



UNIVERSIDADE ESTADUAL DE CAMPINAS

Faculdade de Odontologia de Piracicaba

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**Doença pulmonar obstrutiva crônica como fator de
risco para suicídio: Uma revisão sistemática e meta-
análise**

**Chronic obstructive pulmonary disease as a risk
factor for suicide: A systematic review and meta-analysis**

**Piracicaba
2019**

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Chronic obstructive pulmonary disease as a risk factor for suicide: A systematic review and meta-analysis

Dissertação de Mestrado Profissional apresentada à Faculdade de Odontologia de Piracicaba da Universidade Estadual de Campinas como parte dos requisitos exigidos para a obtenção do título de Mestre em Gestão e Saúde Coletiva.

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Orientador: Prof. Dr. Luiz Renato Paranhos

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A Ata da defesa, assinada pelos membros da Comissão Examinadora, consta no SIGA/Sistema de Fluxo de Dissertação/Tese e na Secretaria do Programa da Unidade.

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RESUMO

O objetivo do presente estudo foi avaliar a relação entre pacientes com doença pulmonar obstrutiva crônica (DPOC) e o risco de suicídio. Trata-se de uma revisão sistemática de estudos de coorte e caso-controle, que testaram a doença pulmonar obstrutiva crônica como fator de risco para o suicídio, sem restrição quanto ao ano, idioma e status de publicação. Foi elaborado protocolo e registro no PROSPERO e seguido as recomendações PRISMA e Cochrane. Utilizadas como fontes de estudo primárias nove bases de dados eletrônicas: Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS), PubMed (incluindo MedLine), SciELO, Scopus, LIVIVO, Web of Science e PsychNET. Utilizou-se também o Open Thesis e o Open Grey na busca da literatura cinzenta para evitar o viés de seleção e publicação. A seleção dos estudos ocorreu em três fases conforme recomendação PRISMA e Cochrane por três revisores. A qualidade metodológica e o risco de viés dos estudos foram avaliados pela ferramenta “Joanna Briggs Institute Critical Appraisal Tools for Systematic Reviews”. Na meta-análise utilizou-se modelo de efeitos aleatórios para estimar a variação em odds ratios (OR) e os intervalos de confiança (IC95%) dos valores reportados pelos estudos elegíveis. A heterogeneidade entre os estudos foi avaliada pelo qui-quadrado (I^2). A qualidade das evidências e a força de recomendação foram avaliadas pelo GRADE e considerada moderada. A busca final resultou em 4762 registros, onde após revisão sistemática, sete artigos preencheram os critérios de elegibilidade e foram incluídos. Os estudos foram publicados entre 2002 e 2015, sendo cinco de caso-controle e dois de coorte. Nos sete estudos elegíveis a amostra total foi de 1390 casos de suicídio de pessoas com doença pulmonar obstrutiva crônica. Todos os estudos apresentaram baixo risco de viés. Na meta-análise constatou-se que pessoas portadoras de DPOC possuem maior chance de suicídio (OR=1,90; IC95%=1,27-2,48; p=0,002). A heterogeneidade entre os estudos foi caracterizada alta. Assim, conclui-se que pacientes com DPOC formam um grupo de maior risco para cometer suicídio.

Palavras-chave: Doença Pulmonar Obstrutiva Crônica. Fatores de risco. Suicídio.

ABSTRACT

The objective of the present study is to evaluate the relationship between patients with chronic obstructive pulmonary disease (COPD) and the risk of suicide. This is a systematic review of cohort and case-control studies that tested chronic obstructive pulmonary disease as a risk factor for suicide, without restriction regarding year, language, and publication status. Protocol and registry were elaborated in the PROSPERO and followed the recommendations PRISMA and Cochrane. Four electronic databases were used as primary sources of study: Latin American and Caribbean Literature in Health Sciences (LILACS), PubMed (including MedLine), SciELO, Scopus, LIVIVO, Web of Science and PsychNET. The Open Thesis and the Open Gray were used to search for gray literature and avoid selection and publication bias. The selection of studies was performed in three phases according to PRISMA and Cochrane recommendations by three reviewers. The methodological quality and risk of study bias were evaluated by the Joanna Briggs Institute Critical Appraisal Tools for Systematic Reviews tool. The meta-analysis used a random effects model to estimate the odds ratio (OR) and confidence intervals (95% CI) of the values reported by the eligible studies. The heterogeneity between the studies was assessed by chi-square (I^2). The quality of the evidence and the recommendation strength were evaluated by GRADE and considered moderate. The final search resulted in 4762 records, which after systematic review, seven articles met the eligibility criteria and were included. The studies were published between 2002 and 2015, of which five were case-control and two were cohort studies. The total sample was 1390 cases of suicide of people with chronic obstructive pulmonary disease. All studies were at low risk of bias. The meta-analysis found that people with COPD had a higher risk of suicide (OR = 1.90, 95% CI = 1.27-2.48, $p = 0.002$). The heterogeneity between the studies was characterized as high. Thus, it is concluded that COPD patients form a higher-risk group (1.9) to commit suicide.

Keywords: Chronic obstructive pulmonary disease. Risk factors. Suicide.

SUMÁRIO

1 INTRODUÇÃO	10
2 ARTIGO Chronic obstructive pulmonary disease as a risk factor for suicide: A systematic review and meta-analysis.	12
3 CONCLUSÃO	33
REFERÊNCIAS	35
ANEXOS	
ANEXO 1 – Carta de liberação do Comitê de Ética em Pesquisa para desenvolvimento do trabalho.	41
ANEXO 2 – Comprovante de submissão no periódico selecionado.	42
ANEXO 3 – Relatório de verificação de originalidade e prevenção de plágio	43

1 INTRODUÇÃO

O suicídio é a 17ª causa mais frequente de óbito no mundo, com cerca de 788 mil suicídios apenas em 2015 (Organização Mundial de Saúde, 2015). No Brasil foram notificadas, entre 2011 e 2016, 62.804 mortes por suicídio. (Ministério da Saúde, 2016). Em 2016, foram registradas 11.433 óbitos por lesões autoprovocadas voluntariamente, a maioria (62%) por enforcamento (Ministério da Saúde, 2016). Sendo considerado um fenômeno complexo, multifatorial, cuja ocorrência não pode ser atribuída a uma única característica ou evento (Shao et al., 2016). Diversos estudos ao redor do mundo já estabeleceram algumas condições predisponentes ao suicídio, como doenças crônicas (Barker *et al.*, 2015), transtornos mentais (Erlangsen *et al.*, 2012), asma (Barker et al., 2015), dores crônicas (Spiegel et al., 2007), doenças cardiovasculares, doença cardíaca isquêmica, câncer, diabetes, insuficiência renal e baixa qualidade de vida (Joshi *et al.*, 2017).

A Doença Pulmonar Obstrutiva Crônica (DPOC) é uma doença comum caracterizada pela obstrução parcial dos brônquios aliada a inflamação pulmonar anormal como reação a exposições significativas a partículas e gases nocivos (Littner, 2011; GOLD, 2017), causada principalmente pela exposição ao tabaco e a outros poluentes ambientais (GOLD, 2017). Existem cerca de 175 milhões de pessoas com DPOC em todo o mundo (GBD 2015 Chronic Respiratory Disease Collaborators, 2017), em curva crescente de notificações. Somente em 2015, estima-se que três milhões de pessoas diagnosticadas com DPOC foram a óbito (GBD 2015 Chronic Respiratory Disease Collaborators, 2017) e espera-se que até 2020 a DPOC torne-se a terceira maior causa de mortes no mundo (Mannino & Buist, 2007; Lozano *et al.*, 2012).

Os sintomas da DPOC são dispneia, tosse com ou sem expectoração, sibilos e opressão torácica. (Miravittles M & Ribera A, 2017). Sendo a dispneia progressivamente incapacitante no decorrer da doença, os portadores da DPOC apresentem grandes limitações no dia a dia, com intenso prejuízo na realização de atividades básicas da vida diária, reduzindo sua qualidade de vida (Baltieri *et al.*, 2017). Por conta disso, grande número de indivíduos com DPOC desenvolvem transtornos de ansiedade ou de depressão, com prevalência próxima a 96% dos

pacientes (Godoy *et al.*, 2009; Atlantis *et al.*, 2013; Hegerl *et al.*, 2014; Salte *et al.*, 2015).

O transtorno depressivo e suicídio estão relacionados ao hábito do tabagismo, a principal causa de DPOC (Fluharty *et al.*, 2016; Poorolajal & Darvishi, 2010). Também notou-se no estudo de Clyde *et al.* (2013) que o hábito do tabagismo está associado à depressão. Assim como as pessoas portadoras de transtorno depressivo sentem-se estimuladas a fumar (Mathew *et al.*, 2017).

Após o diagnóstico, as pessoas com DPOC são aconselhadas e estimuladas a abandonarem o hábito do tabagismo para reduzirem a progressão da doença (Kaplan A, Thomas M, 2017). A nicotina presente no tabaco é substância psicoativa atuando nos receptores dopaminérgicos do núcleo *accumbens* e no corpo estriado (Di Matteo *et al.*, 2007). A estimulação dos receptores dopaminérgicos provocam diversos comportamentos como: melhora na atenção e memória, controle da ansiedade, aumento da autoestima e autoconfiança e a modulação do humor (Faure *et al.*, 2014). Considerando a necessidade do abandono do tabagismo e a associação entre dependência da nicotina e depressão (Dierker L *et al.*, 2015), na interrupção do hábito de fumar a síndrome de abstinência pode apresentar sintomas depressivos.

Associado à depressão e à ansiedade, a literatura tem relatado maior tendência de suicídio entre os pacientes que sofrem com esses transtornos (Ciulla *et al.*, 2014; Hawton *et al.*, 2013; Brown *et al.*, 2017). Por grande parte dos pacientes com DPOC apresentarem alguns sintomas de ansiedade ou depressão, esses podem representar um grupo de risco ao suicídio (Miravittles *et al.*, 2014; Fritzsche *et al.*, 2014).

Estudos têm demonstrado que esses sintomas estão relacionados à difícil adaptação dos indivíduos com DPOC a sua condição de saúde, principalmente no que diz respeito à dificuldade em realizar tarefas rotineiras, dando-lhes a sensação de invalidez (Kayahan *et al.*, 2006; Katz *et al.*, 2010).

