; Available from: https://www.cochranelibrary.com/central/doi/10.1002/central/CN-01824829/full	
23.	Nieder C, Dalhaug A, Pawinski A, Haukland E, Mannsåker B, Engljähringer K. Palliative radiotherapy with or without additional care by a multidisciplinary palliative care team in patients with newly diagnosed cancer: a retrospective matched pairs comparison. Radiat Oncol Lond Engl. 2015;10:61.	wrong outcome
24.	Petrillo LA, El-Jawahri A, Gallagher ER, Jackson VA, Temel JS, Greer JA. Patient-Reported and End-of-Life Outcomes Among Adults With Lung Cancer Receiving Targeted Therapy in a Clinical Trial of Early Integrated Palliative Care: A Secondary Analysis. J Pain Symptom Manage. 2021;62(3):e65–74.	wrong outcome
25.	Petrillo L, El-Jawahri A, Gallagher E, Jackson V, Temel J, Greer J. Patient-Reported and End-of-Life Outcomes Among Adults with Oncogene-Driven Lung Cancer in a Clinical Trial of Early Integrated Palliative Care: a Secondary Analysis (F415C). J Pain Symptom Manage. 2021;61(3):651.	conference abstract, Wrong publication type
26.	Temel JS, Jackson VA, Billings JA, Dahlin C, Block SD, Buss MK, et al. Phase II study: integrated palliative care in newly diagnosed advanced non-small-cell lung cancer patients. J Clin Oncol Off J Am Soc Clin Oncol. 2007;25(17):2377–82.	wrong outcome
27.	Wiskemann J, Hummler S, Diepold C, Keil M, Abel U, Steindorf K, et al. POSITIVE study: physical exercise program in non-operable lung cancer patients undergoing palliative treatment. BMC Cancer. 2016;16:499.	Study protocol, wrong publication type
28.	Greer JA, Jacobs JM, El-Jawahri A, Nipp RD, Gallagher ER, Pirl WF, et al. Role of Patient Coping Strategies in Understanding the Effects of Early Palliative Care on Quality of Life and Mood. J Clin Oncol Off J Am Soc Clin Oncol. 2018;36(1):53–60.	wrong outcome
29.	ISRCTN13337289. SPECIAL: standard or Palliative Care in Advanced Lung Cancer - Does early referral of patients with metastatic non-small cell lung cancer to UK specialist palliative care services make a difference in their quality of life or survival? https://trialsearch.who.int/Trial2.aspx?TrialID=ISRCTN13337289 [Internet]. 2015; Available from: https://www.cochranelibrary.com/central/doi/10.1002/central/CN-01802640/full	Protocol, Wrong publication type
30.	Geerse OP, Hoekstra-Weebers JE, Stokroos MH, Burgerhof JG, Groen HJ, Kerstjens HA, et al. Structural distress screening and supportive care for patients with lung cancer on systemic therapy: A randomised controlled trial. Eur J Cancer Oxf Engl 1990. 2017;72:37–45.	wrong outcome
31.	Nipp RD, El-Jawahri A, Fishbein JN, Eusebio J, Stagl JM, Gallagher ER, et al. The relationship between coping strategies, quality of life, and mood in patients with incurable cancer. Cancer. 2016;122(13):2110–6.	wrong outcome
32.	Nipp R, Greer J, Traeger L, Gallagher E, Park E, Jackson V, et al. Which patients experience improved quality of life (QOL) and mood from early palliative care (PC)? J Clin Oncol [Internet]. 2014;32(31). Available from: https://www.cochranelibrary.com/central/doi/10.1002/central/CN-01049668/full	meeting abstract, wrong publication type

33.	Delibegovic A, Sinanovic O. The influence of palliative care on the level of anxiety and depression in lung cancer patients. Med Arch Sarajevo Bosnia Herzeg. 2013;67(4):263–5.	Observational study
34.	Ferrell B, Sun V, Hurria A, Cristea M, Raz DJ, Kim JY, et al. Interdisciplinary Palliative Care for Patients With Lung Cancer. J Pain Symptom Manage. 2015;50(6):758–67.	Observational study
35.	Hooker ER, Chapa J, Vranas KC, Niederhausen M, Goodlin SJ, Slatore CG, et al. Intersection of Palliative Care and Hospice Use Among Patients With Advanced Lung Cancer. J Palliat Med. 2023;26(11):1474–81.	Observational study
36.	Kalidindi Y, Jung J, Segel J, Leslie D. Impact of Length of Hospice on Spending and Utilization Among Medicare Beneficiaries With Lung Cancer. Am J Hosp Palliat Care. 2020;37(11):918–24.	Observational study
37.	Kang SC, Lin MH, Hwang IH, Lin MH, Chang HT, Hwang SJ. Impact of hospice care on end-of-life hospitalization of elderly patients with lung cancer in Taiwan. J Chin Med Assoc JCMA. 2012;75(5):221–6.	Observational study
38.	Kim JY, Sun V, Raz DJ, Williams AC, Fujinami R, Reckamp K, et al. The impact of lung cancer surgery on quality of life trajectories in patients and family caregivers. Lung Cancer Amst Neth. 2016;101:35–9.	Observational study
39.	King JD, Eickhoff J, Traynor A, Campbell TC. Integrated Onco-Palliative Care Associated With Prolonged Survival Compared to Standard Care for Patients With Advanced Lung Cancer: A Retrospective Review. J Pain Symptom Manage. 2016;51(6):1027–32.	Observational study
40.	Lafitte C, Etienne-Mastroianni B, Fournel C, Natoli L, Foucaut AM, Girard N. Implementation of optimized supportive care and hospital needs along the management of patients with advanced lung cancer. Lung Cancer Amst Neth. 2018;124:143–7.	Observational study
41.	Nguyen HQ, Ruel N, Macias M, Borneman T, Alian M, Becher M, et al. Translation and Evaluation of a Lung Cancer, Palliative Care Intervention for Community Practice. J Pain Symptom Manage. 2018;56(5):709–18.	Observational study
42.	Nieder C, Tollåli T, Haukland E, Reigstad A, Flatøy LR, Engljähringer K. Impact of early palliative interventions on the outcomes of care for patients with non-small cell lung cancer. Support Care Cancer Off J Multinatl Assoc Support Care Cancer. 2016;24(10):4385–91.	Observational study
43.	Schweiger L, Vranas KC, Furuno JP, Hansen L, Slatore CG, Sullivan DR. Association of Patient-Centered Elements of Care and Palliative Care Among Patients With Advanced Lung Cancer. Am J Hosp Palliat Care. 2023;40(1):18–26.	Observational study
44.	Sullivan DR, Chan B, Lapidus JA, Ganzini L, Hansen L, Carney PA, et al. Association of Early Palliative Care Use With Survival and Place of Death Among Patients With Advanced Lung Cancer Receiving Care in the Veterans Health Administration. JAMA Oncol. 2019;5(12):1702–9.	Observational study
45.	Vranas KC, Lapidus JA, Ganzini L, Slatore CG, Sullivan DR. Association of Palliative Care Use and Setting With Health-care Utilization and Quality of Care at the End of Life Among Patients With Advanced Lung Cancer. Chest. 2020;158(6):2667–74.	Observational study
46.	Franciosi V, Maglietta G, Degli Esposti C, Caruso G, Cavanna L, Bertè R, et al. Early palliative care and quality of life of advanced cancer patients-a multicenter randomized clinical trial. Ann Palliat Med. 2019;8(4):381–9.	Wrong outcome
47.	Li H, Wong CL, Jin X, Chong YY, Ng MSN. Effects of acceptance and commitment therapy-based intervention on fatigue interference and health-related quality of life in patients with advanced lung cancer: A	Wrong outcome

	randomised controlled trial. J Context Behav Sci [Internet]. 2024;32. Available from: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85189765256&doi=10.1016%2fj.jcbs.2024.100758&partnerID=40&md5=46385082c2a36aee078f86c1a997a734	
48.	Look ML, Tan SB, Hong LL, Ng CG, Yee HA, Lim LY, et al. Symptom reduction in palliative care from single session mindful breathing: A randomised controlled trial. Vol. 11, BMJ Support. Palliat. Care. ["M.L. Look, Medicine University of Malaya Medical Centre Kuala Lumpur, Wilayah Persekutuan, Malaysia", "M.L. Look, Palliative Unit, Hospital Selayang, Selangor, Malaysia"]; 2021. p. 433–9.	Wrong outcome
49.	Matsumoto Y, Umemura S, Okizaki A, Fujisawa D, Kobayashi N, Tanaka Y, et al. Early specialized palliative care for patients with metastatic lung cancer receiving chemotherapy: a feasibility study of a nurse-led screening-triggered programme. Jpn J Clin Oncol. 2022;52(4):375–82.	Wrong outcome
50.	Milbury K, Li Y, Durrani S, Liao Z, Tsao AS, Carmack C, et al. A Mindfulness-Based Intervention as a Supportive Care Strategy for Patients with Metastatic Non-Small Cell Lung Cancer and Their Spouses: Results of a Three-Arm Pilot Randomized Controlled Trial. The oncologist. 2020;25(11):e1794–802.	Wrong outcome
51.	Hoerger M, Greer JA, Jackson VA, Park ER, Pirl WF, El-Jawahri A, et al. Defining the Elements of Early Palliative Care That Are Associated With Patient-Reported Outcomes and the Delivery of End-of-Life Care. J Clin Oncol Off J Am Soc Clin Oncol. 2018;36(11):1096–102.	Wrong outcome
52.	Kalidindi Y, Segel J, Jung J. Impact of Hospice on Spending and Utilization Among Patients With Lung Cancer in Medicare. Am J Hosp Palliat Care. 2020;37(4):286–93.	Wrong outcome

IN PATIENTS WITH ADVANCED LUNG CANCER EXPERIENCING DYSPNOEA, HOW EFFECTIVE IS MULTIMODAL TREATMENT INTERVENTIONS COMPARED TO DRUG THERAPY ALONE IN TERMS OF IMPROVEMENT IN DYSPNOEA?

In Patients with advanced lung cancer experiencing dyspnoea, how effective is multi-modal treatment interventions compared to Drug therapy alone in terms of improvement in dyspnoea

Supplement

1. Key Question in PICO format

In patients with advanced lung cancer experiencing dyspnoea, how effective is multimodal treatment interventions compared to drug therapy alone in terms of improvement in dyspnoea?

PICO

Framework	Description
Population	Adult patients with advanced lung cancer experiencing shortness of breath
Intervention	**Multi-modal interventions (combination of drug and non-drug**). Drug: (opioids in dose for breathlessness, non-opioid medications (bronchodilators, corticosteroids, other analgesics, anxiolytics, laxatives, crisis medications) Nondrug: position, psycho-social support, vaccination, education on self-management (physical/occupational therapy, energy conservation techniques, hand-held fan)
Comparator	**Drug therapy alone** (opioids in dose for breathlessness, non-opioid medications (bronchodilators, corticosteroids, other analgesics, anxiolytics, laxatives)
Outcome	Improvement in dyspnoea (*critical outcome*) Performance status (*critical outcome*) Quality of life (*Critical outcome*) Cost (*Important outcome*)

2. Search Strategy

Search strings:

Search terms/keywords used for search strategy

a) PubMed: (As on date 15/06/2024)

Sr No	Search Domain	Search Strategy	Number of Hits
[1]	Advanced Lung Cancer	"lung cancer"[Title/Abstract] OR "lung neoplasm"[Title/Abstract] OR "lung carcinoma"[Title/Abstract] OR "Lung tumour"[Title/Abstract] OR "Lung tumor"[Title/Abstract] OR "Malignant lung cancer"[Title/Abstract] OR "Pulmonary lung cancer"[Title/Abstract] OR "Pulmonary neoplasm"[Title/Abstract] OR "Pulmonary Cancer"[Title/Abstract] OR "Lung Neoplasms"[MeSH Terms] OR "Small Cell Lung Carcinoma"[MeSH Terms] OR "carcinoma, non -small cell lung"[MeSH Terms] OR "Bronchogenic carcinoma"[Title/Abstract] OR "carcinoma, bronchogenic"[MeSH Terms]	362,970 results

[2]	Dyspnoea	"Dyspnoea"[Title/Abstract] OR "Dyspnoea"[Title/Abstract] OR "Breathlessness"[Title/Abstract] OR "Shortness of breath"[Title/Abstract] OR "Breathing difficulty"[Title/Abstract] OR "Dyspnoea"[MeSH Terms]	89,168 results
[3]	Multi-modal interventions	"Multidisciplinary treatment"[Title/Abstract] OR "Multidisciplinary interventions"[Title/Abstract] OR "Combined Modality Therapy"[MeSH Terms] OR "Multimodal treatment"[Title/Abstract] OR "Multimodal interventions"[Title/Abstract] OR "Multimodal therapy"[Title/Abstract] OR "drug therapy"[MeSH Terms] OR "drug therapy"[Title/Abstract] OR "Pharmacological management"[Title/Abstract] OR "Pharmacological treatment"[Title/Abstract] OR "Pharmacological strategies"[Title/Abstract] OR "Opioid"[Title/Abstract] OR "analgesics, opioid"[MeSH Terms] OR "Morphine"[MeSH Terms] OR "Morphine"[Title/Abstract] OR "Analgesics"[MeSH Terms] OR "Analgesics"[Title/Abstract] OR "Bronchodilator Agents"[MeSH Terms] OR "Bronchodilators"[Title/Abstract] OR "Anti-Anxiety Agents"[MeSH Terms] OR "Anxiolytics"[Title/Abstract] OR "Laxatives"[MeSH Terms] OR "Laxatives"[Title/Abstract] OR "Benzodiazepines"[MeSH Terms] OR "Benzodiazepines"[Title/Abstract] OR "Midazolam"[MeSH Terms] OR "Midazolam"[Title/Abstract] OR "Lorazepam"[MeSH Terms] OR "Lorazepam"[Title/Abstract] OR "Clonazepam"[Title/Abstract] OR "Clonazepam"[MeSH Terms] OR "Alprazolam"[MeSH Terms] OR "Alprazolam"[Title/Abstract] OR "Steroids"[MeSH Terms] OR "Steroids"[Title/Abstract] OR "Adrenal Cortex Hormones"[MeSH Terms] OR "Corticosteroids"[Title/Abstract] OR "palliative care"[MeSH Terms] OR "palliative care"[Title/Abstract] OR "Hospice Care"[MeSH Terms] OR "Supportive care"[Title/Abstract] OR "Palliative sedation"[Title/Abstract] OR "palliat*"[Title/Abstract] OR "Non-drug therapy"[Title/Abstract] OR "Non-drug measures"[Title/Abstract] OR "Non pharmacological management"[Title/Abstract] OR "Non pharmacological strategies"[Title/Abstract] OR "Non pharmacological treatment"[Title/Abstract] OR "Breathing techniques"[Title/Abstract] OR "Self-Management"[MeSH Terms] OR "Self-Management"[Title/Abstract] OR "Physical Therapy Modalities"[MeSH Terms] OR "Physiotherapy"[Title/Abstract] OR "Physical therapy"[Title/Abstract] OR "Pulmonary rehabilitation"[Title/Abstract] OR "Airflow techniques"[Title/Abstract] OR "Hand held fan"[Title/Abstract] OR "Oxygen"[MeSH Terms] OR "Oxygen Inhalation Therapy"[MeSH Terms] OR "Oxygen therapy"[Title/Abstract] OR "High flow nasal	4,519,164 results

		cannula"[Title/Abstract] OR "Noninvasive Ventilation"[MeSH Terms] OR "Non-invasive ventilation"[Title/Abstract] OR "position*"[Title/Abstract] OR "psycho-social support"[Title/Abstract] OR "Vaccination"[MeSH Terms] OR "Vaccination"[Title/Abstract] OR "Caregiver education"[Title/Abstract] OR "Patient education"[Title/Abstract] OR "Caregiver empowerment"[Title/Abstract] OR "Patient empowerment"[Title/Abstract] OR "Occupational Therapy"[MeSH Terms] OR "Occupational Therapy"[Title/Abstract] OR "energy conservation techniques"[Title/Abstract]	
[4]	Study design	"Clinical Trial"[Title/Abstract] OR "Observational Study"[Title/Abstract] OR "randomized controlled trial"[Publication Type] OR "Controlled Clinical Trial"[Publication Type] OR "randomized controlled trial"[Title/Abstract] OR "Observational Studies as Topic"[MeSH Terms] OR "Observational Study"[Publication Type] OR "Clinical Trial"[Publication Type] OR "Clinical Trials as Topic"[MeSH Terms] OR "Controlled Clinical Trial"[Publication Type] OR "Non-Randomized Controlled Trials as Topic"[MeSH Terms] OR "Clinical Trial Protocols as Topic"[MeSH Terms] OR "Clinical Trial Protocol"[Publication Type] OR "Non-Randomized Controlled Trials"[Title/Abstract] OR "Cohort Studies"[MeSH Terms] OR "Case-Control Studies"[MeSH Terms] OR "Randomized Controlled Trials as Topic"[MeSH Terms] OR "Case-Control Studies"[Title/Abstract] OR "Cohort Studies"[Title/Abstract]	4,130,389 results
[5]	Combined search domain	[1] AND [2] AND [3] AND [4] AND ((humans [Filter]) AND (English [Filter]))	606 results

b) EMBASE: (As on date 15/06/2024)

Sr No	Search Domain	Search Strategy	Number of Hits
[1]	Advanced Lung cancer	'lung cancer':ti,ab OR 'lung neoplasm':ti,ab OR 'lung carcinoma':ti,ab OR 'Lung tumour':ti,ab OR 'Lung tumor':ti,ab OR 'Malignant lung cancer':ti,ab OR 'Pulmonary lung cancer':ti,ab OR 'Pulmonary neoplasm':ti,ab OR 'Pulmonary Cancer':ti,ab OR 'Small Cell Lung Carcinoma':ti,ab OR 'non-small cell lung carcinoma'/exp OR 'Bronchogenic carcinoma':ti,ab OR 'lung cancer'/exp OR 'lung tumor'/exp OR 'lung carcinoma'/exp OR 'small cell lung cancer'/exp OR 'non-small cell lung cancer'/exp	618,553 results
[2]	Dyspnoea	Dyspnoea:ti,ab OR Dyspnoea:ti,ab OR Breathlessness:ti,ab OR 'Shortness of breath':ti,ab OR 'Breathing difficulty':ti,ab OR Dyspnoea/exp	292,129 results

[3]	Multi-modal interventions	'Multidisciplinary treatment':ti,ab OR 'Multidisciplinary interventions':ti,ab OR 'Combined Modality Therapy':ti,ab OR 'multimodality cancer therapy'/exp OR 'Multimodal treatment':ti,ab OR 'Multimodal interventions':ti,ab OR 'Multimodal therapy':ti,ab OR 'drug therapy'/exp OR 'drug therapy':ti,ab OR 'Pharmacological management':ti,ab OR 'Pharmacological treatment':ti,ab OR 'Pharmacological strategies':ti,ab OR Opioid:ti,ab OR 'opiate'/exp OR Morphine/exp OR Morphine:ti,ab OR 'analgesic agent'/exp OR Analgesics:ti,ab OR 'bronchodilating agent'/exp OR Bronchodilators:ti,ab OR 'anxiolytic agent'/exp OR Anxiolytics:ti,ab OR 'laxative'/exp OR Laxatives:ti,ab OR 'benzodiazepine derivative'/exp OR Benzodiazepines:ti,ab OR Midazolam/exp OR Midazolam:ti,ab OR Lorazepam/exp OR Lorazepam:ti,ab OR Clonazepam:ti,ab OR Clonazepam/exp OR Alprazolam/exp OR Alprazolam:ti,ab OR 'steroid'/exp OR Steroids:ti,ab OR 'corticosteroid'/exp OR Corticosteroids:ti,ab OR 'palliative care':ti,ab OR 'hospice care'/exp OR 'Supportive care':ti,ab OR 'Palliative sedation':ti,ab OR palliat*:ti,ab OR 'palliative therapy'/exp OR 'Non-drug therapy':ti,ab OR 'Non-drug measures':ti,ab OR 'Non pharmacological management':ti,ab OR 'Non pharmacological strategies':ti,ab OR 'Non pharmacological treatment':ti,ab OR 'Breathing techniques':ti,ab OR 'self-care'/exp OR Self-Management:ti,ab OR 'physiotherapy'/exp OR Physiotherapy:ti,ab OR 'Physical therapy':ti,ab OR 'Pulmonary rehabilitation':ti,ab OR 'pulmonary rehabilitation'/exp OR 'Airflow techniques':ti,ab OR 'Hand held fan':ti,ab OR Oxygen/exp OR 'oxygen therapy'/exp OR 'Oxygen therapy':ti,ab OR 'High flow nasal cannula':ti,ab OR 'high flow nasal cannula therapy'/exp OR 'noninvasive ventilation'/exp OR 'Non invasive ventilation':ti,ab OR position*:ti,ab OR 'position'/exp OR 'psycho-social support':ti,ab OR Vaccination/exp OR Vaccination:ti,ab OR 'Caregiver education':ti,ab OR 'Patient education':ti,ab OR 'patient education'/exp OR 'Caregiver empowerment':ti,ab OR 'Patient empowerment':ti,ab OR 'patient empowerment'/exp OR 'Occupational Therapy'/exp OR 'Occupational Therapy':ti,ab OR 'energy conservation techniques':ti,ab	8,654,302 results
[4]	Study design	'Clinical Trial':ti,ab OR 'clinical trial'/exp OR 'clinical trial (topic)'/exp OR 'Observational Study':ti,ab OR 'observational study'/exp OR 'randomized controlled trial':ti,ab OR 'randomized controlled trial'/exp OR 'controlled clinical trial (topic)'/exp OR 'Non-Randomized Controlled Trials':ti,ab OR 'randomized controlled trial (topic)'/exp OR 'cohort analysis'/exp OR 'case control study'/exp OR 'Case-Control Studies':ti,ab OR 'Cohort Studies':ti,ab	3,969,412 results

[5]	Combined search domain	[1] AND [2] AND [3] AND [4] AND [embase]/lim NOT ([embase]/lim AND [medline]/lim) AND ('article'/it OR 'article in press'/it OR 'short survey'/it)	368 results

c) SCOPUS: (As on date 15/06/2024)

Sr. No	Search Domain	Search Strategy	Number of Hits
[1]	Advanced Lung cancer	TITLE-ABS("lung cancer") OR TITLE-ABS("lung neoplasm") OR TITLE-ABS("lung carcinoma") OR TITLE-ABS("Lung tumour") OR TITLE-ABS("Lung tumor") OR TITLE-ABS("Malignant lung cancer") OR TITLE-ABS("Pulmonary lung cancer") OR TITLE-ABS("Pulmonary neoplasm") OR TITLE-ABS("Pulmonary Cancer") OR INDEXTERMS("Lung Neoplasms") OR INDEXTERMS("Small Cell Lung Carcinoma") OR INDEXTERMS("carcinoma, non-small cell lung") OR TITLE-ABS("Bronchogenic carcinoma") OR INDEXTERMS("carcinoma, bronchogenic")	384,074 results
[2]	Dyspnoea	TITLE-ABS(Dyspnoea) OR TITLE-ABS(Dyspnoea) OR TITLE-ABS(Breathlessness) OR TITLE-ABS ("Shortness of breath") OR TITLE-ABS ("Breathing difficulty") OR INDEXTERMS(Dyspnoea)	225,378 results
[3]	Multi-modal interventions	TITLE-ABS("Multidisciplinary treatment") OR TITLE-ABS("Multidisciplinary interventions") OR INDEXTERMS("Combined Modality Therapy") OR TITLE-ABS("Multimodal treatment") OR TITLE-ABS("Multimodal interventions") OR TITLE-ABS("Multimodal therapy") OR INDEXTERMS("drug therapy") OR TITLE-ABS("drug therapy") OR TITLE-ABS("Pharmacological management") OR TITLE-ABS("Pharmacological treatment") OR TITLE-ABS("Pharmacological strategies") OR TITLE-ABS(Opioid) OR INDEXTERMS("analgesics, opioid") OR INDEXTERMS(Morphine) OR TITLE-ABS(Morphine) OR INDEXTERMS(Analgesics) OR TITLE-ABS(Analgesics) OR INDEXTERMS("Bronchodilator Agents") OR TITLE-ABS(Bronchodilators) OR INDEXTERMS("Anti-Anxiety Agents") OR TITLE-ABS(Anxiolytics) OR INDEXTERMS(Laxatives) OR TITLE-ABS(Laxatives) OR INDEXTERMS(Benzodiazepines) OR TITLE-ABS(Benzodiazepines) OR INDEXTERMS(Midazolam) OR TITLE-ABS(Midazolam) OR INDEXTERMS(Lorazepam) OR TITLE-ABS(Lorazepam) OR TITLE-ABS(Clonazepam) OR INDEXTERMS(Clonazepam) OR INDEXTERMS(Alprazolam) OR TITLE-ABS(Alprazolam) OR INDEXTERMS(Steroids) OR TITLE-ABS(Steroids) OR INDEXTERMS("Adrenal Cortex Hormones") OR TITLE-ABS(Corticosteroids) OR INDEXTERMS("palliative care") OR TITLE-ABS("palliative care") OR INDEXTERMS("Hospice Care") OR TITLE-	6,076,186 results

