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Financial toxicity in patients with lung cancer: a scoping review protocol

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ABSTRACT

Introduction Lung cancer has the second-ranked morbidity rate and the first-ranked mortality rate worldwide. With the progression of the cancer condition and the advancement of new treatments, the corresponding medical expenses have risen sharply. Nowadays, financial toxicity has become one of the most common concerns in patients with cancer. However, by far, the full landscape of studies on financial toxicity is unclear in patients with lung cancer. Thus, this scoping review aims to summarise the degree, affecting factors, outcomes and intervention strategies of financial toxicity in patients with lung cancer.

Methods and analysis This scoping review will be developed following the methodology described in the Joanna Briggs Institute Manual for Evidence Synthesis on scoping review protocol, which was based on Arksey and O'Malley's methodological framework, Levac *et al*'s recommendations for applying this framework and Peters *et al*'s enhancements of the framework. From the day of database building to 31 December 2021, 10 English databases will be searched in the 'Abstract' field with three key search terms: "Lung", "Cancer" and "Financial toxicity". The studies' screening and data extraction will be independently performed by two reviewers (MZ and RZ). Any disagreements between the two reviewers (MZ and RZ) will be resolved by consensus, and a third reviewer (BW) will be invited if necessary. The results will be analysed and presented using tables and figures. This scoping review will be reported following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews checklist.

Ethics and dissemination An ethical approval is not required for this scoping review protocol, nor for the scoping review. The results of this scoping review will be disseminated through publication in a peer-reviewed journal or presentation at conferences.

Registration This scoping review protocol has been registered in the Open Science Framework (https://osf.io/ub45n/?view_only=bb93eb94e1434a0f8196b3b61cffcec2).

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This scoping review will be developed following the methodology described in the Joanna Briggs Institute Manual for Evidence Synthesis on scoping review protocol.
⇒ To include as many relevant studies as possible, we plan to use a broad search strategy.
⇒ We plan to perform the optional sixth stage (consultation) in our review.
⇒ This scoping review will be limited to included studies published in English.
⇒ The quality of studies in this scoping review will not be assessed.

INTRODUCTION

Lung cancer, or bronchogenic carcinoma, is a proliferative malignant neoplasm arising from the primary respiratory epithelium.[1] Lung cancer is generally divided into two major histological groups: non-small cell lung cancer and small cell lung cancer. As one of the most commonly diagnosed cancers globally, lung cancer has the second-ranked morbidity rate and the first-ranked mortality rate. In 2020, GLOBOCAN has reported that there were an estimated 2 206 771 (11.4%) new cases and 1 796 144 (18.0%) cancer deaths of lung cancer worldwide.[2] Furthermore, a higher incidence (14.3%) and a higher mortality (21.5%) of lung cancer were found in males than the incidence (8.4%) and mortality (13.7%) in females.[1] Currently, lung cancer cannot be completely cured, but is generally controlled by medication and treatment to prolong life. As a result, most of the time, it is an ongoing process. With the progression of the cancer condition and the advancement of new treatments, the increase in medical expenses is also inevitable.[1 3–6]

Financial toxicity is an objective financial burden and subjective financial distress experienced by patients with cancer as a result of their treatment.[7] As a new concern that has emerged in the last decade, a high prevalence of financial toxicity was reported in patients with various cancers worldwide.[7–9] Factors related to financial toxicity were identified, involving baseline factors, cancer-related factors, medical insurance status, treatments, end-of-life care and so on.[8 10] Furthermore, financial toxicity negatively affects the patient's treatment, prognosis, quality of life (QoL), symptom burden and so on.[7–10]

Strategies to reduce financial toxicity have also been proposed at multiple levels (provider, clinic, hospital, insurance and governmental, and so on).[7 8 11]

The status of financial toxicity in patients with lung cancer is similar to the above situation. A study by Hazell *et al* explored financial toxicity in patients with lung cancer, demonstrating 38.2% of participants were either 'just getting on' or 'struggling' financially; inability to afford necessities, <1 month of savings and being employed but on sick leave were identified as risk factors of financial toxicity, and increased financial toxicity was correlated with a decrease in QoL.[12] Chen *et al*'s study indicated 72.7% and 37.0% of patients with lung cancer reported catastrophic health spending and healthcare costs exceeded annual household income, respectively, 83.7% of participants perceived financial difficulty, and healthcare costs exceeded total annual household income and perceived financial difficulty was associated with poorer QoL.[13] However, by far, the full landscape of studies on financial toxicity is unclear in patients with lung cancer. Therefore, to identify the knowledge gaps between practice and evidence and propose recommendations for future studies, it is crucial to review and summarise the current literature regarding financial toxicity in patients with lung cancer.