A partir de estudos de revisões sistemáticas que revelam a associação de suicídio com diversas causas. E considerando-se a pesquisa com início na ciência básica e sua conclusão na aplicação prática do conhecimento apreendido (translacional). Para completar a lacuna que falta na literatura, o objetivo do presente estudo é avaliar a relação entre pacientes com DPOC e o risco para suicídio.

2 ARTIGO

Artigo submetido ao periódico Respiratory Medicine (Anexo 1)

Fator de Impacto: 3.29

Chronic obstructive pulmonary disease as a risk factor for suicide: A systematic review and meta-analysis.

ABSTRACT

Background: Patients living with chronic obstructive pulmonary disease (COPD) commonly present several limitations in their daily activities, high depression rates, and low quality of life, which makes this population a risk group for suicide. This study aims to systematically assess the literature on the association between CPOD and the likelihood of suicide.

Methods: The protocol was registered in PROSPERO (CRD42018096618). The Latin-American and Caribbean Health Sciences Literature (LILACS), PubMed (including MedLine), SciELO, Scopus, LIVIVO, Web of Science, and PsychNET databases were used as primary study sources. OpenThesis and OpenGrey were used to partially capture the "grey literature". A manual search was also performed through a systematized analysis of the references of eligible articles. The risk of bias among the studies included was assessed with the Joanna Briggs Institute Critical Appraisal Tools for Systematic Reviews. Because of the high heterogeneity among studies ($I^2=95\%$), a random effects meta-analysis was performed to estimate the variation in odds ratio (OR) and 95% confidence intervals (95% CI).

Results: The search provided 4762 results, from which only seven met the eligibility criteria and were ultimately included in the qualitative assessment of the review. The studies were published from 2002 to 2015. All studies presented low risk of bias. The total sample included 1390 suicide cases of COPD patients. The meta-analysis, which was based on five eligible case control studies, found that people with history of COPD are more likely to commit suicide (OR = 1.90; 95% CI = 1.27-2.48; $p=0.002$). *Conclusion:* COPD patients are 1.9 times more likely to commit suicide than people without COPD.

Keywords: Chronic obstructive pulmonary disease; Suicide; Risk factors.

INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is a common disease characterized by partial bronchial obstruction combined with an abnormal pulmonary inflammation that occurs as a reaction to significant exposures to harmful particles and gases.^{1,2} It is especially caused by the exposure to tobacco and other environment pollutants.² There are around 175 million people with COPD worldwide in an increasing reporting curve.³

Considering that COPD is a highly disabling disease, patients present great daily life limitations and low quality of life.^{1,4} This implies a difficult adaptation process of individuals with COPD to their health condition, especially concerning the challenges of performing routine tasks and nicotine withdrawal.^{5,6} Hence, a high number of individuals with COPD develop anxiety or depression disorders,⁷⁻¹⁰ with a mean prevalence of 27.1% of patients.⁷ In addition, depression increases COPD symptoms, revealing double and positive associations between COPD and depression.⁸

Studies have reported a higher suicide tendency among patients that who suffer from depression and anxiety,¹¹⁻¹³ chronic diseases,³ mental disorders,¹⁴ asthma,³ chronic pain,¹⁵ cardiovascular diseases, ischemic heart diseases, cancer, diabetes, renal failure, and low quality of life.¹⁶ In this regard, studies have also shown a higher tendency of individuals with COPD to present suicidal ideas or behaviours.¹⁷⁻²⁰

It is estimated that three million people diagnosed with COPD have died in 2015.²¹ Currently, this disease is among the three main causes of death over the last decade, especially affecting people older than 55 years.^{22,23}

Considering the extent and potential of the health impact caused by this disease, especially because it may be fatal, this systematic review aims to assess the likelihood of COPD patients to commit suicide and it was based on published studies with low risk of bias. The authors tested the following working hypothesis: COPD patients have a different likelihood to commit suicide than individuals without COPD.

METHOD

Protocol and registration

This systematic review was performed according to the list of PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)

recommendations²⁴ and the Cochrane guidelines.²⁵ The systematic review protocol was registered in the PROSPERO database under no. CRD42018096618.

Study design and eligibility criteria

This study was a systematic review that aimed to answer the following clinical question: "Are patients diagnosed with chronic obstructive pulmonary disease more likely to commit suicide than those without this disease?"

Only cohort or case-control observational studies were included, which specifically tested chronic obstructive pulmonary disease as a risk factor for suicide, without restrictions of year, language, or publication status. Additionally, only studies that selected patients by ICD-10 (or previous versions) for suicide (X60-X84) and COPD (J44) were included.

The exclusion criteria were: 1) Studies not related to the topic; 2) Review articles, letters to the editor/editorials, personal opinions, books/book chapters, textbooks, reports, conference abstracts, and patents; 3) Completely descriptive studies; 4) Studies that grouped more than one pulmonary disease as one single risk factor and 5) Studies with high risk of bias.

Sources of information and search

The Latin-American and Caribbean Health Sciences Literature (LILACS), PubMed (including MedLine), SciELO, Scopus, LIVIVO, Web of Science, and PsychNET databases were used as primary study sources. OpenThesis and OpenGrey were used to partially capture the "grey literature". A manual search was also performed through a systematized analysis of the references of eligible articles. These steps aimed to minimize selection and publication biases.

The MeSH (Medical Subject Headings) and DeCS (Health Sciences Descriptors) were used to select the search descriptors. The Boolean operators "AND" and "OR" were used to enhance the search strategy through several combinations. (Table 1). The bibliographic research was performed in May 2018. The search strategy included the following keywords: "Suicide", "Suicidal Ideation", "Pulmonary Disease, Chronic Obstructive", "Suicídio" [Portuguese], and their synonyms: "Suicides", "Suicide rate", "Fatal suicidal", "COPD", "Chronic Obstructive Pulmonary Disease", "Chronic Obstructive Airway Disease", "Chronic Obstructive

Lung Disease". The results obtained were exported to the EndNote Web™ software (Thomson Reuters, Toronto, Canada) and duplicates were removed. The remaining results were exported to Microsoft Word™ 2010 (Microsoft™ Ltd, Washington, USA) and the remaining duplicates were manually removed.

Study selection

The studies were selected in three phases. In the first phase, as a calibration exercise, the reviewers discussed the eligibility criteria and applied them to a sample of 20% of the studies retrieved to determine inter-examiner agreement. After achieving a proper level of agreement (Kappa: 0.81-0.85), the two eligibility reviewers (MSS and WAV) performed a methodical analysis of all the titles of the studies, independently. The reviewers were not blind to the names of authors and journals. Titles not related to the topic and books/book chapters were eliminated in this phase. In the second phase, the reviewers (MSS and WAV) read all the remaining abstracts, independently. At this stage, the abstracts not related to the topic, review studies, and completely descriptive studies were eliminated. Titles that met the objectives of the study, but did not have abstracts available, were fully considered in the third phase.

The full texts of the eligible studies so far were obtained and evaluated to verify whether they fulfilled the eligibility criteria. In all phases, when both reviewers disagreed, a third reviewer (LRP) was consulted to make a final decision. The studies rejected were registered separately, explaining the reasons for exclusion.

Data collection

After the selection, two authors (MSS and WAV) analysed the studies, which data were extracted for the following information: Identification of the study (author, year, research location, type of study), sample characteristics (number of patients in each study), data collection characteristics (assessment time, sources of information, confirmation methods for COPD diagnosis), and main results. In order to ensure the consistency among reviewers, a calibration exercise was performed with both reviewers (MSS and WAV), in which information were extracted jointly from an eligible study. Any disagreement between the reviewers was solved through discussions and when both reviewers could not agree, a third one (LRP) was consulted to make a final decision.

Table 1 - Strategies for database search.