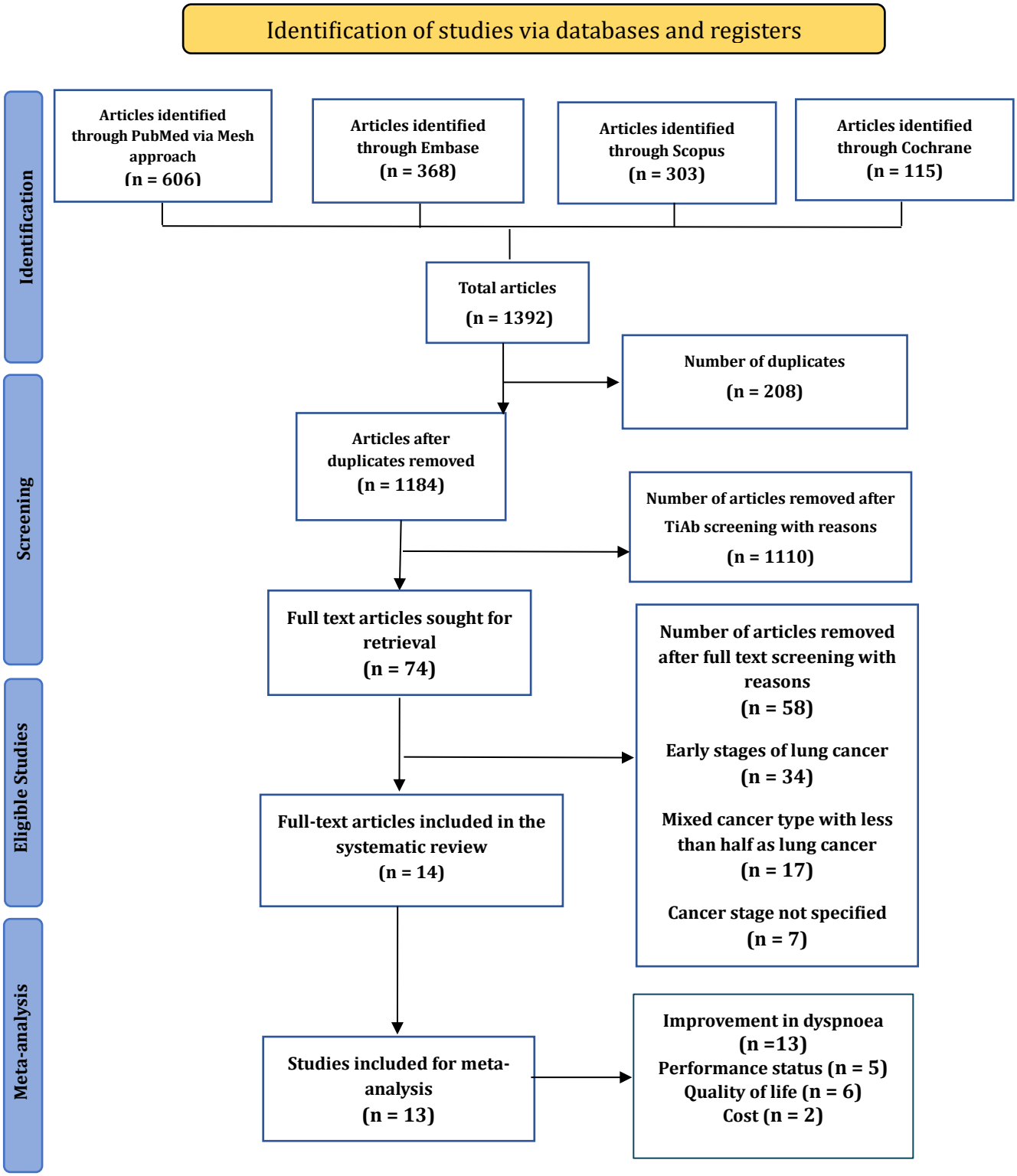
		ABS("Supportive care") OR TITLE-ABS("Palliative sedation") OR TITLE-ABS(palliat*) OR TITLE-ABS("Non-drug therapy") OR TITLE-ABS("Non-drug measures") OR TITLE-ABS("Non pharmacological management") OR TITLE-ABS("Non pharmacological strategies") OR TITLE-ABS("Non pharmacological treatment") OR TITLE-ABS("Breathing techniques") OR INDEXTERMS(Self-Management) OR TITLE-ABS(Self-Management) OR INDEXTERMS("Physical Therapy Modalities") OR TITLE-ABS(Physiotherapy) OR TITLE-ABS("Physical therapy") OR TITLE-ABS("Pulmonary rehabilitation") OR TITLE-ABS("Airflow techniques") OR TITLE-ABS("Hand held fan") OR INDEXTERMS(Oxygen) OR INDEXTERMS("Oxygen Inhalation Therapy") OR TITLE-ABS("Oxygen therapy") OR TITLE-ABS("High flow nasal cannula") OR INDEXTERMS("Noninvasive Ventilation") OR TITLE-ABS("Non-invasive ventilation") OR TITLE-ABS(position*) OR TITLE-ABS("psycho-social support") OR INDEXTERMS(Vaccination) OR TITLE-ABS(Vaccination) OR TITLE-ABS("Caregiver education") OR TITLE-ABS("Patient education") OR TITLE-ABS("Caregiver empowerment") OR TITLE-ABS("Patient empowerment") OR INDEXTERMS("Occupational Therapy") OR TITLE-ABS("Occupational Therapy") OR TITLE-ABS("energy conservation techniques")	
[4]	Study design	TITLE-ABS("Clinical Trial") OR TITLE-ABS("Observational Study") OR DOCTYPE("randomized controlled trial") OR DOCTYPE("Controlled Clinical Trial") OR TITLE-ABS("randomized controlled trial") OR INDEXTERMS("Observational Studies as Topic") OR DOCTYPE("Observational Study") OR DOCTYPE("Clinical Trial") OR INDEXTERMS("Clinical Trials as Topic") OR DOCTYPE("Controlled Clinical Trial") OR INDEXTERMS("Non-Randomized Controlled Trials as Topic") OR INDEXTERMS("Clinical Trial Protocols as Topic") OR DOCTYPE("Clinical Trial Protocol") OR TITLE-ABS("Non-Randomized Controlled Trials") OR INDEXTERMS("Cohort Studies") OR INDEXTERMS("Case-Control Studies") OR INDEXTERMS("Randomized Controlled Trials as Topic") OR TITLE-ABS("Case-Control Studies") OR TITLE-ABS("Cohort Studies")	1,965,282 results
[5]	Combined search domain (P AND I AND C AND O)	[1] AND [2] AND [3] AND [4] AND (LIMIT-TO (EXACTKEYWORD, "Human")) AND (IMIT-TO (LANGUAGE, "English"))	303 results

d) Cochrane Central: (As on date 15/06/2024)

Sr. No.	Search Domain	Search Strategy	Number of Hits
[1]	Advanced Lung cancer	"lung cancer":ti,ab OR "lung neoplasm":ti,ab OR "lung carcinoma":ti,ab OR "Lung tumour":ti,ab OR "Lung tumor":ti,ab OR "Malignant lung cancer":ti,ab OR "Pulmonary lung cancer":ti,ab OR "Pulmonary neoplasm":ti,ab OR "Pulmonary Cancer":ti,ab OR [mh "Lung Neoplasms"] OR [mh "Small Cell Lung Carcinoma"] OR [mh "carcinoma, non-small cell lung"] OR "Bronchogenic carcinoma":ti,ab OR [mh "carcinoma, bronchogenic"]	25771 results
[2]	Dyspnoea	Dyspnoea:ti,ab OR Dyspnoea:ti,ab OR Breathlessness:ti,ab OR "Shortness of breath":ti,ab OR "Breathing difficulty":ti,ab OR [mh Dyspnoea]	14697 results
[3]	Multi-modal interventions	"Multidisciplinary treatment":ti,ab OR "Multidisciplinary interventions":ti,ab OR [mh "Combined Modality Therapy"] OR "Multimodal treatment":ti,ab OR "Multimodal interventions":ti,ab OR "Multimodal therapy":ti,ab OR [mh "drug therapy"] OR "drug therapy":ti,ab OR "Pharmacological management":ti,ab OR "Pharmacological treatment":ti,ab OR "Pharmacological strategies":ti,ab OR Opioid:ti,ab OR [mh "analgesics, opioid"] OR [mh Morphine] OR Morphine:ti,ab OR [mh Analgesics] OR Analgesics:ti,ab OR [mh "Bronchodilator Agents"] OR Bronchodilators:ti,ab OR [mh "Anti-Anxiety Agents"] OR Anxiolytics:ti,ab OR [mh Laxatives] OR Laxatives:ti,ab OR [mh Benzodiazepines] OR Benzodiazepines:ti,ab OR [mh Midazolam] OR Midazolam:ti,ab OR [mh Lorazepam] OR Lorazepam:ti,ab OR Clonazepam:ti,ab OR [mh Clonazepam] OR [mh Alprazolam] OR Alprazolam:ti,ab OR [mh Steroids] OR Steroids:ti,ab OR [mh "Adrenal Cortex Hormones"] OR Corticosteroids:ti,ab OR [mh "palliative care"] OR "palliative care":ti,ab OR [mh "Hospice Care"] OR "Supportive care":ti,ab OR "Palliative sedation":ti,ab OR palliat*:ti,ab OR "Non-drug therapy":ti,ab OR "Non-drug measures":ti,ab OR "Non pharmacological management":ti,ab OR "Non pharmacological strategies":ti,ab OR "Non pharmacological treatment":ti,ab OR "Breathing techniques":ti,ab OR [mh "Self-Management"] OR "Self-Management":ti,ab OR [mh "Physical Therapy Modalities"] OR Physiotherapy:ti,ab OR "Physical therapy":ti,ab OR "Pulmonary rehabilitation":ti,ab OR "Airflow techniques":ti,ab OR "Hand held fan":ti,ab OR [mh Oxygen] OR [mh "Oxygen Inhalation Therapy"] OR "Oxygen therapy":ti,ab OR "High flow nasal cannula":ti,ab OR [mh "Noninvasive Ventilation"] OR "Non- invasive ventilation":ti,ab OR position*:ti,ab OR "psycho-social support":ti,ab OR [mh Vaccination] OR Vaccination:ti,ab OR	480038 results

		"Caregiver education":ti,ab OR "Patient education":ti,ab OR "Caregiver empowerment":ti,ab OR "Patient empowerment":ti,ab OR [mh "Occupational Therapy"] OR "Occupational Therapy":ti,ab OR "energy conservation techniques":ti,ab	
[4]	Study design	"Clinical Trial":ti,ab OR [mh "Clinical Trial"] OR "Observational Study":ti,ab OR [mh "Observational Study"] OR [mh "randomized controlled trial"] OR "randomized controlled trial":pt OR "Controlled Clinical Trial":pt OR "randomized controlled trial":ti,ab OR [mh "Observational Studies as Topic"] OR "Observational Study":pt OR "Clinical Trial":pt OR [mh "Clinical Trials as Topic"] OR "Controlled Clinical Trial":pt OR [mh "Non-Randomized Controlled Trials as Topic"] OR [mh "Clinical Trial Protocols as Topic"] OR "Clinical Trial Protocol":pt OR "Non-Randomized Controlled Trials":ti,ab OR [mh "Cohort Studies"] OR [mh "Case-Control Studies"] OR [mh "Randomized Controlled Trials as Topic"] OR "Case-Control Studies":ti,ab OR "Cohort Studies":ti,ab	647893 results
[5]	Combined search domain (P AND I AND C AND O)	[1] AND [2] AND [3] AND [4]	

3. PRISMA flow diagram



4. Summary of Included Studies

S. No	Study ID	Population- Inclusion criteria	Population- Exclusion criteria	Intervention	Comparator	Outcome reported with time points
1	Bade, 2021	1. Pathologic evidence of advanced non-small cell stage lung cancer (NSCLC) 2. Approval of the treating clinician 3. Adult patients (age >21 years) willing to wear a FitBit® device (FitBit, Inc., San Francisco, CA) 4. Access to a smartphone, agree to receive twice/daily text messages for 12 weeks (including any costs), and willingness to download the FitBit application to their smartphone. 5. Low activity level as judged by a brief physical activity questionnaire (i.e., <150 minutes/week of moderate-intensity exercise, <75 minutes/week of vigorous aerobic exercise, or an equivalent combination).	• Memory impairment (as judged by the treating clinician) • Communication impairment (as judged by the treating clinician) • Treating clinician's request not to alter physical activity • Physical inability to safely walk (as judged by the treating clinician)	Behavioural: Prescribed Activity, Educational session at enrolment, increase subject communication via tailored electronic messaging, and use of a wrist-bound device (FitBit Flex 2)	standard of care management from their Oncologist.	baseline to 12 weeks: Overall Step Count, Number of Weeks Participants Adhered to Step Count Recommendations, change in symptoms, Change in Quality of Life, Aerobic Exercise, Change in biomarkers
2	Chan, 2011	1. age 16 years or older;	patients with known	psychoeducational intervention (PEI)	usual care	Symptom data, and Functional Ability were collected at four

		2. Stage 3 or 4 lung cancer and scheduled to receive palliative RT of an average of 4.3 Gy/fraction; 3. the ability to communicate in Chinese; 4. signed informed consent; 5. an Abbreviated Mental Test score of 8 or above indicating normal cognitive ability; and 6. A Karnofsky Performance Status score of 60% or above, indicating the patient was capable of some self-care and not bedridden.	psychiatric morbidity and/or involvement in other clinical trials.			time points: prior to the intervention, three weeks, six weeks, and 12 weeks postintervention.
3	Farquhar, 2014	1. Adults with advanced cancer 2. Referred to the Breathlessness Intervention Service (BIS) 3. Appropriately treated cause of breathlessness Still troubled by breathlessness despite optimisation 4. Could potentially benefit from a self-management program	• Prior recipients of the BIS intervention	1. Breathlessness Intervention Service (BIS): A multi-disciplinary, home-based complex intervention over 2 weeks 2. Core components: tailored education, breathing techniques, handheld fan, anxiety	• Standard care (including oncology, GP, palliative care, and nursing services) • Control group received BIS after a two-week waiting period (fast-track RCT design)	• Primary outcome: Patient distress due to breathlessness (Numerical Rating Scale, 0–10), measured at baseline (t1), 2 weeks (t3), and 4 weeks (t5) • Secondary outcomes: CRQ (Chronic Respiratory Questionnaire) • mastery, dyspnoea, fatigue, emotional function, HADS – anxiety and depression, EQ-5D (health status), CSRI (health service use), Carer distress due to

				management, pacing, relaxation, pharmacologic review if required 3. Delivered by a team including palliative care consultant, occupational therapist, and physiotherapist		breathlessness (NRS), Qualitative interviews (t3 and t5)
4	Fernandez-Rodriguiez, 2021	1. Anatomopathological diagnosis of cancer 2. Admitted to the Oncology Unit of Complejo Hospitalario Universitario de Salamanca (CAUSA) 3. Dyspnoea score ≥2 on the Medical Research Council (MRC) scale 4. Barthel Index score <85 - Provided informed consent	• Diagnosis of bone metastases • Cognitive impairment (MMSE <23) • Hemoglobin <10 g/dL • Active smoker at recruitment • Attended fewer than 5 intervention sessions	Comprehensive Respiratory Rehabilitation Programme: a. Daily 45-minute sessions including: Multimodal physical exercise (aerobic, strength, balance) Retraining in ADLs using energy conservation techniques Breathing exercises with volumetric incentive Prescription of assistive devices (e.g.,	• Usual clinical practice (drug therapy + health education only) • No additional physical rehabilitation provided	• Primary outcomes (assessed at baseline and hospital discharge): Dyspnoea (MRC scale), Functional status (Barthel Index) • Secondary outcomes: Health-related quality of life (EuroQol-5D), Sub-domains: mobility, self-care, daily activities, pain, anxiety

				walker for oxygen therapy) Conducted alongside usual drug therapy and health education		
5	Fernandez-Rodriguiez, 2024	1. Anatomopathological diagnosis of oncological disease 2. Admitted to the Oncology Unit of Complejo Hospitalario Universitario de Salamanca (CAUSA) 3. Dyspnoea score ≥2 on Medical Research Council (MRC) scale - Barthel Index score <85 - Provided informed consent	• Cognitive impairment (MMSE <23) • Haemoglobin <10 g/dL • Active smoker at time of recruitment	Effort Re-education Programme (ERP): a. Daily 1-hour, individualised sessions during hospitalisation b. Delivered by an interdisciplinary team (occupational therapists, nurses, oncologists) c. Included: Progressive mobilisation using assistive devices, Gradation and simplification of daily activities, Energy-saving techniques, breathing exercises with incentive spirometry d. Also received pharmacological	• Conventional Clinical Practice (CCP): Pharmacological symptom control + • Health Education Programme (self-care and healthy lifestyle guidance) • Delivered individually by nursing staff	• Primary Outcomes: Dyspnoea (MRC scale), Functionality (Barthel Index) • Secondary Outcomes: Physical performance (SPPB), Functional capacity (ECOG) • Time Points: Baseline (T0) and End of Intervention (T1 – at hospital discharge)

				treatment and health education (as in control group)		
6	Greer, 2024	- Diagnosed with advanced lung cancer (NSCLC, SCLC) or mesothelioma not receiving curative treatment - Moderate or greater dyspnoea (mMRCDS ≥2) - Age ≥18 years - ECOG performance status 0–2 - Receiving oncology care at a participating site - Able to complete questionnaires in English	- Acute cognitive or psychiatric conditions interfering with participation, as judged by clinicians	Nurse-led Brief Behavioral Dyspnoea Intervention - Two 30–45-minute sessions over 8 weeks - Delivered in person, via telephone, or video by trained oncology nurses - Session 1: Psychoeducation, breathing techniques (pursed-lip, diaphragmatic), postural positioning, handheld fan use - Session 2: Review of techniques, problem-solving barriers, reinforcement - Participants received handouts, fan, audio recordings	- Usual Care: Standard oncology care, including any treatments for dyspnoea - Control group offered access to intervention materials after the 24-week follow-up	- Primary: Dyspnoea severity using mMRCDS and Cancer Dyspnoea Scale (CDS) total score – assessed at 8 weeks - Secondary: FACT-L (quality of life) HADS (anxiety, depression) Godin-Shephard Questionnaire + actigraphy (activity level) - Time Points: Baseline, 8 weeks (primary), 16 weeks, and 24 weeks (longitudinal follow-up)

7	Hwang, 2012	- Age 40–75 years - Diagnosed with adenocarcinoma of NSCLC for >4 weeks - ECOG performance status 0 or 1 - Medically stable - Receiving only epidermal growth factor receptor (EGFR) inhibitors for ≥4 weeks	- Diabetes - Unstable condition from metastasis - Primary lung disease other than NSCLC - Severe cardiac or musculoskeletal disorders affecting exercise - Inability to understand verbal/written instructions	Supervised High-Intensity Aerobic Interval Training: - 8 weeks, 3 sessions/week (total 24 sessions) - Treadmill or cycle ergometer - Alternating intervals of 80% VO_2peak (RPE 15–17) and 60% VO_2peak (RPE 11–13) - 30–40 minutes per session (including warm-up and cool-down) - Supervised one-on-one by a physical therapist	Usual Care: - General education and social phone calls every 2–3 weeks - Exercise instructions only if requested - No supervised exercise sessions	Assessed at Baseline and After 8 Weeks: Primary: VO_2peak (mL/kg/min), %predicted VO_2peak Secondary: Muscle strength and endurance (isokinetic testing), muscle oxygenation (NIRS), insulin resistance (HOMA-IR), inflammatory marker (hs-CRP), quality of life (EORTC QLQ-C30 + LC13) Symptoms: Dyspnoea, fatigue
8	Molassiotis, 2015	- Adults with histological diagnosis of primary lung cancer or mesothelioma - Refractory dyspnoea (daily for ≥3 months at rest or minimal exertion, unresponsive to current treatments) - Expected prognosis >3 months	- Unstable COPD (frequent/acute exacerbations) - Rapidly worsening dyspnoea needing urgent intervention - Palliative chest	Inspiratory Muscle Training (IMT): - Home-based use of a pressure threshold IMT device - 5 sessions/week for 12 weeks, 30 min/day (split into 2 sessions)	Standard Care (Control Group): - Standard symptom management (e.g. opioids, oxygen, nursing support) - Fast-track design: offered	Assessed at Baseline (T0), Week 4 (T1), Week 8 (T2), Week 12 (T3): Spirometry (FVC, FEV1, PEF) Dyspnoea: mBorg Scale, NRS (worst, average, now), distress, coping, satisfaction Quality of life: Chronic Respiratory Disease

		- Oxygen saturation >85% at rest	radiotherapy within 4 weeks or chemotherapy within 2 weeks - Intractable cough - Unstable angina or significant pleural effusion needing drainage	- Intensity: started at 40% of inspiratory muscle strength (PImax), adjusted up to 70% PImax as tolerated - Monthly home visits for spirometry and resistance adjustment - Two supervised sessions at baseline to train technique	IMT after trial participation ended - Similar home visit schedule for assessments	Questionnaire (dyspnoea, fatigue, emotional function, mastery) Psychological: HADS (anxiety, depression)
9	Molas siotis, 2021	- Age ≥18 years - Diagnosed with invasive lung cancer (NSCLC or SCLC) - Completed chemotherapy and/or radiotherapy ≥4 weeks prior to study - ECOG performance status 0–2 - Reported all 3 symptoms (dyspnoea, fatigue, anxiety) in the past week - Rated at least 2 of these symptoms ≥3 on a 0–10 numeric rating scale	- Major psychiatric illness - Physical activity risks (e.g., severe cachexia, dizziness, bone pain, severe nausea) - Prior/current experience with mind-body practices (Yoga, Tai Chi, Qigong) - Life expectancy <6 months - Visual or	Qigong Program (6 weeks): - Initial 2 weeks: supervised 90-min sessions twice weekly - Next 4 weeks: home practice, ≥30 min/day, 5 days/week - Instructional DVD and guidebook provided - Weekly phone follow-up for adherence and support	Waitlist Control (Usual Care): - Standard hospital discharge education and optional support group session - No Qigong during study period - Offered Qigong after study completion	Primary Outcome: - Symptom cluster composite score (fatigue, dyspnoea, anxiety) using FACT-F, Cancer Dyspnoea Scale, and DASS-21 (Anxiety) - Time points: Baseline (T0), 6 weeks post-intervention (T1), and 12 weeks follow-up (T2) Secondary Outcomes: - Cough: Manchester Cough in Lung Cancer Scale (MCLCS) - Quality of Life: EORTC QLQ-C30 and LC-13 modules - Time points: Same as primary (T0, T1, T2)

			auditory impairments	- Followed by additional 6-week unsupervised practice phase (total 12 weeks)		
10	Rutkowska, 2019	- Diagnosed with NSCLC (stage IIIB or IV), histologically confirmed - Diagnosis within 6 weeks prior to enrollment - WHO performance status 0–1 - Able to perform 6-minute walk test (6MWT) - Able to complete questionnaires - Willing to participate in an exercise training program	- Uncontrolled hypertension - Unstable coronary artery disease - Anemia (hemoglobin <10 g/dL) - Severe osteoarthritis - Bone or central nervous system metastases	Exercise Training Group (ETG): - Two 2-week in-hospital training programs (total 4 weeks) - Conducted between chemotherapy cycles (cisplatin + vinorelbine) - Daily sessions, 5 times/week, included: 30 min fitness and respiratory exercises, 30 min specific respiratory muscle training, 20–30 min aerobic exercise (cycle/treadmill at 30–80% peak work rate), Resistance training (40–70% 1RM), Nordic walking	Control Group (CG): - Received standard chemotherapy regimen (identical drugs/schedule) - No supervised exercise intervention - Underwent assessments before and after 6 weeks of chemotherapy	Assessed at Baseline (Day 1) and Post-Intervention (Day 42): - Exercise capacity: 6-minute walk test (6MWT) - Functional fitness: Fullerton test (arm curl, chair stand, sit-and-reach, up and go, back scratch) - Lung function: Spirometry (FEV1 % pred, FVC % pred, FEV1/FVC) - Dyspnoea: mMRC questionnaire, Baseline Dyspnoea Index (BDI), Borg Dyspnoea Scale

				(≈45 min), Relaxation training		
11	Yates, 2020	- Diagnosed with small cell lung cancer, non-small cell lung cancer, mesothelioma, or lung metastases - Completed first-line therapy for the disease - Average dyspnoea rating >2 on a 0–10 scale in past week - Anticipated life expectancy ≥3 months	-Cognitive impairment preventing completion of survey instruments - Anticipated life expectancy <3 months	- Brief, tailored non-pharmacological intervention comprising breathing retraining and individualized psychosocial support - Delivered via a 60-minute face-to-face session and 3 weekly follow-up phone calls	-Standard care, which included general education on dyspnoea management and usual supportive care measures	- Primary Outcome: Change in "worst" dyspnoea at 8 weeks - Secondary Outcomes at 8 weeks: • Dyspnoea at best and on average • Distress from dyspnoea • Perceived control over dyspnoea • Functional status (ECOG) • Psychological distress (HADS: Anxiety & Depression) • Use of non-pharmacological strategies to manage dyspnoea
12	Yorke, 2024	-Adults (≥18 years) with diagnosis of intrathoracic malignancy (e.g., small cell or non-small cell lung cancer, mesothelioma) - Self-reported adverse daily life impact from at least two of three symptoms: breathlessness, cough, and fatigue - WHO Performance Status 0–2 - Life expectancy >3 months	- Unstable chronic obstructive pulmonary disease (if present) - Cognitive or physical impairment affecting participation (implicitly excluded, though not explicitly stated)	Respiratory Distress Symptom Intervention (RDSI)-a multicomponent non-pharmacological program comprising: 1. Controlled breathing techniques 2. Cough suppression strategies 3. Acupressure 4. Individually tailored exercise plan Delivered by trained	Standard Care-routine clinical care and symptom management provided by local lung cancer services without the structured RDSI intervention	Co-primary outcomes (at 12 weeks): - Breathlessness: Dyspnoea-12 (D-12) - Cough: Manchester Cough in Lung Cancer (MCLC) scale - Fatigue: FACIT-Fatigue scale (FACIT-F) Secondary outcomes (at 12 weeks): - Coping with each symptom (NRS 0–10) - Anxiety & Depression (HADS)

				clinical staff as part of routine care		- Health-related quality of life (EQ-5D) - Healthcare utilization and cost-effectiveness
13	Yorke, 2015	- Adults with primary lung cancer - WHO Performance Status 0–2 - Expected prognosis ≥3 months - Reported being "bothered" by at least two of the three symptoms (breathlessness, cough, fatigue)	- Acute exacerbation of COPD or chest infection in past 4 weeks requiring medication change - Radiotherapy to the chest or chemotherapy in previous 4 weeks - Surgical treatment for lung cancer in previous 6 weeks	Respiratory Distress Symptom Intervention (RDSI) – a multicomponent non-pharmacological package including: 1. Controlled breathing techniques 2. Cough easing strategies 3. Acupressure 4. Information pack on symptom management Delivered over 2 face-to-face sessions + 1 follow-up call	Usual care, including standard clinical support and provision of Macmillan breathlessness and fatigue information booklets	Assessed at Baseline, Week 4, and Week 12: - Breathlessness: 6-point NRS, Dyspnoea-12 (D-12) - Cough: Manchester Cough in Lung Cancer Scale (MCLC) - Fatigue: FACIT-F - Psychological status: HADS - Quality of life: EQ-5D-3L - Symptom burden: Lung Cancer Symptom Scale

5. Data Extraction

Name	Randomized trial of physical activity on quality of life and lung cancer biomarkers in patients with advanced stage lung cancer: a pilot study
Author	Bade, 2021
Study Type	randomized trial
Countries and setting	USA, Yale Cancer Center's Thoracic Oncology Disease Aligned Research Team
Number of Participants	40
Duration of study follow up (in months)	3
Inclusion Criteria	- Pathologic evidence of stage III or IV non-small cell lung cancer (NSCLC) (any stage of treatment) - Approval of treating clinician - Access to a smartphone - Willingness to wear a wrist-bound accelerometer for 3 months - Willingness to receive twice daily text messages - Baseline physical inactivity (<150 min/week moderate or <75 min/week vigorous PA, or combination)
Exclusion Criteria	- Memory impairment (as judged by the treating clinician) - Communication impairment (as judged by the treating clinician) - Treating clinician's request not to alter physical activity - Physical inability to safely walk (as judged by the treating clinician)

Recruitment/Selection of Patients	- Patients screened via medical record prior to clinic visit - Eligibility reviewed with treating oncologist - Eligible patients approached during clinic visit; if willing, consent obtained at separate in-person visit - Study conducted at Yale Thoracic Oncology Program clinic (includes medical oncology, radiation oncology, pulmonology, thoracic surgery)
Intervention	- Intervention group: 15-min in-person teaching session on PA benefits, FitBit Flex2 accelerometer, individualized walking goals (based on baseline week), twice daily gain-framed text messages for 12 weeks. Step goals increased by 400 steps/day weekly if met. - Usual care group: No intervention beyond standard care.
Outcome reported with time points	- Physical activity (minutes/week, step count) at baseline, week 6, and week 12 - Quality of life (EORTC-QLQ-C30, including role functioning and summary score) at baseline and 12 weeks - Dyspnoea (MMRC scale) at baseline and 12 weeks - Depression (PHQ-9) at baseline and 12 weeks - Biomarkers (insulin, leptin, CRP, sPD-1, sPD-L1) at baseline and 3 months (subset of patients)
Funding	This research was supported, in part, by a grant from the Yale SPORE in Lung Cancer (P50CA196530).
ROB 2 Assessment	Randomisation process – *Some concerns* Deviations from the intended interventions – *Low* Missing outcome data – *Some concerns* Measurement of the outcome – *Low* Selection of the reported result – *Some concerns*

	Overall – *Some concerns*

Name	Managing Symptoms in Patients with Advanced Lung Cancer During Radiotherapy: Results of a Psychoeducational Randomized Controlled Trial
Author	Chan, 2011
Study Type	Randomized Controlled Trial
Countries and setting	Hong Kong, outpatient RT unit of a publicly funded hospital
Number of Participants	140
Duration of study follow up (in months)	3
Inclusion Criteria	- Age ≥16 years - Stage 3/4 lung cancer receiving palliative RT - Chinese-speaking - Informed consent - Cognitive ability (Abbreviated Mental Test ≥8) - Functional status (Karnofsky ≥60%)
Exclusion Criteria	- Psychiatric morbidity - Participation in other clinical trials
Recruitment/Selection of Patients	140 patients recruited from a public hospital RT unit in Hong Kong, randomized via "lucky draw" method
Intervention	psychoeducational intervention (PEI) - A 40-minute educational package plus coaching of PMR was delivered to patients within one week prior to the beginning of the course of RT, and reinforced three weeks after commencing RT. The education package consisted of leaflets and

	discussion on the selected symptoms and their self-care management. The intervention was delivered by registered nurses with two years of clinical experience. A two-day training session was given to the intervention nurses, focusing on the educational package and the practice of PMR. An audiotape in Chinese and educational leaflets were provided to patients. Patients were encouraged to practice PMR daily and as required. Patients in the intervention group were given a telephone reminder at the end of the second week to enhance participation in the Week 3 sessions.
Outcome reported with time points	Primary: - Breathlessness (VAS) - Fatigue (Piper Scale) - Anxiety (STAI) Secondary: - Functional ability (SF-36) Time points: Baseline, 3 weeks, 6 weeks, 12 weeks
Funding	Not mentioned
ROB 2 Assessment	Randomisation process – *Some concerns* Deviations from the intended interventions – *Some concerns* Missing outcome data – *Some concerns* Measurement of the outcome – *Some concerns* Selection of the reported result – *Some concerns* Overall – *Some concerns*

Name	Is a specialist breathlessness service more effective and cost-effective for patients with advanced cancer and their carers than standard care? Findings of a mixed-method randomised controlled trial
Author	Farquhar, 2014
Study Type	Phase III Randomized Controlled Trial
Countries and setting	United Kingdom
Number of Participants	67
Duration of study follow up (in months)	1.25 months (5 weeks: Baseline, 2 weeks, and 4 weeks post-baseline)
Inclusion Criteria	Patient inclusion criteria: 1. appropriate referral to BIS 2. aged 18 years+ 3. any patient not meeting any exclusion criteria. Carer inclusion criteria: 1. informal carers (significant others, relatives, friends or neighbours) of Phase III RCT recruits 2. aged 18 years+ 3. any carer not meeting any exclusion criteria.
Exclusion Criteria	1. unable to give informed consent 2. previously used BIS 3. demented/confused 4. learning difficulties 5. other vulnerable groups e.g. head injury, severe trauma, mental illness 6. not meeting all inclusion criteria.

