Supporting information

Appendix A-Supplementary materials: Detailed search strategy (Inclusion and exclusion criteria and comprehensive search terms).

Appendix B-Supplementary materials: PRISMA Checklist.

Appendix C-Supplementary materials: Methodological Quality evaluation.

APPENDIX – A -

Criterion	Inclusion	Exclusion
Time period	From inception to 25th March 2021	Studies outside these dates
Language	English (recognized language of international scientific debate)	Non-English
Type of article	Original research, published in a peer review journal. Qualitative or quantitative studies; review; systematic review; narrative review; scoping review; meta-analysis; commentaries, letter, editorial	Articles that were not peer reviewed, only abstract avalaible; grey literature
Ethics clearance	Studies with approved ethics notification	Studies without approved ethics notification
Study focus	Adherence/compliance to therapies (pharmacological therapies/Non Invasive Ventilation (NIV)/Long Term Oxygen Therapy (LTOT), Pulmonary Rehabilitation (PR) etc.) and their relationships with anxiety and depression	Studies that don't consider the relationships between anxiety, depression and adherence/compliance
Literature focus	Studies that explicitly discuss the patient's point of view and his/her experience, studies that present a clear theoretical framework on the patients' experience, studies that focus on the experience of using the treatment, anxiety and depression e indicators and monitoring, in the context of chronic pathologies considered	Articles that didn't make a passing or token reference to anxiety and depression in relation to therapies. The caregiver's and/or physicians' point of view
Population and sample	Chronic Obstructive Pulmonary Disease (COPD)	All the other chronic diseases
Detailed search strategy		
Database	**Mesh Terms Combination**	**Filters**
Pubmed	"COPD" OR "Chronic Obstructive Pulmonary Disease*") AND ("Anxiety" OR "depression") AND ("adherence" OR "compliance") AND ("NIV" OR "Non Invasive Ventilation" OR "Oxygen" OR "Oxygen Therapy" OR "Long Term Oxygen Therapy" OR "LTOT" OR "theraph*" OR "pharmacological theraph*" OR "medication*" OR "bronchodilator*" OR "inhalator*"	Humans; English; Full Text; Clinical Study; Clinical Trial; Controlled Clinical Trial; Meta-Analysis; Observational Study; Randomized Controlled Trial; Review; Systematic Review; Comparative Study;
Scopus	"COPD" OR "Chronic Obstructive Pulmonary Disease*") AND ("Anxiety" OR "depression") AND ("adherence" OR "compliance") AND ("NIV" OR "Non Invasive Ventilation" OR "Oxygen" OR "Oxygen Therapy" OR "Long Term Oxygen Therapy" OR "LTOT" OR "theraph*" OR "pharmacological theraph*" OR	Human/Humans; English; Article; Review; Journal; Psychology; Health Professions; Chronic Obstructive Lung Disease

	"medication*" OR "bronchodilator*" OR "inhalator*"	
Web of Science	"COPD" OR "Chronic Obstructive Pulmonary Disease*") AND ("Anxiety" OR "depression") AND ("adherence" OR "compliance") AND ("NIV" OR "Non Invasive Ventilation" OR "Oxygen" OR "Oxygen Therapy" OR "Long Term Oxygen Therapy" OR "LTOT" OR "theraph*" OR "pharmacological theraph*" OR "medication*" OR "bronchodilator*" OR "inhalator*"	English; Article; Review
Cochrane LIbrary	"COPD" OR "Chronic Obstructive Pulmonary Disease*") AND ("Anxiety" OR "depression") AND ("adherence" OR "compliance") AND ("NIV" OR "Non Invasive Ventilation" OR "Oxygen" OR "Oxygen Therapy" OR "Long Term Oxygen Therapy" OR "LTOT" OR "theraph*" OR "pharmacological theraph*" OR "medication*" OR "bronchodilator*" OR "inhalator*"	English; Trials; Review
Psycinfo	"COPD" OR "Chronic Obstructive Pulmonary Disease*") AND ("Anxiety" OR "depression") AND ("adherence" OR "compliance") AND ("NIV" OR "Non Invasive Ventilation" OR "Oxygen" OR "Oxygen Therapy" OR "Long Term Oxygen Therapy" OR "LTOT" OR "theraph*" OR "pharmacological theraph*" OR "medicati on*" OR "bronchodilator*" OR "inhalator*"	Humans; English

Additional records were identified through other sources, specifically from the references of "Atlantis E., Fahey P., Cochrane B., Smith S. (2013). Bidirectional associations between clinically relevant depression or anxiety and COPD: a systematic review and meta-analysis. *Chestnet*, 144(3), 766-777".

