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Quality of life of transgender people under the lens of Social Determinants of Health: A scoping review protocol

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Title: **Quality of life of transgender people under the lens of Social Determinants of Health: A scoping review protocol**

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ABSTRACT

Introduction: There is an urgent need for knowledge about the transgender population to assist in the development of clinical protocols and training of health professionals on the unique issues affecting this population. Furthermore, discussion of the quality of life (QoL) of transgender people under the lens of Social Determinants of Health (SDOHs) would afford the opportunity for gender-specific health care interventions. Thus, the purpose of this study is to map the available evidence on the QoL of transgender people from the perspective of SDOHs.

Methods: A scoping review protocol adhering to the PRISMA-P statement and guided by the Scoping Reviews Manual of the Joanna Briggs Institute will be used. The search for evidence will cover the following databases: MEDLINE/PubMed, Cochrane Library, Embase, PsycINFO, Web of Science, and Scopus, and register sites such as ClinicalTrials.gov and WHO ICTRP. Additional sources to be searched include ProQuest Dissertations and Theses Global, the British Library (UK), Google Scholar, and Preprints for Health Sciences-medRXiv. No date or language restrictions will be applied in this scoping review. Two independent researchers will conduct the search strategy: study selection, data charting, and data synthesis. The results will be presented through tables, narrative summaries, and charts, and will be evaluated regarding the type of data charted and the outcomes. The search strategy will be updated in August 2022. The expected completion date for this ScR is December 2022.

Ethics/dissemination: This scoping review protocol does not require ethical approval. Moreover, dissemination plans include peer-reviewed publications and conference presentations to be shared with experts in this field, and advisory groups to inform discussions on future research. We also expect that our findings will be of interest to practitioners, researchers, stakeholders, and public and private managers, as well as to the general population concerned with this particular emerging issue in public health.

Open Science Framework Registration: osf.io/9ukz6

Strengths and limitations of this study

- To the best of our knowledge, this will be the first scoping review to synthesize qualitative as well as quantitative data to look specifically at the quality of life of transgender people under the lens of Social Determinants of Health.
- The review will adopt a rigorous approach, adhering to PRISMA-ScR guidelines and a comprehensive and systematic search strategy, including all study designs, grey literature, and preprints, with no time period or language restrictions.
- Lack of a standardized classification of the nomenclature for the large variety of gender and sexual identities may constitute a limitation on our findings.

INTRODUCTION

Transgender people (often called trans people) are a group whose expression of gender and/or gender identity differs from the sex assigned at birth [1]. These terms cover those whose gender identities and/or expressions do not align with the sociocultural expectations of their birth-assigned gender [2]. A transgender (TRANS) woman is a birth-assigned male who identifies as a woman. Furthermore, some TRANS individuals identify outside the gender binary as neither, either, nor somewhere between the two.

Some transgender people start hormone therapy to better identify with their gender, with the use of estrogens for transsexual women and testosterone for transsexual men to induce feminine and masculine physical characteristics, respectively. In some cases, the surgical alternative may yield results consistent with the individual's gender, which consequently tends to improve mental health and quality of life (QoL) [3].

According to the World Health Organization, QoL is a broad and multidimensional concept that includes subjective assessments of the positive and negative aspects of life [4]. Recent studies have shown that the QoL of the transgender population is lower than that of cisgender people [4–8]. The transition process is surrounded by physiological (development of sexual characteristics), social (lack of social support, discrimination, rejection, transphobia), and psychological (anxiety, depression) challenges [9] that can negatively impact the QoL of these individuals. The most affected dimensions are vitality, social support, and physical functioning [4]. Furthermore, the life of the TRANS is linked to unique vulnerabilities, including a history of negative healthcare experiences, difficulty in legal recognition of gender, and absence of social support [10].

Indeed, therapeutic intervention is one of the factors that may affect QoL in the TRANS population [4]. A recent systematic review that sought to understand the effect of gender-affirming hormone therapy on psychological outcomes among TRANS has shown that TRANS who were prescribed cross-sex hormones had scores demonstrating statistically significant improvement on the validated scales that measured QoL, anxiety, and depression compared to TRANS individuals who had enrolled in a sex-reassignment clinic but had not yet begun taking cross-sex hormones [5]. These results are consistent with those of other studies of this subject [6, 11]. Conversely, other studies have found no difference in QoL or psychological functioning between transgender individuals and the general population [12-14]. Moreover, the transgender population may seek medical services beyond gender-affirming healthcare. Given the range of healthcare needs, it is important that primary healthcare providers and others be trained in transgender healthcare (including protocols for referring to specialists, where available). Therefore, there is a need to better understand gender-based differences across the Social Determinants of Health, particularly in this population segment characterized by social inequality.

Background: The Social Determinants of Health

Health–disease balance is influenced by several determinants, including economic, cultural, social, environmental, and genetic/biological factors [15]. However, the multiplicity of determinants has not always been implicated in the development of health-related policies. Hence, a broad understanding of these determinants makes it possible to develop suitable interventions at different levels to minimize their impact on health outcomes [15-18].

It should be highlighted that the term "Social Determinants of Health" (SDOHs) has received considerable attention as a foundational concept in the field of population and public health [18,19]. The World Health Organization defines SDOH as the conditions or circumstances in which people are born, grow, live, work, and age [20], which are shaped by political, social, and economic forces [21]. Indeed, the importance of SDOH has resulted in an increase in research undertaken to address the relationship between health determinants and the organization of society [18,19]. Additionally, research on health inequities has been conducted to understand the inequities between different population groups [15,20].

Some of the most important SDOHs in the literature are education [21], housing and living environment [22], income and its distribution [23], stress, early life, social exclusion, work, unemployment, social support, addiction, food, and transport [24]. In more recent literature, health systems, gender, sexual orientation, social safety nets [23], culture or social norms [25], media, stigma and discrimination [26], social capital [27], conflict, rule of law, racism, racialized legal status [28], immigration [29], family, religion [30], colonialism, and marginalization [31] have also been identified as SDOHs. In addition, researchers have identified "time" as an SDOH, as healthy behavior, accessing health services, resting, and caring all require time [32]. Indeed, the amount of time one can use for health-related activities is socially patterned, and could therefore be a source of health inequalities [19].

Some models in the literature describe the complex relationship between different factors that influence SDOHs. One of the most quoted and endorsed models by the WHO [20,33] is the Dahlgren and Whitehead model (2006), which justifies the choice of this framework in the present article. In this model, the SDOHs are arranged in different concentric layers, with individuals at the center of the model (with individual characteristics of age, gender, and genetic factors). The first layer is related to lifestyle (with the potential to be changed by actions based on information). Next are the social and community support networks, indispensable for the health of society. At the most distal level are determinants at the macro level (macrodeterminants), which are related to economic, environmental, and cultural aspects of society in general. These have a great ability to influence the factors of lower levels [20,33]. Overall, the logic of SDOHs aims to reduce health inequities, improve health and well-being, promote development, and achieve Sustainable Development Goals [34]. However, the process of implementing approaches related to these determinants has been slow, which may indicate that governance, whether local or global, still shows difficulty in solving the current health problems [35].

Ideally, social, political, economic, and health conditions should be distributed and used by citizens fairly and equitably. In addition, it is not difficult to see that all these social resources are shaped by public policy. The economy, politics in general, and social policies in particular play important roles as forces capable of shaping such actions in society [15,36]. Moreover, the long list of SDOHs has implications for clinical practice and policy making [19]. For instance, an overwhelming list could discourage physicians from considering screening the social determinants of health. There are concerns about the requirements for and approaches to screening them and their benefits and unintended harms [37, 38]. Policymakers may also be less willing to proceed with such a long and increasing list. In most government settings, there are inherent barriers to adopting a social determinant approach in policy making [39]. In addition, public understanding of the determinants of health is broadly dominated by biomedical and behavioral approaches, such as coverage in the mainstream media. Currently, policymakers seldom solicit this concept to formulate public policy [19].

Although some studies have addressed reviews of QoL in transgender people, none have analyzed the findings from the perspective of SDOHs. There are specific inequalities in access to healthcare that need to be better understood by managers and multi-professional health teams. Furthermore, there is still no consensus on the relationship between QoL and social, hormonal, and surgical transitions and other psychological outcomes.

RESEARCH AIM

Thus, the purpose of this study is to map the available evidence on the QoL of transgender people from the perspective of SDOH.

METHODS

Study Design

This scoping review will be reported following the *Preferred Reporting Items for Systematic Review and Meta-Analyses extension for Scoping Reviews* (PRISMA-ScR) [40] as well as high compliance with the *Joanna Briggs Institute (JBI) Manual for Evidence Synthesis* [41].

One of the main reasons for conducting scoping reviews is that, unlike other reviews that tend to address relatively precise questions (e.g., systematic review of the interventions using a predefined set of outcomes), scoping reviews can be used to map the key concepts that underpin a field of research, as well as to clarify working definitions and/or the conceptual boundaries of a topic [42]. In addition, one study pointed out that the three most common reasons for conducting a scoping review were to explore the breadth or extent of the literature, map and summarize the evidence, and inform future research [43]. According to Munn et al. (2018), the indications for scoping reviews include I) as a precursor to a systematic review; II) to identify the types of available evidence in a given field; III) to identify and analyze knowledge gaps; IV) to clarify key concepts/definitions in the literature; V) to evaluate how research is conducted on a certain topic or field; and VI) to identify key characteristics or factors related to a concept [44].

The nine steps of the ScR include:1) defining and aligning the objective/s and question/s; 2) developing and aligning the inclusion criteria with the objective/s and question/s; 3) describing the planned approaches to evidence searching, selection, data extraction, and presentation of the evidence; 4) searching for evidence; 5) selecting the evidence; 6) extracting the evidence; 7) analysis of the evidence; 8) presentation of the results; and 9) summarizing the evidence in relation to the purpose of the review, making conclusions, and noting any implications of the findings [41].

Additionally, this protocol has been registered on the Open Science Framework (osf.io/9ukz6).

Research question

To formulate the research question, we used the PCC acronym (Population, Concept, and Context) [41] to identify the main concepts as described in detail as follows:

Population

The target population for this scoping review is transgender individuals. The adopted definition covers people who do not meet the prevailing expectations about gender incorporation in different degrees and in different ways [2].

Concept

This scoping review will include studies that include the quality of life as the primary endpoint. For this study, quality of life, according to WHO, refers to “an individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns” [45]. That is, QoL is a broad multidimensional concept that usually includes subjective evaluations of both positive and negative aspects of life [11].

Context

The context analyzed in this scoping review is the Social Determinants of Health (SDOHs). SDOHs are defined as “the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life” [10]. These forces and systems include economic policies, systems, development agendas, social norms and policies, and political systems [10].

The PCC acronym facilitated structured critical reasoning on the topic and the formulation of the following review question: “What evidence is available on the quality of life of transgender people from the perspective of the Social Determinants of Health?”

Search strategy

The search for evidence will cover the following databases: Medical Literature Analysis and Retrieval System Online (MEDLINE) via PubMed, Cochrane Library, Excerpta Medica database (Embase), Psychology Information (PsycINFO), Web of Science, and Scopus, and registered sites such as ClinicalTrials.gov and WHO International Clinical Trials Registry Platform. Furthermore, additional sources will be searched, including ProQuest Dissertations and Theses Global, the British Library (UK), Google Scholar, and Preprints for Health Sciences [medRXiv]. For the search strategy, we will include a combination of subject headings, such as Medical Subject

Headings (MeSH), Emtree terms, and Thesaurus, using the Boolean terms AND/OR [46,47]. The reference lists of all included studies will be reviewed for additional relevant studies. No date or language restrictions will be employed in this review.

To structure the search, as already mentioned, searches were carried out in MEDLINE/PubMed to find the best combination of MeSH terms, synonyms, and free-text words, which will be later adjusted for each electronic database. The search strategy, which combines the controlled descriptors and keywords used in each database, is shown in **Supplementary File 1.**

Eligibility

- *Inclusion criteria:* All primary studies, experience reports, dissertations, and theses related to the QoL of transgender people under the SDOH lens will be included. It is noteworthy that no date or language restrictions will be applied during the study selection.
- *Exclusion criteria:* Experimental studies conducted in animal models, *in vivo*, and *ex vivo* regarding this topic will be excluded.