Recruitment/Selection of Patients	Participants were randomised to one of two groups using randomly permuted blocks of random size two, four and six, generated by the study statistician and concealed within sealed opaque envelopes until allocation notification by the intervention deliverer. The fast-track (intervention) group received BIS immediately; the waiting-list (control) group received BIS after two-weeks. All participants received standard, including palliative, care. Data collection-design facilitated researcher-blinding to group allocation for the collection of primary and key secondary outcomes at the key measurement point, that is, planned unblinding occurred during the two-week follow up interview (t3) only after collection of this outcome data and prior to qualitative data collection about the intervention.
Intervention	Breathlessness Intervention Service (BIS): - Multi-disciplinary, home-based intervention - Non-pharmacological (education, breathing techniques, pacing, relaxation, hand-held fan, psychological support, etc.) - Pharmacological interventions as indicated - 1–4 face-to-face visits over 2 weeks, plus phone contacts - Individualised exercise plan and support for carers
Outcome reported with time points	Primary: - Patient distress due to breathlessness (0–10 NRS) at 2 weeks Secondary: - Chronic Respiratory Questionnaire (CRQ) - Hospital Anxiety and Depression Scale (HADS) - EQ-5D - Carer distress (NRS) - Client Services Receipt Inventory (CSRI, for costs)

	- Time points: Baseline (week 1), 2 weeks (week 3), 4 weeks (week 5)
Funding	NIHR Research for Patient Benefit (for Phase III RCT funding); Macmillan Cancer Support (MF's post-doctoral fellowship); The Gatsby Foundation for the initial funding of BIS; and AT Prevost was supported by the National Institute for Health Research (NIHR) Biomedical Research Centre at Guy's and St Thomas' NHS Foundation Trust and King's College London. The study sponsor was CUHNFT.
ROB 2 Assessment	Randomisation process – *Low* Deviations from the intended interventions – *Low* Missing outcome data – *Low* Measurement of the outcome – *Low* Selection of the reported result – *Low* Overall – *Low*

Name	**Impact of a comprehensive functional rehabilitation programme on the quality of life of the oncological patient with dyspnoea**
Author	Fernandez-Rodriguiez, 2021
Study Type	Experimental, prospective, longitudinal, randomized, parallel-group study with a fixed-allocation design to an experimental group and a control group.
Countries and setting	Spain, the Oncology Inpatient Unit of the Complejo Hospitalario Universitario de Salamanca (CAUSA).
Number of Participants	157

Duration of study follow up (in months)	Not explicitly stated in months; follow-up covered the period of hospital admission, with outcomes assessed before discharge. Based on the design (intervention during admission), likely less than 1 month
Inclusion Criteria	- Anatomopathological diagnosis of cancer - Admitted to the Oncology Unit at CAUSA - Dyspnoea score ≥2 on the MRC scale - Barthel index <85 - Signed informed consent
Exclusion Criteria	- Diagnosis of bone metastases - Inadequate cognitive state (MMSE <23) - Haemoglobin <10 g/dL - Active smoker at recruitment - Fewer than five programme sessions completed
Recruitment/Selection of Patients	All participants were recruited from the Oncology Inpatient Unit of the Complejo Hospitalario Universitario de Salamanca (CAUSA), based on inclusion/exclusion criteria and randomized into experimental and control groups
Intervention	Experimental group: Comprehensive functional rehabilitation program (multimodal physical exercise, retraining in activities of daily living, breathing exercises with volumetric incentive, prescription of support devices) plus standard drug treatment. Control group: Standard drug treatment and health education only
Outcome reported with time points	The MRC was used to assess dyspnoea, the Barthel index was used to measure activities of daily living, and, to assess HRQoL, the EuroQol-5D questionnaire was applied, which provides overall and specific information on the implementation of daily activities, self-care, mobility, anxiety, and pain levels.

Funding	the Spanish Association Against Cancer (AECC)
ROB 2 Assessment	Randomisation process – *Low* Deviations from the intended interventions – *Low* Missing outcome data – *Low* Measurement of the outcome – *Low* Selection of the reported result – *Low* Overall – *Low*

Name	**Impact of a multimodal effort re-education programme on functionality, physical performance, and functional capacity in cancer patients with dyspnoea: a randomised experimental study**
Author	Fernandez-Rodriguiez, 2024
Study Type	Randomized Study
Countries and setting	Spain, the Medical Oncology Service of the University Hospital Complex of Salamanca (CAUSA), Spain
Number of Participants	182
Duration of study follow up (in months)	Follow-up covered the period of hospital admission, with baseline (T0) and post-intervention (T1, at discharge) assessments; typically, less than 1 month
Inclusion Criteria	- Anatomopathological diagnosis of oncological disease - Admission to the CAUSA Oncology Unit - Dyspnoea ≥2 on MRC scale - Barthel Index <85 - Signed informed consent

Exclusion Criteria	- Clinical diagnosis of cognitive impairment at baseline (MMSE <23) - Haemoglobin <10 g/dL - Active smoking at recruitment
Recruitment/Selection of Patients	Patients admitted to the Medical Oncology Service of the University Hospital Complex of Salamanca (CAUSA), Spain, were screened by the research team. Eligible patients were randomized 1:1 (independent researcher, concealed allocation) after baseline interview
Intervention	Intervention Group: Conventional clinical practice (pharmacological treatment + health education) plus a daily 45-minute Effort Re-education Programme (ERP) led by an interdisciplinary team. Control Group: Conventional clinical practice (pharmacological treatment + health education) only
Outcome reported with time points	Outcomes measured at baseline (T0) and discharge (T1): - Primary: Dyspnoea (MRC scale), Functionality (Barthel Index) - Secondary: Physical performance (SPPB), Functional capacity (ECOG)
Funding	the Institute of Biomedical Research of Salamanca, Spain (IBSAL)
ROB 2 Assessment	Randomisation process – *Low* Deviations from the intended interventions – *Low* Missing outcome data – *Low* Measurement of the outcome – *Low* Selection of the reported result – *Low* Overall – *Low*

Name	Randomized Controlled Trial of a Nurse-Led Brief Behavioural Intervention for Dyspnoea in Patients with Advanced Lung Cancer
Author	Greer, 2021
Study Type	Allocation - Randomized Interventional Model - Parallel Assignment Interventional Model Description - Nurse administered dyspnoea intervention Masking - Single (Outcomes Assessor) Masking Description - Research staff collecting patient-reported measures will be blind to study assignment group
Countries and setting	USA, outpatients at the Massachusetts General Hospital, Boston, MA
Number of Participants	247
Duration of study follow up (in months)	6 months (24 weeks) with assessments at baseline, 8 weeks (primary endpoint), 16 weeks, and 24 weeks.
Inclusion Criteria	- Diagnosis of advanced lung cancer (non–small cell, small cell) or mesothelioma not being treated with curative intent - Self-reported shortness of breath (mMRCDS score ≥2) - Age ≥18 years - ECOG performance status 0-2 - Receiving oncology care at a participating site - Ability to complete questionnaires in English
Exclusion Criteria	- Acute cognitive or psychiatric conditions that could interfere with study participation (as judged by treating clinicians)

Recruitment/Selection of Patients	Eligible patients were identified by reviewing electronic health records and clinic schedules at three cancer centers. Attending oncology clinicians confirmed eligibility before research staff approached patients for consent and baseline assessment. Randomization was performed by an independent office using computer-generated sequences with permuted blocks and stratification by cancer type and site.
Intervention	Intervention group: Two nurse-led sessions (30-45 minutes each, 2-3 weeks apart within 8 weeks), teaching breathing techniques, postural positions, and fan therapy, with handouts, a handheld fan, and audio-guided breathing exercise for home practice. Control group: Usual oncology care, including any prescribed medical treatments for dyspnoea.
Outcome reported with time points	- Primary: Patient-reported dyspnoea (mMRCDS and CDS) at 8 weeks - Secondary: Quality of life (FACT-L), psychological symptoms (HADS), activity level (GSLTPAQ and actigraphy), measured at baseline, 8, 16, and 24 weeks
Funding	Supported by the National Institute of Nursing Research R01NR016694
ROB 2 Assessment	Randomisation process – *Low* Deviations from the intended interventions – *Low* Missing outcome data – *Low* Measurement of the outcome – *Low* Selection of the reported result – *Low* Overall – *Low*

Name	Effects of exercise training on exercise capacity in patients with non-small cell lung cancer receiving targeted therapy
Author	Hwang, 2012
Study Type	Allocation: Randomized Interventional Model: Parallel Assignment Masking: Single (Outcomes Assessor)
Countries and setting	Taiwan, The outpatient department of the National Taiwan University Hospital
Number of Participants	24
Duration of study follow up (in months)	2 months (8 weeks)
Inclusion Criteria	- Age 40–75 years - Diagnosis of adenocarcinoma for >4 weeks - ECOG performance status 0 or 1 - Medically stable - Receiving EGFR inhibitors for ≥4 weeks
Exclusion Criteria	- Diagnosis of diabetes - Unstable condition from metastasis - Primary lung disease other than lung cancer - Severe cardiac or musculoskeletal conditions affecting exercise - Inability to understand instructions
Recruitment/Selection of Patients	Recruited from outpatient department of National Taiwan University Hospital; randomised after baseline assessment using computer-generated blocks of four by an independent individual

Intervention	Exercise group: individualized, high-intensity aerobic interval training (treadmill/cycle), 3x/week for 8 weeks, supervised; Control group: usual care, general education, social phone calls, no supervised exercise
Outcome reported with time points	Outcomes measured at baseline and after 8 weeks: - VO_2peak and %predVO_2peak - Muscle strength/endurance - Muscle oxygenation - Insulin resistance (HOMA-IR) - High-sensitivity CRP - Quality of Life (EORTC QLQ-C30) - Dyspnoea and fatigue
Funding	National Taiwan University Hospital
ROB 2 Assessment	Randomisation process – *Some concerns* Deviations from the intended interventions – *Low* Missing outcome data – *Some concerns* Measurement of the outcome – *Low* Selection of the reported result – *Low* Overall – *Some concerns*

Name	The effect of resistance inspiratory muscle training in the management of breathlessness in patients with thoracic malignancies: a feasibility randomised trial
Author	Molassiotis, 2015
Study Type	two-arm, non-blinded, randomised controlled, proof-of-principle study
Countries and setting	Outpatients, two large cancer centres in the UK and one in Cyprus
Number of Participants	46
Duration of study follow up (in months)	3 months
Inclusion Criteria	- Adults with histological diagnosis of primary lung cancer or mesothelioma - Refractory dyspnoea not responding to current treatment for past 2 weeks (breathlessness daily for 3 months at rest or on minimal exertion where contributing causes have been maximally treated) - Expected prognosis >3 months - Oxygen saturation >85% at rest
Exclusion Criteria	- Unstable COPD with frequent/acute exacerbations - Rapidly worsening dyspnoea needing urgent medical intervention - Palliative chest radiotherapy within 4 weeks - Chemotherapy within 2 weeks - Intractable cough - Unstable angina - Clinically significant pleural effusion needing drainage
Recruitment/Selection of Patients	Recruited from outpatient clinics of two large UK cancer centers and one in Cyprus; identified by clinicians or referred to research team; written consent and baseline measurements before randomisation.
Intervention	Experimental group: Inspiratory muscle training (IMT) using a pressure threshold device, 5 sessions/week for 12 weeks, 30 min/day (divided into two sessions), with monthly home visits for supervision and adjustment. Control group: Standard care, same contact frequency, offered IMT after trial if desired
Outcome reported with time points	Assessed at baseline, 4 weeks, 8 weeks, 12 weeks:

	- Physiological: FEV1, FVC, FEV1%, PEF - Breathlessness: NRS, modified Borg Scale - Quality of life: CRDQ (dyspnoea, fatigue, emotional function, mastery) - Psychological: HADS - Safety
Funding	The study was funded by the Christie Charity of the Christie NHS Foundation Trust through the Hodari bequest.
ROB 2 Assessment	Randomisation process – *Some concerns* Deviations from the intended interventions – *Low* Missing outcome data – *Low* Measurement of the outcome – *Low* Selection of the reported result – *Low* Overall – *Low*

Name	**The Effectiveness of Qigong in Managing a Cluster of Symptoms (Breathlessness-Fatigue-Anxiety) in Patients with Lung Cancer: A Randomized Controlled Trial**
Author	Molassiotis, 2021
Study Type	randomized controlled trial (RCT) with two parallel groups in a 1:1 allocation ratio, allocation concealment, and assessor blinding.
Countries and setting	National Lung Hospital and Nam Dinh General hospital in Vietnam
Number of Participants	156
Duration of study follow up (in months)	3 months
Inclusion Criteria	- Age ≥18 years - Diagnosed with invasive lung cancer (NSCLC or SCLC) - Completed chemotherapy/radiotherapy ≥4 weeks prior - ECOG score 0–2

	- Reporting all 3 symptoms (dyspnoea, fatigue, anxiety) in previous week and ≥3/10 on at least 2 symptoms
Exclusion Criteria	- Major psychiatric illness - Risks associated with physical activity (severe cachexia, frequent dizziness, bone pain, severe nausea) - Past/current experience with mind-body practices (Yoga, Tai Chi, Qigong) - Estimated life expectancy <6 months - Visual problems or deafness
Recruitment/Selection of Patients	Patients recruited from National Lung Hospital and Nam Dinh General Hospital, Vietnam. Eligibility assessed, consent obtained, then randomized (block randomization, 1:1, block size 6) by independent academic using computer-generated list.
Intervention	Qigong group: 6 weeks of Qigong (90 min, 2x/week for 2 weeks, then home practice 30 min/day, 5x/week for 4 weeks, with DVD/guidebook and weekly calls). Control: Usual care (briefings, symptom management discussion, optional group talk), offered Qigong after follow-up.
Outcome reported with time points	Primary: Symptom cluster (fatigue [FACT-F], dyspnoea [CDS], anxiety [DASS21-A]) at baseline, 6 weeks (end of intervention), and 12 weeks (follow-up). Secondary: Cough (MCLCS), QOL (EORTC QLQ-C30, LC-13) at same time points
Funding	The author(s) received no financial support for the research, authorship, and/or publication of this article
ROB 2 Assessment	Randomisation process – *Low* Deviations from the intended interventions – *Low* Missing outcome data – *Low* Measurement of the outcome – *Low* Selection of the reported result – *Low* Overall – *Low*

Name	Exercise Training in Patients with Non–Small Cell Lung Cancer During In-Hospital Chemotherapy Treatment A RANDOMIZED CONTROLLED TRIAL
Author	Rutkowska, 2019
Study Type	Randomised controlled trial
Countries and setting	Poland, at the Independent Public Clinical Hospital No. 3 of Medical University of Silesia in Katowice.
Number of Participants	40
Duration of study follow up (in months)	1.5 months (6 weeks)
Inclusion Criteria	- NSCLC stages IIIB/IV - Histologically confirmed diagnosis within 6 weeks - Ability to perform 6MWT - WHO performance status 0-1 - Willingness to participate
Exclusion Criteria	- Uncontrolled hypertension - Unstable coronary artery disease - Anaemia (Hb <10 g/dL) - Severe osteoarthritis - Bone/CNS metastases
Recruitment/Selection of Patients	- 40 patients recruited from a Polish hospital (Oct 2012–Feb 2015) - Randomized 2:1 (ETG:CG) using computer-generated numbers - Allocation by physiotherapist unrelated to hospital care
Intervention	ETG: 4-week supervised inpatient program with:

	- Respiratory muscle training - Cycle ergometer/treadmill (30-80% peak work rate) - Nordic walking - Resistance exercises (40-70% 1RM) - 5 sessions/week
Outcome reported with time points	Measured at baseline (Day 1) and post-intervention (Day 42): - 6MWT distance - Spirometry (FEV1, FVC, FEV1/FVC) - Dyspnoea (mMRC, BDI, Borg) - Fullerton test components
Funding	Medical University of Silesia, Poland
ROB 2 Assessment	Randomisation process – Some concerns Deviations from the intended interventions – Low Missing outcome data – Some concerns Measurement of the outcome – Low Selection of the reported result – Some concerns Overall – Some concerns

Name	**A Randomized Controlled Trial of a Non-pharmacological Intervention for Cancer-Related Dyspnoea**
Author	Yates, 2020
Study Type	Randomized Controlled Trial

Countries and setting	Four major public hospitals, Brisbane, Australia
Number of Participants	144
Duration of study follow up (in months)	2
Inclusion Criteria	Diagnosis of small or non-small cell lung cancer, mesothelioma or lung metastases; completed first line therapy for the disease; average dyspnoea rating >2 on (0–10) rating scale in past week; anticipated life expectancy ≥3 months.
Exclusion Criteria	Participants who had cognitive impairment that would prevent them from responding to a survey questionnaire or who had a life expectancy of <3 months at the time of screening were not eligible
Recruitment/Selection of Patients	Randomization on a 1:1 basis was by a computer-generated table of random numbers for each site prepared by an investigator with no clinical involvement in the trial. After the research nurse had obtained the participant's consent, a contact independent of the recruitment process at the Institute of Health and Biomedical Innovation (IHBI) at Queensland University of Technology was telephoned for allocation consignment. Participants allocated to the intervention group were aware of the allocated arm, however outcome assessors and data analysts were kept blind to the allocation.
Intervention	a face-to-face instructional session of about 60 minutes, followed by weekly phone calls for 3 weeks, to reinforce the strategies. The intervention combined breathing re-training with individualized psychosocial support and was delivered using evidence-based psycho-educational strategies. The timing and application of the strategies in the multi-component intervention were tailored to the individual, based on the nurses' assessment, although all components and delivery strategies listed might be used with each participant. The instruction was supplemented by a range of resources to reinforce intervention delivery and promote self-management, including audio recordings, printed fact sheets, an individualized management plan, and a referral prompt sheet.

Outcome reported with time points	The primary outcome measure was change in "worst" dyspnoea at 8 weeks compared to baseline. Secondary outcomes were change in: dyspnoea "at best" and "on average"; distress; perceived control over dyspnoea; functional status, psychological distress; and use of non-pharmacological interventions to manage dyspnoea at 8 weeks relative to baseline.
Funding	This work was supported by National Health and Medical Research Council Australia, Project Grant No. 443237
ROB 2 Assessment	Randomisation process – *Low* Deviations from the intended interventions – *Low* Missing outcome data – *Some concerns* Measurement of the outcome – *Low* Selection of the reported result – *Some concerns* Overall – *Some concerns*

Name	**Management of the respiratory distress symptom cluster in lung cancer: a randomised controlled feasibility trial**
Author	Yorke, 2015
Study Type	randomised controlled feasibility trial
Countries and setting	UK, 11 participating centres, including seven secondary care teaching hospitals, two specialist cancer centres and two district general hospitals, located in the north of England.
Number of Participants	107
Duration of study follow up (in months)	3 months (12 weeks)

Inclusion Criteria	- Adults with primary lung cancer - WHO performance status 0–2 - Life expectancy ≥ 3 months - Bothered by at least two of three symptoms: breathlessness, cough, fatigue
Exclusion Criteria	- Acute COPD exacerbation or chest infection requiring treatment in past 4 weeks - Chemotherapy or chest radiotherapy in last 4 weeks - Lung cancer surgery in last 6 weeks
Recruitment/Selection of Patients	- Patients screened at 11 centres (cancer centres, teaching & district hospitals) - Screened during lung cancer outpatient clinics - Research nurse and attending clinician determined eligibility
Intervention	Multicomponent Respiratory Distress Symptom Intervention (RDSI): 1. Controlled breathing techniques 2. Cough easing techniques 3. Acupressure at specific points 4. Information pack including psychoeducation Delivery: 2 face-to-face sessions + 1 follow-up call
Outcome reported with time points	Outcomes measured at baseline, week 4, and week 12: - Breathlessness (NRS, Dyspnoea-12) - Cough (Manchester Cough in Lung Cancer Scale) - Fatigue (FACIT-F) - HADS (Anxiety & Depression) - Lung Cancer Symptom Scale - EQ-5D-3L (HRQoL)

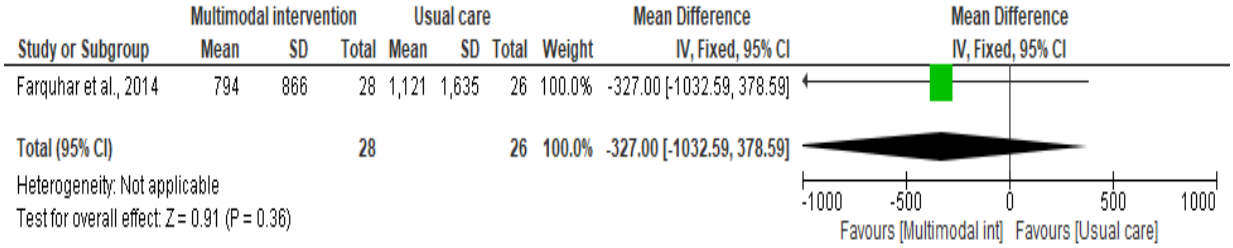
Funding	Marie Curie Cancer Care (UK) ref: C16394/A14093
ROB 2 Assessment	Randomisation process – *Low* Deviations from the intended interventions – *Some concerns* Missing outcome data – *Some concerns* Measurement of the outcome – *Some concerns* Selection of the reported result – *Low* Overall – *Some concerns*

Name	**Respiratory distress symptom intervention for non-pharmacological management of the lung cancer breathlessness–cough–fatigue symptom cluster: randomised controlled trial**
Author	Yorke, 2024
Study Type	randomised controlled trial
Countries and setting	UK, eight hospitals in England
Number of Participants	263
Duration of study follow up (in months)	3 months (12 weeks)
Inclusion Criteria	- Adults (≥18 years) with intrathoracic malignancy (lung cancer or mesothelioma) - WHO Performance Status 0–2 - Life expectancy >3 months - Self-reported adverse impact in daily life from ≥2 of 3 symptoms (breathlessness, cough, fatigue) - Stable COPD if present
Exclusion Criteria	Not explicitly listed, but exclusion inferred if not meeting above inclusion or unable to provide consent.

Recruitment/Selection of Patients	- Recruited from 8 centres across England - Identified via lung cancer MDT meetings, outpatient clinics, and nurse specialists - Consent obtained before randomisation.
Intervention	RDSI (Respiratory Distress Symptom Intervention): - Controlled breathing techniques - Cough suppression strategies - Acupressure training - Individually tailored exercise Delivered by trained clinicians as part of routine care.
Outcome reported with time points	Primary Outcomes at 12 weeks: - Dyspnoea-12 (breathlessness) - MCLC scale (cough) - FACIT-F (fatigue) Secondary Outcomes: - Coping NRS for each symptom - HADS (anxiety, depression) - EQ-5D-5L (HRQoL/QALY) - Health resource utilisation
Funding	The National Institute for Health Research, Research for Patient Benefit (PB-PG-1014-35045).
ROB 2 Assessment	Randomisation process – *Low* Deviations from the intended interventions – *Some concerns* Missing outcome data – *High* Measurement of the outcome – *Some concerns* Selection of the reported result – *Low* Overall – *High*

6.Forest Plots of Important Outcomes

Figure 1: Cost



7. Summary of Findings

Multimodal intervention compared to Usual care for management of dyspnoea

Patient or population: Lung cancer patients with dyspnoea

Intervention: Multi-modal intervention (drug and non-drug)

Comparison: Standard of Care

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	No. of Participants (studies)	Certainty of the Evidence (GRADE)
	Risk with Usual care	Risk with Multimodal Intervention			
Cost					
Cost in GBP	The mean cost in GBP was 0	MD -327 lower (-1032.59 lower to 378.59 higher)	-	54 (1 RCT)	⊕◯◯◯ Very low[a,b,c]

***The risk in the intervention group** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **risk difference** of the intervention (and its 95% CI).

CI: *Confidence Interval*

GRADE Working Group grades of evidence

High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.

Moderate certainty: we are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.

Low certainty: our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect.

Very low certainty: we have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of effect.