APPENDIX - B -

PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	3
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	44
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	5
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	5
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	5
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Appendix A
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	5
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	6
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	6-7
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	6
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	N/A
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	N/A

PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	12-13 and Appendix C
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	N/A
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	6
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	6-13; Table 1, Table 2, Table 3
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	12, 13; Appendix C
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	6-13; Table 1, Table 2, Table 3
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	N/A
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	12-13; Appendix C
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	N/A
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	13, 14
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	13, 14
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	15
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	N/A

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit: **www.prisma-statement.org**.

APPENDIX - C -

Unique ID	A318	**Study ID**	A318	**Assessor**	ST
Ref or Label	Personalised Intervention for people with depression and severe COPD	**Aim**	assignment to intervention (the 'intention-to-treat' effect)		
Experimental	Introduction of Personalised interventon for depression and COPD (PID-C)	**Comparator**	Treatment As Usual (TAU)	**Source**	Journal article(s) with results of the trial
Outcome	remission/reduction of depressive symptoms and dyspnoea-related disability	**Results**		**Weight**	1

Domain	Signalling question	Response	Comments
Bias arising from the randomization process	1.1 Was the allocation sequence random?	Y	
	1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions?	Y	
	1.3 Did baseline differences between intervention groups suggest a problem with the randomization process?	PN	
	Risk of bias judgement	**Low**	
Bias due to deviations from intended interventions	2.1.Were participants aware of their assigned intervention during the trial?	PY	
	2.2.Were carers and people delivering the interventions aware of participants' assigned intervention during the trial?	PY	
	2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context?	N	
	2.4 If Y/PY to 2.3: Were these deviations likely to have affected the outcome?	NA	
	2.5. If Y/PY/NI to 2.4: Were these deviations from intended intervention balanced between groups?	NA	
	2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention?	NI	
	2.7 If N/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized?	PN	
	Risk of bias judgement	**Some concerns**	
Bias due to missing outcome data	3.1 Were data for this outcome available for all, or nearly all, participants randomized?	N	
	3.2 If N/PN/NI to 3.1: Is there evidence that result was not biased by missing outcome data?	PY	
	3.3 If N/PN to 3.2: Could missingness in the outcome depend on its true value?	NA	
	3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value?	NA	
	Risk of bias judgement	**Low**	Authors identify high attrition as a limitation but clarify that there were no significant differences in demographics, depression and disability between those who dropped out and those wuo completed the study
Bias in measurement of the outcome	4.1 Was the method of measuring the outcome inappropriate?	N	
	4.2 Could measurement or ascertainment of the outcome have differed between intervention groups?	PN	
	4.3 Were outcome assessors aware of the intervention received by study participants?	PN	
	4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received?	NA	
	4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received?	NA	
	Risk of bias judgement	**Some concerns**	
Bias in selection of the reported result	5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis?	Y	
	5.2 ... multiple eligible outcome measurements (e.g. scales, definitions, time points) within the outcome domain?	PN	
	5.3 ... multiple eligible analyses of the data?	PN	
	Risk of bias judgement	**Low**	
Overall bias	**Risk of bias judgement**	**Some concerns**	The article is a very shot report and not all the information are avaible

Unique ID	A452	**Study ID**	A452	**Assessor**	ST
Ref or Label	Untangling Therapeutic Ingredients of a Personalized Intervention for Patients with Depression and Severe COPD	**Aim**	assignment to intervention (the 'intention-to-treat' effect)		
Experimental	Introduction of Personalized intevention for depressed patients with COPD (PID-C)	**Comparator**	Usual Care (UC)	**Source**	Journal article(s) with results of the trial
Outcome	depressive symptoms and dyspnea-related disability	**Results**		**Weight**	1