After searching for studies, articles will be downloaded to Endnote Web™ bibliographic software to store, organize, and manage all references and identify duplicates. The studies will be exported to the Rayyan™ application, which assists in the screening and selection of studies. At this stage, titles and abstracts will be read for an initial assessment of the evidence. Two independent researchers (KHCC and LCLJ) will search and screen the records by titles and abstracts using the Rayyan™ app. After the initial screening, the same two independent researchers (KHCC and LCLJ) will assess the full texts of the studies retrieved for inclusion/exclusion using the Rayyan™ app. A third reviewer (JLMR) will resolve any disagreements regarding the selected studies.

Data collection

Three reviewers (KHCC, JAM, and LCLJ) will independently record the data for each included study based on previously published forms [48–55]. The expected date of completion of this scoping review is December 2022. The information to be extracted includes a) identification of the study and objectives, b) study population and baseline characteristics, c) type of exposure, d) study method, e) recruitment methods, f) times of measurement, g) follow-up, h) outcomes, i) main findings, j) clinical and epidemiological significance, and k) conclusions [41,47–55].

Data analysis, presenting and summarizing the evidence

For the classification of selected studies, we will use the hierarchy of evidence from the Centre for Evidence-Based Medicine [56]. This classification is divided into five hierarchical levels, as listed in Table 1.

Table 1. Levels of evidence according to study design for therapeutic studies and preventive programs.

Level	**Type of evidence**
1A	Systematic review (with homogeneity) of RCTs
1B	Individual RCT (with narrow confidence intervals)
1C	All or none study
2A	Systematic review (with homogeneity) of cohort studies
2B	Individual Cohort study (including low quality RCT, e.g. <80% follow-up)
2C	"Outcomes" research; Ecological studies
3A	Systematic review (with homogeneity) of case-control studies
3B	Individual Case-control study
4	Case series (and poor quality cohort and case-control study
5	Expert opinion without explicit critical appraisal or based on physiology bench research or "first principles"

*From the Centre for Evidence-Based Medicine, http://www.cebm.net.

A flowchart (Figure 1) describes the study selection process [57].

Figure 1. PRISMA flowchart.

Our findings will be presented through tables, charts, and narrative summaries and will be assessed based on the type of data charted and the outcomes. To outline the networks of relationships between the keywords and the references, a graphic map will be generated using the VOSviewer® tool, which is a useful software for visualizing bibliometric networks.

Moreover, the meaning of these findings will be considered with regard to how they relate to the guiding question, the characterization and measurement of the impact of the SDOHs on the quality of life of transgender people, and the implications for practice and further research.

Patient and public involvement

This scoping review protocol analyses existing research studies and, therefore, does not involve patients or members of the public.

DISCUSSION

There is a huge need for a taxonomy or criteria regarding what should be considered an SDOH. The past two decades have seen a resurgence of international interest in the non-medical and non-behavioral precursors of health and illness, with a central focus on SDOHs [58]. It is important to improve health on a global scale, particularly for underprivileged subgroups of the community, such as the TRANS people.

In summary, the SDOH framework shows how social, economic, and political mechanisms give rise to a set of socioeconomic positions, whereby populations are stratified according to income, education, occupation, gender, race/ethnicity, and other factors, which in turn shape specific determinants of health status (intermediary determinants) reflective of people's place within social hierarchies. Based on their respective social status, individuals experience differences in exposure and vulnerability to health-compromising conditions [19, 20].

The role of the health system becomes particularly relevant through the issue of access, which incorporates differences in exposure and vulnerability, and through intersectoral action within the health sector [19, 20]. In recent decades, social and economic policies that have been associated with positive aggregate trends in health-determining social factors (e.g., income and educational attainment) have also been associated with persistent inequalities in the distribution of these factors across population groups. Therefore, seriousness and commitment are urgent in the process of formulating public health policies and for scientific research and criticality in the interpretation of results. In addition, it is important to link the work delivered between research centers, health managers, and stakeholders. Graham (2004) argues for the importance of representing the concept of social determinants to policymakers in ways that clarify the distinction between the social causes of health and the factors determining the distribution of these causes between more- and less-advantaged groups [59].

Limitations and strengths

Some limitations of this study protocol include the following: a) Most studies that address the transgender population are prevalence studies, that is, cross-sectional studies that may result in biases inherent to these designs–the difficulty of establishing a cause-effect relationship; b) usually, studies with transgender people have a small sample size and level of evidence that may fall into the low or moderate classification; and c) there is a difficulty in the lack of a standardized classification of the nomenclature used for the large variety of gender and sexual identities.

However, our study has significant strengths: a) To the best of our knowledge, this will be the first ScR that combines quantitative and qualitative methods to look specifically at the quality of life of transgender people under the SDOH lens; b) this study includes a comprehensive literature search without restrictions on language or date of publication; and c) we will search across multiple electronic databases and additional sources, as well as grey literature. Finally, the ScR method will be used to chart and map the results and establish directions for future research. Furthermore, there are two notable respects in which the protocol of this study differs from others. First, ScR is more suitable for our study theme than is a systematic review. Our research question is broad and focuses on mapping the extent of available evidence. Second, we combine qualitative and quantitative methods to report our results using thematic themes and bibliometric trends to provide efficient guidance and meaningful insights into this field.

The use of new and varied methods to review the evidence and collate and summarize our findings represents the strength of our study. We expect that our results will be of interest to practitioners, researchers, stakeholders, and the general population concerned with this emerging issue in public health.

ETHICS AND DISSEMINATION

This study involves neither human participants nor unpublished primary data. As such, ethics approval from the human research ethics committee was not required. Plans for the dissemination of this study include peer-reviewed publications and conference presentations to be shared with experts in this field and advisory groups to inform discussions on future research.

The authors are finalizing/updating the search strategy in August 2022 and preparing to conduct this review. The aim is to complete this review by December 2022.

Data availability statement

Data are available upon reasonable request.

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None to declare.

Contributorship statement:

Conceptualization: JLMR and LCLJ
Methodology: LCLJ
Resources: JLMR and LCLJ
Acquisition/interpretation of data for the work: KHCC, JAM, JLMR, VRG and LCLJ
Supervision: JLMR and LCLJ
Writing – original draft: KHCC, JAM, JLMR, VRG and LCLJ
Writing – review & editing, and approving the final version: JLMR and LCLJ
Guarantors: JLMR and LCLJ
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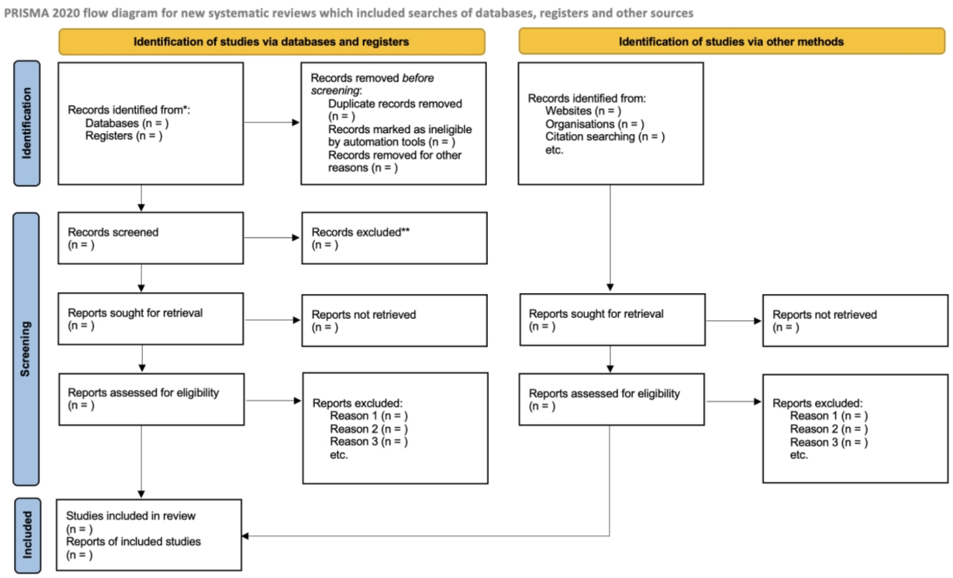
Figure 1. PRISMA flowchart.



PRISMA flowchart.

484x284mm (118 x 118 DPI)

Chart 1. Supplementary file of preliminary pilot search strategy in all databases.

Databases	Item searched
MEDLINE/PubMed	**P- POPULATION:** **#1** ((“Transgender Persons” [MeSH Terms] OR “Person, Transgender” [All Fields] OR “Persons, Transgender” [All Fields] OR “Transgender Person” [All Fields] OR “Transgenders” [All Fields] OR “Transgender” [All Fields] OR “Transgendered Persons” [All Fields] OR “Transgendered Person” [All Fields] OR “Transsexual Persons” [All Fields] OR “Persons, Transsexual” [All Fields] OR “Transsexual Person” [All Fields] OR “Transexual” [All Fields] OR “Transmen” [All Fields] OR “Transwomen” [All Fields] OR “Non-binary Gender” [All Fields] OR “Genderqueer” [All Fields] OR “Gender Identity” [MeSH Terms] OR “Gender Identities” [All Fields] OR “Identity, Gender” [All Fields] OR “Gender Dysphoria” [MeSH Terms] OR “Gender Identity Disorder” [All Fields] OR “Gender Identity Disorders” [All Fields] OR “Identity Disorder, Gender” [All Fields])) **#C: CONCEPT / CONTEXT** **#2** ((“Quality of Life” [MeSH Terms] OR “Life Quality” [All Fields] OR “Health-Related Quality Of Life” [All Fields] OR “Health Related Quality Of Life” [All Fields] OR “HRQOL” [All Fields] OR “Social Determinants of Health" [MeSH Terms] OR “Health Social Determinants” [All Fields] OR “Structural Determinants of Health” [All Fields] OR “Health Structural Determinants” [All Fields])) **#3** #1 AND #2
Cochrane Library	**#1** (Transgender Persons) OR (Person, Transgender) OR (Persons, Transgender) OR (Transgender Person) OR (Transgenders) OR (Transgender) OR (Transgendered Persons) OR (Transgendered Person) OR (Transsexual Person) OR (Persons, Transsexual) OR (Transsexual Person) OR (Transexual) OR (Transmen) OR (Transwomen) OR (Non-binary Gender) OR (Genderqueer) OR (Gender Identity) OR (Gender Identities) OR (Identity, Gender) OR (Gender Dysphoria) OR (Gender Identity Disorder) OR (Gender Identity Disorders) OR (Identity Disorder, Gender) **#2** (Quality of Life) OR (Life Quality) OR (Health-Related Quality Of Life) OR (Health Related Quality Of Life) OR (HRQOL) OR (Social Determinants of Health) OR (Health Social Determinants) OR (Structural Determinants of Health) OR (Health Structural Determinants) **#3** #1 AND #2
Embase	**#1** ('transgender'/exp OR 'trans people' OR 'trans person' OR 'transgender' OR 'transgender person' OR 'transgender persons' OR 'transgendered people' OR 'transgendered person' OR 'transgendered persons' OR 'transgenders' OR 'transpeople' OR 'transperson' OR 'transsexual' OR 'transsexuals' OR 'female to male transgender'/exp OR 'ftm transgender' OR 'ftm transsexual' OR 'ftm transsexuals' OR 'female to male transgender' OR 'female to male transgenders' OR 'female to male transsexual' OR 'female to male transsexuals' OR 'trans man' OR 'transman' OR 'transmen' OR 'male to female transgender'/exp OR 'mtf transgender' OR 'mtf transsexual' OR 'mtf transsexuals' OR 'male to female transgender' OR 'male to female transsexual' OR 'male to female transsexuals' OR 'trans woman' OR 'transwoman' OR 'transwomen' OR 'gender dysphoria'/exp OR 'dysphoria, gender' OR 'gender dysphoria' OR 'gender identity disorder' OR 'sexual dysphoria'OR 'gender identity'/exp OR 'gender identity' OR 'gender self-identification' OR 'identity, sexual' OR 'sex identification' OR 'sexual identification' OR 'sexual identity' OR 'sexual self-identification') AND ('quality of life'/exp OR 'hrql' OR 'health related quality of life' OR 'life quality' OR 'quality of life' OR 'social determinants of health'/exp OR 'social determinant' OR 'social determinants' OR 'social determinants of health' OR 'social determining factor' OR 'social factors determining health' OR 'social health determinant')