OBJECTIVES

The objectives of this scoping review are to illustrate: (1) the degree of financial toxicity in patients with lung cancer; (2) the contributing factors of financial toxicity in patients with lung cancer; (3) the impacts of financial toxicity on patients with lung cancer; (4) the strategies to reduce financial toxicity in patients with lung cancer.

METHODS

This protocol will be developed following the methodology described in the Joanna Briggs Institute Manual for Evidence Synthesis on scoping review protocol,[14] which was based on Arksey and O'Malley's methodological framework,[15] Levac *et al*'s recommendations for applying this framework and Peters *et al*'s enhancements of the framework.[16 17] The proposed scoping review will be reported following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews checklist (PRISMA-ScR).[18] The present protocol has been registered within the Open Science Framework (https://osf.io/).

Stage 1: identifying the research questions

According to the objectives, this scoping review is planning to answer the following main questions: (1) What evidence is available on the degree of financial toxicity in patients with lung cancer?; (2) What are the factors that affect financial toxicity in patients with lung cancer?; (3) What are the outcomes of financial toxicity on patients with lung cancer?; (4) What are the intervention strategies to deal with financial toxicity in patients with lung cancer?

Stage 2: identifying relevant studies

The participants of included studies will: (1) be human being, (2) be 18 years of age or older, (3) have a confirmed pathological diagnosis of lung cancer, (4) have reported financial toxicity. The concept, financial toxicity, was defined as the objective financial burden and subjective financial distress of patients with cancer, as a result of treatments using innovative drugs and concomitant health services.[7 19 20] Objective financial burden stems from out-of-pocket spending on cancer drugs as well as the services that make up the treatment regimen, including medical imaging, radiotherapy, surgery, lost wages for patients or caregivers, and other procedures.[7 20 21] Subjective financial distress results from the accumulation of out-of-pocket spending from the time of diagnosis, the erosion of the household's wealth and non-medical budget, and worry about the effectiveness of coping strategies available to and used by the patient.[7 20 22] The context of studies will be globally acute care, primary healthcare, community care and so on. The type of studies will be primary quantitative studies, including randomised controlled trials, non-randomised controlled trials, quasi-experimental studies, before and after studies, prospective and retrospective cohort studies, case–control studies and cross-sectional studies. Qualitative studies, reviews and conference abstracts were excluded.

The search strategy will be developed as follows: the 10 databases, the Cochrane Library, MEDLINE, Embase, CINAHL, Web of Science, Scopus, ProQuest, PsycINFO, and EconLit, will be searched. The search terms will be based on three key terms, namely, "Lung", "Cancer" and "Financial toxicity". The search field will be Title/Abstract. The language will be limited to English. The period will be set as the day of database building to 31 December 2021. In addition, hand search will be performed for reference lists of the included literature. The corresponding author will be contacted if necessary. A draft of the search strategy in MEDLINE was shown in online supplemental table S1.

Stage 3: study selection

All literature identified by the search strategies will be exported from the databases/journals and imported into the EndNote, respectively. After removing duplicates, the references will then be transferred into Rayyan.[23] A two-step process will be performed independently to select studies by two reviewers (MZ and RZ). According to the inclusion criteria described in stage 2, two reviewers (MZ and RZ) will screen titles, and in the next step will screen abstracts of included studies first, and then screen full texts. All disagreements between the above-mentioned two reviewers (MZ and RZ) will be resolved by a consensus, and a third reviewer (BW) will be invited if necessary. Pilot tests of study selection will be performed in 10% of all references. The formal study selection will