Domain	Signalling question	Response	Comments
Bias arising from the randomization process	1.1 Was the allocation sequence random?	Y	
	1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions?	Y	
	1.3 Did baseline differences between intervention groups suggest a problem with the randomization process?	PN	
	Risk of bias judgement	**Low**	
Bias due to deviations from intended interventions	2.1.Were participants aware of their assigned intervention during the trial?	N	
	2.2.Were carers and people delivering the interventions aware of participants' assigned intervention during the trial?	PY	
	2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context?	N	
	2.4 If Y/PY to 2.3: Were these deviations likely to have affected the outcome?	NA	
	2.5. If Y/PY/NI to 2.4: Were these deviations from intended intervention balanced between groups?	NA	
	2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention?	PY	
	2.7 If N/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized?	NA	
	Risk of bias judgement	**Low**	
Bias due to missing outcome data	3.1 Were data for this outcome available for all, or nearly all, participants randomized?	N	
	3.2 If N/PN/NI to 3.1: Is there evidence that result was not biased by missing outcome data?	PY	
	3.3 If N/PN to 3.2: Could missingness in the outcome depend on its true value?	NA	
	3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value?	NA	
	Risk of bias judgement	**Low**	Authors identify the high attrition as a limitation of the study but also clarify that the two arms had similar attrition and no significant baseline differences between thos who remained in the study and those who exited
Bias in measurement of the outcome	4.1 Was the method of measuring the outcome inappropriate?	N	
	4.2 Could measurement or ascertainment of the outcome have differed between intervention groups?	PN	
	4.3 Were outcome assessors aware of the intervention received by study participants?	PN	
	4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received?	NA	
	4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received?	NA	
	Risk of bias judgement	**Low**	
Bias in selection of the reported result	5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis?	Y	
	5.2 ... multiple eligible outcome measurements (e.g. scales, definitions, time points) within the outcome domain?	PN	
	5.3 ... multiple eligible analyses of the data?	PN	
	Risk of bias judgement	**Low**	
Overall bias	**Risk of bias judgement**	**Low**	The study has limitations but they're assessed and discussed by authors.

Unique ID	A448	**Study ID**	A448	**Assessor**	ST
Ref or Label	Two Interventions for Patients With Major Depression and Severe Chronic Obstructive Pulmonary Disease: Impact on Quality of Life	**Aim**	assignment to intervention (the 'intention-to-treat' effect)		
Experimental	Problem-Solving-Adherence intervention (PSA)	**Comparator**	Personalized Intervention for Depressed Patients with COPD (PID-C)	**Source**	Journal article(s) with results of the trial
Outcome	Quality of life	**Results**		**Weight**	1