Web of Science	**#1** ALL=(Transgender Persons OR Person, Transgender OR Persons, Transgender OR Transgender Person OR Transgenders OR Transgender OR Transgendered Persons OR Transgendered Person OR Transsexual Person OR Persons, Transsexual OR Transsexual Person OR Transexual OR Transmen OR Transwomen OR Non-binary Gender OR Genderqueer OR Gender Identity OR Gender Identities OR Identity, Gender OR Gender Dysphoria OR Gender Identity Disorder OR Gender Identity Disorders OR Identity Disorder, Gender) **#2** ALL=(Quality of Life OR Life Quality OR Health-Related Quality Of Life OR Health Related Quality Of Life OR HRQOL OR Social Determinants of Health OR Health Social Determinants OR Structural Determinants of Health OR Health Structural Determinants)
Scopus	**#1** (Transgender Persons OR Person, Transgender OR Persons, Transgender OR Transgender Person OR Transgenders OR Transgender OR Transgendered Persons OR Transgendered Person OR Transsexual Person OR Persons, Transsexual OR Transsexual Person OR Transexual OR Transmen OR Transwomen OR Non-binary Gender OR Genderqueer OR Gender Identity OR Gender Identities OR Identity, Gender OR Gender Dysphoria OR Gender Identity Disorder OR Gender Identity Disorders OR Identity Disorder, Gender) **#2** (Quality of Life OR Life Quality OR Health-Related Quality Of Life OR Health Related Quality Of Life OR HRQOL OR Social Determinants of Health OR Health Social Determinants OR Structural Determinants of Health OR Health Structural Determinants) **#3** #1 AND #2
PsycINFO	**#1** (Transgender OR Transphobia OR Gender Equality OR Gender Identity OR Sexual Identity (Gender) OR Gender Nonbinary OR Gender Nonconforming OR Gender Diverse OR Gender Expression OR Transsexualism OR Gender Dysphoria OR Gender Identity Disorder) **#2** (Quality of Life OR Health Status OR Health Related Quality Of Life OR Quality Of Life Measures OR Social Determinants of Health OR Health Social Determinants) **#3** #1 AND #2
Registers	**Item searched**
ClinicalTrial.gov	(Transgender Persons OR Transgender Transsexual Person OR Gender Identity OR Gender Dysphoria) AND (Quality of Life OR Health-Related Quality Of Life OR Social Determinants of Health)
WHO International Clinical Trials Registry Platform	(Transgender Persons OR Transgender Transsexual Person OR Gender Identity OR Gender Dysphoria) AND (Quality of Life OR Health-Related Quality Of Life OR Social Determinants of Health)
Organizations and Websites and grey literature	**Item searched**
The British Library (UK)	**#1** (Transgender Persons OR Transgender Transsexual Person OR Gender Identity OR Gender Dysphoria) **#2** ((Quality of Life OR Health-Related Quality Of Life OR Social Determinants of Health)
Google Scholar	(Transgender Persons OR Transgender OR Gender Identity OR Gender Dysphoria) AND (Quality of Life OR Social Determinants of Health)

The ProQuest Dissertation & Theses Global	(Transgender Persons OR Transgender OR Transsexual Person OR Gender Identity OR Gender Dysphoria) AND (Quality of Life OR Health-Related Quality Of Life OR Social Determinants of Health)
Preprints for Health Sciences [medRXiv]	(Transgender Persons OR Transgender OR Gender Identity OR Gender Dysphoria) AND (Quality of Life OR Social Determinants of Health)

PRISMA-P 2015 Checklist

This checklist has been adapted for use with protocol submissions to *Systematic Reviews* from Table 3 in Moher D et al: Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic Reviews* 2015 **4**:1

Section/topic	#	Checklist item	Information reported		Page number(s)
			Yes	No	
ADMINISTRATIVE INFORMATION					
Title					
Identification	1a	Identify the report as a protocol of a systematic review	☒	☐	1
Update	1b	If the protocol is for an update of a previous systematic review, identify as such	☐	☒	-
Registration	2	If registered, provide the name of the registry (e.g., PROSPERO) and registration number in the Abstract	☒	☐	2
Authors					
Contact	3a	Provide name, institutional affiliation, and e-mail address of all protocol authors; provide physical mailing address of corresponding author	☒	☐	1
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review	☒	☐	10
Amendments	4	If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments	☐	☒	-
Support					
Sources	5a	Indicate sources of financial or other support for the review	☒	☐	10
Sponsor	5b	Provide name for the review funder and/or sponsor	☒	☐	10
Role of sponsor/funder	5c	Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol	☒	☐	10
INTRODUCTION					
Rationale	6	Describe the rationale for the review in the context of what is already known	☒	☐	2-3
Objectives	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO)	☒	☐	4
METHODS					
Eligibility criteria	8	Specify the study characteristics (e.g., PICO, study design, setting, time frame) and report characteristics (e.g., years considered, language, publication status) to be used as criteria for	☒	☐	5-6

Section/topic	#	Checklist item	Information reported		Page number(s)
			Yes	No	
		eligibility for the review			
Information sources	9	Describe all intended information sources (e.g., electronic databases, contact with study authors, trial registers, or other grey literature sources) with planned dates of coverage	☒	☐	5
Search strategy	10	Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated	☒	☐	5-6
STUDY RECORDS					
Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review	☒	☐	6
Selection process	11b	State the process that will be used for selecting studies (e.g., two independent reviewers) through each phase of the review (i.e., screening, eligibility, and inclusion in meta-analysis)	☒	☐	6-7
Data collection process	11c	Describe planned method of extracting data from reports (e.g., piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators	☒	☐	6-7
Data items	12	List and define all variables for which data will be sought (e.g., PICO items, funding sources), any pre-planned data assumptions and simplifications	☒	☐	7
Outcomes and prioritization	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale	☒	☐	8
Risk of bias in individual studies	14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis	☐	☒	-
DATA					
Synthesis	15a	Describe criteria under which study data will be quantitatively synthesized	☒	☐	8
	15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data, and methods of combining data from studies, including any planned exploration of consistency (e.g., I^2, Kendall's tau)	☐	☒	-
	15c	Describe any proposed additional analyses (e.g., sensitivity or subgroup analyses, meta-regression)	☐	☒	-
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned	☒	☐	8
Meta-bias(es)	16	Specify any planned assessment of meta-bias(es) (e.g., publication bias across studies, selective reporting within studies)	☐	☒	-
Confidence in cumulative evidence	17	Describe how the strength of the body of evidence will be assessed (e.g., GRADE)	☐	☒	-

BMJ Open

Quality of life of transgender people under the lens of Social Determinants of Health: A scoping review protocol

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2022-067575.R1
Article Type:	Protocol
Date Submitted by the Author:	11-Apr-2023
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Primary Subject Heading:	Sexual health
Secondary Subject Heading:	Public health, Sexual health
Keywords:	Public health < INFECTIOUS DISEASES, PUBLIC HEALTH, Sexual and gender disorders < PSYCHIATRY, Health policy < HEALTH SERVICES ADMINISTRATION & MANAGEMENT

***Title Page** – BMJ Open*

Title: **Quality of life of transgender people under the lens of Social Determinants of Health: A scoping review protocol**

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Keywords: transgender people, Gender identity; Dysphoria, Social Determinants of Health, Public Health.

Word Count: 3081 words.

ABSTRACT

Introduction: There is an urgent need for knowledge about the transgender population to assist in the development of clinical protocols and training of health professionals on the unique issues affecting this population. Discussion of the quality of life (QoL) of transgender people under the lens of Social Determinants of Health (SDOHs) would afford the opportunity for gender-specific health care interventions. Here, we aimed to map the available evidence on the QoL of transgender people from the perspective of SDOHs.

Methods and analysis: A scoping review (ScR) protocol adhering to the PRISMA-ScR statement and guided by Joanna Briggs Institute were used. MEDLINE/PubMed, Cochrane Library, Embase, PsycINFO, Web of Science, Scopus, and register sites such as ClinicalTrials.gov and WHO ICTRP will be searched. Additional sources to be searched include ProQuest Dissertations/Theses Global, British Library, Google Scholar, and Preprints for Health Sciences-medRXiv. Two independent researchers will conduct the selection, data charting, and data synthesis. There will be no application of date restriction in this ScR. Regarding the language, will restrict the studies published in English, Spanish and Portuguese idioms.

The results will be presented through tables, narrative summaries, and charts, and will be evaluated regarding the type of data charted and the outcomes. The search strategy will be updated in April 2023. The expected completion date for this ScR is July 2023.

Ethics and dissemination: This ScR protocol does not require ethical approval. Dissemination plans include peer-reviewed publications and conference presentations to be shared with experts in this field, and advisory groups to inform discussions on future research. Hoped that our findings will be of interest to practitioners, researchers, stakeholders, and public and private managers, and to the general population concerned with this particular emerging issue in public health.

Open Science Framework Registration: osf.io/9ukz6

Strengths and limitations of this study

- To the best of our knowledge, this will be the first scoping review to synthesize qualitative as well as quantitative data to look specifically at the quality of life (QoL) of transgender people under the lens of Social Determinants of Health.
- The review will adopt a rigorous approach, adhering to PRISMA-ScR guidelines and a comprehensive and systematic search strategy, including all study designs, grey literature, and preprints, with no time period restrictions.
- Lack of a standardized classification of the nomenclature for the large variety of gender may constitute a limitation on our findings.

INTRODUCTION

Transgender or trans are umbrella terms used to describe people whose gender expressions and/or gender identities are not what is expected for the sex to which they were assigned at birth [1]. This definition covers many varied communities globally of individuals with gender identities or expressions that differ from the gender socially indicated. This includes people who have culturally specific and/or language-specific experiences, identities or expressions, and/or that are not based on or encompassed by the current conceptualizations of gender [1]. Furthermore, some transgender individuals identify outside the gender binary as neither, either, nor somewhere between the two [2].

The life of the transgender is linked to unique vulnerabilities, including a history of negative healthcare experiences, difficulty in legal recognition of gender, and absence of social support [3]. This group experiences higher rates of harassment and bullying, homelessness, sexual and physical violence, parental rejection and social isolation when compared to cisgender people [1, 4, 5].

Transgender population also may seek medical services beyond gender-affirming healthcare. Some transgender people start hormone therapy to better identify with their gender, with the use of estrogens for transgender women and testosterone for transgender men to induce feminine and masculine physical characteristics, respectively. In some cases, the surgical alternative may yield results consistent with the individual’s gender, which consequently may to modulate the level of QoL

[6, 7]. QoL is a broad and multidimensional concept that includes subjective assessments of the positive and negative aspects of life [8]. Some studies have shown that the QoL of the TRANS population is lower than that of cisgender people [9–11]. The transition process is surrounded by physiological (development of sexual characteristics), social (lack of social support, discrimination, rejection, transphobia), and psychological (anxiety, depression and suicidal ideation) challenges [12] that can negatively impact the QoL of these individuals. The most affected dimensions of QoL are vitality, social support, and physical functioning [9, 10].

Indeed, therapeutic intervention is one of the factors that may affect QoL in the transgender population [10]. A recent systematic review that sought to understand the effect of gender-affirming hormone therapy on psychological outcomes among transgender has shown that transgender who were prescribed cross-sex hormones had scores demonstrating statistically significant improvement on the validated scales that measured QoL, anxiety, and depression compared to transgender individuals who had enrolled in a sex-reassignment clinic but had not yet begun taking cross-sex hormones [10]. These results are consistent with those of other studies of this subject [13, 14]. Conversely, other studies have found no difference in QoL or psychological functioning between transgender individuals and the general population [15-17].