Database	Search strategy (May, 2018)	Results
LILACS http://lilacs.bvsalud.org/	tw:((DPOC AND suicídio)) AND (instance:"regional") AND (db:("LILACS"))	0
	tw:((Pulmonary Disease, Chronic Obstructive and Suicide)) AND (instance:"regional") AND (db:("LILACS"))	0
	tw:((COPD and Suicide)) AND (instance:"regional") AND (db:("LILACS"))	0
	tw:((Chronic Disease and Suicide)) AND (instance:"regional") AND (db:("LILACS"))	35
	tw:((Doenças Crônicas and Suicídio)) AND (instance:"regional") AND (db:("LILACS"))	17
	tw:((Chronic Illness and Suicide)) AND (instance:"regional") AND (db:("LILACS"))	12
	DPOC AND Suicídio	0
SciELO http://www.scielo.org/	Pulmonary Disease, Chronic Obstructive and Suicide	0
	COPD and Suicide	0
	Chronic Disease and Suicide	15
	Chronic Illness and Suicide	2
	Doenças Crônicas and Suicídio	3
	((("Suicide"[MeSH Terms] OR "Suicide"[All Fields] OR "Suicides"[All fields] OR "Suicide rate"[All fields] OR "Suicidal Ideation"[MeSH Terms] OR "Suicidal Ideation"[All Fields] OR "Ideation, Suicidal"[All Fields] OR "Fatal suicidal"[All Fields]) AND ("Pulmonary Disease, Chronic Obstructive"[MeSH Terms] OR "Pulmonary Disease, Chronic Obstructive"[All Fields] OR "COPD"[All Fields] OR "Chronic Obstructive Pulmonary Disease"[All Fields] OR "COAD"[All Fields] OR "Chronic Obstructive Airway Disease"[All Fields] OR "Chronic Obstructive Lung Disease"[All Fields] OR "Airflow Obstruction, Chronic"[All Fields] OR "Airflow Obstructions, Chronic"[All Fields] OR "Chronic Disease"[MeSH Terms] OR "Chronic Disease"[All Fields] OR "Chronic Diseases"[All Fields] OR "Chronic Illness"[All Fields]))	1158
	PubMed http://www.ncbi.nlm.nih.gov/pubmed	((("Suicide" OR "Suicides" OR "Suicidal Ideation" OR "Ideation, Suicidal") AND ("Pulmonary Disease, Chronic Obstructive" OR "COPD" OR "Chronic Obstructive Pulmonary Disease" OR "Chronic Obstructive Airway Disease" OR "Chronic Disease"))
((("Suicide" OR "Suicides" OR "Suicide rate" OR "Suicidal Ideation" OR "Ideation, Suicidal" OR "Fatal suicidal") AND ("Pulmonary Disease, Chronic Obstructive" OR "COPD" OR "Chronic Obstructive Pulmonary Disease" OR "COAD" OR "Chronic Obstructive Airway Disease" OR "Chronic Obstructive Lung Disease" OR "Airflow Obstruction, Chronic" OR "Airflow Obstructions, Chronic" OR "Chronic Disease" OR "Chronic Diseases" OR "Chronic Illness"))		377
Scopus http://www.scopus.com/	((("Suicide" OR "Suicides" OR "Suicidal Ideation" OR "Ideation, Suicidal") AND ("Pulmonary Disease, Chronic Obstructive" OR "COPD" OR "Chronic Obstructive Pulmonary Disease" OR "Chronic Obstructive Airway Disease"))	248
	Any Field: "Suicide" OR "Suicides" OR "Suicide rate" OR "Suicidal Ideation" OR "Ideation, Suicidal" OR "Fatal suicidal" AND Any Field: "Pulmonary Disease, Chronic Obstructive" OR "COPD" OR "Chronic Obstructive Pulmonary Disease" OR "COAD" OR "Chronic Obstructive Airway Disease" OR "Chronic Obstructive Lung Disease" OR "Airflow Obstruction, Chronic" OR "Airflow Obstructions, Chronic" OR "Chronic Disease" OR "Chronic Diseases" OR "Chronic Illness"	734
Web of Science http://apps.webofknowledge.com/	((("Suicide" OR "Suicides" OR "Suicidal Ideation" OR "Ideation, Suicidal") AND ("Pulmonary Disease, Chronic Obstructive" OR "COPD" OR "Chronic Obstructive Pulmonary Disease" OR "COAD" OR "Chronic Obstructive Airway Disease" OR "Chronic Obstructive Lung Disease" OR "Airflow Obstruction, Chronic" OR "Airflow Obstructions, Chronic" OR "Chronic Disease" OR "Chronic Diseases" OR "Chronic Illness"))	474
	("Suicide" OR "Suicides") and "Pulmonary"	2
LIVIVO https://www.livivo.de	("Suicide" or "Suicides" or "Ideation, Suicidal") AND ("Pulmonary Disease, Chronic Obstructive" OR "Chronic Disease")	474
PsychNET http://psycnet.apa.org/	Any Field: "Suicide" OR "Suicides" OR "Suicide rate" OR "Suicidal Ideation" OR "Ideation, Suicidal" OR "Fatal suicidal" AND Any Field: "Pulmonary Disease, Chronic Obstructive" OR "COPD" OR "Chronic Obstructive Pulmonary Disease" OR "COAD" OR "Chronic Obstructive Airway Disease" OR "Chronic Obstructive Lung Disease" OR "Airflow Obstruction, Chronic" OR "Airflow Obstructions, Chronic" OR "Chronic Disease" OR "Chronic Diseases" OR "Chronic Illness"	734
	Any Field: "Suicide" OR "Suicides" OR "Suicide rate" OR "Suicidal Ideation" OR "Ideation, Suicidal" OR "Fatal suicidal" AND Any Field: "Pulmonary Disease, Chronic Obstructive" OR "COPD" OR "Chronic Obstructive Pulmonary Disease" OR "COAD" OR "Chronic Obstructive Airway Disease" OR "Chronic Obstructive Lung Disease" OR "Airflow Obstruction, Chronic" OR "Airflow Obstructions, Chronic" OR "Chronic Disease" OR "Chronic Diseases" OR "Chronic Illness"	734
OpenThesis http://www.openthesis.org/	("Suicide" or "Suicides" or "Ideation, Suicidal") AND ("Pulmonary Disease, Chronic Obstructive" OR "Chronic Disease")	474
OpenGrey http://www.opengrey.eu/	("Suicide" OR "Suicides") and "Pulmonary"	2
TOTAL		4762

Risk of individual bias of the studies

Two authors (LRP and WAV) assessed the risk of bias and individual quality of the studies selected, independently, using the Joanna Briggs Institute Critical Appraisal Tools for use in JBI Systematic Reviews²⁶ for case-control and cohort studies. As a means of calibration, the authors analysed an eligible study jointly, with the presence of a third reviewer (LRP) in charge of solving divergences in case of doubts.

The following questions were used to assess the case-control studies: 1) Were the groups comparable other than the presence of disease in cases studies or the absence of disease in control studies? 2) Were cases and controls matched appropriately? 3) Were the same criteria used to identify cases and controls? 4) Was exposure measured in a standard, valid, and reliable way? 5) Was exposure measured in the same way for cases and controls? 6) Were confounding factors identified? 7) Were strategies to deal with confounding factors stated? 8) Were outcomes assessed in a standard, valid, and reliable way for cases and controls? 9) Was the exposure period of interest long enough to be significant? 10) Was appropriate statistical analysis used?

The following questions were used to assess the cohort studies: 1) Were both groups similar and recruited from the same population? 2) Were the exposures measured similarly to assign people to both exposed and unexposed groups? 3) Was the exposure measured in a valid and reliable way? 4) Were confounding factors identified? 5) Were strategies to deal with confounding factors stated? 6) Were the groups/participants free of the outcome at the start of the study or at the time of exposure? 7) Were the outcomes measured in a valid and reliable way? 8) Was the follow-up time reported and long enough for outcomes to occur? 9) Was follow-up completed, and if not, were the reasons for interrupting follow-up described and explored? 10) Were there strategies to address incomplete follow-up? 11) Was appropriate statistical analysis used?

The risk of bias was ranked as **High** when the study reached up to 49% of "yes" score, **Moderate** when the study reached from 50% to 69% of "yes" score, and **Low** when the study reached over 70% of "yes" score. Studies characterized as "high risk of bias" were excluded.²⁷

Summary measures and syntheses of results

The primary summary measured was the likelihood of COPD patients to commit suicide. This summary was reported in odds ratio (OR) and 95% confidence intervals. A meta-analysis using a random effects model was performed to estimate the variation in odds ratio (OR) and 95% confidence intervals (95% CI) of the values reported by the individual studies.^{25,28} The random model was used to minimize the heterogeneity effect among the studies,²⁵ which was assessed using I^2 statistics and classified as follows: low ($I^2 < 25\%$), moderate ($I^2 = 50\%$), and high ($I^2 > 75\%$).³⁰ There was high heterogeneity among the studies ($I^2=95\%$). The analyses were performed with the Review Manager, version 5.3 (RevMan, Cochrane Collaboration) and Stata, version 15.0 (Stata Corp., College Station, USA) software.

Quality of evidence

The Grading of Recommendation, Assessment, Development, and Evaluation (GRADE) tool³⁰ assessed the quality of evidence and the grading of strength of recommendation. This assessment was based on study design, methodological limitations inconsistency, indirectness, imprecision, and other considerations. Quality of evidence was characterized as high, moderate, low, or very low.³⁰

RESULTS

Study selection

During the first phase of study selection, 4762 results were found in the nine electronic databases, including the grey literature. After removing the duplicate results, 2582 articles remained for the analysis of titles and abstracts. After a detailed search process, seven articles were eligible for the full text analysis. The references of these seven potentially eligible studies were carefully assessed and one more study was selected, resulting in eight studies for full text reading. Next, one study³¹ did not fulfil the inclusion criteria and it was eliminated. Thus, only seven studies were selected for qualitative analysis and five were included in the meta-analysis. Figure 1 reproduces the process of search, identification, inclusion, and exclusion of articles.

Characteristics of eligible studies

The studies were published between 2002 and 2015 and were performed in Canada,³²⁻³⁴ United Kingdom,³⁵ Sweden,³⁶ and Denmark.^{19,37} Five studies were case-controls^{19,32-35} and two were cohorts.^{36,37} The assessment time ranged from eight years^{35,36} to 26 years¹⁹ and the studies were performed from 1981³² to 2009.^{34,37}

Other sources of information regarding suicide (year, location, method) and the demographic characteristics of the population (age, income, housing, sex) of all studies^{19,32-37} were obtained from secondary data from local databases maintained by government agencies. The total sample included 1390 suicide cases of people diagnosed with COPD. In order to determine the COPD diagnosis, all studies^{19,32-37} used government databases with data regarding the health conditions of the population, identifying people diagnosed with COPD by the ICD code (J44). Table 2 shows details of the eligible studies.

Risk of individual bias of the studies

All eligible studies, both case-controls^{19,32-35} and cohorts^{36,37}, presented 100% of "yes" answers to the Joanna Briggs Institute Critical Appraisal Tools for use in JBI Systematic Reviews²⁶, which means that all studies presented a low risk of bias/high methodological quality.

Results of individual studies

The studies by Crump et al. (2014)³⁶ and Erlangsen et al. (2015)³⁷ were removed from the meta-analysis of this review for presenting distinct study designs and analysis models (Hazard Ratios and Rates Ratios, respectively). However, the results of both studies^{36,37} showed a positive association between people with COPD and suicide (Table 2). The studies^{19,32-35} included in the quantitative analysis presented results ranging from 1.62 to 4.75 of likelihood of people with COPD to commit suicide. Table 2 shows the specific results of each study.

Synthesis of results and Meta-analysis

Figure 2 shows the meta-analysis of case-control studies assessing the likelihood of suicide in the presence of COPD. History of COPD provided a higher

likelihood of suicide (OR = 1.90; 95% CI = 1.27-2.48; $p = 0.002$). The heterogeneity among studies was $I^2=95\%$, characterizing high heterogeneity.

Quality of evidence

Overall, the quality of evidence from the outcomes evaluated by the GRADE³⁰ system was assessed as moderate (Table 3).

Figure 1 - Flowchart of the process of literature search and selection, adapted from the PRISMA statement.