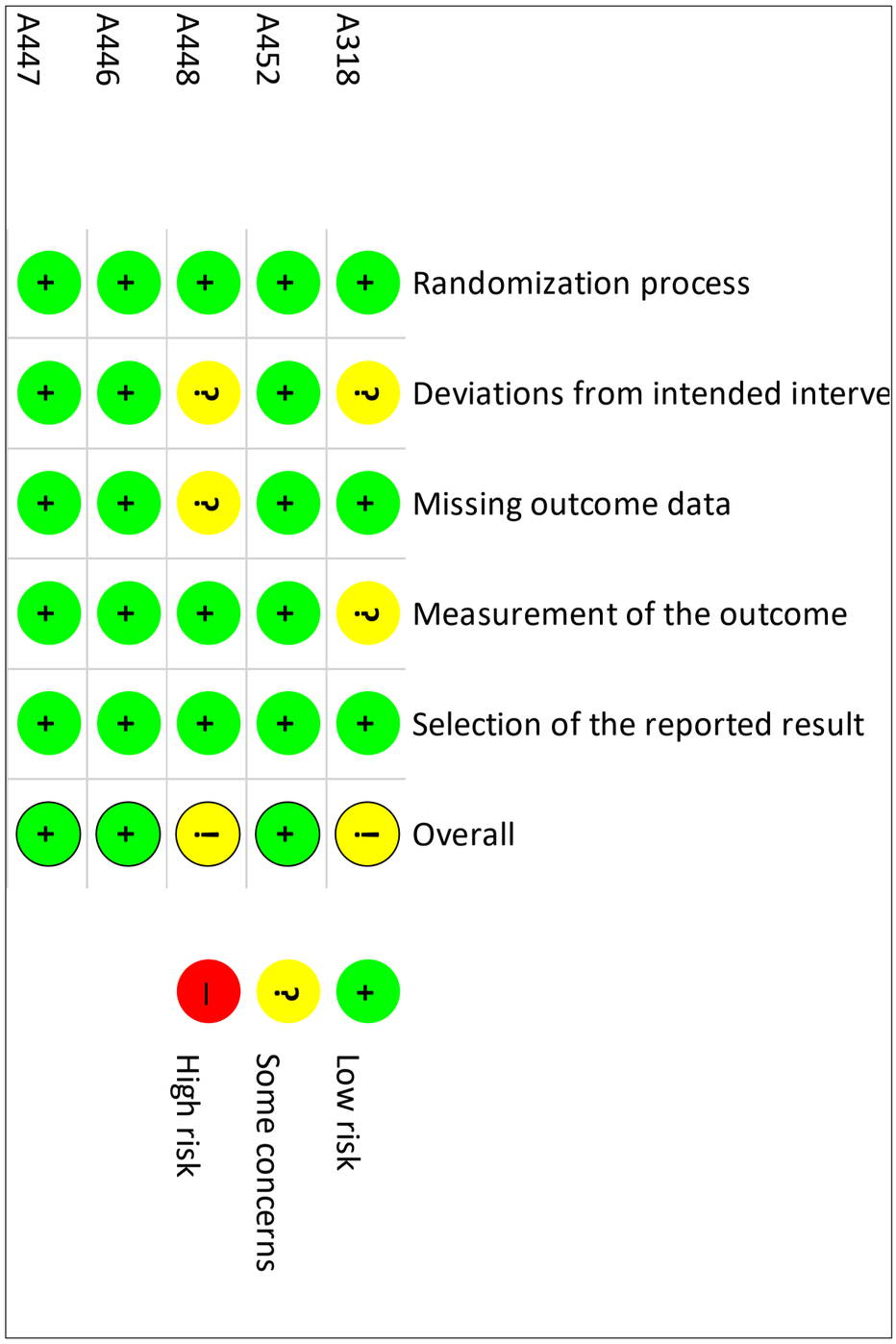
Domain	Signalling question	Response	Comments
Bias arising from the randomization process	1.1 Was the allocation sequence random?	Y	
	1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions?	Y	
	1.3 Did baseline differences between intervention groups suggest a problem with the randomization process?	PN	
	Risk of bias judgement	**Low**	
Bias due to deviations from intended interventions	2.1.Were participants aware of their assigned intervention during the trial?	PN	
	2.2.Were carers and people delivering the interventions aware of participants' assigned intervention during the trial?	PY	
	2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context?	N	
	2.4 If Y/PY to 2.3: Were these deviations likely to have affected the outcome?	NA	
	2.5. If Y/PY/NI to 2.4: Were these deviations from intended intervention balanced between groups?	NA	
	2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention?	NI	
	2.7 If N/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized?	PN	
	Risk of bias judgement	**Some concerns**	
Bias due to missing outcome data	3.1 Were data for this outcome available for all, or nearly all, participants randomized?	N	
	3.2 If N/PN/NI to 3.1: Is there evidence that result was not biased by missing outcome data?	PN	
	3.3 If N/PN to 3.2: Could missingness in the outcome depend on its true value?	PN	
	3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value?	NA	
	Risk of bias judgement	**Some concerns**	small sample with huge drop-out before randomisation. Missingness of data is not widely assessed in discussion
Bias in measurement of the outcome	4.1 Was the method of measuring the outcome inappropriate?	N	
	4.2 Could measurement or ascertainment of the outcome have differed between intervention groups?	PN	
	4.3 Were outcome assessors aware of the intervention received by study participants?	N	
	4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received?	NA	
	4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received?	NA	
	Risk of bias judgement	**Low**	
Bias in selection of the reported result	5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis?	Y	
	5.2 ... multiple eligible outcome measurements (e.g. scales, definitions, time points) within the outcome domain?	PN	
	5.3 ... multiple eligible analyses of the data?	PN	
	Risk of bias judgement	**Low**	The Hypothesis was not supported by analysis, so it's less likely for this study to have a great selection bias
Overall bias	**Risk of bias judgement**	**Some concerns**	One therapist administrated both intervention, plus there has been a huge drop-out before randomisation and the sample is small