Other relevant issue is related to the costs of treatments, especially multiple surgeries. Gender-affirming surgery and the impact of the financial burden has on the mental health as well as QoL of transgender people is often overlooked [18]. Finances and insurance issues, a lack of service delivered, and fears or concerns might be raising during the transsexualization process [19]. Therefore, there is an urgent need to better understand gender identity-based differences across the Social Determinants of Health, particularly in this population segment characterized by social inequality.

Given the range of healthcare needs, it is important that primary healthcare providers and others be trained in transgender healthcare (including protocols for referring to specialists, where available). Moreover, the knowledge about the intersectionality of socioeconomic and health variables of transgender is need to assist in the development of public health policies and clinical protocols on the unique issues affecting this population.

Background: The Social Determinants of Health

Health–disease balance is influenced by several determinants, including economic, cultural, social, environmental, and genetic/biological factors [20]. However, the multiplicity of determinants has not always been implicated in the development of health-related policies. Hence, a broad understanding of these determinants makes it possible to develop suitable interventions at different levels to minimize their impact on health outcomes [20-22].

It should be highlighted that the term “Social Determinants of Health” (SDOHs) has received considerable attention as a foundational concept in the field of population and public health [23, 24]. The World Health Organization defines SDOH as the conditions or circumstances in which people are born, grow, live, work, and age [25], which are shaped by political, social, and economic forces [26]. Indeed, the importance of SDOH has resulted in an increase in research undertaken to address the relationship between health determinants and the organization of society [23, 24]. Additionally, research on health inequities has been conducted to understand the inequities between different population groups [20, 25].

Some of the most important SDOHs in the literature are education [26], housing and living environment [27], income and its distribution [28], stress, early life, social exclusion, work, unemployment, social support, addiction, food, and transport [29]. In more recent literature, health systems, gender, sexual orientation, social safety nets [28], culture or social norms [30], media, stigma and discrimination [31], social capital [32], conflict, rule of law, racism, racialized legal status [33], immigration [34], family, religion [35], colonialism, and marginalization [36] have also been identified as SDOHs. In addition, researchers have identified “time” as an SDOH, as healthy behavior, accessing health services, resting, and caring all require time [37]. Indeed, the amount of time one can use for health-related activities is socially patterned, and could therefore be a source of health inequalities [24].

Some models in the literature describe the complex relationship between different factors that influence SDOHs. One of the most quoted and endorsed models by the WHO [25,38] is the Dahlgren and Whitehead model [39], which justifies the choice of this framework in the present article. In this model, the SDOHs are arranged in different concentric layers, with individuals at the center of the model (with individual characteristics of age, gender, and genetic factors). The first layer is related to lifestyle (with the potential to be changed by actions based on information). Next are the social and community support networks, indispensable for the health of society. At the most distal level are determinants at the macro level (macro determinants), which are related to economic, environmental, and cultural aspects of society in general (Figure 1). These have a great ability to influence the factors of lower levels [25,38].

Figure 1. The main Determinants of Health.
Source: Adptaded from Dahlgren; Whitehead (1991) [39] and Dahlgren; Whitehead (2021, page 22) [40].

Overall, the logic of SDOHs aims to reduce health inequities, improve health and well-being, promote development, and achieve Sustainable Development Goals [41]. However, the process of implementing approaches related to these determinants has been slow, which may indicate that governance, whether local or global, still shows difficulty in solving the current health problems [42].

Ideally, social, political, economic, and health conditions should be distributed and used by citizens fairly and equitably. In addition, it is not difficult to see that all these social resources are shaped by public policy. The economy, politics in general, and social policies in particular play important roles as forces capable of shaping such actions in society [20,43]. Moreover, the long list of SDOHs has implications for clinical practice and policy making [24]. For instance, an overwhelming list could discourage physicians from considering screening the social determinants of health. There are concerns about the requirements for and approaches to screening them and their benefits and unintended harms [44, 45]. Policymakers may also be less willing to proceed with such a long and increasing list. In most government settings, there are inherent barriers to adopting a social determinant approach in policy making [45, 46]. Among these barriers, the following can be mentioned: invisibility of this population in the global context and especially in middle-income countries, stigma and prejudice of health managers leading to not prioritizing policies for this population, ideologies and religious issues that are still relevant in decision-making by political agents, lack of training of health professionals which reducing the ability to act on the social determinants of health. In addition, public understanding of the determinants of health is broadly dominated by biomedical and behavioral approaches, such as coverage in the mainstream media. Currently, policymakers seldom solicit this concept to formulate public policy [24, 45, 46].

Although some studies have addressed reviews of QoL in transgender people, none have analyzed the findings from the perspective of SDOHs. There are specific inequalities in access to healthcare that need to be better understood by managers and multi-professional health teams. Furthermore, there is still no consensus on the relationship between QoL and social, hormonal, and surgical transitions and psychological outcomes.

RESEARCH AIM

Thus, the purpose of this study is to map the available evidence on the QoL of transgender people from the perspective of SDOH.

METHODS AND ANALYSIS

Study Design

This scoping review will be reported following the *Preferred Reporting Items for Systematic Review and Meta-Analyses extension for Scoping Reviews* (PRISMA-ScR) [47] as well as high compliance with the *Joanna Briggs Institute* (*JBI*) *Manual for Evidence Synthesis* [48].

One of the main reasons for conducting scoping reviews is that, unlike other reviews that tend to address relatively precise questions (e.g., systematic review of the interventions using a predefined set of outcomes), scoping reviews can be used to map the key concepts that underpin a field of research, as well as to clarify working definitions and/or the conceptual boundaries of a topic [49]. In addition, one study pointed out that the three most common reasons for conducting a scoping review were to explore the breadth or extent of the literature, map and summarize the evidence, and inform future research [50]. According to Munn et al. (2018), the indications for scoping reviews include I) as a precursor to a systematic review; II) to identify the types of available evidence in a given field; III) to identify and analyze knowledge gaps; IV) to clarify key concepts/definitions in the literature; V) to evaluate how research is conducted on a certain topic or field; and VI) to identify key characteristics or factors related to a concept [51].

The nine steps of the ScR include:1) defining and aligning the objective/s and question/s; 2) developing and aligning the inclusion criteria with the objective/s and question/s; 3) describing the planned approaches to evidence searching, selection, data extraction, and presentation of the evidence; 4) searching for evidence; 5) selecting the evidence; 6) extracting the evidence; 7) analysis of the evidence; 8) presentation of the results; and 9) summarizing the evidence in relation to the purpose of the review, making conclusions, and noting any implications of the findings [47].

Additionally, this protocol has been registered on the Open Science Framework (osf.io/9ukz6).

Research question

To formulate the research question, we used the PCC acronym (Population, Concept, and Context) [47] to identify the main concepts as described in detail as follows:

Population

The target population for this scoping review is transgender individuals. The adopted definition covers people who do not meet the prevailing expectations about gender incorporation in different degrees and in different ways [1].

Concept

This scoping review will include studies that include the quality of life as the primary endpoint. For this study, quality of life, according to WHO, refers to “an individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns” [52]. That is, QoL is a broad multidimensional concept that usually includes subjective evaluations of both positive and negative aspects of life [8].

Context

The context analyzed in this scoping review is the Social Determinants of Health (SDOHs). SDOHs are defined as “the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life” [3]. These forces and systems include economic policies, systems, development agendas, social norms and policies, and political systems [44, 46, 52].

The PCC acronym facilitated structured critical reasoning on the topic and the formulation of the following review question: “What evidence is available on the quality of life of transgender people from the perspective of the Social Determinants of Health?”

Search strategy

The search for evidence will cover the following databases: Medical Literature Analysis and Retrieval System Online (MEDLINE) via PubMed, Cochrane Library, Excerpta Medica database (Embase), Psychology Information (PsycINFO), Web of Science, and Scopus, and registered sites such as ClinicalTrials.gov and WHO International Clinical Trials Registry Platform. Furthermore, additional sources will be searched, including ProQuest Dissertations and Theses Global, the British Library (UK), Google Scholar, and Preprints for Health Sciences [medRXiv]. For the search strategy, we will include a combination of subject headings, such as Medical Subject Headings (MeSH), Emtree terms, and Thesaurus, using the Boolean terms AND/OR [53, 54]. The reference lists of all included studies will be reviewed for additional relevant studies. No date restrictions will be employed in this review. With regards to language, this scoping review restricts the studies to be retrieved in English, Spanish and Portuguese idioms

To structure the search, as already mentioned, searches were carried out in MEDLINE/PubMed to find the best combination of MeSH terms, synonyms, and free-text words, which will be later adjusted for each electronic database. The search strategy, which combines the controlled descriptors and keywords used in each database, is shown in **Supplementary File 1.**

Eligibility

- *Inclusion criteria:* All primary studies, experience reports, dissertations, and theses related to the QoL of transgender people under the SDOH lens will be included. It is noteworthy that no date restrictions will be applied during the study selection. . Articles in English, Spanish and Portuguese idioms will be included.
- *Exclusion criteria:* All revisions will be excluded.

After searching for studies, articles will be downloaded to Endnote Web™ bibliographic software to store, organize, and manage all references and identify duplicates. The studies will be exported to the Rayyan™ application, which assists in the screening and selection of studies. At this stage, titles and abstracts will be read for an initial assessment of the evidence. Two independent researchers (KHCC and LCLJ) will search and screen the records by titles and abstracts using the Rayyan™ app. After the initial screening, the same two independent researchers (KHCC and LCLJ) will assess the full texts of the studies retrieved for inclusion/exclusion using the Rayyan™ app. A third reviewer (JLMR) will resolve any disagreements regarding the selected studies.

Data collection

Three reviewers (KHCC, JAM, and LCLJ) will separately record the data for each included study based on previously published forms [53–61]. The expected date of completion of this scoping review is July 2023. The information to be extracted includes a) identification of the study and objectives, b) study population and baseline characteristics, c) type of exposure, d) study method, e) recruitment methods, f) times of measurement, g) follow-up, h) outcomes, i) main findings, j) clinical and epidemiological significance, and k) conclusions [45, 46, 51–59].

Data analysis, presenting and summarizing the evidence

For the classification of selected studies, we will use the hierarchy of evidence from the Centre for Evidence-Based Medicine [62]. This classification is divided into five hierarchical levels, as listed in Table 1.

Table 1. Levels of evidence according to study design for therapeutic studies and preventive programs.

Level	Type of evidence
1A	Systematic review (with homogeneity) of RCTs
1B	Individual RCT (with narrow confidence intervals)
1C	All or none study
2A	Systematic review (with homogeneity) of cohort studies
2B	Individual Cohort study (including low quality RCT, e.g. <80% follow-up)
2C	“Outcomes” research; Ecological studies
3A	Systematic review (with homogeneity) of case-control studies
3B	Individual Case-control study

4	Case series (and poor quality cohort and case-control study
5	Expert opinion without explicit critical appraisal or based on physiology bench research or "first principles"

*From the Centre for Evidence-Based Medicine, http://www.cebm.net.

A flowchart (Figure 2) describes the study selection process [60].

Figure 2. PRISMA flow diagram.

Our findings will be presented through tables, charts, and narrative summaries and will be assessed based on the type of data charted and the outcomes. The information to be extracted depends on data charted and the outcomes. For instance, studies with a quantitative approach, we will present, by the averages or medians and overall scores of the quality of life of transgender people reported in the studies. Qualitative studies will be summarized and grouped into common thematic units. In order to outline the networks of relationships between the keywords and the references, a graphic map will be generated using the VOSviewer® tool, which is a useful software for visualizing bibliometric networks.

Moreover, the meaning of these findings will be considered with regard to how they relate to the guiding question, the characterization and measurement of the impact of the SDOHs on the quality of life of transgender people, and the implications for practice and further research.

