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Factors that contribute to the development of sexual dysfunction in breastfeeding women: a systematic scoping review protocol

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2018-022863
Article Type:	Protocol
Date Submitted by the Author:	12-Mar-2018
Complete List of Authors:	Fuentealba-Torres, Miguel; University of São Paulo, Department of Maternal-Infant and Public Health Nursing; Cartagena-Ramos, Denisse ; University of São Paulo, Department of Maternal-Infant and Public Health Nursing Sierra, JC; University of Granada, Department of Personality, Evaluation and Psychological Treatment Lara, Lúcia ; University of São Paulo, Department of Gynecology and Obstetrics Okano, Sérgio; University of São Paulo, Department of Gynecology and Obstetrics Berra, Thaís; University of São Paulo, Department of Maternal-Infant and Public Health Nursing Alves, Luana; University of São Paulo, Department of Maternal-Infant and Public Health Nursing Leite, Ana Carolina; University of São Paulo, Department of Maternal-Infant and Public Health Nursing Yamamura, Mellina; University of São Paulo, Department of Maternal-Infant and Public Health Nursing Silva, Isília; University of São Paulo, Department of Maternal-Infant and Psychiatric Nursing Nascimento, Lucila; University of São Paulo, Department of Maternal-Infant and Public Health Nursing Arcêncio, Ricardo; University of São Paulo, Department of Maternal-Infant and Public Health Nursing
Keywords:	Breast Feeding, Physiological Sexual Dysfunction, Psychological Sexual Dysfunction, Sexual Behavior, Sexual Health

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Title page

Factors that contribute to the development of sexual dysfunction in breastfeeding women: a systematic scoping review protocol

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1 **Factors that contribute to the development of sexual dysfunction in breastfeeding**
2 **women: a systematic scoping review protocol**

3 **ABSTRACT**

4 **Introduction:** Female Sexual Dysfunction constitutes a public health problem. Evidence
5 indicates that the population of nursing women is more vulnerable to the phenomenon due
6 to breastfeeding. Thus, a systematic scoping review protocol was developed to explore the
7 factors that contribute to the development of sexual dysfunction in nursing mothers.

8 **Methods and analysis:** The systematic scoping review will be conducted in six stages,
9 according to the PRISMA-P. The databases used will be: PubMed, Excerpta Medica
10 Database (EMBASE), Cumulative Index to Nursing and Allied Health Literature
11 (CINAHL), PsycINFO, Science Direct, Web of Science and Google Scholar. For the
12 organization of the literature retrieved from the databases, the EndNote Basic manager
13 (Clarivate Analytics, 2017) will be used. The Cochrane model will be used for the data
14 extraction. The analysis of the quantitative data will be carried out through descriptive
15 statistics and the qualitative data will be submitted to thematic analysis. The
16 methodological quality of the empirical studies will be evaluated using the Mixed Methods
17 Appraisal Tool (MMAT).

18 **Ethics and dissemination:** As it will be a review study, without human involvement, there
19 will be no need for ethical approval. The results will be disseminated in a scientific journal,
20 as well as in various media, such as: conferences, seminars, congresses or symposia.

21 **Strengths and limitations of this study:**

22 This scoping review will be the first to explore of the factors that contribute to the
23 development of sexual dysfunction in breastfeeding women.

24 The results of the review will contribute to the advancement of the knowledge of this
25 problem and to the orientation of new studies.

26 This protocol also serving as a reference for future reviews.

27 The scarcity of empirical studies, the publication bias and the methodological quality of the
28 gray literature found may be the main limitations of the study.

29 **Keywords**

30 Breast Feeding, Physiological Sexual Dysfunction, Psychological Sexual Dysfunction,
31 Sexual Behavior, Sexual Health

1 INTRODUCTION

2 Sexual dysfunctions are a heterogeneous group of disorders, which affects the capacity for
3 sexual response or sexual pleasure.¹ These disorders have been related to biological,
4 psychological, cultural, behavioral and interpersonal determinants.²

5 Female Sexual Dysfunction (FSD) is considered a public health problem, affecting more
6 than 40% of the world population of women.³ A systematic review estimated that the
7 prevalence of FSD in populations over 18 years of age ranges from 5.5% to 73.2%⁴ and a
8 meta-analysis estimated that the prevalence of sexual dysfunction among middle-aged
9 women age is 40.9%.⁵

10 The literature suggests that breastfeeding women may be at increased risk of developing
11 sexual dysfunction.⁶⁻⁸ Despite the lack of systematic reviews and shortage of empirical
12 studies, which makes it impossible to identify associated factors, risk factors or predictive
13 factors for the development of FSD in nursing women, exploratory studies suggest that
14 hyperprolactinemia, hypoestrogenism and the context of motherhood influence the female
15 sexual response and make mothers more vulnerable to the development of sexual
16 dysfunctions.⁹⁻¹⁴

17 This work consists of a systematic scoping review protocol was developed to explore the
18 factors that contribute to the development of sexual dysfunction in nursing mothers. The
19 systematic Scoping Review contributes to the clarification of knowledge gaps in lightly
20 researched phenomena by performing a comprehensive mapping of available scientific
21 literature, including the gray literature.^{15,16}

22 This review will be conducted with the aim of exploring the factors that contribute to the
23 development of FSD in the nursing population, with the purpose of guiding future research
24 to advance the knowledge of this problem.