Unique ID	A446	**Study ID**	A446	**Assessor**	ST
Ref or Label	Two Behavioral Interventions for Patients with Major Depression and Severe COPD	**Aim**	assignment to intervention (the 'intention-to-treat' effect)		
Experimental	Problem-Solving-Adherence intervention (PSA)	**Comparator**	Personalized Intervention for depressed patients with COPD (PID-C)	**Source**	Journal article(s) with results of the trial
Outcome	Depressive symptoms	**Results**		**Weight**	1

Domain	Signalling question	Response	Comments
Bias arising from the randomization process	1.1 Was the allocation sequence random?	Y	
	1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions?	Y	
	1.3 Did baseline differences between intervention groups suggest a problem with the randomization process?	PN	
	Risk of bias judgement	**Low**	
Bias due to deviations from intended interventions	2.1.Were participants aware of their assigned intervention during the trial?	PN	But Treatment fidelity ratings were performed by a trained psychologist, who was not a member of the research team
	2.2.Were carers and people delivering the interventions aware of participants' assigned intervention during the trial?	Y	
	2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context?	N	
	2.4 If Y/PY to 2.3: Were these deviations likely to have affected the outcome?	NA	
	2.5. If Y/PY/NI to 2.4: Were these deviations from intended intervention balanced between groups?	NA	
	2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention?	PY	
	2.7 If N/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized?	NA	
	Risk of bias judgement	**Low**	
Bias due to missing outcome data	3.1 Were data for this outcome available for all, or nearly all, participants randomized?	N	
	3.2 If N/PN/NI to 3.1: Is there evidence that result was not biased by missing outcome data?	PY	
	3.3 If N/PN to 3.2: Could missingness in the outcome depend on its true value?	NA	
	3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value?	NA	
	Risk of bias judgement	**Low**	
Bias in measurement of the outcome	4.1 Was the method of measuring the outcome inappropriate?	N	
	4.2 Could measurement or ascertainment of the outcome have differed between intervention groups?	PN	
	4.3 Were outcome assessors aware of the intervention received by study participants?	N	
	4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received?	NA	
	4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received?	NA	
	Risk of bias judgement	**Low**	
Bias in selection of the reported result	5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis?	PY	
	5.2 ... multiple eligible outcome measurements (e.g. scales, definitions, time points) within the outcome domain?	PN	
	5.3 ... multiple eligible analyses of the data?	PN	
	Risk of bias judgement	**Low**	The hypothesis was not confirmed so it's less likely for the authors to report selected data
Overall bias	**Risk of bias judgement**	**Low**	

Unique ID	A447	**Study ID**	A447	**Assessor**	ST
Ref or Label	Two Interventions for Patients with Major Depression and Sever COPD: impact on Dyspnea Related Disability	**Aim**	assignment to intervention (the 'intention-to-treat' effect)		
Experimental	Problem-Solving-Adherence intervention (PSA)	**Comparator**	Personalized Intervention for depressed patients with COPD (PID-C)	**Source**	Journal article(s) with results of the trial
Outcome	Dyspnea related disability	**Results**		**Weight**	1

Domain	Signalling question	Response	Comments
Bias arising from the randomization process	1.1 Was the allocation sequence random?	Y	
	1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions?	Y	
	1.3 Did baseline differences between intervention groups suggest a problem with the randomization process?	PN	
	Risk of bias judgement	**Low**	
Bias due to deviations from intended interventions	2.1.Were participants aware of their assigned intervention during the trial?	PN	
	2.2.Were carers and people delivering the interventions aware of participants' assigned intervention during the trial?	Y	
	2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context?	N	
	2.4 If Y/PY to 2.3: Were these deviations likely to have affected the outcome?	NA	
	2.5. If Y/PY/NI to 2.4: Were these deviations from intended intervention balanced between groups?	NA	
	2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention?	PY	
	2.7 If N/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized?	NA	
	Risk of bias judgement	**Low**	
Bias due to missing outcome data	3.1 Were data for this outcome available for all, or nearly all, participants randomized?	N	
	3.2 If N/PN/NI to 3.1: Is there evidence that result was not biased by missing outcome data?	PY	
	3.3 If N/PN to 3.2: Could missingness in the outcome depend on its true value?	NA	
	3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value?	NA	
	Risk of bias judgement	**Low**	
Bias in measurement of the outcome	4.1 Was the method of measuring the outcome inappropriate?	N	
	4.2 Could measurement or ascertainment of the outcome have differed between intervention groups?	PN	
	4.3 Were outcome assessors aware of the intervention received by study participants?	N	
	4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received?	NA	
	4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received?	NA	
	Risk of bias judgement	**Low**	
Bias in selection of the reported result	5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis?	PY	
	5.2 ... multiple eligible outcome measurements (e.g. scales, definitions, time points) within the outcome domain?	PN	
	5.3 ... multiple eligible analyses of the data?	PN	
	Risk of bias judgement	**Low**	
Overall bias	**Risk of bias judgement**	**Low**	