Strengths and limitations

Our study has significant strengths: a) To the best of our knowledge, this will be the first scoping review to synthesize qualitative and quantitative data to explore the quality of life of transgender people under the lens of Social Determinants of Health; b) this study includes a comprehensive literature search without restrictions on date of publication; and c) we will search across multiple electronic databases and additional sources, as well as grey literature. Finally, the ScR method will be used to chart and map the results and establish directions for future research. Furthermore, there are two notable respects in which the protocol of this study differs from others. First, ScR is more suitable for our study theme than is a systematic review. Our research question is broad and focuses on mapping the extent of available evidence. Second, we will combine qualitative and quantitative methods to report our results using bibliometric trends to provide guidance and meaningful insights into this field.

Using of varied methods (quantitative as well as qualitative methods) to review the evidence and collate and summarize our findings represent the strength of our study. We expect that our results will be of interest to practitioners, researchers, stakeholders, and the general population concerned with this emerging issue in public health.

However, our study have some limitations, including the following: a) Most studies that address the transgender population are prevalence studies, that is, cross-sectional studies that may result in biases inherent to these designs–the difficulty of establishing a cause-effect relationship; b) usually, studies with transgender people have a small sample size and level of evidence that may fall into the low or moderate classification; and c) there is a difficulty in the lack of a standardized classification of the nomenclature used for the large variety of gender within the lesbian, gay, bisexual, transgender, queer or questioning, intersex, asexual, and more (LGBTQ+) community.

ETHICS AND DISSEMINATIONS

This study involves neither human participants nor unpublished primary data. As such, ethics approval from the human research ethics committee was not required. Plans for the dissemination of this study include peer-reviewed publications and conference presentations to be shared with experts in this field and advisory groups to inform discussions on future research.

The authors are finalizing/updating the search strategy in April 2023 and preparing to conduct this review. The aim is to complete this review by July 2023.

Patient and public involvement

This scoping review protocol analyses existing research studies and, therefore, does not involve patients or members of the public.

Data availability statement

Data are available upon reasonable request.

Acknowledgements

None to declare.

Contributorship statement: JLMR and KHCC conceived the research question for the scoping review with supervision from LCLJ who approved and refined the idea. LCLJ and KHCC conducted literature searches and drafted the entire manuscript with input from all coauthors. JAM, JLMR and VRG provided feedback on the manuscript. All authors reviewed and approved the manuscript.

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Figure 1. The main Determinants of Health.

Figure 2. PRISMA flow diagram.

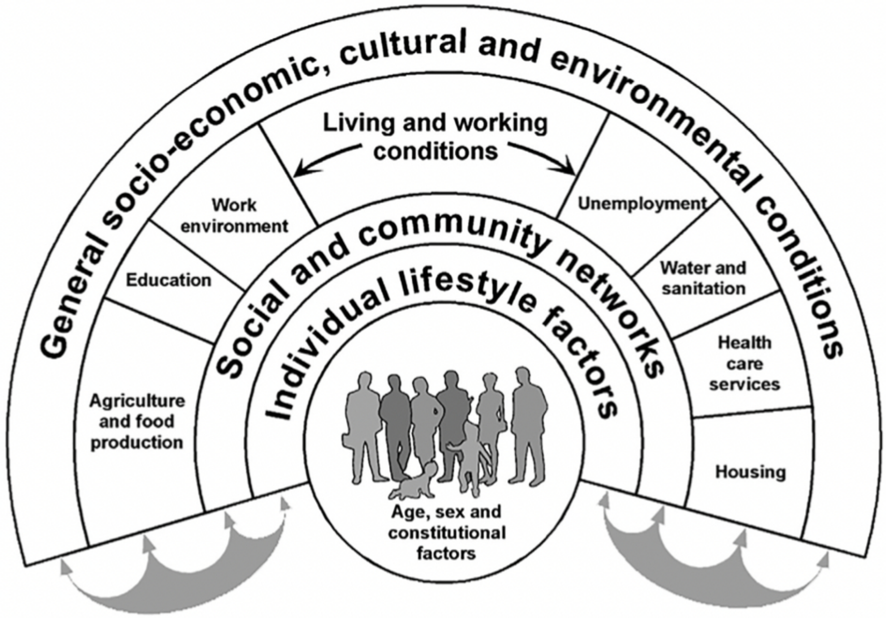

Figure 1. The main Determinants of Health.

188x121mm (144 x 144 DPI)

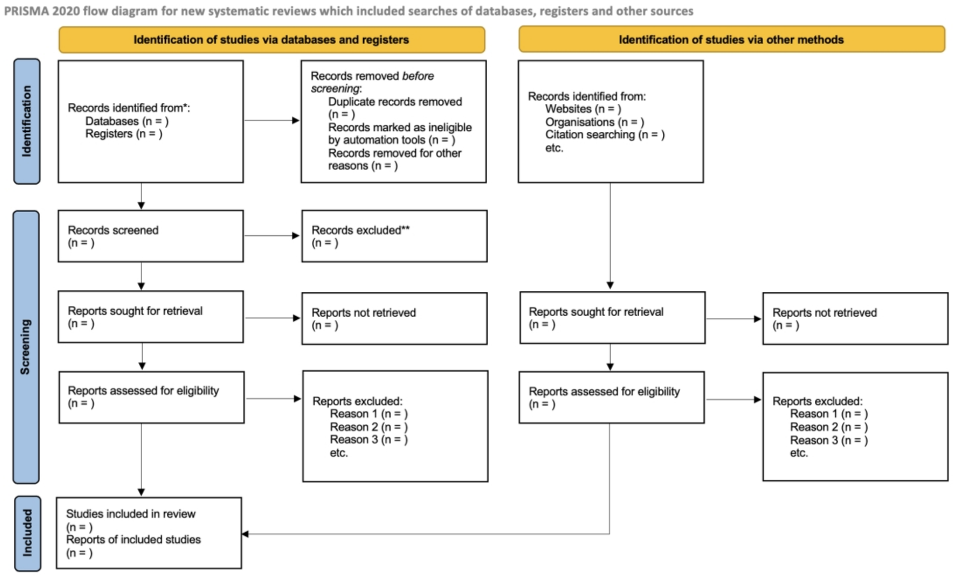

Figure 2. PRISMA flow diagram.

484x284mm (118 x 118 DPI)

Supplementary File 1. Preliminary pilot search strategy in all databases.

Databases	Item searched
MEDLINE/PubMed	**P- POPULATION** **#1** ((“Transgender Persons” [MeSH Terms] OR “Person, Transgender” [All Fields] OR “Persons, Transgender” [All Fields] OR “Transgender Person” [All Fields] OR “Transgenders” [All Fields] OR “Transgender” [All Fields] OR “Transgendered Persons” [All Fields] OR “Transgendered Person” [All Fields] OR “Transsexual Persons” [All Fields] OR “Persons, Transsexual” [All Fields] OR “Transsexual Person” [All Fields] OR “Transexual” [All Fields] OR “Transmen” [All Fields] OR “Transwomen” [All Fields] OR “Non-binary Gender” [All Fields] OR “Genderqueer” [All Fields] OR “Gender Identity” [MeSH Terms] OR “Gender Identities” [All Fields] OR “Identity, Gender” [All Fields] OR “Gender Dysphoria” [MeSH Terms] OR “Gender Identity Disorder” [All Fields] OR “Gender Identity Disorders” [All Fields] OR “Identity Disorder, Gender” [All Fields] OR “Assigned Male at Birth”[All Fields] OR “Assigned Female at Birth”[All Fields])) **#C: CONCEPT** **#2** ((“Quality of Life” [MeSH Terms] OR “Life Quality” [All Fields] OR “Health-Related Quality Of Life” [All Fields] OR “Health Related Quality Of Life” [All Fields] OR “HRQOL” [All Fields] **#C: CONTEXT** **#3** ((“Social Determinants of Health" [MeSH Terms] OR “Health Social Determinants” [All Fields] OR “Structural Determinants of Health” [All Fields] OR “Health Structural Determinants” [All Fields])) **#4** #1 AND (#2 OR #3)
Cochrane Library	**P- POPULATION** **#1** (Transgender Persons) OR (Person, Transgender) OR (Persons, Transgender) OR (Transgender Person) OR (Transgenders) OR (Transgender) OR (Transgendered Persons) OR (Transgendered Person) OR (Transsexual Person) OR (Persons, Transsexual) OR (Transsexual Person) OR (Transexual) OR (Transmen) OR (Transwomen) OR (Non-binary Gender) OR (Genderqueer) OR (Gender Identity) OR (Gender Identities) OR (Identity, Gender) OR (Gender Dysphoria) OR (Gender Identity Disorder) OR (Gender Identity Disorders) OR (Identity Disorder, Gender) OR (Assigned Male at Birth) OR (Assigned Female at Birth) **#C: CONCEPT** **#2** (Quality of Life) OR (Life Quality) OR (Health-Related Quality Of Life) OR (Health Related Quality Of Life) OR (HRQOL) **#C: CONTEXT** **#3** (Social Determinants of Health) OR (Health Social Determinants) OR (Structural Determinants of Health) OR (Health Structural Determinants) #4 #1 AND (#2 OR #3)
Embase	**P- POPULATION** **#1** (‘transgender’/exp OR ‘trans people’ OR ‘trans person’ OR ‘transgender’ OR ‘transgender person’ OR ‘transgender persons’ OR ‘transgendered people’ OR ‘transgendered person’ OR ‘transgendered persons’ OR ‘transgenders’ OR ‘transpeople’ OR ‘transperson’ OR ‘transsexual’ OR ‘transsexuals’ OR ‘female to male transgender’/exp OR ‘ftm transgender’ OR ‘ftm transsexual’ OR ‘ftm transsexuals’ OR ‘female to male transgender’ OR ‘female to male transgenders’ OR ‘female to male transsexual’ OR ‘female to male transsexuals’ OR ‘trans man’ OR ‘transman’ OR ‘transmen’ OR ‘male to female transgender’/exp OR ‘mtf transgender’ OR ‘mtf transsexual’ OR ‘mtf transsexuals’ OR ‘male to female transgender’ OR ‘male to

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#2 ((“Quality of Life” [MeSH Terms] OR “Life Quality” [All Fields] OR “Health-Related Quality Of Life” [All Fields] OR “Health Related Quality Of Life” [All Fields] OR “HRQOL” [All Fields] OR “Social Determinants of Health" [MeSH Terms] OR “Health Social Determinants” [All Fields] OR “Structural Determinants of Health” [All Fields] OR “Health Structural Determinants” [All Fields]))¶
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	female transsexual’ OR ‘male to female transsexuals’ OR ‘trans woman’ OR ‘transwoman’ OR ‘transwomen’ OR ‘gender dysphoria’/exp OR ‘dysphoria, gender’ OR ‘gender dysphoria’ OR ‘gender identity disorder’ OR ‘sexual dysphoria’OR ‘gender identity’/exp OR ‘gender identity’ OR ‘gender self-identification’ OR ‘identity, sexual’ OR ‘sex identification’ OR ‘sexual identification’ OR ‘sexual identity’ OR ‘sexual self-identification’ OR ‘assigned male at birth’ OR ‘assigned female at birth’ **#C: CONCEPT** **#2** ('quality of life'/exp OR 'hrql' OR 'health related quality of life' OR 'life quality' OR 'quality of life' **#C: CONTEXT** **#3** ('social determinants of health'/exp OR 'social determinant' OR 'social determinants' OR 'social determinants of health' OR 'social determining factor' OR 'social factors determining health' OR 'social health determinant') **#4** #1 AND (#2 OR #3)
Web of Science	**P- POPULATION** **#1** ALL=(Transgender Persons OR Person, Transgender OR Persons, Transgender OR Transgender Person OR Transgenders OR Transgender OR Transgendered Persons OR Transgendered Person OR Transsexual Person OR Persons, Transsexual OR Transsexual Person OR Transexual OR Transmen OR Transwomen OR Non-binary Gender OR Genderqueer OR Gender Identity OR Gender Identities OR Identity, Gender OR Gender Dysphoria OR Gender Identity Disorder OR Gender Identity Disorders OR Identity Disorder, Gender OR Assigned Male at Birth OR Assigned Female at Birth) **#C: CONCEPT** **#2** ALL=(Quality of Life OR Life Quality OR Health-Related Quality Of Life OR Health Related Quality Of Life OR HRQOL) **#C: CONTEXT** **#3** ALL=(Social Determinants of Health OR Health Social Determinants OR Structural Determinants of Health OR Health Structural Determinants) **#4** #1 AND (#2 OR #3)
Scopus	**P- POPULATION** **#1** (Transgender Persons OR Person, Transgender OR Persons, Transgender OR Transgender Person OR Transgenders OR Transgender OR Transgendered Persons OR Transgendered Person OR Transsexual Person OR Persons, Transsexual OR Transsexual Person OR Transexual OR Transmen OR Transwomen OR Non-binary Gender OR Genderqueer OR Gender Identity OR Gender Identities OR Identity, Gender OR Gender Dysphoria OR Gender Identity Disorder OR Gender Identity Disorders OR Identity Disorder, Gender OR Assigned Male at Birth OR Assigned Female at Birth)) **#C: CONCEPT** **#2** (Quality of Life OR Life Quality OR Health-Related Quality Of Life OR Health Related Quality Of Life OR HRQOL) **#C: CONTEXT** **#3** Social Determinants of Health OR Health Social Determinants OR Structural Determinants of Health OR Health Structural Determinants) **#4** #1 AND (#2 OR #3)