Explanations:

a. *Some concerns were identified in the study included for this outcome*
b. *Single study was downgraded one level for inconsistency as it was in evaluable*
c. *Downgraded one level for imprecision as the 95% CI crossed the null effect line*

8. Evidence Profile Table

Multimodal intervention compared to Usual care for management of dyspnoea

Patient or population: Lung cancer patients with dyspnoea

Intervention: Multi-modal intervention (drug and non-drug)

Comparison: Standard of Care

Certainty Assessment							No. of Patients		Effect		Certainty	Importance
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Multimodal intervention	Standard of Care	Relative (95% CI)	Absolute (95% CI)		
Cost												
Cost in GBP												
1	randomised trial	serious[a]	Serious[b]	not serious	Serious[c]	none	28	26	-	MD -327 **lower** (-1032.59 lower to 378.59higher)	⊕◯◯◯ Very low[a,b,c]	CRITICAL

CI: Confidence Interval
Explanations: a. *Some concerns were identified in the study included for this outcome* b. *Single study was downgraded one level for inconsistency as it was in evaluable* C. *Downgraded one level for imprecision as the 95% CI crossed the null effect line*

9. Evidence to Decision Framework

Should Multimodal treatment vs. drug therapy alone be used for patients with advanced lung cancer experiencing dyspnoea?	
POPULATION:	patients with advanced lung cancer experiencing dyspnoea
INTERVENTION:	Multimodal treatment
COMPARISON:	drug therapy alone
MAIN OUTCOMES:	Improvement in dyspnoea *(Critical Outcome)* Performance status *(Critical Outcome)* Quality of life *(Critical Outcome)* Cost *(Important Outcome)*

ASSESSMENT

Problem Is the problem a priority?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ No ○ Probably no ○ Probably yes ● Yes ○ Varies ○ Don't know	Dyspnoea is one of the most distressing and prevalent symptoms in patients with advanced lung cancer, significantly impairing quality of life and functional status. Despite pharmacological treatments, many patients continue to experience persistent breathlessness, indicating an unmet clinical need. Multimodal interventions, which may include non-pharmacological approaches such as breathing techniques, psychological support, and physiotherapy, offer a potentially more holistic and effective management strategy. Addressing this issue in the guideline is a priority as it directly impacts patient-centred outcomes and supports evidence-informed palliative care practices.	
Desirable Effects How substantial are the desirable anticipated effects?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Trivial ○ Small ● Moderate ○ Large ○ Varies ○ Don't know	The mean reduction in dyspnoea by 0.27 points on the MRC scale and 2.9 points on the Dyspnoea-12, suggesting some relief in breathlessness. Functional gains appear more pronounced, exemplified by a 0.75-unit increase in ECOG performance status and a 20-point rise in the Barthel Index, indicating meaningful enhancements in daily activity capacity. Quality-of-life benefits are modest yet perceptible, as reflected by a 4.3-point boost in the EORTC QLQ-C30 global health score and a 1.6-point improvement in FACT-L.	The GDG made the judgement for moderate effects based on the overall improvement of all outcomes.

Outcomes	Anticipated Absolute Effects* (95% CI)		Relative Effect (95% CI)	No. of Participants (studies)	Certainty of the Evidence (GRADE)
	Risk with Usual care	Risk with Multimodal Intervention			
Improvement in Dyspnoea					
Numerical rating scale (0-10)	Mean Score 4.01	MD 0.4 lower (0.95 lower to 0.14 higher)	-	258 (3 RCTs)	⊕◯◯◯ Very low[a,b,c]
Modified Medical Research Council (mMRC) Scale	Mean Score 1.28	MD 0.03 higher (0.07 lower to 0.13 higher)	-	327 (3 RCTs)	⊕◯◯◯ Very Low[a,c]
Medical Research Council Dyspnoea Scale (MRC, 1-5)	Mean Score 3.02	MD 0.27 lower (0.37 lower to 0.17 lower)	-	274 (2 RCTs)	⊕◯◯◯ Very Low[a,b,d]
Cancer Dyspnea scale (CDS)	Mean Score 13.77	MD 0.56 lower (0.72 lower to 0.39 lower)	-	269 (2 RCTs)	⊕⊕⊕◯ Moderate[d]
100mm visual analogue scale	Mean Score 30.78	MD 10.93 lower (22.45 lower to 0.59 higher)	-	102 (1 RCT)	⊕◯◯◯ Very Low[a,f,c]
Dyspnea-12	Mean score 14.35	MD 2.9 lower (6.3 lower to 0.5 higher)	-	154 (1 RCT)	⊕◯◯◯ Very Low[a,f,c]

European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-LC-13, Chinese language version) - Dyspnea subscale	Mean score 13.6	MD 9.8 lower (18.93 lower to 0.67 lower)	-	24 (1 RCT)	⊕◯◯◯ Very Low[e,f,c]
Borg scale	Mean score 2.6	MD 1.1 lower (2.9 lower to 0.7 higher)	-	30 (1 RCT)	⊕◯◯◯ Very Low[e,f,c]
Baseline Dyspnea Index	Mean score 9.8	MD 0.3 lower (2.12 lower to 1.52 higher)	-	30 (1 RCT)	⊕◯◯◯ Very Low[e,f,c]
Modified Borg scale	Mean score 3.4	MD 0.9 lower (1.69 lower to 0.11 lower)	-	36 (1 RCT)	⊕◯◯◯ Very Low[e,f,c]
Effect on Performance Status					
6MWT in minutes	Mean score 490	MD 41 higher (43.98 lower to 125.98 higher)	-	33 (1 RCT)	⊕◯◯◯ Very Low[e,f,c]
Actigraphy (percent time immobile)	Mean score 45.8	MD 1.62 higher (1.21 higher to 2.03 higher)	-	191 (1 RCT)	⊕⊕◯◯ Low[e,f,d]
ECOG	Mean score 1.71	MD 0.75 higher (0.62 higher to 0.89 higher)	-	310 (2 RCTs)	⊕⊕◯◯ Low[e,g]
Godin-Shephard Leisure Time Physical Activity Questionnaire	Mean score 11.19	MD 1.1 higher (3.29 lower to 5.49 higher)	-	247 (1 RCT)	⊕⊕◯◯ Low[e,c]
Barthel index	Mean score 56.31	MD 20.92 higher (16.2 higher to 25.64 higher)	-	106 (1 RCT)	⊕◯◯◯ Very low[e,f,d]
Quality of Life					
EORTC-QLQ-C30 - Global health status	Mean score 65.68	MD 4.3 higher (3.27 higher to 5.34 higher)	-	141 (3 RCTs)	⊕◯◯◯ Very Low[e,h,d]

FACT-L	Mean score 91.4	MD 1.6 higher (1.23 higher to 1.97 higher)	-	191 (1 RCT)	⊕⊕◯◯ Low[e,f,d]
Chronic Respiratory Questionnaire Mastery	Mean score 4.72	MD 0.09 higher (0.58 lower to 0.76 higher)	-	54 (1 RCT)	⊕◯◯◯ Very low[e,f,c]
Chronic Respiratory Disease Questionnaire-short form fatigue scores	Mean score 6.8	MD 2 higher (0.61 higher to 3.39 higher)	-	34 (1 RCT)	⊕◯◯◯ Very Low[e,f,d]

Undesirable Effects
How substantial are the undesirable anticipated effects?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Trivial ○ Small ○ Moderate ○ Large ○ Varies ● Don't know	Across randomized trials of multimodal interventions in advanced lung cancer, no clinically significant adverse events have been reported.	The panel highlighted that the physical therapy could have untoward exercise regime for the weak which may have an effect that may not have been looked upon. Therefore, it cannot be assumed that there is no undesirable effect.
Certainty of evidence What is the overall certainty of the evidence of effects?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
● Very low ○ Low ○ Moderate ○ High ○ No included studies	Overall certainty of evidence is very low due to risk of bias, inconsistency and imprecision	No additional considerations.
Values Is there important uncertainty about or variability in how much people value the main outcomes?		

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Important uncertainty or variability ○ Possibly important uncertainty or variability ○ Probably no important uncertainty or variability ● No important uncertainty or variability	Patients regarded a one-point change on patient-reported outcome scales as the minimum meaningful **improvement in dyspnoea and overall quality of life,** suggesting this threshold be used to gauge clinical benefit. (Cardellino A, et al) Perspectives of patients with advanced or metastatic non-small cell lung cancer on symptoms, impacts on daily activities, and thresholds for meaningful change: a qualitative research study. Front Psychol. 2023 Sep 8;14:1217793.) Qualitative interviews of patients (n=15) with advanced lung cancer highlighted the value patients place on interventions that directly alleviate dyspnoea and restore their ability to engage in everyday tasks. (Lo SB et al). A cognitive-behavioural model of dyspnoea: Qualitative interviews with individuals with advanced lung cancer. Palliat Support Care. 2023 Dec;21(6):1070-1077)	The GDG mentioned that there was no important uncertainty or variability in how patients value the outcomes of the intervention, as there was general agreement on the relevance and desirability of the benefits associated with its use.
Balance of effects Does the balance between desirable and undesirable effects favor the intervention or the comparison?		

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Favors the comparison ○ Probably Favors the comparison ○ Does not Favor either the intervention or the comparison ● Probably Favors the intervention ○ Favors the intervention ○ Varies ○ Don't know	The overall balance of effects clearly Favors multimodal interventions over drug therapy alone. Patients experience small to moderate but meaningful improvements in breathlessness, functional status, and quality of life, while randomized trials report virtually no intervention-related harms. Given the absence of adverse events and the added gains in daily functioning and well-being, the desirable effects outweigh any minimal or theoretical risks.	Considering the intervention demonstrated moderate desirable effects while the undesirable effects remain uncertain, the panel concluded that, on balance, the anticipated benefits are likely to outweigh the potential harms, thereby favouring the intervention.

Resources Required		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Large costs ○ Moderate costs ● Negligible costs and savings ○ Moderate savings ○ Large savings ○ Varies ○ Don't know	The total mean cost of services-including the Breathlessness Intervention Service, inpatient treatment, other hospital care, general practitioner visits, nursing care, consultations with other health professionals, social care, total formal care, and informal care costs-was estimated at €794 for the intervention group (n = 28) and €1,121 for the control group (n = 26), indicating that the intervention was associated with a lower overall cost of care. (Farquhar, M. C., et al (2014) Is a specialist breathlessness service more effective and cost-effective for patients with advanced cancer and their carers than standard care? Findings of a mixed-method randomized controlled trial. *BMC Medicine*, 12, 194	No studies found in Indian context. The panel discussed that based on the evidence, there is cost savings. But when extrapolated to the Indian setting, in terms of type of treatment and dosage required, there would be added costs for physiotherapist, nutritionist and oncology team. The GDG discussed the costs of drugs for treating dyspnoea would not be large enough to compensate for the costs of the human resources, incurring negligible additional costs.

Certainty of evidence of required resources What is the certainty of the evidence of resource requirements (costs)?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
● Very low ○ Low ○ Moderate ○ High ○ No included studies	Cost data were collected using the Client Services Receipt Inventory (CSRI) and EQ-5D, which are valid tools. However, potential bias arises due to self-reported resource use, short follow-up (2 weeks), and small sample size (n=67; with only 54 completing). This limits reliability of cost estimates.	The small sample size, different country, self -reported study, selection biases contributed to the panel's judgement.

Cost effectiveness Does the cost-effectiveness of the intervention Favor the intervention or the comparison?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Favors the comparison ○ Probably favors the comparison ○ Does not favor either the intervention or the comparison ● Probably favors the intervention ○ Favors the intervention ○ Varies ○ No included studies	The intervention (BIS) resulted in an incremental QALY gain of 0.0002 (95% CI, -0.001 to 0.002). This reflected the cost-effective plane showing BIS having 40.5% likelihood of higher cost and a greater QALY gain. Economic evaluation of the Breathlessness Intervention Service (BIS) demonstrated a 66% probability of achieving superior reductions in patient distress from breathlessness at lower health and social care costs compared to standard of care, increasing to 81% when informal care costs were included. The intervention group had health/social care costs on average £211 less than controls (95% CI, −£918 to £310), decreasing to £182 and £154 when intervention costs were increased by 25% and 50%, respectively (intervention remained dominant). (Farquhar, M. C., et al (2014). Is a specialist breathlessness service more effective and cost-effective for patients with advanced cancer and their carers than standard care? Findings of a mixed-method randomized controlled trial. *BMC Medicine*, 12, 194.)	The evidence suggested that the cost is less with an increase in quality of life. No studies were reported in context of Indian scenario, contributing to the panel's decision of the evidence probably favouring the intervention upon extrapolation.
Equity What would be the impact on health equity?		

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Reduced ● Probably reduced ○ Probably no impact ○ Probably increased ○ Increased ○ Varies ○ Don't know	No direct evidence was identified regarding the impact of multimodal treatments for dyspnoea on health equity. Multimodal dyspnoea management in advanced lung cancer has the potential to narrow equity gaps by providing comprehensive, patient-centered support, combining pulmonary rehabilitation, breathing retraining, psychosocial counselling, and pharmacologic optimization that addresses both biomedical and social determinants of health. Pragmatic barriers such as limited access to specialized rehabilitation services in rural or low-resource settings, language and cultural mismatches in educational materials, and out-of-pocket costs for transportation or telehealth bandwidth may disproportionately disadvantage socioeconomically marginalized and minority patient groups	The panel pointed out that the access to multimodal treatment may not always be available. Multimodal treatment for dyspnoea for can help reduce disparities in lung cancer outcomes by ensuring timely symptom relief, psychosocial support, and advance care planning, especially for patients from underserved, rural, or low-income backgrounds. However, if services remain limited to major centres or are constrained by coverage, transportation, or staffing challenges, these disparities may worsen. The panel noted that access to such interventions in India is currently low. As a result, the intervention may reduce equity, since it is not feasible for all institutions to deliver it. Patients who are closer to institutions offering the intervention or who can be referred and access a care pathway are more likely to receive it, while others may be excluded.
Acceptability Is the intervention acceptable to key stakeholders?		

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ No ○ Probably no ○ Probably yes ● Yes ○ Varies ○ Don't know	"Patients and caregivers reported high satisfaction with CONNECT and perceived the intervention as helpful in addressing symptoms (85%), coping (91%), and planning for the future (82%). Oncologists unanimously agreed that CONNECT improved the quality of care provided for patients with advanced cancer." (23 patients with advanced cancer, 19 caregivers, and 5 oncologists) 26% were lung cancer patients (Schenker et. al. (2015), *Care management by oncology nurses to address palliative care needs: a pilot trial to assess feasibility, acceptability, and perceived effectiveness of the CONNECT intervention.* J Palliat Med. 2015 Mar;18(3):232-40)	The GDG unanimously agreed that the intervention is acceptable to patients and caregivers.

Feasibility
Is the intervention feasible to implement?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ No ○ Probably no ● Probably yes ○ Yes ○ Varies ○ Don't know	The multimodal program was feasible, with 44% (10/23) recruitment, 75% (75/100) class attendance, 89% (8/9) nutrition and palliative consult attendance, and 85% (17/20) assessment completion. Of ten participants, 70% (7/10) completed the post-intervention follow-up. Participants perceived the intervention as feasible and valuable. Ester et al. (2021), *Feasibility of a multimodal exercise, nutrition, and palliative care intervention in advanced lung cancer*, BMC Cancer 10.1186/s12885-021-07872-y "Patients and caregivers reported high satisfaction with CONNECT and perceived the intervention as helpful in addressing symptoms (85%), coping (91%), and planning for the future (82%). Oncologists unanimously agreed that CONNECT improved the quality of care provided for patients with advanced cancer."	The panel discussed that it may not be feasible to introduce multimodal treatment in all centres as it would require a lot of attitudinal shift, time and energy along with a multi-disciplinary team.

	Schenker et. al. (2015), *Care management by oncology nurses to address palliative care needs: a pilot trial to assess feasibility, acceptability, and perceived effectiveness of the CONNECT intervention.* J Palliat Med. 2015 Mar;18(3):232-40. doi:10.1089/jpm.2014.0325	

SUMMARY OF JUDGEMENTS

	JUDGEMENT						
PROBLEM	No	Probably no	Probably yes	**Yes**		Varies	Don't know
DESIRABLE EFFECTS	Trivial	Small	**Moderate**	Large		Varies	Don't know
UNDESIRABLE EFFECTS	Trivial	Small	Moderate	Large		Varies	**Don't know**
CERTAINTY OF EVIDENCE	**Very low**	Low	Moderate	High			No included studies
VALUES	Important uncertainty or variability	Possibly important uncertainty or variability	Probably no important uncertainty or variability	**No important uncertainty or variability**			
BALANCE OF EFFECTS	Favors the comparison	Probably favors the comparison	Does not favor either the intervention or the comparison	**Probably favors the intervention**	Favors the intervention	Varies	Don't know

	JUDGEMENT						
RESOURCES REQUIRED	Large costs	Moderate costs	**Negligible costs and savings**	Moderate savings	Large savings	Varies	Don't know
CERTAINTY OF EVIDENCE OF REQUIRED RESOURCES	**Very low**	Low	Moderate	High			No included studies
COST EFFECTIVENESS	Favors the comparison	Probably favors the comparison	Does not favor either the intervention or the comparison	**Probably favors the intervention**	Favors the intervention	Varies	No included studies
EQUITY	Reduced	**Probably reduced**	Probably no impact	Probably increased	Increased	Varies	Don't know
ACCEPTABILITY	No	Probably no	Probably yes	**Yes**		Varies	Don't know
FEASIBILITY	No	Probably no	**Probably yes**	Yes		Varies	Don't know

TYPE OF RECOMMENDATION

Strong recommendation against the intervention	Conditional recommendation against the intervention	Conditional recommendation for either the intervention or the comparison	Conditional recommendation for the intervention	**Strong recommendation for the intervention**
○	○	○	○	●

CONCLUSIONS

Recommendation

Multi-modal treatment* is ***recommended*** as compared to drug therapy alone for treatment of dyspnoea in patients with advanced lung cancer.

Strength: Strong
Certainty of evidence: Very low

Justification

The evidence showed moderate desirable effects with negligible additional costs, and cost-effectiveness probably favouring the use of multimodal interventions. The panel judged that the benefits outweigh minimal harms, supporting a strong recommendation.

List of Excluded Studies

Sr. No.	Citation of the study (Vancouver style only)	Reasons for Exclusion
1.	Ahmedzai SH, Laude E, Robertson A, Troy G, Vora V. A double-blind, randomised, controlled Phase II trial of Heliox28 gas mixture in lung cancer patients with dyspnoea on exertion. British journal of cancer. 2004 Jan;90(2):366-71.	Wrong population
2.	Nagumo H, Miyagawa T, Sumitani M, Fujiwara M, Saito H, Takagi S, Tsuda T, Imoto H, Ohe M. Alleviation of dyspnoea and changes in physical activity level by air flow to the face with a fan. Respiratory Care. 2023 Dec 1;68(12):1675-82.	Less than 50% lung cancer patients
3.	Howell D, Bezjak A, Sidani S, Dudgeon D, Mayo S, Bourbeau J, et al. A pilot randomized controlled trial of a behavioral self-management intervention for breathlessness in lung cancer. Vol. 22, Supportive care in cancer. 2014. p. S217	trial protocol, Wrong publication type
4.	Reilly CC, Maddocks M, Chalder T, Bristowe K, Higginson IJ. A randomised, controlled, feasibility trial of an online, self-guided breathlessness supportive intervention (SELF-BREATHE) for individuals with chronic breathlessness due to advanced disease. ERJ Open Research. 2023 Mar 1;9(2).	Wrong population
5.	Minchom A, Punwani R, Filshie J, Bhosle J, Nimako K, Myerson J, Gunapala R, Popat S, O'Brien ME. A randomised study comparing the effectiveness of acupuncture or morphine versus the combination for the relief of dyspnoea in patients with advanced non-small cell lung cancer and mesothelioma. European Journal of Cancer. 2016 Jul 1;61:102-10.	On disease modifying treatment (CAM)
6.	Chai CS, Tan SB, Ng DL, Liam CK, Pang YK. A randomized controlled trial of mindfulness breathing exercise in patients with advanced lung cancer. Annals of Oncology. 2018 Nov 1;29:ix110-1.	conference abstract, Wrong publication type
7.	Jancin B. Benzodiazepines help ease dyspnoea in palliative care patients. Oncol Rep. 2012;19.	Conference abstract, wrong publication type
8.	Peoples AR, Bushunow PW, Garland SN, Heckler CE, Roscoe JA, Peppone LL, Dudgeon DJ, Kirshner JJ, Banerjee TK, Hopkins JO, Dakhil SR. Buspirone for management of dyspnoea in cancer patients receiving chemotherapy: a randomized placebo-controlled URCC CCOP study. Supportive Care in Cancer. 2016 Mar;24:1339-47.	On disease modifying treatment
9.	Booth S. cambridge Breathlessness intervention Service (cBiS). Progress in Palliative Care. 2013 Sep 1;21(4):224-8.	conference abstract, Wrong publication type

10.	Maeda T, Hayakawa T. Corticosteroids for alleviating dyspnoea in patients with terminal cancer. Progress in Palliative Care. 2017 Nov 2;25(6):269-72.	Less than 50% lung cancer patients
11.	Currow DC, Agar M, Smith J, Abernethy AP. Does palliative home oxygen improve dyspnoea? A consecutive cohort study. Palliative medicine. 2009 Jun;23(4):309-16.	Less than 50% lung cancer patients
12.	Andersen AH, Vinther A, Poulsen LL, Mellemgaard A. Do patients with lung cancer benefit from physical exercise?. Acta oncologica. 2011 Feb 1;50(2):307-13.	On disease modifying treatment
13.	Sakai Y, Yamaga T, Yamamoto S, Matsumori K, Ichiyama T, Hanaoka M, Ikegami S, Horiuchi H. Effects and usefulness of inspiratory muscle training load in patients with advanced lung cancer with dyspnoea. Journal of Clinical Medicine. 2023 May 10;12(10):3396.	On disease modifying treatment
14.	NCT06035263. Effects of a Functional Re-education and Environmental Adaptation Programme in Cancer Patients With Associated Respiratory Pathology. https://clinicaltrials.gov/ct2/show/NCT06035263 [Internet]. 2023; Available from: https://www.cochranelibrary.com/central/doi/10.1002/central/CN-02602100/full	Trial protocol, Wrong publication
15.	Rehman M, Ahmad U, Waseem M, Ali B, Tariq MI. Effects of exercise training in patients with lung cancer during chemotherapy treatment. The Malaysian Journal of Medical Sciences: MJMS. 2023 Apr;30(2):141.	On disease modifying treatment
16.	Bruera E, de Stoutz N, Velasco-Leiva A, Schoeller T, Hanson J. Effects of oxygen on dyspnoea in hypoxaemic terminal-cancer patients. The Lancet. 1993 Jul 3;342(8862):13-4.	Less than 50% lung cancer patients
17.	Henke C, Cabri J, Fricke L, Kandilakis G, Wulf P, Feyer PC, De Wit M. Enhanced physical activity intervention in lung cancer patients during palliative chemotherapy-a randomized controlled trial. InOnkologie 2012 Oct 1 (Vol. 35, pp. 139-139). ALLSCHWILERSTRASSE 10, CH-4009 BASEL, SWITZERLAND: KARGER.	On disease modifying treatment
19.	Mori M, Kawaguchi T, Imai K, Yokomichi N, Yamaguchi T, Suzuki K, Matsunuma R, Watanabe H, Maeda I, Uehara Y, Morita T. How successful is parenteral oxycodone for relieving terminal cancer dyspnoea compared with morphine? A multicenter prospective observational study. Journal of Pain and Symptom Management. 2021 Aug 1;62(2):336-45.	Less than 50% lung cancer patients

20.	Shi XY, Ren Y, Gu XM, Jia YR, Wang X. Impact of pulmonary rehabilitation on patients with different chronic respiratory diseases during hospitalization. Medicine. 2024 Apr 12;103(15):e37778.	Less than 50% lung cancer patients
22.	Chan CW, Richardson A, Richardson J. Managing symptoms in patients with advanced lung cancer during radiotherapy: results of a psychoeducational randomized controlled trial. Journal of pain and symptom management. 2011 Feb 1;41(2):347-57.	On disease modifying treatment
23.	KCT0006694. Multicenter, Prospective, Comparative, Randomized, Single blind, Superior, Pivotal study to evaluate the clinical effectiveness and safety of respiratory rehabilitation software 'Redpill Breath' compared to the manual rehabilitation management for those needs respiratory rehabilitation(COPD, Asthma, Lung Cancer, etc.) [Internet]. https://trialsearch.who.int/Trial2.aspx?TrialID=KCT0006694. 2021. Available from: https://www.cochranelibrary.com/central/doi/10.1002/central/CN-02351985/full	Trial protocol, Wrong Publication type
24.	Bredin M, Corner J, Krishnasamy M, Plant H, Bailey C, A'Hern R. PapersMulticentre randomised controlled trial of nursing intervention for breathlessness in patients with lung cancer. Bmj. 1999 Apr 3;318(7188):901.	stage of lung cancer not mentioned
25.	Schultheis CP. Nebulized fentanyl provides subjective improvements for patients with dyspnoea. InOncology Nursing Forum 2005 Jan 1 (Vol. 32, No. 1, pp. 15-author).	letter to editor, wrong publication type
26.	Yilmaz S, Yaka E, Yuksel M, Dogan NO, Pekdemir M. NONOPIOID THERAPY FOR CANCER RELATED DYSPNOEA PALLIATION IN THE ED: A RANDOMIZED DOUBLE BLIND CLINICAL TRIAL. Acta Medica. 2017 Jan 1;33:1099.	stage of lung cancer not mentioned
27.	Walder D, Punwani R, Gunapala R, Kumar R, Minchom A, Bhosle J, Popat S, Yousaf N, O'Brien M. P3. 12-003 Optimized Inhaler Therapy Is Superior to Supportive Care Alone for Dyspnoea in Patients with Coexisting COPD and Lung Cancer. Journal of Thoracic Oncology. 2017 Nov 1;12(11):S2314-5.	conference abstract, wrong publication type
28.	Temel JS, Jackson VA, Billings JA, Dahlin C, Block SD, Buss MK, Ostler P, Fidias P, Muzikansky A, Greer JA, Pirl WF. Phase II study: integrated palliative care in newly diagnosed advanced non–small-cell lung cancer patients. Journal of Clinical Oncology. 2007 Jun 10;25(17):2377-82.	on disease modifying treatment
29.	Yang GM, Teo I, Neo SH, Tan D, Cheung YB. Pilot randomized phase II trial of the enhancing quality of life in patients (EQUIP) intervention	on disease modifying treatment

	for patients with advanced lung cancer. American Journal of Hospice and Palliative Medicine®. 2018 Aug;35(8):1050-6.	
31.	EUCTR2010-021412-42-GB. Prospective randomised controlled trial to investigate the effectiveness of inhalers for the relief of breathlessness in patients with lung cancer and COPD - Airway disease optimisation of pharmaco-therapy in lung cancer. HttpstrialsearchwhointTrial2aspxTrialIDEUCTR2010-021412-42-GB [Internet]. Available from: https://www.cochranelibrary.com/central/doi/10.1002/central/CN-01830072/full	Trial protocol , wrong publication type
32.	Jastrzebski D, Rutkowska A, Rutkowski S, Kostorz S, Zebrowska A, Ziora D, et al. Short-time exercise-induced rehabilitation in non-small cell lung cancer patients during in-hospital chemotherapy treatment: a randomized controlled trial. Eur Respir J [Internet]. 2017;50. Available from: https://www.cochranelibrary.com/central/doi/10.1002/central/CN-01794097/full	on disease modifying treatment
33.	Henke CC, Cabri J, Fricke L, Pankow W, Kandilakis G, Feyer PC, De Wit M. Strength and endurance training in the treatment of lung cancer patients in stages IIIA/IIIB/IV. Supportive Care in Cancer. 2014 Jan;22:95-101.	on disease modifying treatment wrong outcome
34.	Wang X, Chen Y, Ai H, Li P, Zhu C, Yuan J. Study on the therapeutic effects and prognosis evaluation of non-invasive ventilation in patients with chronic obstructive pulmonary disease with lung cancer. Technology and Health Care. 2024(Preprint):1-9.	stage of lung cancer not mentioned
35.	Look ML, Tan SB, Hong LL, Ng CG, Yee HA, Lim LY, Ng DL, Chai CS, Loh EC, Lam CL. Symptom reduction in palliative care from single session mindful breathing: a randomised controlled trial. BMJ Supportive & Palliative Care. 2021 Dec 1;11(4):433-9.	less than 50 percent lung cancer
36.	ACTRN12612000925842. Testing strategies to improve breathlessness and related symptoms in people with lung cancer [Internet]. http://www.who.int/trialsearch/Trial2.aspx?TrialID=ACTRN12612000925842. 2012. Available from: https://www.cochranelibrary.com/central/doi/10.1002/central/CN-02442102/full	Trial protocol, wrong publication type
37.	Tan SB, Liam CK, Pang YK, Ng DL, Wong TS, Khoo KW, Ooi CY, Chai CS. The effect of 20-minute mindful breathing on the rapid reduction of dyspnoea at rest in patients with lung diseases: a randomized controlled trial. Journal of Pain and Symptom Management. 2019 Apr 1;57(4):802-8.	stage of lung cancer not mentioned