1 METHODS AND ANALYSIS

2 This work constitutes a protocol for a Systematic Scoping Review, which will be developed
3 according to the steps proposed by Arksey and O'Malley¹⁵ and subsequent
4 recommendations.^{16,17} The six stages consist of: 1) Identifying the research question; 2)
5 Identifying relevant studies; 3) Study selection; 4) Charting the data 5) Collating,
6 summarizing, and reporting results; and 6) Consultation.^{15,16}

7 This protocol follows the PRISMA-P guidelines (Supplementary file 1) for the
8 bibliographic search process.¹⁸ Currently, this research is in the second stage, which
9 consists of identifying the relevant studies.

11 1. Identifying the research question

12 The research questions were discussed by the authors and, from a consensus, three research
13 questions were elaborated, articulated for the purpose of the review. The questions were
14 broad in nature and structured from three components: 1) the definition of the concept to be
15 researched, 2) the target population and 3) the results of interest in health¹⁶. (Table 1)

17 **Table 1** Structure of the research questions of the systematic scoping review protocol

18 Questions	Concept	Target population	Results of interest in health
19 What are the sexual behaviors of the breastfeeding women?	Sexual Behaviors	Breastfeeding Women	Sexual Behaviors of the breastfeeding women
20 What are the aspects related to the sexuality in breastfeeding women?	Sexuality	Breastfeeding Women	The aspects related to the sexuality in breastfeeding women
21 What are the types of sexual dysfunctions in breastfeeding	Sexual Dysfunction	Breastfeeding Women	The types of sexual dysfunction.

women?

What are the factors that contribute to sexual dysfunctions in breastfeeding women?

Sexual
Dysfunction

Breastfeeding
Women

The factors that contribute to sexual dysfunctions.

1

2 In this step, the concepts and their definitions to be used to support the questions of this
3 review were also determined. (Table 2)

4

5 **Table 2** Key concepts and definitions pertaining to the study questions

Concept	Definition
Sexuality	This involved a broad perspective with some conceptual elements of the WHO definition ¹⁹ , in which personal functions, activities, attitudes, preferences, and behaviors on the personal, interpersonal, contextual, psychological, and biological levels are considered.
Sexual Dysfunction	Involves a group of disorders that are typically characterized by clinically significant disorders in a person's ability to respond sexually or experience sexual pleasure ¹ .
Breastfeeding women	Adopted with some elements of the WHO concept of breastfeeding and defined as a woman who is breastfeeding an infant from birth to 24 months of age ^{20,21} .

6

7 **Identification of relevant studies**

8 **Search Strategy**

9 The search strategies were articulated with the research questions and were developed by a
10 team of librarians and researchers with experience in bibliographic searches in databases of
11 the health area. The controlled vocabulary terms from the MeSH, APA Thesaurus,
12 CINAHL Subject Headings and Entree Thesaurus were used in combination with keywords
13 and the Boolean operators AND and OR. The search strategies were adapted according to
14 the specificities of each database. The filters used were: literature with humans; in the

1 Spanish; Portuguese or English languages; without time limit or restrictions according to
2 the type of study (Supplementary file 2).

3 The following multidisciplinary and health sciences electronic databases were used:
4 PubMed, Excerpta Medica Database (EMBASE), Cumulative Index to Nursing and Allied
5 Health Literature (CINAHL), PsycINFO, Science Direct, plus Google Scholar in the search
6 for gray literature. In addition, studies will be identified through the references of the
7 studies retrieved in the databases and selected for the review.

9 **Study Selection**

10 The selection process will be presented through the flow diagram Preferred Reporting Items
11 for Systematic and Meta-Analyses (PRISMA), according to the steps: 1) identification; 2)
12 screening; 3) eligibility and 4) inclusion.²² (Supplementary file 3).

13 In the identification stage of the literature retrieved, all studies will be organized with the
14 help of the EndNote Basic program, which manages the organization, storage, identification
15 and removal of duplicate studies. Then the references will be exported to a database
16 constructed using Microsoft Excel, version 2016.

17 In the screening stage, the pre-selection of potentially eligible literature will be performed.

18 In order to reduce possible bias in this step, independent reading of the titles and abstracts
19 of the pre-selected studies will be performed independently by two reviewers (DCR and
20 MFT). Using the SPSS version 23.0 software, the inter-observer agreement index between
21 the reviewers DCR and MFT, using the Kappa criterion $>80\%$ ($p<0.05$)²³ will be
22 calculated. In case of disagreement in the selection of the studies, a third reviewer (RA)
23 will be consulted.