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PsycINFO	**P- POPULATION** **#1** (Transgender OR Transphobia OR Gender Equality OR Gender Identity OR Sexual Identity (Gender) OR Gender Nonbinary OR Gender Nonconforming OR Gender Diverse OR Gender Expression OR Transsexualism OR Gender Dysphoria OR Gender Identity Disorder OR Assigned Male at Birth OR Assigned Female at Birth)) **#C: CONCEPT** **#2** (Quality of Life OR Health Status OR Health Related Quality Of Life OR Quality Of Life Measures) **#C: CONTEXT** **#3** (Social Determinants of Health OR Health Social Determinants) #4 #1 AND (#2 OR #3)
Registers	**Item searched**
ClinicalTrial.gov	(Transgender Persons OR Transgender Transsexual Person OR Gender Identity OR Gender Dysphoria) AND (Quality of Life OR Health-Related Quality Of Life OR Social Determinants of Health)
WHO International Clinical Trials Registry Platform	(Transgender Persons OR Transgender Transsexual Person OR Gender Identity OR Gender Dysphoria) AND (Quality of Life OR Health-Related Quality Of Life OR Social Determinants of Health)
Organizations and Websites and grey literature	**Item searched**
The British Library (UK)	**#1** (Transgender Persons OR Transgender Transsexual Person OR Gender Identity OR Gender Dysphoria) **#2** ((Quality of Life OR Health-Related Quality Of Life OR Social Determinants of Health)
Google Scholar	(Transgender Persons OR Transgender OR Gender Identity OR Gender Dysphoria) AND (Quality of Life OR Social Determinants of Health)
The ProQuest Dissertation & Theses Global	(Transgender Persons OR Transgender OR Transsexual Person OR Gender Identity OR Gender Dysphoria) AND (Quality of Life OR Health-Related Quality Of Life OR Social Determinants of Health)
Preprints for Health Sciences [medRXiv]	(Transgender Persons OR Transgender OR Gender Identity OR Gender Dysphoria) AND (Quality of Life OR Social Determinants of Health)

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Appendix A. Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist.

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	1
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	1-2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	3-6
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	6
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	2
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	7
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	7-8
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	8
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	8
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	8
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	8
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	NA
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	9

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SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	9
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	NA
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	NA
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	NA
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	NA
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	NA
Limitations	20	Discuss the limitations of the scoping review process.	10
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	10
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	11

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMAScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.

BMJ Open

Quality of life of transgender people under the lens of Social Determinants of Health: A scoping review protocol

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2022-067575.R2
Article Type:	Protocol
Date Submitted by the Author:	31-May-2023
Complete List of Authors:	Coswosck, Kaio Henrique Cesconetto ; UFES, Graduate Program in Nutrition and Health, Health Sciences Center Marques-Rocha, Jose Luiz ; UFES, Graduate Program in Nutrition and Health, Health Sciences Center Moreira, Juliana Almeida ; UFES, Graduate Program in Nutrition and Health, Health Sciences Center Guandalini, Valdete Regina ; UFES, Graduate Program in Nutrition and Health, Health Sciences Center LOPES-JÚNIOR, LUÍS CARLOS; Universidade Federal do Espirito Santo, Nursing Department
Primary Subject Heading:	Sexual health
Secondary Subject Heading:	Public health, Sexual health
Keywords:	Public health < INFECTIOUS DISEASES, PUBLIC HEALTH, Sexual and gender disorders < PSYCHIATRY, Health policy < HEALTH SERVICES ADMINISTRATION & MANAGEMENT

***Title Page** – BMJ Open*

Title: **Quality of life of transgender people under the lens of Social Determinants of Health: A scoping review protocol**

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ABSTRACT

Introduction: There is an urgent need for knowledge about the transgender population to inform the development of clinical protocols and training of health professionals on the unique issues affecting this population. Discussing transgender quality of life (QoL) through the lens of social determinants of health (SDOHs) would enable gender-specific health interventions. Here, we aimed to review the evidence on the QoL of transgender people from an SDOH perspective.

Methods and analysis: A scoping review (ScR) protocol following the PRISMA-ScR statement and guided by the Joanna Briggs Institute was used. MEDLINE/PubMed, Cochrane Library, Embase, PsycINFO, Web of Science, Scopus and registry sites such as ClinicalTrials.gov and WHO ICTRP will be searched. Additional sources to be searched include ProQuest Dissertations/Theses Global, British Library, Google Scholar, and Preprints for Health Sciences-medRXiv. Two independent researchers will carry out the selection, data charting, and data synthesis. No date restriction will be applied in this ScR. The search will be restricted to articles published in English, Spanish and Portuguese. The results will be presented in tables, narrative summaries, and graphs and will be graded on the type of data presented and the results. The search strategy will be updated in April 2023. The expected completion date of this ScR is July 2023.

Ethics and dissemination: This ScR protocol does not require ethical approval. Dissemination plans include peer-reviewed publications, conference presentations to be shared with experts in the field, and advisory groups to inform discussions on future research. It is hoped that our findings will be of

interest to practitioners, researchers, stakeholders, public and private managers, and the general population concerned with this emerging public health issue.

Open Science Framework Registration: osf.io/9ukz6

Strengths and limitations of this study

- To the best of our knowledge, this will be the first scoping review to synthesize qualitative and quantitative data to specifically examine transgender quality of life (QoL) under the lens of social determinants of health.
- The review will adopt a rigorous approach, following PRISMA-ScR guidelines and a comprehensive and systematic search strategy, including all study designs, grey literature, and preprints, with no time limit.
- The lack of a standardized classification of the nomenclature for the wide variety of genders may limit our findings.

INTRODUCTION

Transgender, or trans, is an umbrella term used to describe people whose gender expressions or gender identities are different from those expected for the sex they were assigned at birth [1]. This definition encompasses many communities worldwide of people with gender identities or expressions that differ from the socially designated sex. This includes people with culturally or linguistically specific experiences, identities, or expressions that are not based on or encompassed by current conceptualizations of gender [1]. In addition, some transgender people identify outside the gender binary as neither, one, or somewhere in between [2].

The lives of transgender people are fraught with unique vulnerabilities, including a history of negative health care experiences, difficulty obtaining legal gender recognition, and lack of social support [3]. This group experiences higher rates of harassment and bullying, homelessness, sexual and physical violence, parental rejection, and social isolation compared to cisgender people [1, 4, 5].

Transgender people may also seek medical services beyond gender-affirming health care. Some transgender people begin hormone therapy to better identify with their gender, using estrogens for transgender women and testosterone for transgender men to induce feminine and masculine physical characteristics, respectively. In some cases, the surgical alternative may provide results consistent with the individual's gender, which may modulate the level of QoL [6, 7]. QoL is a broad and multidimensional concept that includes subjective assessments of the positive and negative aspects of life [8]. Some studies have shown that the QoL of the transgender population is lower than that of cisgender individuals [9-11]. The transition process is surrounded by physiological (development of sexual characteristics), social (lack of social support, discrimination, rejection, transphobia), and psychological (anxiety, depression, and suicidal ideation) challenges [12] that can negatively affect the QoL of these individuals. The most affected dimensions of QoL are vitality, social support, and physical functioning [9, 10].

Indeed, therapeutic intervention is one of the factors that may influence QoL in the transgender population [10]. A recent systematic review that sought to understand the effect of gender-affirming hormone therapy on psychological outcomes in transgender people found that transgender people who were prescribed cross-sex hormones had statistically significant improvements on validated scales measuring QoL, anxiety, and depression compared to transgender people who were enrolled in a gender reassignment clinic but had not yet begun taking cross-sex hormones [10]. These findings are consistent with other studies on this topic [13, 14]. Conversely, other studies have found no difference in quality of life or psychological functioning between transgender people and the general population [15-17].

Another relevant issue is the cost of gender-affirming treatments, especially multiple gender-affirming surgeries. Gender-affirming surgeries and the impact of the financial burden on transgender people's mental health and quality of life are often overlooked [18]. Financial and insurance issues, lack of services, and fears or concerns may be raised during transsexuality [19]. Therefore, there is an urgent need to better understand gender identity-based differences in social determinants of health, particularly in this population characterized by social inequality.

Given the range of health care needs, primary health care providers and others need to be trained in transgender health care (including protocols for referral to specialists, where available). In addition, knowledge of the association between socioeconomic and health variables of transgender people is needed to inform the development of public health policies and clinical protocols for the unique issues affecting this population.

Background: The Social Determinants of Health

The health-disease balance is influenced by multiple economic, cultural, social, environmental, and genetic/biological factors [20]. However, the multiplicity of determinants has not always been taken into account in the development of health-related policies. Therefore, a broad understanding of these determinants enables the development of appropriate interventions at different levels to minimize their impact on health outcomes [20-22].

It should be emphasized that the term "social determinants of health" (SDOHs) has received considerable attention as a foundational concept in the field of population and public health [23, 24]. The World Health Organization defines SDOH as the conditions or circumstances in which people are born, grow, live, work and age [25], shaped by political, social and economic forces [26]. Indeed, the importance of SDOH has led to increased research on the relationship between health determinants and the organization of society [23, 24]. In addition, research on health inequalities has been conducted to understand the disparities between different populations [20, 25].

Some of the most important SDOHs in the literature are education [26], housing and living environment [27], income and its distribution [28], stress, early life, social exclusion, work, unemployment, social support, addiction, food, and transportation [29]. In more recent literature, SDOHs have also been identified as health systems, gender, sexual orientation, social safety nets [28], culture or social norms [30], media, stigma and discrimination [31], social capital [32], conflict, rule of law, racism, racialized legal status [33], immigration [34], family, religion [35], colonialism, and marginalization [36]. In addition, researchers have identified "time" as an SDOH because healthy behaviors, access to health services, rest, and caregiving all require time [37]. Indeed, the amount of time available for health-related activities is socially structured and may be a source of health inequalities [24].

Some models in the literature describe the complex relationship between different factors influencing SDOHs. One of the most cited and endorsed models by the WHO [25,38] is the Dahlgren and Whitehead model [39], which justifies the choice of this framework in the present article. In this model, the SDOHs are arranged in different concentric layers, with the individual (with individual characteristics of age, gender and genetic factors) at the center. The first layer is related to lifestyle (with the potential to be changed through action based on information). Next are the social and community support networks that are essential to the health of society. At the most distal level are the macro-level determinants, which are related to general economic, environmental, and cultural aspects of society (Figure 1). These have a great capacity to influence lower-level factors [25,38].

Figure 1. The main Determinants of Health.
Source: Adapted from Dahlgren and Whitehead (1991) [39], and Dahlgren and Whitehead (2021, page 22) [40].