A447
A446
A448
A452
A318
Randomization process
Deviations from intended interve
Missing outcome data
Measurement of the outcome
Selection of the reported result
Overall
Low risk
Some concerns
High risk

Study (ref)	Authors, year	Research question or objective clearly stated?	Study population clearly specified and defined?	Participation rate of eligible persons at least 50%?	Subjects selected or recruited from the same or similar populations (including the same time period)? inclusion and exclusion criterin for being in the study prespecified and applied uniformly to all participants?	Sample size justification, power description, or variance and effect estimates provided?	Exposure(s) of interest measured prior to the outcome(s) being measured?	Timeframe sufficient so that one could reasonably expect to see an association between exposure and outcome if it existed?	Did the study examine different levels of the exposure as related to the outcome (e.g., categories of exposure, or exposure measured as continuous variable)?	Exposure measures (independent variables) clearly defined, valid, relinble, and implemented consistently across all study participants?	Exposure(s) assessed more than once over time?	Outcome measures (dependent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?	Outcome assessors blinded to the exposure status of participants?	Loss to follow-up after baseline 20% or less?	Key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)?	TOTAL
Adherence and healthcare utilization among older adults with COPD and depression	Albrecht et al., 2017 (37)	YES	YES	NO	YES	NO	YES	YES	YES	YES	YES	YES	CD	CD	YES	10
Adherence to COPD free triple inhaled therapy in the real world: a primary care based study	Zucchelli et al., 2020 (40)	YES	YES	CD	YES	NO	N/A	N/A	N/A	YES	YES	YES	N/A	CD	CD	6
Adherence to COPD treatment in turkey and Saudi Arabia: Results of the ADCARE study	Kokturk et al., 2018 (45)	YES	YES	CD	YES	YES	N/A	N/A	N/A	YES	NO	YES	N/A	N/A	YES	7
Adherence to long-term oxygen therapy in patients with chronic obstructive pulmonary disease	Gauthier et al., 2018 (51)	YES	YES	YES	YES	NO	N/A	N/A	NO	NO (not clear how they were measured)	NO	YES	N/A	N/A	CD	5
Adherence to Maintenance Medications among Older Adults with Chronic Obstructive Pulmonary Disease. The Role of Depression	Albrecht et al., 2016 (43)	YES	YES	NO	YES	NO	YES	N/A	YES	YES	YES	YES	CD	CD	YES	9
Association between Depression and Maintenance Medication Adherence among Medicare Beneficiaries with COPD	Qian et al., 2014 (52)	YES	YES	YES	YES	NO	N/A	YES	NO	YES	NO	YES	CD	N/A	YES	8
Association between social support and self-care behaviors in adults with chronic obstructive pulmonary disease	Chen et al., 2017 (41)	YES	YES	YES	YES	NO	N/A	N/A	YES	YES	YES	YES	CD	YES	YES	10
COPD patients' self-reported adherence, psychosocial factors and mild cognitive impairment in pulmonary rehabilitation	Pierobon et al., 2017 (46)	YES	YES	YES	YES	NO	YES	CD	YES	YES	NO	YES	N/A	N/A	YES	9
Managing Mood Disorders in Patients Attending Pulmonary Rehabilitation Clinics	Doyle et al., 2013 (53)	YES	NO	CD	CD	NO	YES	CD	NO	YES	NO	CD	CD	YES	CD	4
Patient outcomes according to COPD action plan adherence	Choi et al., 2014 (48)	YES	YES	CD	YES	YES	CD	CD	YES	YES	NO	YES	CD	N/A	CD	7

Methodological Quality evaluation: Observational, cross-sectional and cohort studies –Part I