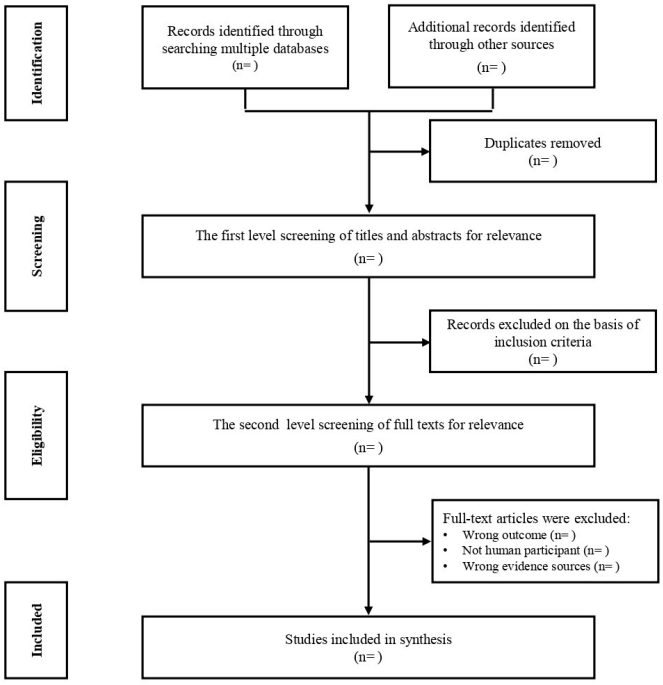

Figure 1 Flow diagram of study selection process.

begin until 75% agreement or greater is achieved among reviewers.[14] A PRISMA-ScR flow diagram (figure 1) will be provided to show details of studies included and excluded during the study selection process.

Stage 4: charting the data

A structured data recording form will be used on Microsoft Excel to capture the data of interest from the selected studies. The detailed data will include author, year of publication, country, study design, setting, population and sample size, measure of financial toxicity, financial toxicity (financial burden and financial distress), affecting factor, outcome, intervention strategy and reference. To ensure consistency in data extraction, two reviewers (MZ and RZ) will pilot test the form independently on a random sample of the included studies (10%). The form will be revised by an iterative process if necessary. In the formal data extraction stage, data will be extracted by one reviewer (MZ) according to the objectives of this scoping review and verified by another reviewer (RZ). Any disagreements between the two reviewers (MZ and RZ) will be resolved by a consensus, and a third reviewer (BW) will be invited if necessary. A draft of the data extraction form was presented in online supplemental table S2.

Stage 5: collating, summarising and reporting the results

The synthesis will be performed using narrative summaries and thematic analyses of the extracted data. Meanwhile, frequency distributions and descriptive statistics will be used to present the year of publication, country, study design, setting, population and sample size, the measure of financial toxicity, financial toxicity (financial burden and financial distress), affecting factor, outcome and intervention strategy. In addition, the degree of financial toxicity (financial burden and financial distress) will be summarised and analysed according to the measurement methods. The affecting factors, outcomes and intervention strategies of financial toxicity (financial burden and financial distress) will be classified based on the results. For the contributing factors, the categories may be demographic and socioeconomic factors, cancer-related factors, medical insurance, treatments and so on. The outcomes may involve survival, mortality, treatment non-adherence, QoL and symptom burden. The intervention strategies may be summarised from the level of healthcare providers, institutions and medical systems (see online supplemental table S3–S6).

Stage 6: consultation

Stakeholder consultation will be held to validate the findings in this scoping review and identify knowledge gaps for further research. Stakeholders will include clinicians, nurses, accountants, public servants and methodological experts of evidence-based medicine. Their suggestions will be incorporated into our final manuscript of scoping review.

Patient and public involvement

Patients or the public will not be directly involved in the design, conduct, reporting or dissemination plans of our research.

ETHICS AND DISSEMINATION

Ethical approval is not required for this scoping review protocol, nor for the scoping review. The results of this scoping review will be disseminated through publication in a peer-reviewed journal or presentation at conferences.

Contributors RX and XY conceived the study. LF, MZ, CL, RZ, BW, WX and BX conceptualised the research questions. LF, WX, BX, RX and XY refined the research questions. LF, CL, RX and XY drafted the scoping review protocol. All authors contributed to the refining of the study design, as well as to the editing and revising of this protocol.

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Competing interests None declared.

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