Overall, the logic of SDOHs aims to reduce health inequities, improve health and well-being, promote development, and achieve the Sustainable Development Goals [41]. However, implementation of approaches related to these determinants has been slow, which may indicate that local or global governance is still struggling to solve current health problems [42].

Ideally, social, political, economic, and health conditions should be distributed and used by citizens fairly and equitably. Moreover, it is not difficult to see that all these social resources are shaped by public policies. The economy, politics in general, and social policies in particular play an important role in shaping such actions in society [20,43]. In addition, the long list of SDOHs has implications for clinical practice and policy-making [24]. For example, an overwhelming list may discourage clinicians from considering screening for social determinants of health. There are concerns about the requirements and approaches for screening, as well as the benefits and unintended harms

[44, 45]. Policymakers may be less willing to proceed with such a long and growing list. In most governmental settings, there are inherent barriers to adopting a social determinants approach to policymaking [45, 46]. These barriers include: the invisibility of this population in the global context, particularly in middle-income countries; stigma and prejudice among health managers that lead to a failure to prioritize policies for this population; ideologies and religious issues that remain relevant to policymakers' decision-making; and a lack of training among health professionals that limits their ability to address social determinants of health. In addition, public understanding of the determinants of health is largely dominated by biomedical and behavioral approaches, as reflected in mainstream media coverage. Policymakers rarely use this approach to formulate public policy [24, 45, 46].

Although some studies have examined QoL in transgender people, none have analyzed the findings from the perspective of SDOHs. There are specific inequalities in access to health care that need to be better understood by managers and multiprofessional health care teams. Furthermore, there is still no consensus on the relationship between QoL and social, hormonal and surgical gender affirmation procedures and psychological outcomes.

RESEARCH AIM

The aim of this study is to review the evidence on the quality of life of transgender people from an SDOH perspective.

METHODS AND ANALYSIS

Study design

This scoping review will be reported in accordance with the Preferred Reporting Items for Systematic Review and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) [47] and with high adherence to the Joanna Briggs Institute (JBI) Manual for Evidence Synthesis [48].

One of the main reasons for conducting scoping reviews is that, unlike other reviews that tend to address relatively precise questions (e.g., a systematic review of interventions using a predefined set of outcomes), scoping reviews can be used to map the key concepts that underlie a field of research and to clarify working definitions or the conceptual boundaries of a topic [49]. In addition, one study indicated that the three most common reasons for conducting a scoping review were to explore the breadth or scope of the literature, to map and synthesize the evidence, and to inform future research [50]. According to Munn et al. (2018) [51], indications for scoping reviews include I) as a precursor to a systematic review, II) to identify the types of evidence available in a particular area, III) to identify and analyze knowledge gaps, IV) to clarify key concepts/definitions in the literature, V) to assess how research is conducted on a particular topic or area, and VI) to identify key characteristics or factors associated with a concept [51].

The nine steps of the ScR include: 1) defining and aligning the objective(s) and question(s); 2) developing and aligning the inclusion criteria with the objective(s) and question(s); 3) describing the planned approaches to evidence searching, selection, data extraction, and presentation of evidence; 4) searching for evidence; 5) selecting evidence; 6) extracting evidence; 7) analyzing evidence; 8) presenting results; and 9) summarizing the evidence in relation to the purpose of the review, drawing conclusions, and noting any implications of the findings [47].

In addition, this protocol has been registered with the Open Science Framework (osf.io/9ukz6).

Research question

To formulate the research question, we used the PCC acronym (Population, Concept, and Context) [47] to identify the key concepts, which are described in detail below:

Population

The target population for this scoping review is transgender people. The definition adopted includes people who do not conform to the general expectations of gender reassignment to varying degrees and in different ways [1].

Concept

This scoping review will include studies that use quality of life as a primary outcome. For the purposes of this review, QoL is defined by the WHO as "an individual's perception of his or her position in life in the context of the culture and value systems in which he or she lives, and in terms of his or her goals, expectations, standards, and concerns" [52]. QoL is a broad, multidimensional concept that typically includes subjective assessments of both positive and negative aspects of life [8].

Context

The context analyzed in this scoping review is the social determinants of health (SDOHs). SDOHs are defined as "the conditions in which people are born, grow, work, live and age, and the broader set of forces and systems that shape the conditions of daily life" [3]. These forces and systems include economic policies, systems, development agendas, social norms and policies, and political systems [44, 46, 52].

The PCC acronym facilitated structured critical thinking and the formulation of the following review question: "What is the evidence on the quality of life of transgender people from the perspective of social determinants of health?"

Search strategy

The search for evidence will include the following databases: Medical Literature Analysis and Retrieval System Online (MEDLINE) via PubMed, Cochrane Library, Excerpta Medica database

(Embase), Psychology Information (PsycINFO), Web of Science, and Scopus, as well as registered sites such as ClinicalTrials.gov and the WHO International Clinical Trials Registry Platform. Additional sources will also be searched, including ProQuest Dissertations and Theses Global, the British Library (UK), Google Scholar, and Preprints for Health Sciences [medRXiv]. The search strategy will include a combination of subject headings, such as Medical Subject Headings (MeSH), Emtree terms, and Thesaurus, using the Boolean terms AND and OR [53, 54]. The reference lists of all included studies will be screened for additional relevant studies. No date restrictions will be applied in this review. In terms of language, this scoping review is limited to retrieving studies in English, Spanish and Portuguese.

A search was conducted in MEDLINE/PubMed to find the best combination of MeSH terms, synonyms, and free text words, which will later be adjusted for each electronic database. The search strategy, which combines the controlled descriptors and keywords used in each database, is presented in **Supplementary file 1**.

Eligibility

- *Inclusion criteria:* All primary studies, case reports, dissertations, and theses related to transgender QoL from a SDOH perspective will be included. In particular, no date restrictions will be applied in the selection of studies. Articles written in English, Spanish and Portuguese idioms will be included.
- *Exclusion criteria:* Review studies, such as systematic reviews, scoping reviews, integrative reviews, and meta-syntheses, will be excluded.

After searching for studies, articles are downloaded into Endnote Web™ bibliographic software to store, organize, and manage all references and identify duplicates. Studies are exported to the Rayyan™ application, which assists in the screening and selection of studies. At this stage, titles and abstracts are read for an initial assessment of the evidence. This will be done independently by two researchers (KHCC and LCLJ) who will search and screen the records by title and abstract using the Rayyan™ application. After the initial screening, the same two researchers (KHCC and LCLJ) will review the full text of the retrieved studies for inclusion/exclusion using the Rayyan™ app. A third reviewer (JLMR) will resolve disagreements regarding the selected studies.

Data collection

Three reviewers (KHCC, JAM, and LCLJ) will separately record the data for each included study using previously published forms [53-61]. The expected completion date of this scoping review is July 2023. The information to be extracted includes a) study identification and objectives, b) study population and baseline characteristics, c) type of exposure, d) study method, e) recruitment methods,

f) measurement times, g) follow-up, h) outcomes, i) main findings, j) clinical and epidemiologic significance, and k) conclusions [45, 46, 51-59].

Data analysis, presenting and summarizing the evidence

For the classification of selected studies, we will use the hierarchy of evidence of the Center for Evidence-Based Medicine [62]. This classification is divided into five hierarchical levels, as shown in Table 1.

Table 1. Levels of evidence by study design for therapeutic trials and preventive programs.

Level	Type of evidence
1A	Systematic review (with homogeneity) of RCTs
1B	Individual RCT (with narrow confidence intervals)
1C	All or none study
2A	Systematic review (with homogeneity) of cohort studies
2B	Individual Cohort study (including low-quality RCT, e.g., <80% follow-up)
2C	"Outcomes" research; Ecological studies
3A	Systematic review (with homogeneity) of case-control studies
3B	Individual Case-control study
4	Case series (and poor quality cohort and case-control study)
5	Expert opinion without explicit critical appraisal or based on physiology bench research or "first principles"

*From the Center for Evidence-Based Medicine, http://www.cebm.net.

A flowchart (Figure 2) describes the study selection process [60].

Figure 2. PRISMA flow diagram.

Our findings will be presented through tables, graphs, and narrative summaries and will be evaluated based on the type of data charted and the findings. The information to be extracted depends on the data presented and the outcomes. For example, studies with a quantitative approach will be presented by the mean or median and total quality of life scores of transgender people reported in the studies. Qualitative studies will be summarized and grouped into common thematic units. In order to outline the networks of relationships between keywords and references, a graphical map will be generated using the VOSviewer® tool, a useful software for visualizing bibliometric networks.

In addition, the significance of these findings will be considered in terms of how they relate to the guiding question, characterizing and measuring the impact of SDOHs on transgender people's quality of life, and implications for practice and further research.

Strengths and limitations

Our study has significant strengths: a) to the best of our knowledge, this will be the first scoping review to synthesize qualitative and quantitative data to explore transgender quality of life through the lens of social determinants of health; b) this study will include a comprehensive literature search without restrictions on publication date; and c) we will search multiple electronic databases and additional sources, as well as gray literature. Finally, the ScR method will be used to chart and map the findings and identify directions for future research. In addition, there are two notable ways in which the protocol of this study differs from others. First, ScR is more appropriate for our study topic than a systematic review. Our broad research question focuses on mapping the extent of available evidence. Second, we will combine qualitative and quantitative methods to report our findings using bibliometric trends to provide guidance and meaningful insights into the field.

The use of multiple methods (quantitative and qualitative) to review the evidence and to synthesize and summarize our findings is the strength of our study. We expect that our findings will be of interest to practitioners, researchers, stakeholders, and the general population concerned with this emerging public health issue.

However, our study has several limitations, including the following: a) most studies of the transgender population are prevalence studies, i.e. cross-sectional studies, which can lead to biases inherent in these designs - the difficulty of establishing a cause-and-effect relationship; b) studies of transgender people tend to have small sample sizes and a level of evidence that may fall into the low or moderate classification; and c) there is a lack of a standardized classification of the nomenclature used for the large variety of gender within the lesbian, gay, bisexual, and transgender population; and c) there is a difficulty in the lack of standardized classification of the nomenclature used for the large variety of genders within the lesbian, gay, bisexual, transgender, queer or questioning, intersex, asexual, and more (LGBTQ+) community.

ETHICS AND DISSEMINATION

This study does not involve human participants or unpublished primary data. Therefore, human research ethics committee approval was not required. Plans for dissemination of this study include peer-reviewed publications and conference presentations to be shared with experts in the field and advisory groups to inform discussions on future research.

The authors are finalizing/updating the search strategy and preparing to conduct this review in April 2023. The goal is to complete this review by July 2023.

Patient and public involvement

This scoping review protocol analyzes existing research studies and, therefore, does not involve patients or members of the public.

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None to declare.

Statement of contributors: JLMR and KHCC conceived the research question for the scoping review under the guidance of LCLJ, who approved and refined the idea. LCLJ and KHCC conducted the literature searches and drafted the entire manuscript with input from all coauthors. JAM, JLMR, and VRG provided feedback on the manuscript. All authors reviewed and approved the manuscript.

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Figure 1. The main Determinants of Health.

Figure 2. PRISMA flow diagram.