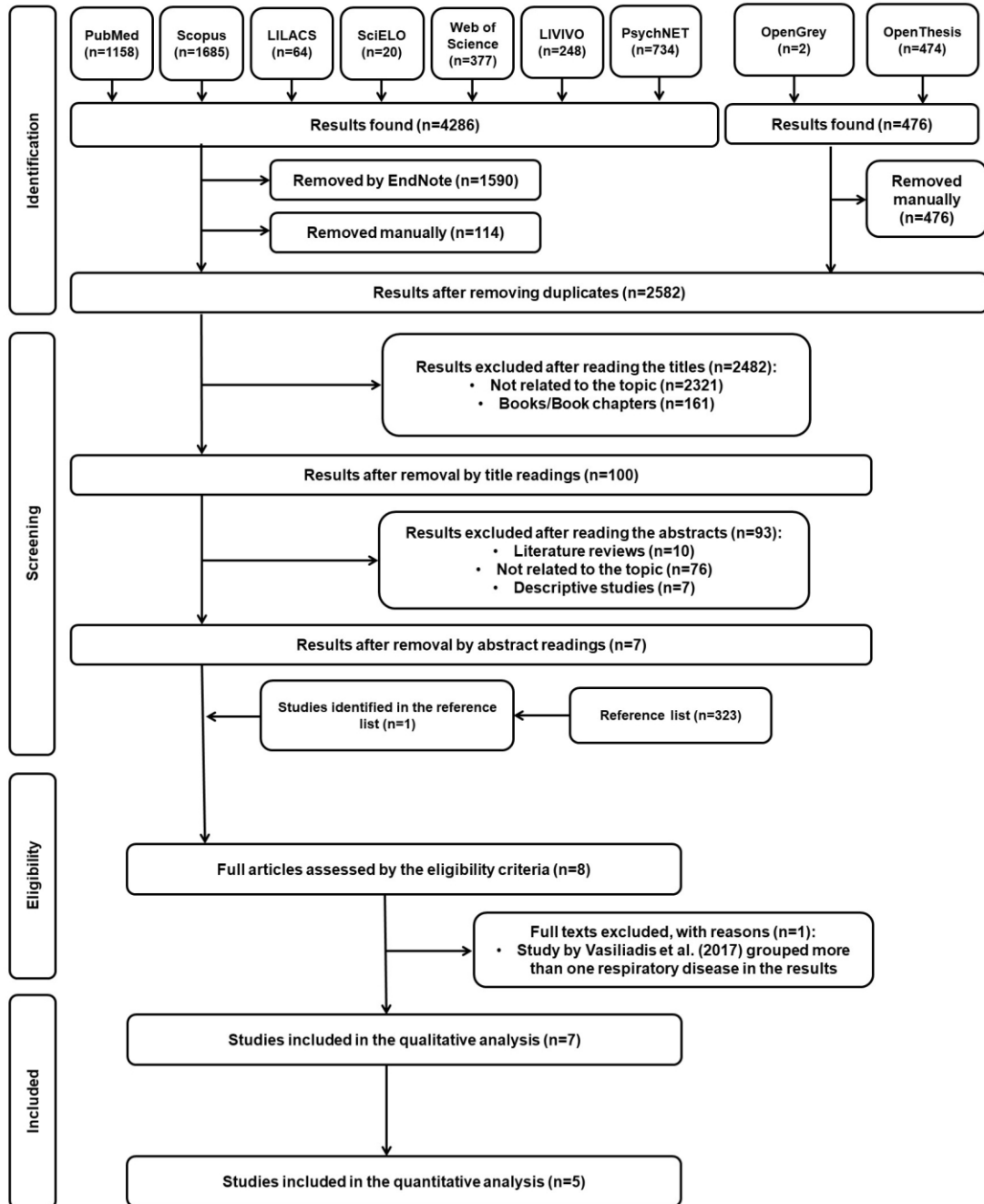


Table 2 - Summary of the main characteristics and outcomes of the eligible studies.

Author, year	Location	Assessment time	Source of information (suicide)	Source of information (population)	Sample (n)	COPD confirmation method	Main results
Quan <i>et al.</i> , 2002 ³⁵	Alberta, Canada	11 years (1984-1995)	Office of the Chief Medical Examiner of the Province of Alberta	Demographic and Income Statistics for Postal Address; Alberta Health and Wellness database	113 (controls) 133 (cases)	Information collected by the medical records in the Manitoba Health Registry Alberta Health and Wellness database, using the ICD code for COPD	Elderly men with COPD are more likely to commit suicide, especially when married (OR, 1.86; 95% CI, 1.22-2.83).
Juurink <i>et al.</i> , 2004 ³⁶	Ontario, Canada	9 years (1992 – 2000)	Office of the Chief Coroner for Ontario	Registered Persons Database	583 (controls) 220 (cases)	Information from the Ontario Benefit Program	COPD is directly associated with suicide (OR, 1.62; 95% CI, 1.37-1.92).
Webb <i>et al.</i> , 2012 ³⁸	United Kingdom	8 years (2001-2008)	Office for National Statistics and General Register Offices	General Practice Research Database	329 (controls) 27 (cases)	Information from the General Practice Research Database, using the ICD code for COPD	COPD is directly associated with suicide (OR, 1.80; 95% CI, 1.18-2.76), and it is more prevalent among women (OR, 3.23; 95% CI, 1.57-6.66) than men (OR, 1.41; 95% CI, 0.83-2.39)
Crump <i>et al.</i> , 2014 ³⁹	Sweden	8 years (2001-2008)	Swedish Death Registry (National Board of Health and Welfare)	Swedish Population Registry	89 suicides of people with COPD	Information from the Swedish Out-patient Registry or Swedish Hospital Registry, using the ICD code for COPD	COPD is associated with a higher rate of suicide among both women (HR, 3.05; 95% CI, 2.46-3.79) and men (HR, 2.26; 95% CI, 1.92-2.65)
Bolton <i>et al.</i> , 2014 ³⁷	Manitoba, Canada	14 years (1996-2009)	Population Health Research Data Repository at the Manitoba Centre for Health Policy	Population Health Research Data Repository at the Manitoba Centre for Health Policy	101 (controls) 65 (cases)	Information from the Manitoba Health Registry, using the ICD code for COPD	COPD increases the risk of suicide (OR, 2.06; 95% CI, 1.48–2.86) and it is more prevalent among women (OR, 4.75; 95% CI, 1.84–12.22) than men (OR, 1.12; 95% CI, 0.70-1.79)
Strid <i>et al.</i> , 2014 ²⁶	Denmark	26 years (1981 – 2006)	Cause-of-Death Registry	Danish Civil Population System	3087 (controls) 592 (cases)	Information from the Danish National Patient Registry, using the ICD code for COPD	Patients diagnosed with COPD and with history of hospitalization are more likely to commit suicide (OR 2.6; 95% CI, 2.3-2.8)
Erlangsen <i>et al.</i> , 2015 ⁴⁰	Denmark	20 years (1990-2009)	Cause of Death Registry	Danish Civil Population Registry	264 suicides of people with COPD	Information from the Danish National Patient Registry, using the ICD code for COPD	People with COPD are more likely to commit suicide (RR, 1.73; 95% CI, 1.52-1.96)

Abbreviations: COPD - Chronic Obstructive Pulmonary Disease; ICD - International Classification of Diseases; OR - Odds Ratio; CI - Confidence Interval; RR - Relative Risk; HZ - Hazard Ratio

Figure 2 - Forest plot of the case-control studies, showing a higher likelihood of suicide in the presence of COPD.

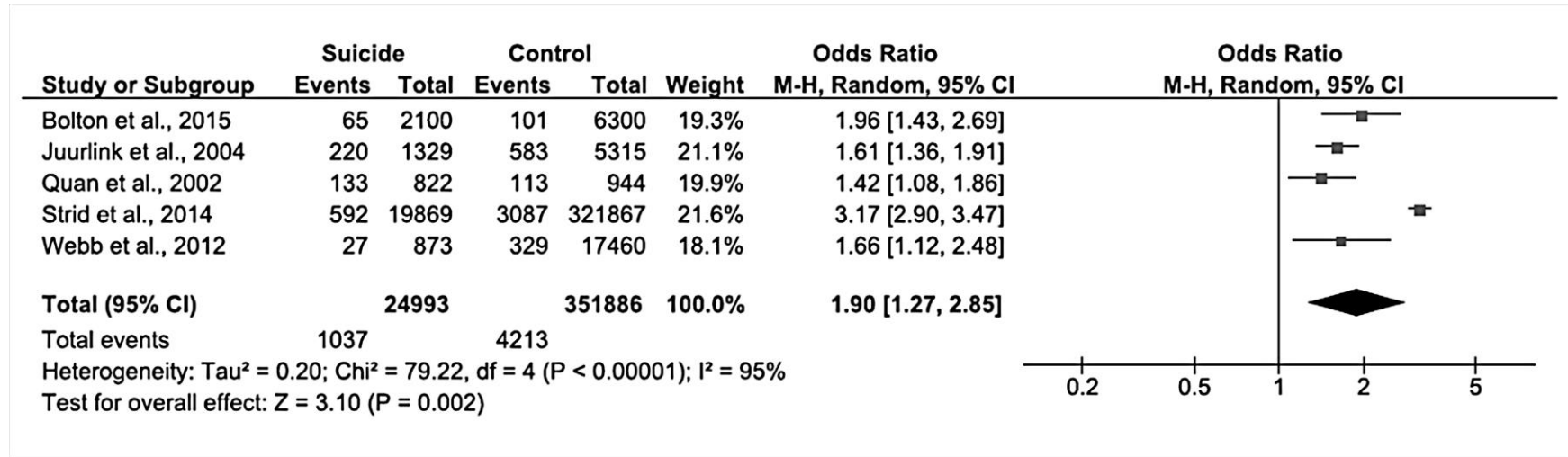


Table 3. Grading of Recommendations Assessment, Development, and Evaluation (GRADE) Summary of Findings Table for the Outcomes of the Systematic Review and Meta-Analysis

Quality Assessment							Summary of Results			Importance
Number of studies	Study Design	Methodological Limitations	Inconsistency	Indirectness	Imprecision	Publication Biases	Number of participants	Effects	General Quality	
5	Case control studies	√	√	√	√	√	Case group: 1119 Control Group: 3884	Random (95% CI) (OR = 1.90; 95% CI = 1.27-2.48)	+++ MODERATE	Critical

GRADE factors: = √, no serious limitations; X, serious limitation;
 General quality of evidence: +, very low; ++, low; +++, moderate; +++++, high

DISCUSSION

The results of the present systematic review confirmed a positive association between COPD and suicide. Moreover, a person living with COPD is 90% more likely to commit suicide than a person without COPD.