38.	Turan GB, Özer Z, Sariköse A. The effects of progressive muscle relaxation exercise applied to lung cancer patients receiving chemotherapy on dyspnoea, pain and sleep quality: A randomized controlled trial. European Journal of Oncology Nursing. 2024 Jun 1;70:102580.	on disease modifying treatment
39.	Kim JS, Shin J, Kim NH, Lee SY, Yoo SH, Keam B, Heo DS. Use of high-flow nasal cannula oxygen therapy for patients with terminal cancer at the end of life. Cancer Medicine. 2023 Jul;12(13):14612-22.	less than 50 percent lung cancer
40.	Johnson MJ, Kanaan M, Richardson G, Nabb S, Torgerson D, English A, Barton R, Booth S. A randomised controlled trial of three or one breathing technique training sessions for breathlessness in people with malignant lung disease. BMC medicine. 2015 Dec;13:1-1.	Wrong comparator
41.	Bruera E, Sweeney C, Willey J, Palmer JL, Strasser F, Morice RC, Pisters K. A randomized controlled trial of supplemental oxygen versus air in cancer patients with dyspnoea. Palliative medicine. 2003 Dec;17(8):659-63.	Wrong comparator
42.	Pinna MÁ, Bruera E, Moralo MJ, Correas MÁ, Vargas RM. A randomized crossover clinical trial to evaluate the efficacy of oral transmucosal fentanyl citrate in the treatment of dyspnoea on exertion in patients with advanced cancer. American Journal of Hospice and Palliative Medicine®. 2015 May;32(3):298-304.	Wrong comparator
43.	Webb M, Moody LE, Mason LA. Dyspnoea assessment and management in hospice patients with pulmonary disorders. American Journal of Hospice and Palliative Medicine®. 2000 Jul;17(4):259-64.	Wrong population
44.	Taniguchi Y, Matsuda Y, Mori M, Ito M, Ikari T, Tokoro A, Aiki S, Hoshino S, Kiuchi D, Suzuki K, Igarashi Y. Effectiveness and safety of opioids for dyspnoea in patients with lung cancer: secondary analysis of multicenter prospective observational study. Translational Lung Cancer Research. 2022 Dec;11(12):2395.	Wrong comparator
45.	Hui D, Larsson L, Thomas S, Harrison C, Wu J, Mahler D, Hess KR, Lopez-Mattei J, Thompson K, Gomez DR, Jeter M. Effect of high flow oxygen on exertional dyspnoea in cancer patients: A double-blind randomized clinical trial. Journal of clinical oncology. 2020 Aug;	Wrong comparator
46.	Gamborg H, Riis J, Christrup L, Krantz T. Effect of intraoral and subcutaneous morphine on dyspnoea at rest in terminal patients with primary lung cancer or lung metastases. Journal of opioid management. 2013 Jul 1;9(4):269-74.	Wrong Population
47.	Tanaka K, Shima Y, Kakinuma R, Kubota K, Ohe Y, Hojo F, Matsumoto T, Ohmatsu H, Goto K, Nagai K, Nishiwaki Y. Effect of nebulized morphine in cancer patients with dyspnoea: a pilot study. Japanese journal of clinical oncology. 1999 Dec 1;29(12):600-3.	Wrong comparator

48.	Mori M, Morita T, Matsuda Y, Yamada H, Kaneishi K, Matsumoto Y, Matsuo N, Odagiri T, Aruga E, Watanabe H, Tatara R. How successful are we in relieving terminal dyspnoea in cancer patients? A real-world multicenter prospective observational study. Supportive Care in Cancer. 2020 Jul;28:3051-60.	Wrong comparator
49.	Kocatepe V, Can G, Oruç Ö. Lung Cancer-Related Dyspnoea: The effects of a handheld fan on management of symptoms. Clinical Journal of Oncology Nursing. 2021 Dec 1;25(6).	Wrong comparator
50.	Ji W, Kwon H, Lee S, Kim S, Hong JS, Park YR, Kim HR, Lee JC, Jung EJ, Kim D, Choi CM. Mobile health management platform–based pulmonary rehabilitation for patients with non–small cell lung cancer: prospective clinical trial. JMIR mHealth and uHealth. 2019 Jun 21;7(6):e12645.	Wrong comparator
51.	Zeppetella G. Nebulized morphine in the palliation of dyspnoea. Palliative medicine. 1997 Jul;11(4):267-75.	Wrong comparator
52.	Cuomo A, Delmastro M, Ceriana P, Nava S, Conti G, Antonelli M, Iacobone E. Noninvasive mechanical ventilation as a palliative treatment of acute respiratory failure in patients with end-stage solid cancer. Palliative medicine. 2004 Oct;18(7):602-10.	Wrong comparator
53.	Corner J, Plant H, A'hern R, Bailey C. Non-pharmacological intervention for breathlessness in lung cancer. Palliative medicine. 1996 Oct;10(4):299-305.	Wrong comparator
54.	Boyd KJ, Kelly M. Oral morphine as symptomatic treatment of dyspnoea in patients with advanced cancer. Palliative medicine. 1997 Jul;11(4):277-81.	Wrong comparator
55.	Wilcock A, Walton A, Manderson C, Feathers L, El Khoury B, Lewis M, Chauhan A, Howard P, Bell S, Frisby J, Tattersfield A. Randomised, placebo-controlled trial of nebulised furosemide for breathlessness in patients with cancer. Thorax. 2008 Oct 1;63(10):872-5.	Wrong comparator
56.	Olivier C, Grosbois JM, Cortot AB, Peres S, Heron C, Delourme J, Gierczynski M, Hoorelbeke A, Scherpereel A, Le Rouzic O. Real-life feasibility of home-based pulmonary rehabilitation in chemotherapy-treated patients with thoracic cancers: a pilot study. BMC cancer. 2018 Dec;18:1-8.	Wrong Population
57.	Prado BL, Gomes DB, Usón Júnior PL, Taranto P, França MS, Eiger D, Mariano RC, Hui D, Del Giglio A. Continuous palliative sedation for patients with advanced cancer at a tertiary care cancer center. BMC Palliative Care. 2018 Dec;17:1-7.	Less than 50% lung cancer

FOR PATIENTS WITH NEWLY DIAGNOSED LUNG CANCER, HOW EFFICACIOUS IS MULTI-MODAL APPROACH TO MANAGING THE SYMPTOM-CLUSTER OF INSOMNIA, FATIGUE AND DEPRESSION, COMPARE WITH PSYCHO-SOCIAL/ PSYCHOTHERAPEUTIC CARE ALONE?

For patients with newly diagnosed lung cancer, how efficacious is multi-modal approach to managing the symptom-cluster of insomnia, fatigue and depression, compare with psycho-social/psychotherapeutic care alone-

Supplement

1. Key Question in PICO format

For patients with newly diagnosed lung cancer, how efficacious is multi-modal approach to managing the symptom-cluster of insomnia, fatigue and depression, compare with psycho-social/ psychotherapeutic care alone?

PICO

Framework	Description
Population	Patients with newly diagnosed lung cancer
Intervention	Multi-modal approach Clinical assessment and reversing the reversible (drugs, disease-conditions) and psychotherapeutic care (communication, counselling, expression therapies, sleep hygiene, problem solving, education)
Comparator	Psychotherapeutic care alone (communication, counselling, expression therapies, sleep hygiene, problem solving, education)
Outcome	a. Improvement in symptom score (*critical outcome*) b. Quality of life (*Critical outcome*) c. Cost (*Important outcome*) d. Treatment adherence/compliance (*Important outcome*)

2. Search Strategy

Search strings:

a) Search terms/keywords used for search strategy

Framework	Search terms/Keywords
Population	Lung, Pulmonary, Cancer, Tumor, Tumour, Carcinoma, Neoplasm, Bronchial, Bronchogenic
Intervention	Multimodal Treatment, Multimodal approach, Multimodal Therapy, Multimodal intervention, Combined treatment, combined approach, combined intervention, combined modality treatments, multidisciplinary treatment, multidisciplinary approach, interdisciplinary treatment, interdisciplinary approach, Symptomatic management/treatment
Comparator	Psychotherapy, Psychological treatment, psychological intervention, psychological care, psychosocial treatment, psychosocial intervention, psychoeducational intervention, psychoeducation, education, counselling/counseling, talk therapy, sleep hygiene, sleep intervention, supportive therapy, cognitive training, cognitive behavior therapy, stress reduction, relaxation

Outcome (if applicable)	Insomnia, sleep disturbance, sleep problem, sleep disorder, Sleeplessness, Fatigue, Tiredness, Mental Fatigue, loss of energy, anergia, Depression, major depressive disorder, depressive disorder, depressive episode, depressive syndrome, melancholia, depressed mood, Anxiety, fear, panic, phobic/phobia, Quality of life, Performance, Functioning, Cost of illness, Compliance, Adherence

b) PubMed: (As on date 14/06/2024)

Search Domain	Search Strategy	Number of Hits
[1] Lung cancer	"lung cancer"[Title/Abstract] OR "lung neoplasm"[Title/Abstract] OR "lung carcinoma"[Title/Abstract] OR "Lung tumor"[Title/Abstract] OR "Pulmonary lung cancer"[Title/Abstract] OR "Pulmonary neoplasm"[Title/Abstract] OR "Pulmonary Cancer"[Title/Abstract] OR "Lung Neoplasms"[MeSH Terms] OR "Small Cell Lung Carcinoma"[MeSH Terms] OR "carcinoma, non-small cell lung"[MeSH Terms] Or "carcinoma, bronchogenic"[MeSH Terms] OR Bronchogenic Carcinoma[Title/Abstract] OR "newly diagnosed lung cancer" [Title/Abstract]	43,949
[2] Multi-modal therapy	"combined modality therapy"[MeSH Terms] OR Combined Modality Therapy [Title/Abstract] OR "palliative care"[MeSH Terms] OR Palliative Care[Title/Abstract] OR "Hospice and Palliative Care Nursing"[Mesh] OR "Palliative Medicine"[Mesh] OR Multimodal Treatment[Title/Abstract] OR Multimodal approach[Title/Abstract] OR Multimodal Therapy[Title/Abstract] OR Multimodal intervention[Title/Abstract] OR Combined treatment[Title/Abstract] OR combined approach[Title/Abstract] OR combined intervention[Title/Abstract] OR combined modality treatments[Title/Abstract] OR multidisciplinary treatment[Title/Abstract] OR multidisciplinary approach[Title/Abstract] OR interdisciplinary treatment[Title/Abstract] OR interdisciplinary approach[Title/Abstract] OR Symptomatic management [Title/Abstract] OR "Drug therapy"[Subheading] OR "drug therapy"[MeSH Terms] OR Drug Therapy[Title/Abstract] OR "radiotherapy"[Subheading] OR "radiotherapy"[MeSH Terms] OR Radiotherapy[Title/Abstract] OR "immunotherapy"[MeSH Terms] OR immunotherapy[Title/Abstract] OR "bronchodilator agents"[All Fields] OR "bronchodilator agents"[MeSH Terms] OR "Bronchodilator Agents" [Title/Abstract] OR "narcotics"[MeSH	5,257,520

	Terms] OR Narcotics[Title/Abstract] OR "anti-anxiety agents"[MeSH Terms] OR Anti-Anxiety Agents[Title/Abstract] OR "antidepressive agents"[MeSH Terms] OR Antidepressive Agents[Title/Abstract] OR "adrenal cortex hormones"[MeSH Terms] OR Adrenal Cortex Hormones[Title/Abstract] OR "benzodiazepines"[MeSH Terms] OR Benzodiazepines[Title/Abstract] OR "Pharmacological management"[Title/Abstract] OR "Pharmacological strategies"[Title/Abstract] OR "Pharmacological treatment"[Title/Abstract] OR "psychotherapy"[MeSH Terms] OR Psychotherapy [Title/Abstract] OR "psychosocial intervention"[MeSH Terms] OR "Psychosocial Intervention" [Title/Abstract] OR "counseling"[MeSH Terms] OR counselling[Title/Abstract] OR "self-management"[MeSH Terms] OR Self-Management[Title/Abstract] OR "problem solving"[MeSH Terms] OR "Problem Solving" [Title/Abstract] OR "sleep hygiene"[MeSH Terms] OR Sleep Hygiene[Title/Abstract] OR "relaxation therapy"[MeSH Terms] OR Relaxation Therapy[Title/Abstract] OR "cognitive behavioral therapy"[MeSH Terms] OR Cognitive Behavioral Therapy[Title/Abstract] OR "mind-body therapies"[MeSH Terms] OR Mind-Body Therapies[Title/Abstract] OR Psychological treatment[Title/Abstract] OR psychological intervention [Title/Abstract] OR psychological care[Title/Abstract] OR psychosocial treatment [Title/Abstract] OR psychoeducational intervention[Title/Abstract] OR supportive therapy[Title/Abstract] OR "Non pharmacological management"[Title/Abstract] OR "Non pharmacological strategies"[Title/Abstract] OR "Non pharmacological treatment"[Title/Abstract]	
[3] Outcome	"quality of life"[Title/Abstract] OR "quality of life"[MeSH Terms] OR "QoL"[Title/Abstract] OR "Life quality"[Title/Abstract] OR "HRQOL"[Title/Abstract] OR "Health related quality of life"[Title/Abstract] OR "karnofsky performance status"[MeSH Terms] OR Karnofsky Performance Status[Title/Abstract] OR "psychosocial functioning"[MeSH Terms] OR Psychosocial Functioning[Title/Abstract] OR "symptom score" [Title/Abstract] OR Tiredness [Title/Abstract] OR "cost of illness"[MeSH Terms] OR cost of illness[Title/Abstract] OR "Direct cost"[Title/Abstract] OR "Indirect cost"[Title/Abstract] OR "Cost"[Title/Abstract] OR "Health Expenditures"[MeSH Terms] OR "treatment adherence and compliance"[MeSH Terms] OR Treatment adherence[Title/Abstract] OR "medication adherence"[MeSH Terms] OR Medication Adherence[Title/Abstract] OR "sleep initiation and maintenance disorders"[MeSH Terms] OR Insomnia[Title/Abstract] OR "sleep	2,152,090

	quality"[MeSH Terms] OR sleep quality[Title/Abstract] OR "fatigue"[MeSH Terms] OR fatigue[Title/Abstract] OR "muscle weakness"[MeSH Terms] OR Muscle Weakness[Title/Abstract] OR "depressive disorder"[MeSH Terms] OR "depression"[MeSH Terms] OR depression[Title/Abstract] OR "anxiety"[MeSH Terms] OR Anxiety[Title/Abstract] OR "Anxiety Disorders"[Mesh terms] OR "symptom assessment"[MeSH Terms] OR Symptom Assessment[Title/Abstract]	
[4] Study design	"Clinical Trial"[Title/Abstract] OR "Observational Study"[Title/Abstract] OR "randomized controlled trial"[Publication Type] OR "Controlled Clinical Trial"[Publication Type] OR "randomized controlled trial"[Title/Abstract] OR "Observational Studies as Topic"[MeSH Terms] OR "Observational Study"[Publication Type] OR "Clinical Trial"[Publication Type] OR "Clinical Trials as Topic"[MeSH Terms] OR "Controlled Clinical Trial"[Publication Type] OR "Non-Randomized Controlled Trials as Topic"[MeSH Terms] OR "Clinical Trial Protocols as Topic"[MeSH Terms] OR "Clinical Trial Protocol"[Publication Type] OR "Non-Randomized Controlled Trials"[Title/Abstract] OR "Cohort Studies"[MeSH Terms] OR "Case-Control Studies"[MeSH Terms] OR "Randomized Controlled Trials as Topic"[MeSH Terms] OR "Case-Control Studies"[Title/Abstract] OR "Cohort Studies"[Title/Abstract]	4,129,883
[5]	[1] AND [2] AND [3] AND [4] AND ((humans [Filter]) AND (english[Filter]))	2,127

c) EMBASE: (As on date 14/06/2024)

Search Domain	Search Strategy	Number of Hits
[1] Lung cancer	'lung cancer':ti,ab OR 'lung neoplasm':ti,ab OR 'lung carcinoma':ti,ab OR 'Lung tumor':ti,ab OR 'Pulmonary lung cancer':ti,ab OR 'Pulmonary neoplasm':ti,ab OR 'Pulmonary Cancer':ti,ab OR 'lung tumor'/exp OR 'small cell lung cancer'/exp OR 'non-small cell lung cancer'/exp OR 'Bronchogenic Carcinoma':ti,ab OR 'newly diagnosed lung cancer':ti,ab OR 'lung cancer'/exp OR 'lung carcinoma'/exp	618,249
[2] Multi-modal therapy	'multimodality cancer therapy'/exp OR 'Combined Modality Therapy':ti,ab OR 'palliative therapy'/exp OR 'Palliative Care':ti,ab OR 'palliative nursing'/exp OR 'Multimodal Treatment':ti,ab OR 'Multimodal approach':ti,ab OR 'Multimodal Therapy':ti,ab OR 'Multimodal intervention':ti,ab OR 'Combined treatment':ti,ab OR 'combined approach':ti,ab OR 'combined intervention':ti,ab OR 'combined modality treatments':ti,ab OR 'multidisciplinary treatment':ti,ab OR 'multidisciplinary	3,055,583

	approach':ti,ab OR 'interdisciplinary treatment':ti,ab OR 'interdisciplinary approach':ti,ab OR 'Symptomatic management':ti,ab OR 'drug therapy'/exp OR 'Drug Therapy':ti,ab OR radiotherapy/exp OR Radiotherapy:ti,ab OR immunotherapy/exp OR immunotherapy:ti,ab 'bronchodilating agent'/exp OR ', Bronchodilator Agents':ti,ab OR 'narcotic agent'/exp OR Narcotics:ti,ab OR 'anxiolytic agent'/exp OR 'Anti-Anxiety Agents':ti,ab OR 'antidepressant agent'/exp OR 'Antidepressive Agents':ti,ab OR 'corticosteroid'/exp OR 'Adrenal Cortex Hormones':ti,ab OR 'benzodiazepine derivative'/exp OR Benzodiazepines:ti,ab OR 'Pharmacological management':ti,ab OR 'Pharmacological strategies':ti,ab OR 'Pharmacological treatment':ti,ab OR 'psychotherapy'/exp OR Psychotherapy:ti,ab OR 'psychosocial intervention'/exp OR 'Psychosocial Intervention':ti,ab OR 'counseling'/exp OR counselling:ti,ab OR 'self-care'/exp OR Self-Management:ti,ab OR 'problem solving'/exp OR 'Problem Solving':ti,ab OR 'sleep hygiene'/exp OR 'Sleep Hygiene':ti,ab OR 'relaxation training'/exp OR 'Relaxation Therapy':ti,ab OR 'cognitive behavioral therapy'/exp OR 'Cognitive Behavioral Therapy':ti,ab OR 'alternative medicine'/exp OR 'Mind-Body Therapies':ti,ab OR 'Psychological treatment':ti,ab OR 'psychological intervention':ti,ab OR 'psychological care':ti,ab OR 'psychological care'/exp OR 'psychosocial intervention'/exp OR 'psychosocial treatment':ti,ab OR 'psychoeducational intervention':ti,ab OR 'supportive therapy':ti,ab OR 'Non pharmacological management':ti,ab OR 'Non pharmacological strategies':ti,ab OR 'Non pharmacological treatment':ti,ab	
[3] Outcome	'quality of life':ti,ab OR 'quality of life'/exp OR QoL:ti,ab OR 'Life quality':ti,ab OR HRQOL:ti,ab OR 'Health related quality of life':ti,ab OR 'karnofsky performance status'/exp OR 'Karnofsky Performance Status':ti,ab OR 'social psychology'/exp OR 'Psychosocial Functioning':ti,ab OR 'symptom score':ti,ab OR Tiredness:ti,ab OR 'cost of illness'/exp OR 'cost of illness':ti,ab OR 'Direct cost':ti,ab OR 'Indirect cost':ti,ab OR Cost:ti,ab OR 'cost'/exp OR 'Health Expenditures':ti,ab OR 'health care cost'/exp OR 'patient compliance'/exp OR 'Treatment adherence':ti,ab OR 'medication compliance'/exp OR 'Medication Adherence':ti,ab OR 'insomnia'/exp OR Insomnia:ti,ab OR 'sleep quality'/exp OR 'sleep quality':ti,ab OR fatigue/exp OR fatigue:ti,ab OR 'muscle weakness'/exp OR 'Muscle Weakness':ti,ab OR 'depressive disorder':ti,ab OR depression/exp OR depression:ti,ab OR anxiety/exp OR Anxiety:ti,ab OR 'anxiety disorder'/exp OR 'symptom assessment'/exp OR 'Symptom Assessment':ti,ab	3,998,673

[4] Study design	'Clinical Trial':ti,ab OR 'clinical trial'/exp OR 'clinical trial (topic)'/exp OR 'Observational Study':ti,ab OR 'observational study'/exp OR 'randomized controlled trial':ti,ab OR 'randomized controlled trial'/exp OR 'controlled clinical trial (topic)'/exp OR 'Non-Randomized Controlled Trials':ti,ab OR 'randomized controlled trial (topic)'/exp OR 'cohort analysis'/exp OR 'case control study'/exp OR 'Case-Control Studies':ti,ab OR 'Cohort Studies':ti,ab	3,968,559
[5]	[1] AND [2] AND [3] AND [4] AND [embase]/lim NOT ([embase]/lim AND [medline]/lim) AND ('article'/it OR 'article in press'/it OR 'short survey'/it)	396

d) SCOPUS: (As on date 14/06/2024)

Search Domain	Search Strategy	Number of Hits
[1] Lung cancer	TITLE-ABS("lung cancer") OR TITLE-ABS("lung neoplasm") OR TITLE-ABS("lung carcinoma") OR TITLE-ABS("Lung tumor") OR TITLE-ABS("Pulmonary lung cancer") OR TITLE-ABS("Pulmonary neoplasm") OR TITLE-ABS("Pulmonary Cancer") OR INDEXTERMS("Lung Neoplasms") OR INDEXTERMS("Small Cell Lung Carcinoma") OR INDEXTERMS("carcinoma, non-small cell lung") OR INDEXTERMS("carcinoma, bronchogenic") OR TITLE-ABS("Bronchogenic Carcinoma") OR TITLE-ABS("newly diagnosed lung cancer")	384,017
[2] Multi-modal therapy	INDEXTERMS("combined modality therapy") OR TITLE-ABS("Combined Modality Therapy") OR INDEXTERMS("palliative care") OR TITLE-ABS("Palliative Care") OR INDEXTERMS("Hospice and Palliative Care Nursing") OR INDEXTERMS("Palliative Medicine") OR TITLE-ABS("Multimodal Treatment") OR TITLE-ABS("Multimodal approach") OR TITLE-ABS("Multimodal Therapy") OR TITLE-ABS("Multimodal intervention") OR TITLE-ABS("Combined treatment") OR TITLE-ABS("combined approach") OR TITLE-ABS("combined intervention") OR TITLE-ABS("combined modality treatments") OR TITLE-ABS("multidisciplinary treatment") OR TITLE-ABS("multidisciplinary approach") OR TITLE-ABS("interdisciplinary treatment") OR TITLE-ABS("interdisciplinary approach") OR TITLE-ABS("Symptomatic management") OR "Drug Therapy" OR INDEXTERMS("drug therapy") OR TITLE-ABS("Drug Therapy") OR INDEXTERMS(radiotherapy) OR TITLE-ABS(Radiotherapy) OR INDEXTERMS(immunotherapy) OR TITLE-ABS(immunotherapy) OR INDEXTERMS("bronchodilator agents") OR TITLE-ABS(", Bronchodilator Agents") OR INDEXTERMS(narcotics) OR TITLE-ABS(Narcotics) OR INDEXTERMS("anti-anxiety agents") OR TITLE-	2,995,332

	ABS("Anti-Anxiety Agents") OR INDEXTERMS("antidepressive agents") OR TITLE-ABS("Antidepressive Agents") OR INDEXTERMS("adrenal cortex hormones") OR TITLE-ABS("Adrenal Cortex Hormones") OR INDEXTERMS(benzodiazepines) OR TITLE-ABS(Benzodiazepines) OR TITLE-ABS("Pharmacological management") OR TITLE-ABS("Pharmacological strategies") OR TITLE-ABS("Pharmacological treatment") OR INDEXTERMS(psychotherapy) OR TITLE-ABS(Psychotherapy) OR INDEXTERMS("psychosocial intervention") OR TITLE-ABS("Psychosocial Intervention") OR INDEXTERMS(counseling) OR TITLE-ABS(counselling) OR INDEXTERMS(self-management) OR TITLE-ABS(Self-Management) OR INDEXTERMS("problem solving") OR TITLE-ABS("Problem Solving") OR INDEXTERMS("sleep hygiene") OR TITLE-ABS("Sleep Hygiene") OR INDEXTERMS("relaxation therapy") OR TITLE-ABS("Relaxation Therapy") OR INDEXTERMS("cognitive behavioral therapy") OR TITLE-ABS("Cognitive Behavioral Therapy") OR INDEXTERMS("mind-body therapies") OR TITLE-ABS("Mind-Body Therapies") OR TITLE-ABS("Psychological treatment") OR TITLE-ABS("psychological intervention") OR TITLE-ABS("psychological care") OR TITLE-ABS("psychosocial treatment") OR TITLE-ABS("psychoeducational intervention") OR TITLE-ABS("supportive therapy") OR TITLE-ABS("Non pharmacological management") OR TITLE-ABS("Non pharmacological strategies") OR TITLE-ABS("Non pharmacological treatment")	
[3] Outcome	TITLE-ABS("quality of life") OR INDEXTERMS("quality of life") OR TITLE-ABS(QoL) OR TITLE-ABS("Life quality") OR TITLE-ABS(HRQOL) OR TITLE-ABS("Health related quality of life") OR INDEXTERMS("karnofsky performance status") OR TITLE-ABS("Karnofsky Performance Status") OR INDEXTERMS("psychosocial functioning") OR TITLE-ABS("Psychosocial Functioning") OR TITLE-ABS("symptom score") OR TITLE-ABS(Tiredness) OR INDEXTERMS("cost of illness") OR TITLE-ABS("cost of illness") OR TITLE-ABS("Direct cost") OR TITLE-ABS("Indirect cost") OR TITLE-ABS(Cost) OR INDEXTERMS("Health Expenditures") OR INDEXTERMS("treatment adherence and compliance") OR TITLE-ABS("Treatment adherence") OR INDEXTERMS("medication adherence") OR TITLE-ABS("Medication Adherence") OR INDEXTERMS("sleep initiation and maintenance disorders") OR TITLE-ABS(Insomnia) OR INDEXTERMS("sleep quality") OR TITLE-ABS("sleep quality") OR INDEXTERMS(fatigue) OR TITLE-ABS(fatigue) OR INDEXTERMS("muscle weakness") OR TITLE-ABS("Muscle Weakness") OR INDEXTERMS("depressive disorder") OR INDEXTERMS(depression) OR TITLE-ABS(depression) OR	5,697,792