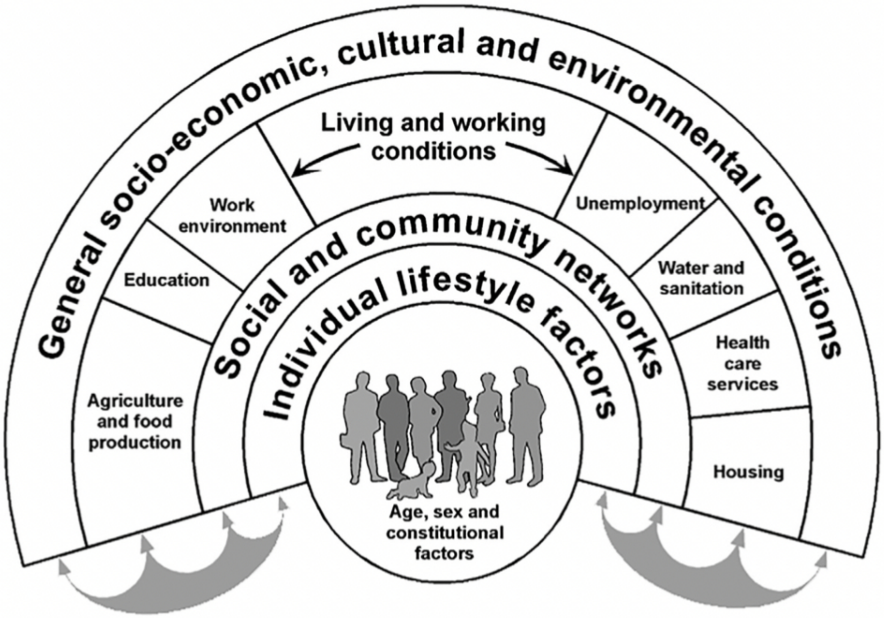

Figure 1. The main Determinants of Health.

188x121mm (144 x 144 DPI)

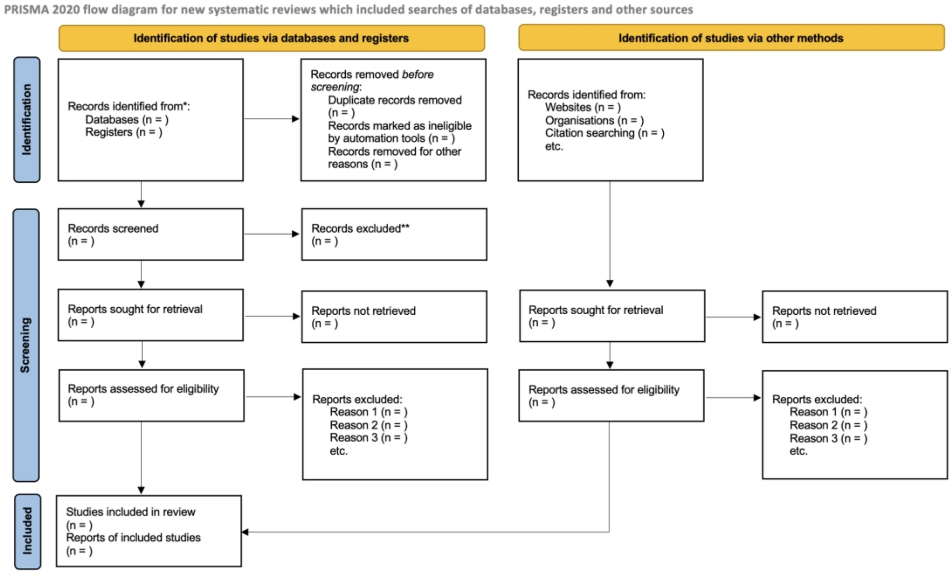

Figure 2. PRISMA flow diagram.

484x284mm (118 x 118 DPI)

Supplementary File 1. Preliminary pilot search strategy in all databases.

Databases	Item searched
MEDLINE/PubMed	**P- POPULATION** **#1** ((“Transgender Persons” [MeSH Terms] OR “Person, Transgender” [All Fields] OR “Persons, Transgender” [All Fields] OR “Transgender Person” [All Fields] OR “Transgenders” [All Fields] OR “Transgender” [All Fields] OR “Transgendered Persons” [All Fields] OR “Transgendered Person” [All Fields] OR “Transsexual Persons” [All Fields] OR “Persons, Transsexual” [All Fields] OR “Transsexual Person” [All Fields] OR “Transexual” [All Fields] OR “Transmen” [All Fields] OR “Transwomen” [All Fields] OR “Non-binary Gender” [All Fields] OR “Genderqueer” [All Fields] OR “Gender Identity” [MeSH Terms] OR “Gender Identities” [All Fields] OR “Identity, Gender” [All Fields] OR “Gender Dysphoria” [MeSH Terms] OR “Gender Identity Disorder” [All Fields] OR “Gender Identity Disorders” [All Fields] OR “Identity Disorder, Gender” [All Fields] OR “Assigned Male at Birth”[All Fields] OR “Assigned Female at Birth”[All Fields])) **#C: CONCEPT** **#2** ((“Quality of Life” [MeSH Terms] OR “Life Quality” [All Fields] OR “Health-Related Quality Of Life” [All Fields] OR “Health Related Quality Of Life” [All Fields] OR “HRQOL” [All Fields] **#C: CONTEXT** **#3** ((“Social Determinants of Health" [MeSH Terms] OR “Health Social Determinants” [All Fields] OR “Structural Determinants of Health” [All Fields] OR “Health Structural Determinants” [All Fields])) **#4** #1 AND (#2 OR #3)
Cochrane Library	**P- POPULATION** **#1** (Transgender Persons) OR (Person, Transgender) OR (Persons, Transgender) OR (Transgender Person) OR (Transgenders) OR (Transgender) OR (Transgendered Persons) OR (Transgendered Person) OR (Transsexual Person) OR (Persons, Transsexual) OR (Transsexual Person) OR (Transexual) OR (Transmen) OR (Transwomen) OR (Non-binary Gender) OR (Genderqueer) OR (Gender Identity) OR (Gender Identities) OR (Identity, Gender) OR (Gender Dysphoria) OR (Gender Identity Disorder) OR (Gender Identity Disorders) OR (Identity Disorder, Gender) OR (Assigned Male at Birth) OR (Assigned Female at Birth) **#C: CONCEPT** **#2** (Quality of Life) OR (Life Quality) OR (Health-Related Quality Of Life) OR (Health Related Quality Of Life) OR (HRQOL) **#C: CONTEXT** **#3** (Social Determinants of Health) OR (Health Social Determinants) OR (Structural Determinants of Health) OR (Health Structural Determinants) **#4** #1 AND (#2 OR #3)
Embase	**P- POPULATION** **#1** (‘transgender’/exp OR ‘trans people’ OR ‘trans person’ OR ‘transgender’ OR ‘transgender person’ OR ‘transgender persons’ OR ‘transgendered people’ OR ‘transgendered person’ OR ‘transgendered persons’ OR ‘transgenders’ OR ‘transpeople’ OR ‘transperson’ OR ‘transsexual’ OR ‘transsexuals’ OR ‘female to male transgender’/exp OR ‘ftm transgender’ OR ‘ftm transsexual’ OR ‘ftm transsexuals’ OR ‘female to male transgender’ OR ‘female to male transgenders’ OR ‘female to male transsexual’ OR ‘female to male transsexuals’ OR ‘trans man’ OR ‘transman’ OR ‘transmen’ OR ‘male to female transgender’/exp OR ‘mtf transgender’ OR ‘mtf transsexual’ OR ‘mtf transsexuals’ OR ‘male to female transgender’ OR ‘male to

	female transsexual’ OR ‘male to female transsexuals’ OR ‘trans woman’ OR ‘transwoman’ OR ‘transwomen’ OR ‘gender dysphoria’/exp OR ‘dysphoria, gender’ OR ‘gender dysphoria’ OR ‘gender identity disorder’ OR ‘sexual dysphoria’OR ‘gender identity’/exp OR ‘gender identity’ OR ‘gender self-identification’ OR ‘identity, sexual’ OR ‘sex identification’ OR ‘sexual identification’ OR ‘sexual identity’ OR ‘sexual self-identification’ OR ‘assigned male at birth’ OR ‘assigned female at birth’ **#C: CONCEPT** **#2** ('quality of life'/exp OR 'hrql' OR 'health related quality of life' OR 'life quality' OR 'quality of life' **#C: CONTEXT** **#3** ('social determinants of health'/exp OR 'social determinant' OR 'social determinants' OR 'social determinants of health' OR 'social determining factor' OR 'social factors determining health' OR 'social health determinant') **#4** #1 AND (#2 OR #3)
Web of Science	**P- POPULATION** **#1** ALL=(Transgender Persons OR Person, Transgender OR Persons, Transgender OR Transgender Person OR Transgenders OR Transgender OR Transgendered Persons OR Transgendered Person OR Transsexual Person OR Persons, Transsexual OR Transsexual Person OR Transexual OR Transmen OR Transwomen OR Non-binary Gender OR Genderqueer OR Gender Identity OR Gender Identities OR Identity, Gender OR Gender Dysphoria OR Gender Identity Disorder OR Gender Identity Disorders OR Identity Disorder, Gender OR Assigned Male at Birth OR Assigned Female at Birth) **#C: CONCEPT** **#2** ALL=(Quality of Life OR Life Quality OR Health-Related Quality Of Life OR Health Related Quality Of Life OR HRQOL) **#C: CONTEXT** **#3** ALL=(Social Determinants of Health OR Health Social Determinants OR Structural Determinants of Health OR Health Structural Determinants) **#4** #1 AND (#2 OR #3)
Scopus	**P- POPULATION** **#1** (Transgender Persons OR Person, Transgender OR Persons, Transgender OR Transgender Person OR Transgenders OR Transgender OR Transgendered Persons OR Transgendered Person OR Transsexual Person OR Persons, Transsexual OR Transsexual Person OR Transexual OR Transmen OR Transwomen OR Non-binary Gender OR Genderqueer OR Gender Identity OR Gender Identities OR Identity, Gender OR Gender Dysphoria OR Gender Identity Disorder OR Gender Identity Disorders OR Identity Disorder, Gender OR Assigned Male at Birth OR Assigned Female at Birth)) **#C: CONCEPT** **#2** (Quality of Life OR Life Quality OR Health-Related Quality Of Life OR Health Related Quality Of Life OR HRQOL) **#C: CONTEXT** **#3** Social Determinants of Health OR Health Social Determinants OR Structural Determinants of Health OR Health Structural Determinants) **#4** #1 AND (#2 OR #3)

PsycINFO	**P- POPULATION** **#1** (Transgender OR Transphobia OR Gender Equality OR Gender Identity OR Sexual Identity (Gender) OR Gender Nonbinary OR Gender Nonconforming OR Gender Diverse OR Gender Expression OR Transsexualism OR Gender Dysphoria OR Gender Identity Disorder OR Assigned Male at Birth OR Assigned Female at Birth)) **#C: CONCEPT** **#2** (Quality of Life OR Health Status OR Health Related Quality Of Life OR Quality Of Life Measures) **#C: CONTEXT** **#3** (Social Determinants of Health OR Health Social Determinants) **#4** #1 AND (#2 OR #3)
Registers	**Item searched**
ClinicalTrial.gov	(Transgender Persons OR Transgender Transsexual Person OR Gender Identity OR Gender Dysphoria) AND (Quality of Life OR Health-Related Quality Of Life OR Social Determinants of Health)
WHO International Clinical Trials Registry Platform	(Transgender Persons OR Transgender Transsexual Person OR Gender Identity OR Gender Dysphoria) AND (Quality of Life OR Health-Related Quality Of Life OR Social Determinants of Health)
Organizations and Websites and grey literature	**Item searched**
The British Library (UK)	**#1** (Transgender Persons OR Transgender Transsexual Person OR Gender Identity OR Gender Dysphoria) **#2** ((Quality of Life OR Health-Related Quality Of Life OR Social Determinants of Health)
Google Scholar	(Transgender Persons OR Transgender OR Gender Identity OR Gender Dysphoria) AND (Quality of Life OR Social Determinants of Health)
The ProQuest Dissertation & Theses Global	(Transgender Persons OR Transgender OR Transsexual Person OR Gender Identity OR Gender Dysphoria) AND (Quality of Life OR Health-Related Quality Of Life OR Social Determinants of Health)
Preprints for Health Sciences [medRXiv]	(Transgender Persons OR Transgender OR Gender Identity OR Gender Dysphoria) AND (Quality of Life OR Social Determinants of Health)

Appendix A. Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist.

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	1
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	1-2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	3-6
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	6
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	2
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	7
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	7-8
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	8
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	8
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	8
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	8
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	NA
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	9

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	9
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	NA
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	NA
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	NA
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	NA
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	NA
Limitations	20	Discuss the limitations of the scoping review process.	10
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	10
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	11

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMAScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.