Suicide is related to several factors, including social organization, family history, limitation of daily life activities, personality traits, and mental disorders^{38,39}. Regarding mental disorders, depression has been strongly associated with suicide and suicidal behavior³⁹. Some characteristics of people with depression aggravate the suicide outcome, such as the male sex, family history of psychiatric disorder, hopelessness, comorbid disorders, anxiety, and misuse of alcohol and drugs³⁹. Additionally, a higher prevalence of suicide has been observed among older people,^{11,40-42} which is related to isolation, loss of a loved one, feeling of uselessness to the family, or even loss of autonomy⁴³⁻⁴⁶. Besides risk factors directly associated with suicide, it is observed that suicidal ideation is strongly associated with the presence of moderate limitations in routine activities and the presence of severe pain^{42,47}.

Risk factors for suicide have been observed in people with COPD, which could help understanding the outcome of the meta-analysis developed in this study. The diagnosis of COPD is a major factor for developing depression and anxiety, and the presence of psychological disorders increases the likelihood of worsening COPD conditions.⁸ Moreover, great daily life limitations and low quality of life resulting from COPD have an influence on the development of psychological disorders.^{1,4} People with COPD are more likely to present suicidal behaviours such as ideation or previous attempts.^{20,48} This potential relationship between risk factor for suicide and COPD may guide further studies, considering the link among such conditions has been rarely investigated⁴⁹. The performance of prospective cohort studies following patients correctly diagnosed with COPD, either exposed to depression or not, is encouraged.

Despite this confluence between risk factors for suicide and factors related to COPD, three eligible studies³⁴⁻³⁶ showed that women with COPD have a higher risk of committing suicide than men with COPD. These results contradict the international literature, which has shown that men are more related to suicide.^{50,51} Therefore, the relationship between sex and suicide is not clear and further studies are required to explain the binding mechanism between these variables.

Acknowledging the rate of suicide of people with COPD shows a remarkable need for intervention. However, suicide intervention is not a simple task, because it is considered a complex and multifactorial phenomenon which occurrence cannot be attributed to one single characteristic or event.⁵² Thus, family support through a multi-professional team is essential to improve the quality of life of these patients. Moreover, aiming to implement suicide surveillance policies, public agencies, especially in developing countries, should invest in the creation and development of databases for reporting this type of health event.

In this review, all the studies included^{19,32-37} were found in databases of developed countries. However, it is known that the highest prevalence of suicide is found in low or medium income countries⁵³, which often do not have a database on suicide.⁵⁴ Thus, it is essential to invest in the creation and improvement of databases, especially in developing countries, because according to Lozano *et al.* (2012),²³ the effects of the massive use of tobacco observed among men in such countries at the end of the last century will start to emerge and tends to increase COPD diagnoses.

Another question related to secondary data is the criteria for diagnosing COPD, considering subtypes of this disease are acknowledged and characterize COPD as a heterogeneous disease^{55,56}, but the studies included did not consider these differences. Pinto *et al.* (2015)⁵⁶ considered the existence of two COPD phenotypes: one is observed in younger people and it is more prevalent in women, presenting no other comorbidities and a rapid decline in lung function. The other is associated with comorbidities (obesity, cardiovascular and metabolic alterations), and people with this phenotype appear to have worse health outcomes. Esteban *et al.* (2016)⁵⁵ also considered a third phenotype with lower levels of dyspnea and comorbidities.

Considering COPD is a complex disease⁵⁵, it is essential to analyse these differences and their relationships with the suicide outcome. This heterogeneity varies from younger participants, lower dyspnea scores, higher lung capacity and level of physical activity, lower comorbidities, and better quality of life (subtype A) to higher dyspnea scores, lower pulmonary function, lower quality of life and level of physical activity (subtype C), and higher rates of hospitalization (subtype D).⁵⁵

This is an important synthesis study that contributes to the overall cumulative knowledge from the following three points: It is the first systematic review in the literature to observe the likelihood of suicide in COPD patients, the high

methodological quality observed in the eligible studies provides credibility to the results obtained, presenting evidence level 3 according to the Oxford Centre for Evidence Based Medicine⁵⁷ and moderate quality of evidence according to GRADE³⁰.

Limitations

Summarizing information from secondary data requires the awareness of the accuracy of such data, as observed in all the eligible studies of this systematic review.^{19,32-37} Besides the underreporting commonly associated with secondary data on suicide, there are also contextual issues (esteem and pressures in legal, religious, and political environments), diagnosis difficulties in some cases (self-starvation, falls, drownings, motor vehicle accidents, opiate overdose, euthanasia), and the lack of an internationally standardized procedure for suicide reporting.⁵⁸ Another limitation related to secondary data is not considering the heterogeneity of COPD, which subtypes could be related to the suicide outcome, but are not informed separately.^{55,56}

This study is not free of limitations, including the low number of eligible studies and the heterogeneity among them, which is common in systematic reviews of observational studies. Moreover, the absence of studies performed in developing countries may have limited the external validity of the results of our meta-analysis for the global reality.

CONCLUSION

The findings of the present review allow concluding that COPD patients have a higher likelihood of suicide (1.9 times) than non-carriers of the disease. It is worth noting that COPD is a heterogeneous disease, which may delay diagnoses and treatment. Similarly, risk factors associated with suicide, such as mental disorders, are underdiagnosed and undertreated.

Patients living with COPD form a group that requires attention from health teams and policymakers to prevent the suicide outcome. Implementing suicide prevention measures in this group of patients is of utmost importance, including psychological care and the adaptation of daily life activities, which should start along with the COPD diagnosis.

REFERENCES

1. Littner MR. In the clinic. Chronic obstructive pulmonary disease. *Ann Intern Med.* 2011 Apr 5;154(7):ITC4-1-ITC4-15; quiz ITC4-16.
2. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global Strategy for Diagnosis, Management, and Prevention of COPD (2017) [Internet]. Available at: <http://goldcopd.org>. [accessed November 05, 2017].
3. Barker E, Kolves K, De Leo D. The relationship between asthma and suicidal behaviours: a systematic literature review. *Eur Respir J.* 2015;46(1):96-106.
4. Baltieri L, Claudio Martins L, Cazzo E, Oliveira Modena DA, Cristina Gobato R, Cristina Candido E, Adami Chaim E. Analysis of quality of life among asthmatic individuals with obesity and its relationship with pulmonary function: cross-sectional study. *São Paulo Med J.* 2017 Jul-Aug;135(4):332-338.
5. Katz PP, Julian LJ, Omachi TA, Gregorich SE, Eisner MD, Yelin EH, Blanc PD. The impact of disability on depression among individuals with COPD. *Chest.* 2010 Apr;137(4):838-45.
6. Kayahan B, Karapolat H, Atýntoprak E, Atasever A, Oztürk O. Psychological outcomes of an outpatient pulmonary rehabilitation program in patients with chronic obstructive pulmonary disease. *Respir Med.* 2006 Jun;100(6):1050-7.
7. Matte DL, Pizzichini MM, Hoepers AT, Diaz AP, Karloh M, Dias M, Pizzichini E. Prevalence of depression in COPD: A systematic review and meta-analysis of controlled studies. *Respir Med.* 2016 Aug;117:154-61.
8. Atlantis E, Fahey P, Cochrane B, Smith S. Bidirectional associations between clinically relevant depression or anxiety and COPD: a systematic review and meta-analysis. *Chest.* 2013 Sep;144(3):766-777.
9. Hegerl U, Mergl R. Depression and suicidality in COPD: understandable reaction or independent disorders? *Eur Respir J.* 2014 Sep;44(3):734-43.
10. Salte K, Titlestad I, Halling A. Depression is associated with poor prognosis in patients with chronic obstructive pulmonary disease - a systematic review. *Dan Med J.* 2015 Oct;62(10):A5137.
11. Ciulla L, Lopes Nogueira E, da Silva Filho IG, Tres GL, Engroff P, Ciulla V, Cataldo Neto A. Suicide risk in the elderly: data from Brazilian public health care program. *J Affect Disord.* 2014 Jan;152-154:513-6.

12. Hawton K, Casañas I Comabella C, Haw C, Saunders K. Risk factors for suicide in individuals with depression: a systematic review. *J Affect Disord.* 2013 May;147(1-3):17-28.
13. Brown CR, Hambleton IR, Sobers-Grannum N, Hercules SM, Unwin N, Nigel Harris E, et al. Social determinants of depression and suicidal behaviour in the Caribbean: a systematic review. *BMC Public Health.* 2017;17(1):577.
14. Erlangsen A, Eaton WW, Mortensen PB, Conwell Y. Schizophrenia - A predictor of suicide during the second half of life? *Schizophr Res.* 2012;134(2-3):111-7.
15. Spiegel B, Schoenfeld P, Naliboff B. Systematic review: The prevalence of suicidal behaviour in patients with chronic abdominal pain and irritable bowel syndrome. *Aliment Pharmacol Ther.* 2007;26(2):183-93.
16. Joshi P, Song HB, Lee SA. Association of chronic disease prevalence and quality of life with suicide-related ideation and suicide attempt among Korean adults. *Indian J Psychiatry.* 2017;59(3):352-8.
17. Fleeheart S, Fan VS, Nguyen HQ, Lee J, Kohen R, Herting JR et al. Prevalence and correlates of suicide ideation in patients with COPD: a mixed methods study. *Int J Chron Obstruct Pulmon Dis.* 2014 Dec 4;10:1321-9.
18. Chung JH, Han CH, Park SC, Kim CJ. Suicidal ideation and suicide attempts in chronic obstructive pulmonary disease: the Korea National Health and Nutrition Examination Survey (KNHANES IV, V) from 2007-2012. *NPJ Prim Care Respir Med.* 2014 Oct 30;24:14094.
19. Strid JM, Christiansen CF, Olsen M, Qin P. Hospitalisation for chronic obstructive pulmonary disease and risk of suicide: a population-based case-control study. *BMJ Open.* 2014 Nov 24;4(11):e006363.
20. Fassberg MM, Cheung G, Canetto SS, Erlangsen A, Lapierre S, Lindner R, et al. A systematic review of physical illness, functional disability, and suicidal behaviour among older adults. *Aging Ment Health.* 2016;20(2):166-94.
21. GBD 2015 Chronic Respiratory Disease Collaborators. Global, regional, and national deaths, prevalence, disability-adjusted life years, and years lived with disability for chronic obstructive pulmonary disease and asthma, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. *Lancet Respir Med.* 2017 Sep;5(9):691-706.
22. Mannino DM, Buist, AS. Global burden of COPD: risk factors, prevalence, and future trends. *Lancet.* 2007; 370: 765-773.