	INDEXTERMS(anxiety) OR TITLE-ABS(Anxiety) OR INDEXTERMS("Anxiety Disorders") OR INDEXTERMS("symptom assessment") OR TITLE-ABS("Symptom Assessment")	
[4] Study design	TITLE-ABS("Clinical Trial") OR TITLE-ABS("Observational Study") OR DOCTYPE("randomized controlled trial") OR DOCTYPE("Controlled Clinical Trial") OR TITLE-ABS("randomized controlled trial") OR INDEXTERMS("Observational Studies as Topic") OR DOCTYPE("Observational Study") OR DOCTYPE("Clinical Trial") OR INDEXTERMS("Clinical Trials as Topic") OR DOCTYPE("Controlled Clinical Trial") OR INDEXTERMS("Non-Randomized Controlled Trials as Topic") OR INDEXTERMS("Clinical Trial Protocols as Topic") OR DOCTYPE("Clinical Trial Protocol") OR TITLE-ABS("Non-Randomized Controlled Trials") OR INDEXTERMS("Cohort Studies") OR INDEXTERMS("Case-Control Studies") OR INDEXTERMS("Randomized Controlled Trials as Topic") OR TITLE-ABS("Case-Control Studies") OR TITLE-ABS("Cohort Studies")	1,964,688
[5]	[1] AND [2] AND [3] AND [4] AND (LIMIT-TO (PUBSTAGE, "final") OR LIMIT-TO (PUBSTAGE, "aip")) AND (LIMIT-TO (EXACTKEYWORD, "Human")) AND (LIMIT-TO (LANGUAGE, "English"))	1,875

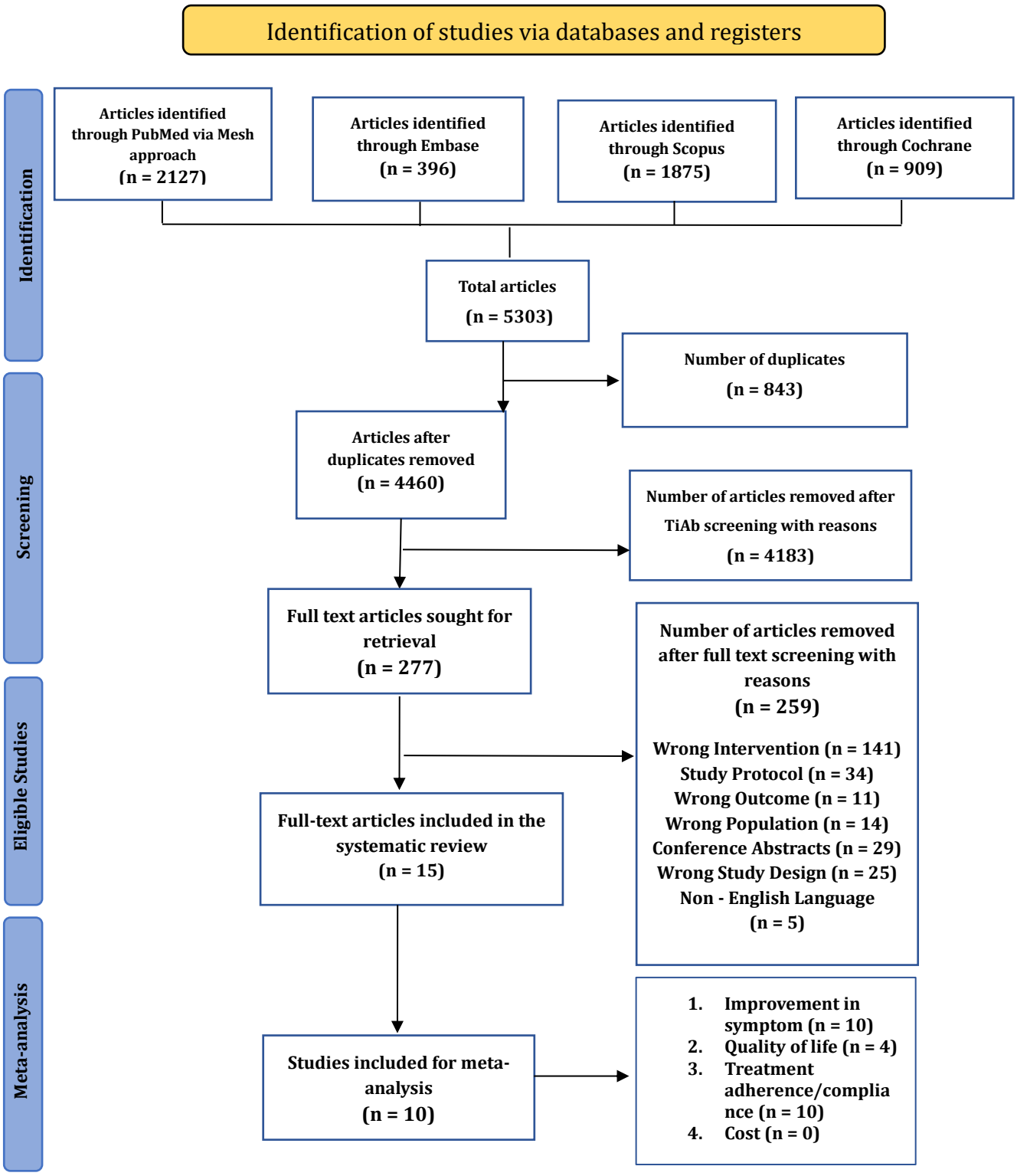
e) Cochrane Central: (As on date 14/06/2024)

Search Domain	Search Strategy	Number Of Hits
[1] Lung cancer	"lung cancer":ti,ab OR "lung neoplasm":ti,ab OR "lung carcinoma":ti,ab OR "Lung tumor":ti,ab OR "Malignant lung cancer":ti,ab OR "Pulmonary lung cancer":ti,ab OR "Pulmonary neoplasm":ti,ab OR "Pulmonary Cancer":ti,ab OR [mh "Lung Neoplasms"] OR [mh "Small Cell Lung Carcinoma"] OR [mh "carcinoma, non-small cell lung"] OR [mh "carcinoma, bronchogenic"] OR "Bronchogenic Carcinoma":ti,ab OR "newly diagnosed lung cancer":ti,ab	25,771
[2] Multi-modal therapy	[mh "combined modality therapy"] OR "Combined Modality Therapy":ti,ab OR [mh "palliative care"] OR "Palliative Care":ti,ab OR [mh "Hospice and Palliative Care Nursing"] OR [mh "Palliative Medicine"] OR "Multimodal Treatment":ti,ab OR "Multimodal approach":ti,ab OR "Multimodal Therapy":ti,ab OR "Multimodal intervention":ti,ab OR "Combined treatment":ti,ab OR "combined approach":ti,ab OR "combined intervention":ti,ab OR "combined modality treatments":ti,ab OR "multidisciplinary treatment":ti,ab OR "multidisciplinary approach":ti,ab OR "interdisciplinary treatment":ti,ab OR "interdisciplinary approach":ti,ab OR "Symptomatic management":ti,ab OR [mh "drug therapy"] OR "Drug Therapy":ti,ab OR [mh radiotherapy] OR Radiotherapy:ti,ab	381,619

	OR [mh immunotherapy] OR immunotherapy:ti,ab OR [mh "bronchodilator agents"] OR "Bronchodilator Agents":ti,ab OR [mh narcotics] OR Narcotics:ti,ab OR [mh "anti-anxiety agents"] OR "Anti-Anxiety Agents":ti,ab OR [mh "antidepressive agents"] OR "Antidepressive Agents":ti,ab OR [mh "adrenal cortex hormones"] OR "Adrenal Cortex Hormones":ti,ab OR [mh benzodiazepines] OR Benzodiazepines:ti,ab OR "Pharmacological management":ti,ab OR "Pharmacological strategies":ti,ab OR "Pharmacological treatment":ti,ab OR [mh psychotherapy] OR Psychotherapy:ti,ab OR [mh "psychosocial intervention"] OR "Psychosocial Intervention":ti,ab OR [mh counseling] OR counselling:ti,ab OR [mh "self-management"] OR "Self-Management":ti,ab OR [mh "problem solving"] OR "Problem Solving":ti,ab OR [mh "sleep hygiene"] OR "Sleep Hygiene":ti,ab OR [mh "relaxation therapy"] OR "Relaxation Therapy":ti,ab OR [mh "cognitive behavioral therapy"] OR "Cognitive Behavioral Therapy":ti,ab OR [mh "mind-body therapies"] OR "Mind-Body Therapies":ti,ab OR "Psychological treatment":ti,ab OR "psychological intervention":ti,ab OR "psychological care":ti,ab OR "psychosocial treatment":ti,ab OR "psychoeducational intervention":ti,ab OR "supportive therapy":ti,ab OR "Non pharmacological management":ti,ab OR "Non pharmacological strategies":ti,ab OR "Non pharmacological treatment":ti,ab	
[3] Outcome	"quality of life":ti,ab OR [mh "quality of life"] OR QoL:ti,ab OR "Life quality":ti,ab OR HRQOL:ti,ab OR "Health related quality of life":ti,ab OR [mh "karnofsky performance status"] OR "Karnofsky Performance Status":ti,ab OR [mh "psychosocial functioning"] OR "Psychosocial Functioning":ti,ab OR "symptom score":ti,ab OR Tiredness:ti,ab OR [mh "cost of illness"] OR "cost of illness":ti,ab OR "Direct cost":ti,ab OR "Indirect cost":ti,ab OR Cost:ti,ab OR [mh "Health Expenditures"] OR [mh "treatment adherence and compliance"] OR "Treatment adherence":ti,ab OR [mh "medication adherence"] OR "Medication Adherence":ti,ab OR [mh "sleep initiation and maintenance disorders"] OR Insomnia:ti,ab OR [mh "sleep quality"] OR "sleep quality":ti,ab OR [mh fatigue] OR fatigue:ti,ab OR [mh "muscle weakness"] OR "Muscle Weakness":ti,ab OR [mh "depressive disorder"] OR [mh depression] OR depression:ti,ab OR [mh anxiety] OR Anxiety:ti,ab OR [mh "Anxiety Disorders"] OR [mh "symptom assessment"] OR "Symptom Assessment":ti,ab	389,138
[4] Study design	"Clinical Trial":ti,ab OR [mh "Clinical Trial"] OR "Observational Study":ti,ab OR [mh "Observational Study"] OR [mh "randomized controlled trial"] OR "randomized controlled trial":pt OR "Controlled Clinical Trial":pt OR "randomized controlled trial":ti,ab OR [mh "Observational Studies as Topic"] OR "Observational Study":pt OR "Clinical Trial":pt OR [mh "Clinical Trials as Topic"]	647,893

	OR "Controlled Clinical Trial":pt OR [mh "Non-Randomized Controlled Trials as Topic"] OR [mh "Clinical Trial Protocols as Topic"] OR "Clinical Trial Protocol":pt OR "Non-Randomized Controlled Trials":ti,ab OR [mh "Cohort Studies"] OR [mh "Case-Control Studies"] OR [mh "Randomized Controlled Trials as Topic"] OR "Case-Control Studies":ti,ab OR "Cohort Studies":ti,ab	
[5]	[1] AND [2] AND [3] AND [4]	905

3. PRISMA flow diagram



4. Summary of Included Studies

S. No.	Study ID	Population- Inclusion criteria	Population- Exclusion criteria	Intervention	Comparator	Outcome reported with time points
1	Chan et al. 2011	Age ≥16 yrs; Stage 3/4 lung cancer scheduled to receive palliative RT of an average of 4.3 Gy/fraction; Chinese speakers; Abbreviated Mental Test score ≥8; KPS ≥60%	Patients with known psychiatric morbidity and/or involvement in other clinical trials	Psychoeducational Intervention (PEI) (n-70): Education + Relaxation (PMR), one week before RT and once after 3 weeks starting RT	Usual care (n=70): Mandatory individual briefing of the RT procedure. 5-7 min discussion of side effects focusing on skin care by a therapy radiographer.	Primary: Breathlessness (VAS), Fatigue (Piper fatigue scale), Anxiety (STAI) Secondary: Functional ability (SK-36 health survey) Before RT and randomization (T0), Week 3 (T1), Week 6 (T2), and at three months (T3)
2	Huang et al. 2018	Age ≥18 years; Suspected NSCLC; KPS score of ≥60%; Approved by thoracic surgeon to participate; Has access to a telephone and able to speak and write Chinese.	Patients getting admitted in the two CTVS wards for surgical treatment	Self-efficacy intervention based on MI (n=13): Before surgery, nurses established trust relationships with the patients. After surgery, intervention delivered by same nurse over 3-	Routine care (n=15): Cardiothoracic routine care (information provided by nurse pre- and post op). During hospital stay and follow up clinic visits, patients received rehabilitation information from providers.	Primary: Feasibility & Acceptability; Secondary: Self-efficacy, QoL, Anxiety/Depression, Social support, Well-being; Time: Baseline, 3 months

				months (2 face-to-face sessions in hospital, 4 telephone sessions after discharge, each lasting 15–40 min, adjusted according to the individual patient's needs).	Post discharge received 4 telephone follow-ups matched to the intervention group in frequency and contact time (15–40 min each).	
3	Huang et al. 2019	Advanced lung cancer (stage 3 or 4, with pathology confirmation); Age 18-80 years; Ability to complete a questionnaire and to receive psychotherapy; Awareness of cancer diagnosis; No apparent serious intellectual impairment or mental disease; Score of ≥8 on HADS; No pregnancy or lactation, No severe acute or unstable medical illness. ≥8	Pregnancy or lactation; current psychosis or history of a psychotic disorder; substance dependence (other than nicotine); other severe acute or unstable medical illness; or impaired cognition	Individual computer magnanimous therapy (IC-MT) (n=50) Group computer magnanimous therapy (GC-MT) (n=45) Groups received eight 40-minute sessions of CMT over 2 weeks in addition to oncotherapy and usual care	Only usual oncologic care (n=50)	Coping (CCMQ), Adjustment (PASCP), QoL (FLIC); Time: Baseline, 2 weeks later

4.	Krug et al. 2021	Newly diagnosed metastatic lung cancer (stage 4); Age ≥18 years; Adequate Knowledge in German	Not able to give consent	Milestone Communication Approach (MCA) group (n=79) Structured, interprofessional (physician-nurse tandem) milestone conversations, follow-up phone calls by the nurse, and an interprofessional communication training	Standard oncological care (n=79) No follow up calls	Primary: Ppatient information needs (Health System and Information Needs subscale of the Short Form Supportive Care Needs Survey (SCNS-SF34-G) measured 3 months after inclusion in the study. Other outcomes: Physical and psychological supportive care needs (SCNS-SF34-G); Quality of life (SEIQoL and FACT-L); Distress (Distress Thermometer); Depression and anxiety (PHQ 2 and GAD 2) Timepoints: 3, 6, and 12 months
5.	Liu et al. 2024	Primary non-small cell lung cancer; Scheduled for thoracoscopic surgery; Age ≥18 years;	(1) Patients undergoing thoracotomy surgery; (2) Patients with other malignant	Combined intervention (n=34): (Mindful breathing + Diary-based rehab	Routine care (n=34): Health education, medication management, pain management, lifestyle guidance	Primary: Dyspnoea Secondary: Fatigue (mean VAS); Anxiety and depression (mean

		No mental illness or cognitive impairment	tumors; (3) Patients with language communication disorders; (4) Patients engaged in continuous rehabilitation training prior to admission	guidance+ Routine care) Mindful breathing (n=34): Mindful breathing + Routine care		HADS, mean anxiety and depression subscale); Compliance (%) Time points: Admission Day (T0); Day before surgery (T1); 2 days after surgery (T2); Discharge Day (T3)
6.	Lu et al. 2024	Patients with primary NSCLC; Scheduled for video-assisted thoracic surgery; Age ≥18 years; No mental illness or cognitive impairment.	(1) Patients receiving radiotherapy or chemotherapy before surgery; (2) patients with severe dysfunction of heart, brain, kidney, or other organs; and (3) patients receiving mechanical ventilation after surgery.	Yoga Group (n=36): In addition to usual care, yoga breathing exercise intervention from admission day to 1 day before surgery, then from second day after surgery to the discharge day, length of intervention time was 9 to 14 days, two 20-minute sessions delivered each day. Combined Intervention Group	Usual Care (n=74): Preoperative and postoperative care, including smoking cessation, pain management, nutritional counselling, cough and expectoration techniques, and early ambulation after surgery	Dyspnoea (Borg Dyspnoea Scale); Exercise capacity (6-minute walking test on the basis of the American Thoracic Society guidelines); Anxiety and depression (HADS); Days of chest drainage tube indwelling was recorded from postoperative day 1 to the day when the thoracic closed drainage tube was pulled out; Compliance (patients

				(n=34): Additional problem-solving model with yoga breathing exercises, 5 key strategies: attitude, definition, open mind, planning, and try it out.		who participated in ≥70% of all sessions). Time-points: At admission (T0), day before surgery (T1), at discharge (T2).
7.	Milbury et al. 2020	Stage 4 NSCLC; Receiving treatment (RT/CT); ECOG performance status ≤2; resided with a romantic partner for at least 6 months. Patients with spouses: Age ≥18 years; Read and speak English.	Regularly (self-defined) participated in psychotherapy or a formal cancer support group and were not oriented to time, place, or person as determined by the clinical team	Couple-based meditation (n=26): 1 session/week for 4 weeks, total 240 minutes, Facetime through iPad, meditation and emotion sharing exercises Supportive-expressive (n=24): Social support intervention, 1 session/week for 4 weeks, total 240 minutes, Facetime through iPad	Usual care as provided by their healthcare team (n=25)	Depression (CES-D); Cancer-related stress symptoms (IES); Spiritual well-being (Functional Assessment of Cancer Therapy–Spiritual Well-Being Scale)
8.	Schellekens et al. 2017	Patients and/or partners of patients presenting with	<18 years of age, insufficient understanding of	CAU + Mindfulness based stress reduction (MBSR)	Care as usual (CAU) (n=31): Consisted of anticancer treatment	Primary: Anxiety and Depression (HADS)

		cytologically or histologically proven non-small cell or small cell lung cancer; Patients in the curative "and" palliative stage;	Dutch language, former MBI participation, current participation in other psychosocial programme, current weekly treatment by psychologist/ psychiatrist, physical impairments (i.e., hospitalization, life expectancy shorter than study period), or cognitive impairments (i.e., Mini-Mental State Examination <26)	(n=32): Based on the original 8-week MBSR programme, consisting of eight 2.5-hour weekly sessions and one 6-hour silent day, including daily 45-minute home practice; Group based MBSR was delivered.	(surgery, chemotherapy, radiotherapy), medical consultations, and supportive care, including psychosocial care (visits to psychiatrist/psychologist, participation in psychosocial programme). After participation, CAU participants were invited to MSBR.	Secondary: QOL (European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire-Global Quality of Life subscale); For partners caregiver burden (Self-Perceived Pressure from Informal Care); For patients and partners relationship satisfaction (Investment Model Scale-Satisfaction subscale); Mindfulness skills (Five Facet Mindfulness Questionnaire); Self-compassion (Self-Compassion Scale); Rumination (Ruminative Response Scale-Brooding subscale); Post-traumatic stress symptoms (Impact of Event Scale)

						Time points: Baseline, post intervention (T1), 3 months post intervention (T2)
9.	Tan et al. 2019	Age >18 years; Primary lung cancer (clinical stage 2-4) and given inpatient chemotherapy; Received 1–8 cycles of chemotherapy; No history of psychiatric disorders; Able to understand the contents and independently complete the questionnaire; Taking same preventive or therapeutic measures to prevent or treat side effects of chemotherapy	(a) History of mental illness, cognitive dysfunction or mental retardation; (b) diagnosed with clinical stage I lung cancer without receiving chemotherapy; (c) who could not complete the questionnaire because of illiteracy and other problems (e.g., visual problems);(d) participants who refused and failed to complete the study	Cognitive education (n=68): Delivered for 12 weeks in 4 stages, using mind map method.	Conventional education (n=68)	Primary: Perceived control (Cancer Experience and Efficacy Scale, CEES) Secondary: Cancer specific physical and psychological symptoms (Chinese version of the M. D. Anderson Symptom Inventory, MDASI-C) Time -points: Baseline (within 24 hr of hospitalisation, T0), 8th week post intervention (T1), 12th week post intervention (T2).
10.	Walker et al. 2014	Age ≥18 years; Primary lung cancer, with a predicted survival of at least 3	Unable to participate in depression care for people with lung cancer (those with	Depression care for people with lung cancer (n=68): Multicomponent,	Usual care (n=74)	Primary: Summary measure of each participant's depression severity

		months; Major depression (DSM-IV criteria for ≥4 weeks);	substantial cognitive or communication difficulties, or who could not take part in regular sessions) or if the programme was not appropriate to their needs (those with continuous depression for ≥2 years, a psychiatric or medical disorder requiring alternative treatment, known cerebral metastases, or those who were already regularly seeing a mental health specialist	systematic, team-delivered treatment programme, based on the collaborative care model and is integrated with lung cancer care; Brief (maximum of 10 sessions at pts home for 4 months) psychological interventions (problem-solving therapy and behavioural activation), and monitor patients' progress (on PHQ-9 depression scale) monthly by telephone for further 4 months.		averaged over the time from their first completed outcome questionnaire until they were no longer able to provide trial data, up to a maximum of 32 weeks after randomisation (SCL-20). Other outcomes: Self-rated depression improvement (five-point scale rated from much worse to much better); Anxiety (on the Symptom Checklist Anxiety Scale [SCL-10]; Pain, fatigue, physical, social and role functioning, overall health, and quality of life (on the European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire [EORTC-

						QLQ-C30]); Perceived quality of depression care (a five-point scale, rated from poor to excellent) Baseline, every 4 weeks till 32 weeks.
11.	Xiao et al. 2022	Adult patient diagnosed with lung cancer; currently undergoing chemotherapy lasting for at least 1 month; aware of cancer diagnosis; could read and communicate in Chinese; could identify one significant family caregiver to receive the intervention with.	Patients and/or family caregivers with cognitive impairment such as dementia, as determined by a physician; patients and/or family caregivers diagnosed with psychiatric illness; patients and/or family caregivers were currently participating in other psychosocial intervention studies; patients and/or family caregivers who were too ill to participate in the research, as	Family-oriented dignity therapy (n=60 dyads): Face-to-face psychosocial intervention with 3 sessions delivered by the intervention facilitator.	Attention + UC (n=60 dyads): 3 attention contacts	Dignity related distress (Patient Dignity Inventory); Depression (PHQ 9); Spiritual well-being (Functional Assessment of Chronic Illness Therapy-Spiritual Well-being) Time-points: Baseline (T0), After completion of intervention (T1), and after 4 weeks(T2).

			determined by a physician.			
12.	Yates et al. 2020	Small cell or non-small cell lung cancer, mesothelioma or lung metastases; completed first line therapy for the disease; an average dyspnoea rating >2 in the past week; anticipated life expectancy of at least 3 months.	Participants who had cognitive impairment that would prevent them from responding to a survey questionnaire or who had a life expectancy of <3 months at the time of screening were not eligible	Tailored intervention (n=81): Face to face instructional session of about 60 min, followed by weekly phone calls for 3 weeks, to reinforce the strategies; Breathing retraining + individualized psychosocial support; delivered using evidence-based psycho-educational strategies.	Standard education (n=63) Usual educational intervention regarding management of dyspnoea. No phone calls or supplementary resources.	Primary: Change in dyspnoea [Five 11-point (0–10) numeric rating scales (NRS)] Secondary: Changes in anxiety and depression (HADS); Functional status (ECOG Performance Rating scale); Use of non-pharmacological interventions (through a scale developed in the study) Time points: Baseline (T1), Week 5 (T2), Week 9 (T3), and every 4 weeks for 6 months (T4)
13.	Yuan et al. 2024	Conformity with clinical diagnostic standards for lung cancer; TNM staging of 3–4; anticipated survival of >1 month ≤ 6 months; age > 18 years; preserved	Presence of other malignant tumors or critical illnesses; severe consciousness disorders or psychiatric conditions; (3)	Pain nursing + hospice care (n=30): Pain nursing: music intervention, somatic intervention (breathing exercise), massage	Conventional nursing (n=30): Pain nursing (recording time, degree and duration of pain, and offering analgesics; Psychological intervention (guiding	Pre-intervention and post-intervention: Pain (Numeric rating scale); Anxiety and depression (Self-rating Anxiety Scale, SAS and Self-rating Depression Scale, SDS); Cancer-

		cognitive function and communicative capacity.	employment in medical-related fields; (4) significant psychological stress from external factors during the study.	instruction, environmental intervention (placing books or ornaments that interest the patient in their room), pharmacological intervention (WHO's 3-step analgesic ladder for cancer pain management). Hospice care: information collection, environmental intervention (choosing warm-colored ornaments to decorate the ward, placing greenery and the patient's favorite items in the ward, psychological intervention (apprehending the psychological state of the patient, taking a reasonable way to	patients to recall happy events in their past life, encouraging patients to follow doctor's instructions); Dietary intervention: offering highly digestible food to patients and prohibiting them from eating stimulating food; Family intervention: Informing the family about the patient's condition, instructing the family to meet the patient's reasonable needs and wishes in daily life, enlightening the patient to maintain a good mood; Sleep intervention: assisting patients to establish a good daily routine and ensuring sufficient sleep.	caused fatigue (Cancer Fatigue Scale); Attitude on death (Questionnaire of the attitude on death); Quality of life (European organization for research and treatment of cancer quality of life questionnaire-C30)

				answer their internal concerns, and providing guidance on the family members), family members instructed to avoid excessive sadness when trying to meet patient's reasonable needs; Discussing about topic of death with patient, listening carefully to patient's own experience and expression), disease guidance, life and death guidance, daily intervention (developing a nutrition intervention plan, giving guidance on family.		
14.	Zeng et al. 2022	Lung cancer confirmed by histopathological examination; No contraindication of radiotherapy and	Patients with organic diseases such as heart, liver and kidney; Patients with other malignant	Self-efficacy of emotion regulation (n=60): Individual psychological guidance and	Control group (n=60): Both groups were given treatment, basic physiological and psychological nursing,	Primary: Emotional awareness and emotional regulation (emotion awareness level questionnaire

		chemotherapy, and communication skills.	tumor diseases or contraindications of radiotherapy and chemotherapy; Mental illness or cognitive impairment	psychological consultation; Group Psychological Intervention	exercise and family support guidance.	(LEAS), emotion regulation self-efficacy scale). Secondary: Anxiety and Depression (Self-rating Anxiety Scale. SAS and Self-rating Depression Scale, SDS); QoL: Five domain scores Timepoints: Before and after treatment (2 months)
15.	Zhao et al. 2016	Patients diagnosed with stage 1 or 2 lung cancer pathologically; Age 18 - 70 years; Hospitalized for the first time and have never developed diseases involving immune system and endocrine system, schizophrenia and alcohol or drug dependence; Not received surgery, chemotherapy,	Not mentioned	Comprehensive psychological intervention (n=62): Psychological support from family; Supportive psychological intervention from patients who also developed lung cancer; Supportive psychological intervention in aspect of language;	Conventional nursing intervention (n=62): Nurse informed patients with cause of lung cancer, treatment method, treatment effect, prognosis, matters needing attention before and after surgery such as diet, rest, knowledge relating to management of pain on wound and various exercise methods.	Primary: Pain (10-point VAS scale) Secondary: QoL (QLQ-C30); Immune function (CD4, CD8 count); cortisol level Time points: Immune function: Before and after surgery Pain: Before anaesthesia, 6,12,24,48 hours after surgery

		radiotherapy or used immune enhancer or inhibitor; Junior high school culture degree or higher		Imagery therapy for postoperative pain.		