Study (ref)	Authors, year	Research question or objective clearly stated?	Study population clearly specified and defined?	Participation rate of eligible persons at least 50%?	Subjects selected or recruited from the same or similar populations (including the same time period)? inclusion and exclusion criteria for being in the study prespecified and applied uniformly to all participants?	Sample size justification, power description, or variance and effect estimates provided?	Exposure(s) of interest measured prior to the outcome(s) being measured?	Timeframe sufficient so that one could reasonably expect to see an association between exposure and outcome if it existed?	Did the study examine different levels of the exposure as related to the outcome (e.g., categories of exposure, or exposure measured as continuous variable)?	Exposure measures (independent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?	Exposure(s) assessed more than once over time?	Outcome measures (dependent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?	Outcome assessors blinded to the exposure status of participants?	Loss to follow-up after baseline 20% or less?	Key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)?	TOTAL
Potential Risk Factors for Medication Non-Adherence in Patients With Chronic Obstructive Pulmonary Disease (COPD)	Khdour et al., 2012 (25)	YES	YES	CD	YES	NO	N/A	N/A	YES	YES	NO	YES	CD	N/A	YES	7
Psychological Factors Associated With Use of Home Nebulized Therapy for COPD	Bosley et al., 1996 (42)	YES	YES	YES	NO	NO	CD	N/A	NO	YES	YES	YES	CD	YES	CD	7
Psychopathology and Illness Beliefs Influence COPD Self-Management	Dowson et al., 2004 (49)	YES	YES	CD	YES	NO	N/A	N/A	N/A	YES	NO	YES	CD	N/A	CD	5
The association of antidepressant treatment with COPD maintenance medication use and adherence in a comorbid Medicare population: A longitudinal cohort study	Wei et al., 2018 (44)	YES	YES	NO	YES	NO	YES	YES	YES	YES	YES	YES	CD	CD	YES	10
The effects of anxiety and depression symptoms on treatment adherence in COPD patients	Turan et al., 2014 (50)	YES	YES	CD	YES	NO	N/A	N/A	NO	YES	YES	YES	CD	NO	CD	6
Exploring variables associated with medication non-adherence in patients with COPD	Jarab & Mukattash, 2019 (47)	YES	YES	YES	YES	NO	N/A	N/A	YES	YES	NO	YES	CD	N/A	YES	8
Adherence to a Maintenance Exercise Program 1 Year After Pulmonary Rehabilitation: What Are the Predictors of Dropout?	Heerema-Poelman et al., 2013 (39)	YES	YES	CD	YES	NO	CD	YES	YES	YES	YES	YES	CD	NO	YES	9
Depressed Mood Predicts Pulmonary Rehabilitation Completion among Women, but not Men	Busch et al., 2014 (38)	YES	YES	CD	YES	NO	N/A	N/A	YES	YES	CD	YES	CD	YES	YES	8

Methodological Quality evaluation: Observational, cross-sectional and cohort studies –Part II

		Section A: Are the results valid?						Section B: What are the results?			Section C: Will the results help locally?	
Study (ref)	Authors, year	Was there a clear statement of the aims of the research?	Is a qualitative methodology appropriate?	Was the research design appropriate to address the aims of the research?	Was the recruitment strategy appropriate to the aims of the research?	Was the data collected in a way that addressed the research issue?	Has the relationship between researcher and participants been adequately considered?	Have ethical issues been taken into consideration?	Was the data analysis sufficiently rigorous?	Is there a clear statement of findings?	How valuable is the research?	TOTAL
An intervention to improve depression care in older adults with COPD	Sirey et al., 2007 (30)	YES	to assess the "barriers to care", YES, but it's not clear if the entire program has a qualitative methodology	Can't tell (CT). The research design is not clear and the authors do not discuss other possibilities	CT. There's no discussion around the recruitment and no inclusion/exclusion criteria are stated	overall YES, but many issues are not clear due to the generic description of the intervention	NO	NO	CT, there's no description of data analysis	NO: the finding are partially stated and there's no discussion about contradictory data and credibility	Poorly. The contribution of the study is partially stated but not thoroughly, they don't identify new areas of research or discuss whether or how the findings can be transferred to other populations	High risk of bias
How to cope with the mask? Experiences of mask treatment in patients with acute chronic obstructive pulmonary disease-exacerbations	Torheim & Gjengedal, 2010 (31)	YES	YES	YES	CT (not much discussion over the recruitment)	YES	NO	YES	CT (nor contradictory data nor bias assessed)	YES (but not much discussion about contradictory data and credibility)	The research is valuable: authors provided limitations and strenghts, and implication for practice, even if implications for future research aren't widely discussed	medium risk of bias