23. Lozano R, Naghavi M, Foreman K, Lim S, Shibuya K, Aboyans V, *et al.* Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: A systematic analysis for the Global Burden of Disease Study 2010. *Lancet.* 2012;380(9859):2095-128.
24. Liberati A, Altman DG, Tetzlaff J, Mulrow C, Gøtzsche PC, Ioannidis JPA, *et al.* The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate healthcare interventions: explanation and elaboration. *BMJ* 2009;339:b2700.
25. Higgins JPT, Green S: *Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0 [updated March 2011]*. The Cochrane Collaboration, 2011. Available at <http://handbook.cochrane.org>. [accessed August 08, 2018]
26. Moola S, Munn Z, Tufanaru C, Aromataris E, Sears K, Sfetcu R, *et al.* Chapter 7: Systematic reviews of etiology and risk . In: Aromataris E, Munn Z (Editors). *Joanna Briggs Institute Reviewer's Manual*. The Joanna Briggs Institute; 2017. Available at <https://reviewersmanual.joannabriggs.org/> [accessed August 08, 2018]
27. The Joanna Briggs Institute. *Joanna Briggs Institute Reviewers' Manual: 2014 edition*. Australia: The Joanna Briggs Institute; 2014. Available at <http://joannabriggs.org/assets/docs/sumari/reviewersmanual-2014.pdf> [accessed August 08, 2018]
28. Nyaga VN, Arbyn M, Aerts M. Metaprop: a Stata command to perform meta-analysis of binomial data. *Arch Public Health.* 2014; 72 (1):39.
29. Higgins JP, Thompson SG. Quantifying heterogeneity in a meta-analysis. *Stat Med.* 2002; 21: 1539–1558.
30. Balshem H, Helfand M, Schünemann HJ, Oxman AD, Kunz R, Brozek J *et al.* GRADE guidelines: 3. Rating the quality of evidence. *J Clin Epidemiol* 2011 64(4):401–406 20.
31. Vasiliadis HM, Lamoureux-Lamarche C, Gontijo Guerra S. Gender and age group differences in suicide risk associated with co-morbid physical and psychiatric disorders in older adults. *Int Psychogeriatr.* 2017;29(2):249-57.
32. Quan H, Arboleda-Flórez J, Fick GH, Stuart HL, Love EJ. Association between physical illness and suicide among the elderly. *Soc Psychiatry Psychiatr Epidemiol.* 2002 Apr;37(4):190-7.

33. Juurlink DN, Herrmann N, Szalai JP, Kopp A, Redelmeier DA. Medical illness and the risk of suicide in the elderly. *Arch Intern Med*. 2004;164(11):1179-84.
34. Bolton JM, Walld R, Chateau D, Finlayson G, Sareen J. Risk of suicide and suicide attempts associated with physical disorders: A population-based, balancing score-matched analysis. *Psychol Med*. 2015;45(3):495-504.
35. Webb RT, Kontopantelis E, Doran T, Qin P, Creed F, Kapur N. Suicide Risk in Primary Care Patients With Major Physical Diseases. *Arch Gen Psychiatry*. 2012;69(3):256-64.
36. Crump C, Sundquist K, Sundquist J, Winkleby MA. Sociodemographic, psychiatric and somatic risk factors for suicide: A Swedish national cohort study. *Psychol Med*. 2014;44(2):279-89.
37. Erlangsen A, Stenager E, Conwell Y. Physical diseases as predictors of suicide in older adults: a nationwide, register-based cohort study. *Soc Psychiatry Psychiatr Epidemiol*. 2015;50(9):1427-39.
38. Turecki G, Brent DA. Suicide and suicidal behaviour. *Lancet*. 2016 Mar 19;387(10024):1227-39.
39. Sinyor M, Tse R, Pirkis J. Global trends in suicide epidemiology. *Curr Opin Psychiatry*. 2017 Jan;30(1):1-6.
40. Shin KM, Cho SM, Hong CH, Park KS, Shin YM, Lim KY, et al. Suicide among the elderly and associated factors in South Korea. *Aging Ment Health*. 2013;17(1):109-14.
41. Kato K, Akama F, Yamada K, Maehara M, Saito M, Kimoto K, et al. Frequency and clinical features of suicide attempts in elderly patients in Japan. *Psychiatry Clin Neurosci*. 2013 Feb;67(2):119-22.
42. Xu H, Qin L, Wang J, et al. A cross-sectional study on risk factors and their interactions with suicidal ideation among the elderly in rural communities of Hunan, China. *BMJ Open*. 2016; 6:e010914.
43. Jang SY, Choi B, Ju EY, Kim YM, Kang SB, Park S, et al. Association between restriction of activity related to chronic diseases and suicidal ideation in older adults in Korea. *Geriatr Gerontol Int*. 2014;14(4):983-8.
44. Handley TE, Hiles SA, Inder KJ, Kay-Lambkin FJ, Kelly BJ, Lewin TJ, et al. Predictors of suicidal ideation in older people: A decision tree analysis. *Am J Geriatr Psychiatry*. 2014;22(11):1325-35.

45. Cavalcante FG, Minayo MC. Qualitative study on suicide attempts and ideations with 60 elderly in Brazil. *Cien Saude Colet*. 2015 Jun;20(6):1655-66.
46. Rodriguez-Prat A, Monforte-Royo C, Porta-Sales J, Escribano X, Balaguer A. Patient Perspectives of Dignity, Autonomy and Control at the End of Life: Systematic Review and Meta-Ethnography. *Plos One*. 2016;11(3):18.
47. Kim SH. Suicidal ideation and suicide attempts in older adults: Influences of chronic illness, functional limitations, and pain. *Geriatr Nurs*. 2016; 37(1):9-12
48. Miravittles M, Molina J, Quintano JA, Campuzano A, Pérez J, Roncero C. Factors associated with depression and severe depression in patients with COPD. *Respir Med*. 2014 Nov;108(11):1615-25.
49. Hegerl U, Mergl R. Depression and suicidality in COPD: understandable reaction or independent disorders? *Eur Respir J*. 2014 Sep;44(3):734-43.
50. Jiang Y, Ciano MA, Hill J, Viner-Brown S. Characteristics of Suicide Attempts and Deaths Among those Aged 60 Years and Older in Rhode Island. *R I Med* 2016 Sep;99(9):42-5.
51. Pinto LW, Assis SG, Pires TO. Suicide mortality in people aged 60 and over in Brazilian municipalities between 1996 and 2007. *Ciênc. saúde coletiva* 2012 Aug; 17(8): 1963-1972.
52. Shao Y, Zhu C, Zhang Y, Yu H, Peng H, Jin Y et al. Epidemiology and temporal trend of suicide mortality in the elderly in Jiading, Shanghai, 2003-2013: a descriptive, observational study. *BMJ Open*. 2016 Aug 19;6(8):e012227.
53. World Health Organization. WHO Mortality Database [Internet]. Available at: http://www.who.int/healthinfo/mortality_data/en/ [accessed August 08 2018]
54. World Health Organization. Quality of suicide mortality data [Internet]. Available at: http://www.who.int/mental_health/suicide-prevention/mortality_data_quality/en/ [accessed on August 08 2018]
55. Esteban C, Arostegui I, Aburto M, Moraza J, Quintana J M, García-Loizaga et al. Chronic obstructive pulmonary disease subtypes. transitions over time. *PLoS One*. 2016 Sep 9;11(9):e0161710.
56. Pinto LM, Alghamdi M, Benedetti A, Zaihra T, Landry T, Bourbeau J. Derivation and validation of clinical phenotypes for COPD: a systematic review. *Respir Res*. 2015 Apr;16:50.
57. Phillips B, Ball C, Sackett D, Badenoch D, Straus S, Haynes B et al. Oxford Centre for Evidence based Medicine Levels of Evidence in Level of Evidence and

Grades of Recommendation; 2009. <http://www.cebm.net/oxford-centre-evidence-based-medicine-levels-evidence-march-2009/> [accessed on 08 August 2018]

58. De Leo D. Can we rely on suicide mortality data? *Crisis*. 2015;36(1):1-3.

3 CONCLUSÃO

Considerando-se o resultado desse estudo, a associação entre DPOC e maior risco de suicídio é real. Atualmente essas condições são importantes causas de mortalidade e morbidade no contexto mundial. Ressaltando-se ainda a expectativa de aumento nas suas prevalências. Tanto a DPOC quanto o suicídio, decorrente de condições secundários ou de transtornos mentais, são subdiagnosticados e subtratados. A DPOC apresenta manifestações clínicas insidiosas e agravadas progressivamente, o que em muitas situações atrasam o diagnóstico e o tratamento adequado. Da mesma forma, o suicídio e os transtornos mentais também são subestimados, marginalizados e têm seu diagnóstico e tratamento retardados. Nesse contexto, o diagnóstico tardio assim como o início do plano terapêutico dessas duas condições clínicas são responsáveis por prejuízos para a saúde individual das pessoas acometidas, suas famílias e para os setores previdenciário e assistencial à saúde. Além de contribuir no aumento da prevalência de suicídio e na piora da classificação de risco da DPOC.

No campo da Promoção da Saúde a qualidade de vida é conceito fundamental. A DPOC, o suicídio e seus transtornos mentais reduzem essa qualidade de vida, e se não identificadas precocemente e implementadas medidas de mudança no estilo de vida, o risco de agravamento é maior. Considerando-se o tabagismo como principal fator de risco para a DPOC, assim como a relação da dependência da nicotina e os transtornos depressivos e de ansiedade, são potencializadores do suicídio.