5. Data Extraction

Name	Managing Symptoms in Patients with Advanced Lung Cancer During Radiotherapy: Results of a Psychoeducational Randomized Controlled Trial
Author	Chan et al
Study Type	Randomized Controlled Trial
Countries and setting	Hong Kong/Publicly funded hospital
Number of Participants	140
Duration of study follow up (in months)	3 Months
Inclusion Criteria	Age ≥16 yrs; Stage 3/4 lung cancer scheduled to receive palliative RT of an average of 4.3 Gy/fraction; Chinese speakers; Abbreviated Mental Test score ≥8; KPS ≥60%
Exclusion Criteria	Patients with known psychiatric morbidity and/or involvement in other clinical trials
Recruitment/Selection of Patients	Hospital
Intervention	Psychoeducational intervention (PEI) (n=70): Education + Relaxation (PMR) one week before RT and repeated 3 weeks after starting RT
Outcome reported with time points	**Primary Outcome:** Significant difference (time x group interaction effect, P = 0.003) over time between the PEI and usual care control group on the pattern of change of the symptom cluster. Significant effects on the patterns of changes in breathlessness (P =0.002), fatigue (P = 0.011), anxiety (P = 0.001), and functional ability (P = 0.000) also were found. **Secondary Outcome:** Mixed between-within subjects ANOVA shows there was a significant difference in the pattern of change in scores of functional abilities over 12 weeks for the two groups (time group interaction P ¼ 0.002). MANOVA showed statistically significant effect for time group interaction (P ¼ 0.000), suggesting there was a significant difference in

	the pattern of change in scores of functional abilities from T0 to T2 for the two groups, with moderate effect size (0.11)
Funding	Hong Kong Health Service Research Fund.
ROB 2 Assessment	Randomisation process- *Some concerns* Deviations from intended interventions- *Low* Missing outcome data- *High* Measurement of outcome- *Low* Selection of the reported result- *Low* Overall- *High*

Name	**A self-efficacy enhancing intervention for pulmonary rehabilitation based on motivational interviewing for postoperative lung cancers patients: modelling and randomized exploratory trial**
Author	Huang et al. 2018
Study Type	Randomized Controlled Trial
Countries and setting	Country: China Setting: Tertiary Hospital
Number of Participants	28
Duration of study follow up (in months)	3 months
Inclusion Criteria	Age ≥18 years; Suspected NSCLC; KPS score of ≥60%; Approved by thoracic surgeon to participate; Has access to a telephone and able to speak and write Chinese.

Exclusion Criteria	Patients with cognitive deficits, metastasis or other malignancies, and conditions preventing safe participation in postsurgical rehabilitation activities (e.g. fracture) were excluded
Recruitment/Selection of Patients	Patients getting admitted in the two CTVS wards for surgical treatment
Intervention	Self-efficacy intervention via MI: Pre-op trust, 2 in-hospital & 4 post-discharge phone sessions
Outcome reported with time points	**Primary Outcome:** Recruitment rate 93.3%. Adherence - 100% in IG, 66.7% in control group. **Secondary Outcome:**
Funding	Natural Science Foundation of Hunan Province, China [grant number 12JJ6095]
ROB 2 Assessment	Randomisation process- *Some Concerns* Deviations from intended interventions- *High* Missing outcome data- *High* Measurement of outcome- *Low* Selection of the reported result- *Low* Overall- *High*

Name	**Effects of magnanimous therapy on coping, adjustment, and living function in advanced lung cancer**
Author	Huang et al. 2019
Study Type	Matched case–control tracking study
Countries and setting	Country: China Setting: Hospital
Number of Participants	195

Duration of study follow up (in months)	2-week post-intervention follow-up for psychological and functional outcomes, and a 24-month (2-year) follow-up for survival analysis.
Inclusion Criteria	Advanced lung cancer (stage 3 or 4, with pathology confirmation); Age 18-80 years; Ability to complete a questionnaire and to receive psychotherapy; Awareness of cancer diagnosis; No apparent serious intellectual impairment or mental disease; Score of ≥8 on HADS; No pregnancy or lactation, No severe acute or unstable medical illness. ≥8
Exclusion Criteria	Pregnancy or lactation; current psychosis or history of a psychotic disorder; substance dependence (other than nicotine); other severe acute or unstable medical illness; or impaired cognition
Recruitment/Selection of Patients	In patient
Intervention	Individual computer magnanimous therapy (IC-MT) (n=50) Group computer magnanimous therapy (GC-MT) (n=45) Groups received eight 40-minute sessions of CMT over 2 weeks in addition to oncotherapy and usual care
Outcome reported with time points	**Primary Outcome:** Both intervention groups had significantly higher scores for the confrontation dimension and lower scores for the avoidance and suppression and resignation dimensions of the ccmq after the intervention. The ctrl group showed no significant change in any dimension of the ccmq after 2 weeks **Secondary Outcome:** Both secondary outcomes were significantly better in the intervention group. No significant changes in control group.
Funding	Natural Science Foundation of China (no. 81372488)
ROB 2 Assessment	Randomisation process- *Some concerns* Deviations from intended interventions- *High*

	Missing outcome data- *High* Measurement of outcome- *Low* Selection of the reported result- *Low* Overall- *High*

Name	**Effects of an Interprofessional Communication Approach on Support Needs, Quality of Life, and Mood of Patients with Advanced Lung Cancer: A Randomized Trial**
Author	Krug et al
Study Type	Randomized Controlled Trial
Countries and setting	Country: Germany Setting: Hospital
Number of Participants	158
Duration of study follow up (in months)	9 Months
Inclusion Criteria	Newly diagnosed metastatic lung cancer (stage 4); Age ≥18 years; Adequate Knowledge in German
Exclusion Criteria	Not able to give consent
Recruitment/Selection of Patients	Outpatient clinic
Intervention	Milestone Communication Approach (MCA) group (n=79) Structured, interprofessional (physician-nurse tandem) milestone conversations, follow-up phone calls by the nurse, and an interprofessional communication training

Outcome reported with time points	**Primary Outcome:** At 3 months, MCA group had significantly lower information needs both in ITT and completer groups. No difference at T2 and T3 **Secondary Outcome:** No difference between groups in any of the secondary outcomes
Funding	German Federal Ministry of Health (ZMV I1–2517 FSB 001) and the National Centre for Tumour Diseases (NCT 3.0, G835)
ROB 2 Assessment	Randomisation process- *Low* Deviations from intended interventions- *High* Missing outcome data- *Some Concerns* Measurement of outcome- *High* Selection of the reported result- *Low* Overall- *High*

Name	**Effects of mindful breathing training combined with diary-based rehabilitation guidance in lung cancer patients undergoing surgery: A randomized controlled trial**
Author	Liu et al.
Study Type	Randomized Controlled Trial
Countries and setting	Country: China Setting: Hospital
Number of Participants	102

Duration of study follow up (in months)	Approximately 0.5 months
Inclusion Criteria	Primary non-small cell lung cancer; Scheduled for thoracoscopic surgery; Age ≥18 years; No mental illness or cognitive impairment
Exclusion Criteria	Patients undergoing thoracotomy surgery; Patients with other malignant tumours; Patients with language communication disorders; Patients engaged in continuous rehabilitation training prior to admission
Recruitment/Selection of Patients	Hospital
Intervention	Combined intervention (n=34): (Mindful breathing + Diary-based rehab guidance+ Routine care) Mindful breathing (n=34): Mindful breathing + Routine care
Outcome reported with time points	**Primary Outcome:** The results of inter-group comparison revealed that there was no statistical difference in the dyspnoea scores between the three groups at T0, but there was a statistically significant difference at T1, T2and T3 ($P < 0.01$). Further pairwise comparisons indicated that both intervention groups had significantly lower dyspnoea scores at T1, T2 and T3 compared to the control group ($P < 0.01$). There was a statistically significant difference in dyspnoea scores between the mindful breathing group and the combined intervention group at T3 ($P = 0.012$). Within-group comparisons across all three groups demonstrated statistically significant differences in dyspnoea scores over time ($p < 0.001$). **Secondary Outcome:** Comparing the fatigue scores of the three groups, there was no statistically significant group difference at T0, but there was a statistically significant difference at T1, T2 and T3 ($P < 0.05$). Pairwise comparison showed that the combined intervention group demonstrated statistically significant reductions in fatigue scores at T1, T2 and T3 compared to the control group ($P < 0.05$); Mindful breathing group had significant differences at T2 and T3 compared to

	the control group (P < 0.001). No significant differences were observed in fatigue scores between the combined intervention group and the mindful breathing group at any time points. The within-group comparison showed that the fatigue scores in all three groups changed significantly across the four time points. The results of inter-group comparison showed no statistically significant differences between the three groups in anxiety scores and depression scores at T0, while there were statistically significant differences at T1, T2 and T3 (P < 0.05). Further pairwise comparisons showed that the combined intervention group showed significantly lower anxiety scores and depression scores at T1, T2 and T3 compared to the control group (P < 0.01). Patients in the mindful breathing group had significantly lower anxiety scores at T1, T2 and T3 compared to the control group (P < 0.05), while there were no statistically significant differences in depression scores at T1, T2 and T3. The anxiety score (P = 0.041) and depression score (P = 0.032) were significantly lower in the combined intervention group than in the mindful breathing group at T2. The within-group comparisons further revealed statistically significant differences in anxiety scores and depression scores over time in all three groups. The training compliance was found to be significantly higher in the combined intervention group compared to the mindful breathing group (P = 0.036). The results of the between-group comparison showed that there was no statistically significant difference in self-efficacy scores between the two intervention groups at T0. However, the combined intervention group had statistically significant improvements in self-efficacy scores at T1, T2 and T3 compared to the mindful breathing group (P < 0.01). Within-group comparisons showed that there was a statistically significant difference in self-efficacy between the two intervention groups at different time points (P < 0.001)
Funding	Non funded
ROB 2 Assessment	Randomisation process- *Low* Deviations from intended interventions- *Low* Missing outcome data- *Low* Measurement of outcome- *Low* Selection of the reported result- *Low* Overall- *Low*

Name	Clinical Indicators of Effects of Yoga Breathing Exercises on Patients with Lung Cancer After Surgical Resection
Author	Lu et al. 2024
Study Type	Randomized Controlled Trial
Countries and setting	Country: China Setting: University hospital
Number of Participants	110
Duration of study follow up (in months)	Approximately 0.5 months
Inclusion Criteria	Patients with primary NSCLC; Scheduled for video-assisted thoracic surgery; Age ≥18 years; No mental illness or cognitive impairment. Excluded if receiving RT or CT before surgery; severe dysfunction of heart, brain, kidney, or other organs; receiving mechanical ventilation after surgery.
Exclusion Criteria	Patients receiving radiotherapy or chemotherapy before surgery; patients with severe dysfunction of heart, brain, kidney, or other organs; and patients receiving mechanical ventilation after surgery.
Recruitment/Selection of Patients	Thoracic surgery department of University Hospital
Intervention	Yoga Group (n=36): In addition to usual care, yoga breathing exercise intervention from admission day to 1 day before surgery, then from second day after surgery to the discharge day, length of intervention time was 9 to 14 days, two 20-minute sessions delivered each day.
Outcome reported with time points	**Primary Outcome:** Significant differences were found in dyspnoea between the 2 intervention groups and the control group at T1 (P = .001 and P = .031, respectively) and T2 (P < .001 and P = .019, respectively), but there was no significant difference between the 2 intervention groups at T1 (P = .976) or T2 (P = .378). As for exercise capacity, only the combined intervention group was

	significantly improved compared with the control group at T1 (P = .001) and T2 (and P = .003), and there was a significant difference between the combined group and yoga group at T1 (P = .042) and T2 (P = .047). Anxiety decreased significantly in the 2 intervention groups at T1 (P = .001 and P = .032, respectively) and T2 (P < .001 and P = .002, respectively) compared with the control group. However, no significant difference was found in depression among the 3 groups at T1 (P = .725) or T2 (P = .776). There was no significant difference in thoracic closed drainage time (P = .062; Table 4) among the 3 groups. Respiratory exercise compliance in the combined intervention group was significantly higher than that in the yoga group, and the difference between groups was statistically significant at T2 (P < .001).
Funding	Non funded
ROB 2 Assessment	Randomisation process- *Low* Deviations from intended interventions- *Low* Missing outcome data- *Low* Measurement of outcome- *Low* Selection of the reported result- *Low* Overall- *Low*

Name	**A Mindfulness-Based Intervention as a Supportive Care Strategy for Patients with Metastatic Non-Small Cell Lung Cancer and Their Spouses: Results of a Three-Arm Pilot Randomized Controlled Trial**
Author	Milbury et al
Study Type	Randomized Controlled Trial
Countries and setting	Country: USA Setting: Clinic

Number of Participants	75
Duration of study follow up (in months)	3 months
Inclusion Criteria	Stage 4 NSCLC; Receiving treatment (RT/CT); ECOG performance status ≤2; Resided with a romantic partner for at least 6 months. Patients with spouses Age ≥18 years; Read and speak English.
Exclusion Criteria	Regularly (self-defined) participated in psychotherapy or a formal cancer support group and were not oriented to time, place, or person as determined by the clinical team
Recruitment/Selection of Patients	Clinic
Intervention	Couple-based meditation (n=26): 1 session/week for 4 weeks, total 240 minutes, Facetime through iPad, meditation and emotion sharing exercises Supportive-expressive (n=24): Social support intervention, 1 session/week for 4 weeks, total 240 minutes, Facetime through iPad
Outcome reported with time points	**Primary Outcome:** A priori feasibility benchmarks were met. Although attendance was high in both groups, dyads in the CBM group indicated greater benefit of the sessions than those in the SE group (patients, CBM mean = 2.63, SE mean = 2.20, p = .003; spouses, CBM mean = 2.71, SE mean = 2.00, p = .005). Compared with the UC group, patients in the CBM group reported significantly lower depressive symptoms (p = .05; d = 0.53) and marginally reduced cancer-related stress (p = .07; d = 0.68). Medium effect sizes in favour of the CBM compared with the SE group for depressive symptoms (d =0.59) and cancer-related stress (d = 0.54) were found. Spouses in the CBM group reported significantly lower depressive symptoms (p < .01; d = 0.74) compared with those in the UC group

Funding	National Institutes of Health/National Cancer Institute (R21 CA191711) and by the American Cancer Society Pilot and Exploratory Projects Palliative Care and Symptom Management grant 127952
ROB 2 Assessment	Randomisation process- Deviations from intended interventions- Missing outcome data- Measurement of outcome- Selection of the reported result- Overall-

Name	**Mindfulness-based stress reduction added to care as usual for lung cancer patients and/or their partners: A multicentre randomized controlled trial**
Author	Schellekens et al
Study Type	Randomized Controlled Trial
Countries and setting	Country: Netherlands Setting: Hospital
Number of Participants	63
Duration of study follow up (in months)	3 Months
Inclusion Criteria	Patients and/or partners of patients presenting with cytologically or histologically proven non-small cell or small cell lung cancer; Patients in the curative “and” palliative stage
Exclusion Criteria	<18 years of age, insufficient understanding of Dutch language, former MBI participation, current participation in other psychosocial programme, current weekly treatment by psychologist/ psychiatrist, physical impairments (i.e., hospitalization, life expectancy shorter than study period), or cognitive impairments (i.e., Mini-Mental State Examination <26)

Recruitment/Selection of Patients	The nurse practitioner via telephone, invitation letter, or face-to-face. Interested patients and/or partners were invited for a research interview, in which eligibility criteria were checked, further explanation about the study was provided, and written informed consent was obtained.
Intervention	CAU + Mindfulness based stress reduction (MBSR) (n=32): Based on the original 8-week MBSR programme, consisting of eight 2.5-hour weekly sessions and one 6-hour silent day, including daily 45-minute home practice; Group based MBSR was delivered.
Outcome reported with time points	**Primary Outcome:** Significant reduction in anxiety and depression for the intervention group at T1 and T2 **Secondary Outcome:** Significant Improvement in QoL, mindfulness skills, self-compassion and ruminations in the interventional group
Funding	Foundation Alpe d'Huzes and the Dutch Cancer Society (grant number KUN 2011-5077
ROB 2 Assessment	Randomisation process- *Some Concerns* Deviations from intended interventions- *Low* Missing outcome data- *Low* Measurement of outcome- *Low* Selection of the reported result- *Low* Overall- *Some concerns*

Name	Effects of cognitive education on the perceived control and symptom distress of lung cancer patients receiving chemotherapy: A randomised controlled trial.
Author	Tan et al.
Study Type	Randomized Controlled Trial
Countries and setting	Country: China Settings: University hospital
Number of Participants	136
Duration of study follow up (in months)	3 Months
Inclusion Criteria	Older than 18 years; diagnosed with primary lung cancer (clinical stage II–IV) and given inpatient chemotherapy; received 1–8 cycles of chemotherapy; did not have any history of psychiatric disorders; who were able to understand the contents and independently complete the questionnaire; and who were taking the same preventive or therapeutic measures to prevent or treat the same side effects of chemotherapy.
Exclusion Criteria	History of mental illness, cognitive dysfunction or mental retardation; diagnosed with clinical stage I lung cancer without receiving chemotherapy; who could not complete the questionnaire because of illiteracy and other problems (e.g., visual problems); participants who refused and failed to complete the study
Recruitment/Selection of Patients	Patients receiving chemotherapy was recruited
Intervention	Cognitive education (n=68): Delivered for 12 weeks in 4 stages, using mind map method.
Outcome reported with time points	**Primary Outcome:**

	Significant improvement in perceived control in the intervention group at 8 and 12 weeks. No significant change in control group. **Secondary Outcome:** Fatigue, distress, sleep disturbance, sadness and total scores of symptom distress for the patients in the intervention group were significantly reduced compared to those of the control group, and the degree of reduction for the scores at T2 was obviously higher than that at T1
Funding	No funding information
ROB 2 Assessment	Randomisation process- *Low* Deviations from intended interventions- *High* Missing outcome data- *Some Concerns* Measurement of outcome- *Low* Selection of the reported result- *Low* Overall- *High*

Name	**Integrated collaborative care for major depression comorbid with a poor prognosis cancer (SMaRT Oncology-3): a multicentre randomised controlled trial in patients with lung cancer**
Author	Walker et al
Study Type	Randomized Controlled Trial
Countries and setting	Country: Scotland, UK Settings: 3 cancer centres and their associated clinics in Scotland, UK

Number of Participants	142
Duration of study follow up (in months)	8 Months
Inclusion Criteria	Adults (≥18 years of age) with primary lung cancer, with a predicted survival of at least 3 months (estimated by cancer specialists), and major depression (Diagnostic and Statistical Manual of Mental Disorders, fourth edition [DSM-IV] criteria using the inclusive approach to diagnosis) for 4 weeks or longer.
Exclusion Criteria	Unable to participate in depression care for people with lung cancer (those with substantial cognitive or communication difficulties, or who could not take part in regular sessions) or if the programme was not appropriate to their needs (those with continuous depression for ≥2 years, a psychiatric or medical disorder requiring alternative treatment, known cerebral metastases, or those who were already regularly seeing a mental health specialist
Recruitment/Selection of Patients	Potential participants were identified by a clinical service offering depression screening to all patients attending selected National Health Service (NHS) lung cancer clinics in Scotland, UK (appendix). Patients who were identified as having probable major depression by the screening service (according to the major depression section of the Structured Clinical Interview for DSM-IV [SCID])19 were offered referral to the trial.
Intervention	Depression care for people with lung cancer (n=68): Multicomponent, systematic, team-delivered treatment programme, based on the collaborative care model and is integrated with lung cancer care; Brief (maximum of 10 sessions at pts home for 4 months) psychological interventions (problem-solving therapy and behavioural activation), and monitor patients' progress (on PHQ-9 depression scale) monthly by telephone for further 4 months.
Outcome reported with time points	**Primary Outcomes:** Average depression severity was significantly lower in patients allocated to depression care for people with lung cancer (mean score on the SCL-20 1·24 [SD 0·64]) than in those allocated to usual

	care (mean score 1·61 [SD 0·58]); difference –0·38 (95% CI –0·58 to –0·18); standardised mean difference –0·62 (95% CI –0·94 to –0·29). **Secondary Outcomes:** Self-rated depression improvement, anxiety, quality of life, role functioning, perceived quality of care, and proportion of patients achieving a 12-week treatment response were also significantly better in the depression care for people with lung cancer group than in the usual care group.
Funding	Cancer Research UK and Chief Scientist Office of the Scottish Government
ROB 2 Assessment	Randomisation process- *Low* Deviations from intended interventions- *Low* Missing outcome data- *Low* Measurement of outcome- *Low* Selection of the reported result- *Low* Overall- *Low*

Name	**Effects of family-oriented dignity therapy on dignity, depression and spiritual well-being of patients with lung cancer undergoing chemotherapy: A randomised controlled trial**
Author	Xiao et al
Study Type	Randomized Controlled Trial
Countries and setting	Country: China

	Settings: Hospital
Number of Participants	120
Duration of study follow up (in months)	1 Month
Inclusion Criteria	Adult patient diagnosed with lung cancer; currently undergoing chemotherapy that would last for at least one month; aware of his/her cancer diagnosis; could read and communicate in Chinese (Mandarin); could provide informed consent; could identify one significant family caregiver to receive the intervention with.
Exclusion Criteria	Patients and/or family caregivers with cognitive impairment such as dementia, as determined by a physician; patients and/or family caregivers diagnosed with psychiatric illness; patients and/or family caregivers were currently participating in other psychosocial intervention studies; patients and/or family caregivers who were too ill to participate in the research, as determined by a physician.
Recruitment/Selection of Patients	Participants were recruited from the respiratory medicine ward of Hunan Cancer Hospital
Intervention	Family-oriented dignity therapy (n=60 dyads): Face-to-face psychosocial intervention with 3 sessions delivered by the intervention facilitator.
Outcome reported with time points	**Primary Outcome:** Compared with the control group, the patients in the intervention group showed significantly greater reduction in existential distress (β: −1.372, 95% CI: −2.269, −0.472; p = 0.003) and depression (β: −3.430, 95% CI: −5.032, −1.829; p < 0.001) at week one, as well as significantly greater improvement in spiritual well-being at both week one (β: 3.705, 95% CI: 0.599, 6.811; p = 0.019) and week four (β: 4.939, 95% CI: 0.476, 9.401; p = 0.030)
Funding	Non-funded
ROB 2 Assessment	Randomization process- *Low*

	Deviations from intended interventions- *Low* Missing outcome data- *High* Measurement of outcome- *Low* Selection of the reported result- *Low* Overall- *High*

Name	**A Randomized Controlled Trial of a Non-pharmacological Intervention for Cancer-Related Dyspnoea**
Author	Yates et al
Study Type	Randomized Controlled Trial
Countries and setting	Country: Australia Settings: Hospital
Number of Participants	144
Duration of study follow up (in months)	2 Months
Inclusion Criteria	A diagnosis of small cell or non-small cell lung cancer, mesothelioma or lung metastases; completed first line therapy for the disease; an average dyspnoea rating >2 in the past week; an anticipated life expectancy of at least 3 months.
Exclusion Criteria	Participants who had cognitive impairment that would prevent them from responding to a survey questionnaire or who had a life expectancy of <3 months at the time of screening were not eligible
Recruitment/Selection of Patients	Patients attending hospitals for treatment

Intervention	Tailored intervention (n=81): Face to face instructional session of about 60 min, followed by weekly phone calls for 3 weeks, to reinforce the strategies; Breathing retraining + individualized psychosocial support; delivered using evidence-based psycho-educational strategies.
Outcome reported with time points	**Primary Outcome:** No difference in worst dyspnoea between groups. Significant improvement in average dyspnoea and perceived control over dyspnoea in the intervention group. **Secondary Outcome:** Significant reduction of anxiety and depression in the interventional group with maximum change at T3. Worsening of anxiety and depression in control group. No difference in functional status. Intervention group used more non-pharmacological interventions
Funding	Funded by National Health and Medical Research Council Australia
ROB 2 Assessment	Randomization process- *Low* Deviations from intended interventions- *Low* Missing outcome data- *Some Concerns* Measurement of outcome- *Low* Selection of the reported result- *Low* Overall- *Some concerns*

Name	Impact research of pain nursing combined with hospice care on quality of life for patients with advanced lung cancer
Author	Yuan et al
Study Type	Case control (Observational study)
Countries and setting	Country: China Setting: Hospital
Number of Participants	60
Duration of study follow up (in months)	
Inclusion Criteria	Conformity with clinical diagnostic standards for lung cancer; TNM staging of III–IV; anticipated survival of more than 1 month but less than or equal to 6 months; age over 18 years; preserved cognitive function and communicative capacity, with the ability to accurately convey feelings and needs.
Exclusion Criteria	Presence of other malignant tumors or critical illnesses; severe consciousness disorders or psychiatric conditions; (3) employment in medical-related fields; (4) significant psychological stress from external factors during the study.
Recruitment/Selection of Patients	Hospital
Intervention	Pain nursing + hospice care (n=30): Pain nursing: music intervention, somatic intervention (breathing exercise), massage instruction, environmental intervention (placing books or ornaments that interest the patient in their room), pharmacological intervention (WHO's 3-step analgesic ladder for cancer pain management). Hospice care: information collection, environmental intervention (choosing warm-colored ornaments to decorate the ward, placing greenery and the patient's favorite items in the ward, psychological intervention (apprehending the psychological state of the patient, taking a reasonable

	way to answer their internal concerns, and providing guidance on the family members), family members instructed to avoid excessive sadness when trying to meet patient's reasonable needs; Discussing about topic of death with patient, listening carefully to patient's own experience and expression), disease guidance, life and death guidance, daily intervention (developing a nutrition intervention plan, giving guidance on family.
Outcome reported with time points	**Primary Outcome:** Both groups exhibited reductions in numeric rating scale, SAS, SDS, and CFS scores compared to baseline, with more significant improvements observed in the observation group ($P < .05$). Additionally, post-intervention scores for death attitude and Quality of Life Questionnaire-Core 30 domains (physical, cognitive, social, role, and emotional functioning, as well as overall health) increased in both groups, with the observation group showing greater improvements than the control group ($P < .05$). **Secondary Outcome:**
Funding	Non-funded
ROB 2 Assessment	Randomisation process- Deviations from intended interventions- Missing outcome data- Measurement of outcome- Selection of the reported result- Overall-