Methodological Quality evaluation: Qualitative studies

Study (ref)	Authors, year	Is the review based on a focused question that is adequately formulated and described?	Were eligibility criteria for included and excluded studies predefined and specified?	Did the literature search strategy use a comprehensive, systematic approach?	Were titles, abstracts, and full-text articles dually and independently reviewed for inclusion and exclusion to minimize bias?	Was the quality of each included study rated independently by two or more reviewers using a standard method to appraise its internal validity?	Were the included studies listed along with important characteristics and results of each study?	Was publication bias assessed?	Was heterogeneity assessed? (This question applies only to meta-analyses.)	TOTAL
Anxiety and Depression in Chronic Obstructive Pulmonary Disease: Recognition and Management	Yohannes et al., 2018 (23)	NO	NO	CD	CD	CD	NO	NO	N/A	0
Current Perspectives on Management of Co-Morbid Depression in COPD	Norwood & Balkissoon, 2005 (74)	YES	NO	CD	CD	CD	YES	NO	N/A	2
Depression comorbidity with COPD	Alexopoulos & Latoussakis, 2004 (57)	YES	NO	CD	CD	CD	NO	NO	N/A	1
Developing an Intervention for Depressed, Chronically Medically Ill Elders: A Model From COPD	Alexopoulos et al., 2008 (72)	YES	NO	CD	CD	CD	NO	NO	N/A	1
Pharmacologic Treatment of Depression in Older Patients with COPD: Impact on the Course of the Disease and Health Outcomes	Yohannes & Alexopoulos, 2014 (18)	YES	NO	NO	CD	CD	YES	NO	N/A	2
Risk factors of chronic obstructive pulmonary disease exacerbations	Hogea et al., 2020 (55)	YES	NO	CD	CD	CD	NO	NO	N/A	1
From mild cognitive impairment (MCI) to dementia in Chronic Obstructive Pulmonary Disease. Implications for clinical practice and disease management: A mini-review	Ranzini et al., 2020 (56)	YES	NO	CD	YES	CD	NO	NO	N/A	2
Prevalence, Contribution to Disease Burden and Management of Comorbid Depression and Anxiety in Chronic Obstructive Pulmonary Disease: A Narrative Review.	Zareifopoulos et al., 2019 (54)	YES	YES	YES	YES	CD	YES	NO	N/A	5
Barriers and Strategies for Improving Medication Adherence Among People Living With COPD: A Systematic Review	Bhattarai et al., 2020 (73)	YES	YES	YES	YES	YES	YES	NO	N/A	6

Methodological Quality evaluation: Reviews

Ref.	Kind of study	RoB
Albrecht et al., 2017 (37)	QNT	
Zucchelli et al., 2020 (40)	QNT	
Kokturk et al., 2018 (45)	QNT	
Gauthier et al., 2018 (51)	QNT	
Albrecht et al., 2016 (43)	QNT	
Qian et al., 2014 (52)	QNT	
Chen et al., 2017 (41)	QNT	
Pierobon et al., 2017 (46)	QNT	
Doyle et al., 2013 (53)	QNT	
Choi et al., 2014 (48)	QNT	
Khdour et al., 2012 (25)	QNT	
Bosley et al., 1996 (42)	QNT	
Dowson et al., 2004 (49)	QNT	
Wei et al., 2018 (44)	QNT	
Turan et al., 2014 (50)	QNT	
Jarab & Mukattash, 2019 (47)	QNT	
Heerema-Poelman et al., 2013 (39)	QNT	
Busch et al., 2014 (38)	QNT	
Yohannes et al., 2018 (23)	Review	
Norwood & Balkissoon, 2005 (74)	Review	
Alexopoulos & Latoussakis, 2004 (57)	Review	
Alexopoulos et al., 2008 (72)	Review	
Yohannes & Alexopoulos, 2014 (18)	Review	
Hogea et al., 2020 (55)	Review	
Ranzini et al.; 2020 (56)	Review	
Zareifopoulos et al., 2019 (54)	Review	
Sirey et al., 2007 (30)	QL	
Torheim & Gjengedal, 2010 (31)	QL	