Assim, a DPOC, o tabagismo, o suicídio e a Saúde Mental são problemas de Gestão da Saúde Coletiva, e políticas direcionadas para essas condições podem contribuir para redução dessa morbidade e mortalidade. Sugerem-se políticas que incluam intensificação e consolidação das estratégias para auxílio no abandono do tabagismo contempladas na Promoção da Saúde. O incentivo à capacitação profissional médica na Atenção Primária à Saúde para o diagnóstico precoce e tratamento da DPOC, assim como acesso ao tratamento farmacológico com drogas e dispositivos inalatórios de primeira linha. A disponibilização de acompanhamento por equipe multiprofissional com fisioterapeuta para a reabilitação respiratória, psicólogos e psiquiatras para avaliação da saúde mental e especialistas em pneumologia contemplando o princípio da integralidade. E finalmente a intensificação de medidas preventivas para o suicídio como acesso facilitado aos

equipamentos de saúde e/ou sociais, disponibilidade de mecanismos tipo *Mobile Health* e campanhas de esclarecimento e desmistificação do suicídio.

REFERÊNCIAS*

1. Atlantis E, Fahey P, Cochrane B, Smith S. Bidirectional associations between clinically relevant depression or anxiety and COPD: a systematic review and meta-analysis. *Chest*. 2013 Sep;144(3):766-777.
2. Balshem H, Helfand M, Schünemann HJ, Oxman AD, Kunz R, Brozek J *et al*. GRADE guidelines: 3. Rating the quality of evidence. *J Clin Epidemiol* 2011 64(4):401–406 20.
3. Baltieri L, Claudio Martins L, Cazzo E, Oliveira Modena DA, Cristina Gobato R, Cristina Candido E, Adami Chaim E. Analysis of quality of life among asthmatic individuals with obesity and its relationship with pulmonary function: cross-sectional study. *São Paulo Med J*. 2017 Jul-Aug;135(4):332-338.
4. Barker E, Kolves K, De Leo D. The relationship between asthma and suicidal behaviours: a systematic literature review. *Eur Respir J*. 2015;46(1):96-106.
5. Bolton JM, Walld R, Chateau D, Finlayson G, Sareen J. Risk of suicide and suicide attempts associated with physical disorders: A population-based, balancing score-matched analysis. *Psychol Med*. 2015;45(3):495-504.
6. Brown CR, Hambleton IR, Sobers-Grannum N, Hercules SM, Unwin N, Nigel Harris E, *et al*. Social determinants of depression and suicidal behaviour in the Caribbean: a systematic review. *BMC Public Health*. 2017;17(1):577.
7. Cavalcante FG, Minayo MC. Qualitative study on suicide attempts and ideations with 60 elderly in Brazil. *Cien Saude Colet*. 2015 Jun;20(6):1655-66.
8. Chung JH, Han CH, Park SC, Kim CJ. Suicidal ideation and suicide attempts in chronic obstructive pulmonary disease: the Korea National Health and Nutrition Examination Survey (KNHANES IV, V) from 2007-2012. *NPJ Prim Care Respir Med*. 2014 Oct 30;24:14094.
9. Ciulla L, Lopes Nogueira E, da Silva Filho IG, Tres GL, Engroff P, Ciulla V, Cataldo Neto A. Suicide risk in the elderly: data from Brazilian public health care program. *J Affect Disord*. 2014 Jan;152-154:513-6.
10. Clyde M, Smith KJ, Gariépy G, Schmitz N. The association between smoking and depression in a Canadian community-based sample with type 2 diabetes. *Can J Diabetes*. 2013 Jun;37(3):150-5.

* De acordo com as normas da UNICAMP/FOP, baseadas na padronização do International Committee of Medical Journal Editors - Vancouver Group. Abreviatura dos periódicos em conformidade com o PubMed.

11. Crump C, Sundquist K, Sundquist J, Winkleby MA. Sociodemographic, psychiatric and somatic risk factors for suicide: A Swedish national cohort study. *Psychol Med.* 2014;44(2):279-89.
12. De Leo D. Can we rely on suicide mortality data? *Crisis.* 2015;36(1):1-3.
13. Di Matteo V, Pierucci M, Di Giovanni G, Benigno A, Esposito E. The neurobiological bases for the pharmacotherapy of nicotine addiction. *Curr Pharm Des.* 2007;13(12):1269-84.
14. Dierker L, Rose J, Selya A, Piasecki TM, Hedeker D, Mermelstein R. Depression and nicotine dependence from adolescence to young adulthood. *Addict Behav.* 2015 Feb;41:124-8.
15. Erlangsen A, Stenager E, Conwell Y. Physical diseases as predictors of suicide in older adults: a nationwide, register-based cohort study. *Soc Psychiatry Psychiatr Epidemiol.* 2015;50(9):1427-39.
16. Erlangsen A, Eaton WW, Mortensen PB, Conwell Y. Schizophrenia - A predictor of suicide during the second half of life? *Schizophr Res.* 2012;134(2-3):111-7.
17. Esteban C, Arostegui I, Aburto M, Moraza J, Quintana J M, García-Loizaga et al. Chronic obstructive pulmonary disease subtypes. transitions over time. *PLoS One.* 2016 Sep 9;11(9):e0161710.
18. Fassberg MM, Cheung G, Canetto SS, Erlangsen A, Lapierre S, Lindner R, et al. A systematic review of physical illness, functional disability, and suicidal behaviour among older adults. *Aging Ment Health.* 2016;20(2):166-94.
19. Faure P, Tolu S, Valverde S, Naudé J. Role of nicotinic acetylcholine receptors in regulating dopamine neuron activity. *Neuroscience.* 2014 Dec 12;282:86-100.
20. Fleehart S, Fan VS, Nguyen HQ, Lee J, Kohen R, Herting JR et al. Prevalence and correlates of suicide ideation in patients with COPD: a mixed methods study. *Int J Chron Obstruct Pulmon Dis.* 2014 Dec 4;10:1321-9.
21. Fluharty M, Taylor AE, Grabski M, Munafò MR. The Association of Cigarette Smoking With Depression and Anxiety: A Systematic Review. *Nicotine Tob Res.* 2017 Jan;19(1):3-13
22. Fritzsche A, Clamor A, von Leupoldt A. Effects of medical and psychological treatment of depression in patients with COPD--a review. *Respir Med.* 2011 Oct;105(10):1422-33.
23. GBD 2015 Chronic Respiratory Disease Collaborators. Global, regional, and national deaths, prevalence, disability-adjusted life years, and years lived with

- disability for chronic obstructive pulmonary disease and asthma, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. *Lancet Respir Med*. 2017 Sep;5(9):691-706.
24. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global Strategy for Diagnosis, Management, and Prevention of COPD (2017) [Internet]. Available at: <http://goldcopd.org>. [accessed November 05, 2017].
 25. Godoy RF, Teixeira PJZ, Becker Júnior B, Michelli M, Godoy DV. Repercussões tardias de um programa de reabilitação pulmonar sobre os índices de ansiedade, depressão, qualidade de vida e desempenho físico em portadores de DPOC. *J. bras. Pneumol*. 2009 Feb; 35(2):129-136.
 26. Handley TE, Hiles SA, Inder KJ, Kay-Lambkin FJ, Kelly BJ, Lewin TJ, et al. Predictors of suicidal ideation in older people: A decision tree analysis. *Am J Geriatr Psychiatry*. 2014;22(11):1325-35.
 27. Hawton K, Casañas I Comabella C, Haw C, Saunders K. Risk factors for suicide in individuals with depression: a systematic review. *J Affect Disord*. 2013 May;147(1-3):17-28.
 28. Hegerl U, Mergl R. Depression and suicidality in COPD: understandable reaction or independent disorders? *Eur Respir J*. 2014 Sep;44(3):734-43.
 29. Higgins JP, Thompson SG. Quantifying heterogeneity in a meta-analysis. *Stat Med*. 2002; 21: 1539–1558.
 30. Higgins JPT, Green S: *Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0 [updated March 2011]*. The Cochrane Collaboration, 2011. Available at <http://handbook.cochrane.org>. [accessed August 08, 2018]
 31. Jang SY, Choi B, Ju EY, Kim YM, Kang SB, Park S, et al. Association between restriction of activity related to chronic diseases and suicidal ideation in older adults in Korea. *Geriatr Gerontol Int*. 2014;14(4):983-8.
 32. Jiang Y, Ciano MA, Hill J, Viner-Brown S. Characteristics of Suicide Attempts and Deaths Among those Aged 60 Years and Older in Rhode Island. *R I Med* 2016 Sep;99(9):42-5.
 33. Joshi P, Song HB, Lee SA. Association of chronic disease prevalence and quality of life with suicide-related ideation and suicide attempt among Korean adults. *Indian J Psychiatry*. 2017;59(3):352-8.
 34. Juurlink DN, Herrmann N, Szalai JP, Kopp A, Redelmeier DA. Medical illness and the risk of suicide in the elderly. *Arch Intern Med*. 2004;164(11):1179-84.

35. Kaplan A, Thomas M. Screening for COPD: the gap between logic and evidence. *Eur Respir Rev.* 2017 Mar 15;26(143).
36. Kato K, Akama F, Yamada K, Maehara M, Saito M, Kimoto K, et al. Frequency and clinical features of suicide attempts in elderly patients in Japan. *Psychiatry Clin Neurosci.* 2013 Feb;67(2):119-22.
37. Katz PP, Julian LJ, Omachi TA, Gregorich SE, Eisner MD, Yelin EH, Blanc PD. The impact of disability on depression among individuals with COPD. *Chest.* 2010 Apr;137(4):838-45.
38. Kayahan B, Karapolat H, Atýntoprak E, Atasever A, Oztürk O. Psychological outcomes of an outpatient pulmonary rehabilitation program in patients with chronic obstructive pulmonary disease. *Respir Med.* 2006 Jun;100(6):1050-7.
39. Kim SH. Suicidal ideation and suicide attempts in older adults: Influences of chronic illness, functional limitations, and pain. *Geriatr Nurs.* 2016; 37(1):9-12
40. Liberati A, Altman DG, Tetzlaff J, Mulrow C, Gøtzsche PC, Ioannidis JPA, et al. The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate healthcare interventions: explanation and elaboration. *BMJ* 2009;339:b2700.
41. Littner MR. In the clinic. Chronic obstructive pulmonary disease. *Ann Intern Med.* 2011 Apr 5;154(7):ITC4-1-ITC4-15; quiz ITC4-16.
42. Lozano R, Naghavi M, Foreman K, Lim S, Shibuya K, Aboyans V, et al. Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: A systematic analysis for the Global Burden of Disease Study 2010. *Lancet.* 2012;380(9859):2095-128.
43. Mannino DM, Buist, AS. Global burden of COPD: risk factors, prevalence, and future trends. *Lancet.* 2007; 370: 765-773.
44. Mathew AR, Hogarth L, Leventhal AM, Cook JW, Hitsman B. Cigarette smoking and depression comorbidity: systematic review and proposed theoretical model. *Addiction.* 2017 Mar;112(3):401-412.
45. Matte DL, Pizzichini MM, Hoepers AT, Diaz AP, Karloh M, Dias M, Pizzichini E. Prevalence of depression in COPD: A systematic review and meta-analysis of controlled studies. *Respir Med.* 2016 Aug;117:154-61.
46. Ministério da Saúde, 2016. Informações de Saúde (TABNET) Estatísticas Vitais <http://tabnet.datasus.gov.br/cgi/tabcgi.exe?sim/cnv/ext10uf.def> [accessed August 08, 2018]