Name	Effect of emotion regulation self-efficacy intervention on negative emotion and quality of life of lung cancer patients undergoing radiotherapy and chemotherapy
Author	Zeng et al
Study Type	Randomized Controlled Trial
Countries and setting	Country: China Settings: Hospital
Number of Participants	120
Duration of study follow up (in months)	2 Months
Inclusion Criteria	All patients were confirmed by histopathological examination; there is no contraindication of radiotherapy and chemotherapy, and communication skills; informed consent was signed by patients and their families.
Exclusion Criteria	Patients with organic diseases such as heart, liver and kidney; Patients with other malignant tumor diseases or contraindications of radiotherapy and chemotherapy; Mental illness or cognitive impairment
Recruitment/Selection of Patients	Patients receiving chemo radiation at hospital
Intervention	Self-efficacy of emotion regulation (n=60): Individual psychological guidance and psychological consultation; Group Psychological Intervention
Outcome reported with time points	**Primary Outcome:** Both primary outcomes improved in the interventional group, no significant change in control group. **Secondary Outcome:** Anxiety and depression reduced in IG, but only depression in CG. Both anxiety and depression were significantly lower in IG group after intervention compared to CG. QoL improved only in the IG

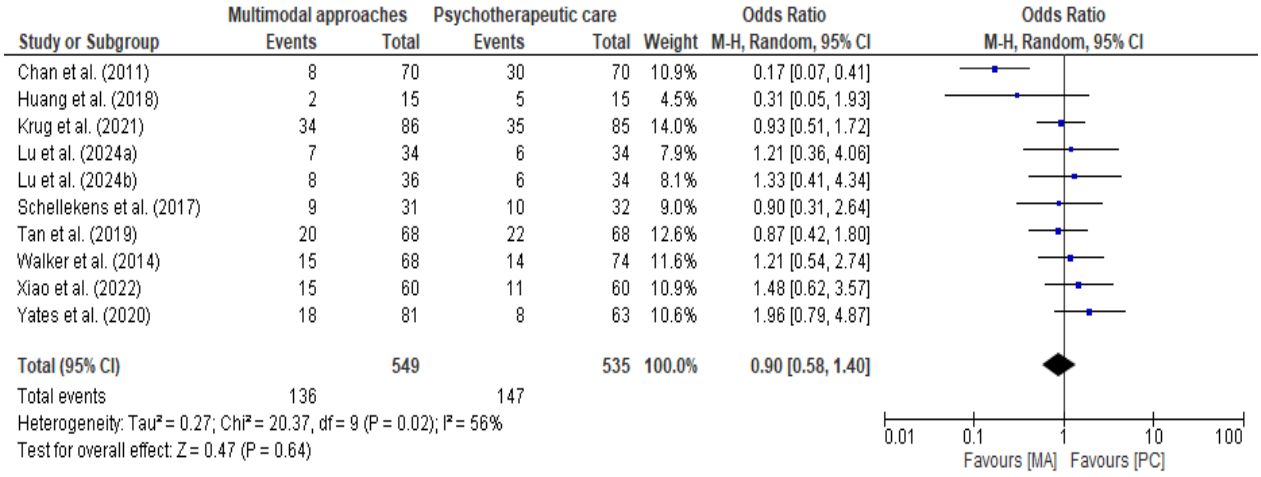
Funding	Shaoguan Health Construction Bureau "study on the effect of emotional regulation self-efficacy intervention on patients with advanced lung cancer undergoing radiotherapy and chemotherapy" (y21020)
ROB 2 Assessment	Randomisation process- Deviations from intended interventions- Missing outcome data- Measurement of outcome- Selection of the reported result- Overall-

Name	**Influence of psychological intervention on pain and immune functions of patients receiving lung cancer surgery**
Author	Zhao et al.
Study Type	Randomized Controlled Trial
Countries and setting	Country: China Settings: Hospital
Number of Participants	124
Duration of study follow up (in months)	
Inclusion Criteria	Patients diagnosed with stage I or II lung cancer pathologically; aged from 18 ~ 70 years; hospitalized for the first time and have never developed diseases involving immune system and endocrine system, schizophrenia and alcohol or drug dependence; not received surgery, chemotherapy, radiotherapy or used immune enhancer or inhibitor; willing to join the study and singed informed consent; junior high school culture degree or higher
Exclusion Criteria	Not mentioned

Recruitment/Selection of Patients	Patients who were hospitalized in cardiothoracic surgery department for surgery
Intervention	Conventional nursing intervention (n=62): Nurse informed patients with cause of lung cancer, treatment method, treatment effect, prognosis, matters needing attention before and after surgery such as diet, rest, knowledge relating to management of pain on wound and various exercise methods.
Outcome reported with time points	**Primary Outcome:** Significant reduction in VAS pain score in intervention group at all time point **Secondary Outcome:** Significant improvement in quality of life in the intervention group. No significant changes in control group. No significant changes in immune function before and after intervention in both groups.
Funding	Unclear
ROB 2 Assessment	Randomisation process- Deviations from intended interventions- Missing outcome data- Measurement of outcome- Selection of the reported result- Overall-

6. Forest Plots of Important Outcomes

Figure1: Adherence (Dropout rate)



7. Summary of Findings

Multimodal approaches compared to psychotherapeutic care alone for newly diagnosed cases with lung cancer

Patient or population: Patients with Lung Cancer

Setting: Tertiary Care Hospitals

Intervention: Multi-modal intervention (drug and non-drug)

Comparison: Psychotherapy alone

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	No. of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with Psychotherapeutic Care Alone	Risk with Multimodal intervention				
Adherence – Dropout Rates						
Dropout rate	275 per 1,000	**261 per 1,000** (188 to 347)	**OR 0.93** (0.61 to 1.40)	1084 (10 RCTs)	⊕◯◯◯ very Low[a,b,c]	

*__The risk in the intervention group__ (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **risk difference** of the intervention (and its 95% CI).
CI: Confidence Interval

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of effect.

Explanations:

a. *Downgraded by two levels for risk of bias as less than 1/3rd studies (by weight) were at low risk of bias*
b. *High heterogeneity is present with significant I^2.*
c. Downgraded one level for imprecision as the 95% CI crossed the null effect line

8.Evidence Profile

Multimodal approaches compared to psychotherapeutic care alone for newly diagnosed cases with lung cancer

Patient or population: Patients with Lung Cancer
Intervention: Multi-modal intervention (drug and non-drug)
Comparison: Psychotherapy alone

Certainty assessment							No. of patients		Effect		Certainty	Importance
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Multimodal intervention	Standard of Care	Relative (95% CI)	Absolute (95% CI)		
Adherence – Dropout Rates												
Dropout rate												
10	randomised trials	Very serious[a]	Serious[b]	not serious	serious[c]	none	136/549 (24.8%)	147/535 (27.5%)	**OR 0.93** (0.61 to 1.40)	**14 fewer per 1,000** (from 87 fewer to 72 more)	⊕◯◯◯ very Low[a,b,c]	IMPORTANT

CI: *Confidence Interval*

Explanations:

a. *Downgraded by two levels for risk of bias as less than 1/3rd studies (by weight) were at low risk of bias*
b. *High heterogeneity is present with significant I^2.*
c. Downgraded one level for imprecision as the 95% CI crossed the null effect line

1. Evidence to Decision Framework

Should Multimodal Approaches vs. Psychotherapeutic Care Alone be used for Newly Diagnosed Lung Cancer Patients?	
POPULATION:	Newly Diagnosed Lung Cancer Patients
INTERVENTION:	Multimodal Approaches
COMPARISON:	Psychotherapeutic Care Alone
MAIN OUTCOMES:	Improvement in symptom score (*Critical Outcome*) Quality of life (*Critical Outcome*) Cost (*Important Outcome*) Treatment adherence/compliance (*Important Outcome*)

Assessment

Problem Is the problem a priority?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ No ○ Probably no ○ Probably yes ○ Yes ○ Varies ○ Don't know	The symptom cluster of insomnia, fatigue, and depression is highly prevalent among newly diagnosed lung cancer patients and significantly impacts their quality of life, treatment adherence, and overall clinical outcomes. These symptoms often co-occur and exacerbate one another, leading to greater symptom burden and psychological distress, particularly in the early phases of cancer care when patients are adjusting to their diagnosis and treatment plans. Addressing this symptom cluster effectively is a clinical and public health priority, as it has implications not only for patient well-	

	being but also for healthcare resource utilization and long-term outcomes. Despite the availability of psychotherapeutic interventions, the persistent nature of these symptoms in many patients highlights the need to explore and potentially integrate multimodal approaches that may offer more comprehensive symptom relief. Given the burden of lung cancer and the impact of this symptom cluster on morbidity and mortality, the problem is of high priority to patients, clinicians, and health systems.	

Desirable Effects How substantial are the desirable anticipated effects?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Trivial ○ Small ● Moderate ○ Large ○ Varies ○ Don't know	Compared with psychotherapeutic care alone, patients receiving a combined approach experienced greater reductions in insomnia (MD 1.08 points on the MDASI insomnia scale, 95% CI 0.14 to 2.02), along with less fatigue as measured by the MDASI (MD 2.46, 95% CI 1.45 to 3.47) and the lung-cancer–specific QLQ-LC13 fatigue subscale (MD 7.6, 95% CI 2.08 to 13.12). Depressive symptoms likewise improved, most notably on the PHQ-9 (MD 4.01, 95% CI 2.63 to 5.39) and the MDASI depression item (MD 1.22, 95% CI 0.22 to 2.22). These symptom gains translated into higher health-related quality of life, with FACT-L scores rising by an average of 10.18 points (95% CI 0.47 to 19.89) and QLQ-C30 global scores by 7.09 points (95% CI 1.11 to 13.07). Although certainty ranges from very low to moderate across outcomes, the direction and magnitude of effect favor integrated multimodal care over psychotherapy alone.	The GDG made the judgement for moderate effects based on the overall improvement of all outcomes.

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	No. of participants (studies)	Certainty of the evidence (GRADE)
	Risk with Psychotherapeutic Care Alone	Risk with Multimodal intervention			
Improvement in Symptom Score					
Insomnia assessed with: MDASI	The mean insomnia was **0.09**	MD **1.08 higher** (0.14 higher to 2.02 higher)	-	94 (1 RCT)	⊕○○○ Very Low[a,b,c]
Fatigue assessed with: PFS	The mean fatigue was **0.45**	MD **0.09 higher** (0.62 lower to 0.8 higher)	-	140 (1 RCT)	⊕○○○ Very Low[a,b,d]
Fatigue assessed with: MDASI	The mean fatigue was **0.13**	MD **2.46 higher** (1.45 higher to 3.47 higher)	-	94 (1 RCT)	⊕○○○ Very Low[a,b,c]
Fatigue assessed with: QLQ-C30	The mean fatigue was **6.6**	MD **7.6 higher** (2.08 higher to 13.12 higher)	-	130 (1 RCT)	⊕⊕○○ Low[a,b]
Depression assessed with: HADS	The mean depression was **0.98**	**1.01 higher** (0.18 higher to 2.02 higher)	-	313 (5 RCTs)	⊕○○○ Very low[a,b,c]
Depression assessed with: PHQ-4	The mean depression was **1.1**	MD **0.5 lower** (1.26 lower to 0.26 higher)	-	153 (1 RCT)	⊕○○○ Very Low[a,b,d]
Depression assessed with: PHQ-9	The mean depression was **-1.84**	MD **4.01 higher** (2.63 higher to 5.39 higher)	-	120 (1 RCT)	⊕○○○ Very Low[a,b,c]
Depression assessed with: MDASI	The mean depression was **0.1**	MD **1.22 higher** (0.22 higher to 2.22 higher)	-	94 (1 RCT)	⊕○○○ Very Low[a,b,c]
Depression assessed with: SCL-20	The mean depression was **0.37**	**0.29 higher** (0.13 higher to 0.45 higher)	-	131 (1 RCT)	⊕⊕○○ Low[a,b]
Quality of Life					
Quality of Life assessed with: FACT-L	The mean quality of Life was **94.89**	MD **10.18 higher** (0.47 higher to 19.89 higher)	-	23 (1 RCT)	⊕○○○ Very Low[a,b,c]
Quality of Life assessed with: SEIQoL	The mean quality of Life was **56.8**	MD **2.8 higher** (5.58 lower to 11.18 higher)	-	67 (1 RCT)	⊕○○○ Very Low[a,b,d]
Quality of life assessed with: QLQ-C30	The mean quality of Life was **50.8**	MD **7.09 higher** (1.11 higher to 13.07 higher)	-	170 (2 RCTs)	⊕⊕⊕○ moderate[a]

Undesirable Effects **How substantial are the undesirable anticipated effects?**		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
● Trivial ○ Small ○ Moderate ○ Large ○ Varies ○ Don't know	No adverse effects of the intervention are mentioned in the articles included	The GDG mentioned that the multimodal treatment would be a further evaluation rather than having an undesirable effect.
Certainty of evidence **What is the overall certainty of the evidence of effects?**		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
● Very low ○ Low ○ Moderate ○ High ○ No included studies	Overall certainty of evidence is very low due to risk of bias, inconsistency and imprecision	No additional considerations.
Values **Is there important uncertainty about or variability in how much people value the main outcomes?**		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Important uncertainty or variability ○ Possibly	Patients regarded a one-point change on patient-reported outcome scales as the minimum meaningful **improvement in dyspnoea and overall quality of life,** suggesting this threshold be used to gauge clinical benefit. (Cardellino A, et al). Perspectives of patients with advanced or metastatic non-small cell lung cancer on	The GDG noted a consensus among patients regarding the significance and desirability of the intervention's outcomes, indicating no major uncertainty or variability in how

important uncertainty or variability ○ Probably no important uncertainty or variability ● No important uncertainty or variability	symptoms, impacts on daily activities, and thresholds for meaningful change: a qualitative research study. Front Psychol. 2023 Sep 8;14:1217793.) Qualitative interviews of patients with advanced lung cancer highlighted the value patients place on interventions that directly alleviate dyspnoea and restore their ability to engage in everyday tasks. (Lo SB et al. A cognitive-behavioural model of dyspnoea: Qualitative interviews with individuals with advanced lung cancer. Palliat Support Care. 2023 Dec;21(6):1070-1077)	these outcomes are valued.

Balance of effects Does the balance between desirable and undesirable effects favour the intervention or the comparison?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Favors the comparison ○ Probably favors the comparison ○ Does not favor either the intervention or the comparison ● Probably favors the intervention ○ Favors the intervention	Symptom relief and quality-of-life gains afforded by multimodal care appear to outweigh the primarily minor and transient downsides. Patients in RCTs experienced clinically meaningful reductions in insomnia, fatigue, and depression, improvements that have been linked to better treatment adherence and overall well-being, while reports of musculoskeletal soreness, temporary post-exercise fatigue, or mild headaches and gastrointestinal discomfort were infrequent, self-limited, and did not impact study retention. The principal trade-off lies in the added time and coordination required to deliver integrated exercise, relaxation, and pharmacologic components, which may strain both patients' schedules and health-care resources.	The GDG discussed that given the low incidence of adverse events and the potential for meaningful symptom relief in a population at high risk for poor outcomes, the desirable effects of multimodal approaches are likely to justify the manageable minor harms.

○ Varies ○ Don't know		
Resources Required		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Large costs ● Moderate costs ○ Negligible costs and savings ○ Moderate savings ○ Large savings ○ Varies ○ Don't know	The implementation of DCPC required additional resources amounting to an average of £631 more per patient compared to usual care, reflecting the costs of delivering integrated collaborative care. These resources primarily included specialized staff time and coordination efforts necessary to provide structured psychological support alongside cancer treatment. (Duarte A, et al) Cost-effectiveness of integrated collaborative care for comorbid major depression in patients with cancer. J Psychosom Res. 2015 Dec;79(6):465-70) Intervention costs were per patient on average $690 (€560) for the INS group and $805 for the IPS group INS as well as IPS were less costly ($−8786 and $−6630, both significant) and more effective (incremental QALYs +0.09, NS and +0.16, both NS) compared to usual care INS and IPS were dominant compared to usual care Jansen et. al. (2016) A review on cost-effectiveness and cost-utility of psychosocial care in cancer patients. Asia-Pacific Journal of Oncology Nursing. 10.4103/2347-5625.182930	No direct studies included in the Indian context. The panel extrapolated the evidence and judged the resources required for intervention would incur moderate costs.
Certainty of evidence of required resources What is the certainty of the evidence of resource requirements (costs)?		

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Very low ● Low ○ Moderate ○ High ○ No included studies	The certainty of evidence for the resources required component is high, as cost estimates were based on UK national unit costs and underwent rigorous scenario analyses to test assumptions and account for missing data. Additionally, the use of cost-effectiveness acceptability curves and alignment with NICE thresholds strengthens confidence in the reliability of the economic findings (Duarte A, et al Cost-effectiveness of integrated collaborative care for comorbid major depression in patients with cancer. J Psychosom Res. 2015 Dec;79(6):465-70) The hospital billing system provided cost estimates. Quality-adjusted life years (QALYs) were calculated using health-related quality of life data from the European Organization for Research and Treatment of Cancer Quality of Life Core Questionnaire (EORTC QLQ C-30) translated into the Euro Quality of Life- 5-Dimensional classification. On the basis of the medical cost offset, a cost–utility analysis was performed. Jansen et. al. (2016) A review on cost-effectiveness and cost-utility of psychosocial care in cancer patients. Asia-Pacific Journal of Oncology Nursing. 10.4103/2347-5625.182930	No direct evidence for resources required. Differences in setting has contributed to decision making by the panel.
Cost effectiveness Does the cost-effectiveness of the intervention favor the intervention or the comparison?		

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Favors the comparison ○ Probably favors the comparison ○ Does not favor either the intervention or the comparison ● Probably favors the intervention ○ Favors the intervention ○ Varies ○ No included studies	The economic evaluation of Depression Care for People with Cancer (DCPC) demonstrated strong cost-effectiveness, with an incremental cost-effectiveness ratio of £9549 per QALY gained, well below the NICE threshold of £20,000–£30,000 per QALY. With a 90% or greater probability of being cost-effective at these thresholds, DCPC represents a financially viable intervention for managing comorbid depression in cancer patients. (Duarte A, et al Cost-effectiveness of integrated collaborative care for comorbid major depression in patients with cancer. J Psychosom Res. 2015 Dec;79(6):465-70) Arving et al. found that individual psychological support provided by a nurse or psychologist was significantly less costly ($8786 or $6630, respectively) and more effective in gaining QALYs (nonsignificant incremental QALYs of +0.09 and +0.16, respectively) compared to usual care. (Arving et al. Cost–utility analysis of individual psychosocial support interventions for breast cancer patients in a randomized controlled study. Psycho-Oncology, 23 September 2013) Psychosocial therapy - ICER ranged from $9818 to $29,266/QALY, with one outlier at $73,287/QALY (Jansen et. al. (2016) *A review on cost-effectiveness and cost-utility of psychosocial care in cancer patients.* Asia-Pacific Journal of Oncology Nursing. 10.4103/2347-5625.182930)	The GDG mentioned that the parameters considered (insomnia, depression etc) can impact the standard of care. The state of mental health of the patient also helpful to the oncologists. Requirement of detailed cost effectiveness studies in context on India was highlighted.
Equity What would be the impact on health equity?		

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Reduced ● Probably reduced ○ Probably no impact ○ Probably increased ○ Increased ○ Varies ○ Don't know	No direct evidence was identified regarding the impact of multimodal approach on health equity. Multimodal symptom-management protocols have the potential both to mitigate and to exacerbate existing inequities in lung cancer care. On one hand, by offering structured exercise, relaxation training, and adjunctive pharmacotherapy alongside psychotherapy, these approaches can help address symptom clusters more comprehensively in populations who traditionally experience poorer supportive-care access-such as racial and ethnic minorities, low–socioeconomic–status groups, and patients in rural or underfunded health systems-thereby narrowing gaps in quality-of-life and treatment adherence. On the other hand, the additional time, travel, and out-of-pocket costs associated with facility-based exercise programs or specialized counselling sessions may disproportionately burden those with limited transportation, inflexible work schedules, or inadequate insurance coverage, potentially widening disparities if services are not delivered through low-cost, community-embedded, or telehealth-enabled platforms. To maximize equity, implementation strategies should prioritize culturally tailored materials, sliding-scale fees, home-based or virtual delivery options, and partnerships with community health workers, ensuring that the benefits of multimodal care reach all demographic groups rather than only the most resourced.	The panel highlighted that symptom management techniques mentioned to mitigate inequities would require adapting and modification as per the Indian society.
Acceptability Is the intervention acceptable to key stakeholders?		

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ No ○ Probably no ○ Probably yes ● Yes ○ Varies ○ Don't know	The scoping review by Kumar et al. (2024), which included 84 studies and covered over 6,500 participants with advanced cancer, found that non-pharmacological supportive care interventions—such as physical activity, psychosocial support, and multimodal approaches-were generally well accepted and beneficial in reducing fatigue, pain, and mood disturbances. These findings support the acceptability of integrated, non-pharmacologic strategies among both users and providers, despite some noted challenges in addressing practical and systemic barriers. (Kumar, B.et al.(2024). Living well with advanced cancer: a scoping review of non-pharmacological supportive care interventions. *Journal of Cancer Survivorship*)	The panel highlighted that the oncologists may find it difficult to accept the intervention as a part of their regular treatment. There is a need to have studies in Indian context.
Feasibility Is the intervention feasible to implement?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ No ○ Probably no ○ Probably yes ● Yes ○ Varies ○ Don't know	A pilot study by Ester et al. (2021) involving 10 participants with advanced lung cancer demonstrated that a 12-week multimodal intervention combining exercise, nutrition, and palliative care was feasible, with 75% class attendance, 85% assessment completion, and high participant acceptability, supporting its potential for integration into supportive oncology care. (Ester M, et al) Feasibility of a multimodal exercise, nutrition, and palliative care intervention in advanced lung cancer. BMC Cancer. 2021 Feb 13;21(1):159)	The panel unanimously agreed that the intervention is feasible for patients.

SUMMARY OF JUDGEMENTS

	JUDGEMENT						
PROBLEM	No	Probably no	Probably yes	Yes		Varies	Don't know
DESIRABLE EFFECTS	Trivial	Small	**Moderate**	Large		Varies	Don't know
UNDESIRABLE EFFECTS	**Trivial**	Small	Moderate	Large		Varies	Don't know
CERTAINTY OF EVIDENCE	**Very low**	Low	Moderate	High			No included studies
VALUES	Important uncertainty or variability	Possibly important uncertainty or variability	Probably no important uncertainty or variability	**No important uncertainty or variability**			
BALANCE OF EFFECTS	Favors the comparison	Probably favors the comparison	Does not favor either the intervention or the comparison	**Probably favors the intervention**	Favors the intervention	Varies	Don't know
RESOURCES REQUIRED	Large costs	**Moderate costs**	Negligible costs and savings	Moderate savings	Large savings	Varies	Don't know
CERTAINTY OF EVIDENCE OF REQUIRED RESOURCES	Very low	**Low**	Moderate	High			No included studies
COST EFFECTIVENESS	Favors the comparison	Probably favors the comparison	Does not favor either the intervention or the comparison	**Probably favors the intervention**	Favors the intervention	Varies	No included studies

	JUDGEMENT						
EQUITY	Reduced	**Probably reduced**	Probably no impact	Probably increased	Increased	Varies	Don't know
ACCEPTABILITY	No	Probably no	Probably yes	**Yes**		Varies	Don't know
FEASIBILITY	No	Probably no	Probably yes	**Yes**		Varies	Don't know

TYPE OF RECOMMENDATION

Strong recommendation against the intervention	Conditional recommendation against the intervention	Conditional recommendation for either the intervention or the comparison	Conditional recommendation for the intervention	**Strong recommendation for the intervention**
○	○	○	○	●

CONCLUSIONS

Recommendation
Multimodal Approach of treatment is ***recommended*** in comparison to treatment with Psychotherapeutic Care alone for patients with lung cancer. Strength: Strong Certainty of Evidence: Very low
Justification

The evidence showed moderate desirable effects with trivial harms, alongside acceptability, feasibility, and cost-effectiveness probably favouring multimodal approach in managing the symptom cluster. The anticipated benefits outweigh potential downsides, supporting a strong recommendation.

2. List of Excluded Studies

Sr. No.	Citation of the study (Vancouver style only)	Reasons for exclusion
1	Chen M, Yu H. 61P Early palliative care in patients with non-small cell lung cancer: a 36-weeks randomised controlled trial in China 2023;18:S76.	Conference Abstract
2	Chen M, Yu H. 1593MO Combined early palliative care in patients with non small cell lung cancer: a randomised controlled trial in Chongqing, China. 2023;34:S886.	Conference Abstract
3	Berger V, Jube C, Forestier A, Mitonneau C, Humeau H, Limouzin S, et al. 1627TiP Impact of patient education on immune-related adverse events (irAEs) during immune checkpoint inhibitor (ICI). 2022;33:S1285.	Conference Abstract
4	Earle CC, Evans WK. A comparison of the costs of paclitaxel and best supportive care in stage IV non-small-cell lung cancer. Cancer Prev Control 1997;1:282–8.	Wrong Intervention
5	Evans WK. A comparison with standard chemotherapy and best supportive care: Cost- effectiveness of vinorelbine alone or vinorelbine plus cisplatin for stage IV NSCLC. Oncology (Williston Park) 1998;12:18-25.	Wrong Intervention
6	Presley CJ, Mohamed MR, Culakova E, Flannery M, Vibhakar PH, Hoyd R, et al. A geriatric assessment intervention to reduce treatment toxicity among older adults with advanced lung cancer: a subgroup analysis from a cluster randomized controlled trial. Front Oncol 2022;12:835582.	Wrong Intervention
7	Krebber AMH, van Uden-Kraan CF, Melissant HC, Cuijpers P, van Straten A, Becker-Commissaris A, et al. A guided self-help Intervention targeting psychological distress among head and neck cancer and lung cancer patients: motivation to start, experiences and perceived outcomes. Support Care Cancer 2017;25:127–35.	Wrong Intervention
8	NCT03512015. A mobile supportive care app for patients with metastatic lung cancer. 2018; Available from: https://www.cochranelibrary.com/central/doi/10.1002/central/CN-01574020/full	Study Protocol
9	Roszkowski K, Pluzanska A, Krzakowski M, Smith AP, Saigi E, Aasebo U, et al. A multicenter, randomized, phase III study of docetaxel plus best supportive care versus best supportive care in chemotherapy-naive patients with metastatic or non-resectable localized non-small cell lung cancer (NSCLC). Lung Cancer 2000;27:145-57.	Wrong Intervention
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