47. Miravittles M, Molina J, Quintano JA, Campuzano A, Pérez J, Roncero C. Factors associated with depression and severe depression in patients with COPD. *Respir Med*. 2014 Nov;108(11):1615-25.
48. Miravittles M, Ribera A. Understanding the impact of symptoms on the burden of COPD. *Respir Res*. 2017 Apr 21;18(1):67.
49. Moola S, Munn Z, Tufanaru C, Aromataris E, Sears K, Sfetcu R, et al. Chapter 7: Systematic reviews of etiology and risk . In: Aromataris E, Munn Z (Editors). *Joanna Briggs Institute Reviewer's Manual*. The Joanna Briggs Institute; 2017. Available at <https://reviewersmanual.joannabriggs.org/> [accessed August 08, 2018]
50. Nyaga VN, Arbyn M, Aerts M. Metaprop: a Stata command to perform meta-analysis of binomial data. *Arch Public Health*. 2014; 72 (1):39.
51. Phillips B, Ball C, Sackett D, Badenoch D, Straus S, Haynes B et al. Oxford Centre for Evidence based Medicine Levels of Evidence in Level of Evidence and Grades of Recommendation; 2009. <http://www.cebm.net/oxford-centre-evidence-based-medicine-levels-evidence-march-2009/> [accessed on 08 August 2018]
52. Pinto LW, Assis SG, Pires TO. Suicide mortality in people aged 60 and over in Brazilian municipalities between 1996 and 2007. *Ciênc. saúde coletiva* 2012 Aug; 17(8): 1963-1972.
53. Pinto LM, Alghamdi M, Benedetti A, Zaihra T, Landry T, Bourbeau J. Derivation and validation of clinical phenotypes for COPD: a systematic review. *Respir Res*. 2015 Apr 8;16:50.
54. Poorolajal J, Darvishi N. Smoking and Suicide: A Meta-Analysis. *PLoS One*. 2016;11(7):e0156348.
55. Quan H, Arboleda-Flórez J, Fick GH, Stuart HL, Love EJ. Association between physical illness and suicide among the elderly. *Soc Psychiatry Psychiatr Epidemiol*. 2002 Apr;37(4):190-7.
56. Rodriguez-Prat A, Monforte-Royo C, Porta-Sales J, Escribano X, Balaguer A. Patient Perspectives of Dignity, Autonomy and Control at the End of Life: Systematic Review and Meta-Ethnography. *Plos One*. 2016;11(3):18.
57. Salte K, Titlestad I, Halling A. Depression is associated with poor prognosis in patients with chronic obstructive pulmonary disease - a systematic review. *Dan Med J*. 2015 Oct;62(10):A5137.

58. Shao Y, Zhu C, Zhang Y, Yu H, Peng H, Jin Y et al. Epidemiology and temporal trend of suicide mortality in the elderly in Jiading, Shanghai, 2003-2013: a descriptive, observational study. *BMJ Open*. 2016 Aug 19;6(8):e012227.
59. Shin KM, Cho SM, Hong CH, Park KS, Shin YM, Lim KY, et al. Suicide among the elderly and associated factors in South Korea. *Aging Ment Health*. 2013;17(1):109-14.
60. Sinyor M, Tse R, Pirkis J. Global trends in suicide epidemiology. *Curr Opin Psychiatry*. 2017 Jan;30(1):1-6.
61. Spiegel B, Schoenfeld P, Naliboff B. Systematic review: The prevalence of suicidal behaviour in patients with chronic abdominal pain and irritable bowel syndrome. *Aliment Pharmacol Ther*. 2007;26(2):183-93.
62. Strid JM, Christiansen CF, Olsen M, Qin P. Hospitalisation for chronic obstructive pulmonary disease and risk of suicide: a population-based case-control study. *BMJ Open*. 2014 Nov 24;4(11):e006363.
63. The Joanna Briggs Institute. *Joanna Briggs Institute Reviewers' Manual: 2014 edition*. Australia: The Joanna Briggs Institute; 2014. Available at <http://joannabriggs.org/assets/docs/sumari/reviewersmanual-2014.pdf> [accessed August 08, 2018]
64. Turecki G, Brent DA. Suicide and suicidal behaviour. *Lancet*. 2016 Mar 19;387(10024):1227-39.
65. Vasiliadis HM, Lamoureux-Lamarche C, Gontijo Guerra S. Gender and age group differences in suicide risk associated with co-morbid physical and psychiatric disorders in older adults. *Int Psychogeriatr*. 2017;29(2):249-57.
66. Xu H, Qin L, Wang J, et al. A cross-sectional study on risk factors and their interactions with suicidal ideation among the elderly in rural communities of Hunan, China. *BMJ Open*. 2016; 6:e010914.
67. Webb RT, Kontopantelis E, Doran T, Qin P, Creed F, Kapur N. Suicide Risk in Primary Care Patients With Major Physical Diseases. *Arch Gen Psychiatry*. 2012;69(3):256-64.
68. World Health Organization. WHO Mortality Database [Internet]. Available at: http://www.who.int/healthinfo/mortality_data/en/ [accessed August 08 2018]
69. World Health Organization. Quality of suicide mortality data [Internet]. Available at: http://www.who.int/mental_health/suicide-prevention/mortality_data_quality/en/ [accessed on August 08 2018]

ANEXO 1 – Carta de liberação do Comitê de Ética em Pesquisa para o desenvolvimento do trabalho.



Faculdade de Odontologia de Piracicaba
UNICAMP

OF. CEP/FOP N.º 054/2018

Piracicaba, 10 de dezembro de 2018.

Ilmo. Dr.

Marcelo Dos Santos Sampaio

Departamento de Odontologia Social

Faculdade de Odontologia de Piracicaba/UNICAMP

Prezado Dr Marcelo,

Após analisar a documentação apresentada por VSa., com respeito à tese **“Risco de suicídio associado a portadores de doença pulmonar obstrutiva crônica: uma revisão sistemática”**, dos pesquisadores Dr. **Marcelo dos Santos Sampaio** (orientando) e Prof. Dr. **Luiz Renato Paranhos** (orientador), que faz parte das condições para a obtenção do título de Mestre junto ao PPG Mestrado Profissionalizante em Gestão e Saúde Coletiva da FOP-UNICAMP, informo que **esta tese não necessita**, em princípio e de acordo com as informações oferecidas no material encaminhado, **ser submetida à análise por um Comitê de Ética em Pesquisa com Seres Humanos no Brasil**.

As informações enviadas em um e-mail e um arquivo em DOCX anexado ao e-mail indicam que todas as etapas da pesquisa serão realizadas com dados já publicados, como parte de uma revisão sistemática da literatura e desta forma não demandam avaliação do sistema CEP-CONEP.

Esclareço que as informações fornecidas sobre este manuscrito serão arquivadas no CEP-FOP-UNICAMP por cinco anos. Colocamo-nos à disposição para qualquer informação adicional que julgar necessária.

Cordialmente,

Prof. Jacks Jorge Junior

Coordenador

ANEXO 2 – Comprovante de Submissão no periódico selecionado.

Elsevier Editorial System(tm) for
Respiratory Medicine
Manuscript Draft

Manuscript Number:

Title: Chronic obstructive pulmonary disease as a risk factor for suicide: A systematic review and meta-analysis.

Article Type: Review article

Keywords: Chronic obstructive pulmonary disease; Suicide; Risk factors.

Corresponding Author: Professor Luiz Paranhos, Ph.D.

Corresponding Author's Institution: Universidade Federal de Uberlândia

First Author: Luiz Paranhos, Ph.D.

Order of Authors: Luiz Paranhos, Ph.D.; Marcelo Sampaio; Walbert Vieira; Italo Bernardino; Alex Herval; Carlos Flores-Mir

Abstract: Background: The association of depression and anxiety with chronic obstructive pulmonary disease (COPD) patients makes this population a risk group for suicide. This study aims to systematically assess the literature on the association between COPD and the likelihood of suicide.

Methods: The protocol was registered in PROSPERO (CRD42018096618). The Latin-American and Caribbean Health Sciences Literature [LILACS], PubMed (including Medline), SciELO, Scopus, LIVIVO, Web of Science, and PsychNET databases were used as primary study sources. OpenThesis and OpenGrey were used to partially capture the "grey literature". A manual search was also performed through a systematized analysis of the references of eligible articles. The risk of bias among the studies included was assessed with the Joanna Briggs Institute Critical Appraisal Tools for Systematic Reviews. Because of the high heterogeneity among studies ($I^2=95\%$), a random effects meta-analysis was performed to estimate the variation in odds ratio (OR) and 95% confidence intervals (95% CI). Results: The search provided 4762 results, from which only seven met the eligibility criteria and were ultimately included in the qualitative assessment of the review. The studies were published from 2002 to 2015. All studies presented low risk of bias. The total sample included 1390 suicide cases of COPD patients. The meta-analysis, which was based on five eligible case control studies, found that people with history of COPD are more likely to commit suicide (OR = 1.90; 95% CI = 1.27-2.48; $p=0.002$).

Conclusion: COPD patients are 1.9 times more likely to commit suicide than people without COPD.

Suggested Reviewers: Ademir Franco
franco.gat@gmail.com

Marcos Allan Bittencourt
alan_orto@yahoo.com.br

ANEXO 3 – Relatório de verificação de originalidade e prevenção de plágio

Doença pulmonar obstrutiva crônica como fator de risco para suicídio: Uma revisão sistemática e meta-análise

de Jaqueline Bulgareli

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