1 The eligibility stage will be developed by a team of two reviewers (MFT and DCR). To
2
3 avoid possible biases, the reviewers will independently and comprehensively read the
4
5 literature pre-selected in the screening stage. In case of disagreement, a third reviewer (RA)
6
7 will be consulted.
8
9

10 To evaluate the inclusion or exclusion of eligible studies, reviewers will use the following
11
12 criteria:
13
14

15
16
17 **Inclusion criteria:**

- 18 1. Literature in English, Spanish or Portuguese, focused on the research questions
19
20 detailed in table 1.
21
22
- 23 2. Literature focusing on sexual dysfunction in the nursing population, including:
24
25 qualitative or quantitative empirical studies; studies of literature review, regardless
26
27 of the method used; and brief communications of ongoing studies.
28
29
- 30 3. Gray literature focusing on sexual dysfunction in the nursing population, including:
31
32 annals of congresses, conferences of organizations or societies; academic
33
34 dissertations, theses, books, book chapters, and government documents.
35
36

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39
40 **Exclusion criteria:**

41
42 Studies focusing on the sexuality of pregnant women and brief communications with
43
44 inconsistent results will be excluded.
45
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48
49 **Charting the data (extraction of the data)**

50
51 In this step, the data will be extracted from the literature included, evaluating the quality of
52
53 the individual studies selected.
54
55

1 The following data will be extracted based on the Cochrane Consumer and Communication
2 Review Group Data extraction template (2015)²⁴: database, year, volume, pages, funding
3 agency, country, language, title, type of study, method, inclusion and exclusion criteria,
4 sample, characteristics of the population, place and period of the study. In addition,
5 information will be extracted regarding the sexual behaviors of women who breastfeed, the
6 types of sexual dysfunctions and the factors that contribute to female sexual dysfunction.
7 (Supplementary file 4).

9 **Mapping of the literature included**

10 In order to visualize the geographic location of the literature included the articles will be
11 geocoded, through the correspondence address of the first author listed in the article.
12 Through the Google Earth™ Version 7.15 software, the geographic coordinates of these
13 addresses will be obtained and later geocoded using the TerraView version 4.2.2 software.
14 The final file of the geocoded addresses will follow the Universal Transverse Mercator
15 (UTM) projection and the Geocentric Reference System for the Americas (SIRGAS) 2000
16 datum. Finally, the articles included in the scoping review will be presented on the map of
17 the world.

19 **Risk of bias (quality) assessment of individual studies**

20 To reduce possible biases, the data will be extracted by a team of six reviewers using the
21 standardized extraction form adapted from the Cochrane Consumer and Communication
22 Review Group Data extraction template (2016).²⁴ The quality of the empirical studies
23 included in the review will be evaluated using the Mixed Methods Appraisal Tool
24 (MMAT).²⁵ This instrument was developed to evaluate the methodological quality of

1 empirical studies included in systematic reviews, conducted through qualitative,
2 quantitative and mixed methods. Subsequently, the evidence of methodological quality of
3 the scope of the literature will be presented, including the evidence of studies that present
4 low scores in the quality evaluation, which will not be excluded from the sample analyzed.

6 **Collating, summarizing, and reporting the data**

7 The selected studies will be characterized and the extracted data will be summarized to
8 discuss the evidence that will support possible answers to the research questions and
9 recommendations for future studies.

10 The characterization of the studies will cover: authors; year of publication; countries; aim
11 of the study; population and sample size; place of study; method; results and evaluation of
12 the methodological quality of empirical studies. (Supplementary file 5).

13 Summarization of the quantitative evidence will be presented by performing descriptive
14 analyses, using contingency tables. For these analyses, the SPSS version 23.0 software will
15 be used.

16 The summary of the qualitative evidence will be presented through the themes, constructed
17 from the thematic deductive analysis. The thematic analysis process will be performed
18 through the following steps: 1) familiarization with the data, 2) generation of initial codes,
19 3) search for themes, 4) review of themes, 5) definition of the themes, and 6) articulation of
20 the themes with the literature of the area and production of the final analysis.²⁶

22 **Stakeholder consultation**

23 This is the final step of the review and will consist of consulting a panel of experts
24 regarding the clinical implications of the evidence summarized in the study.¹⁶

1 The panel will be made up of three specialists: a researcher with experience in the area of
2 breastfeeding; a researcher with training in psychology and with experience in the subject
3 of sexuality; and a medical sexologist, with experience in research into sexual dysfunction.
4 In this procedure, a synthesis with the preliminary results of the literature will be sent to the
5 panel of specialists, later, two web-based conferences, approximately one hour long, will be
6 scheduled to develop a group discussion regarding their opinions about the evidence found
7 in the literature. In the first conference, the practical recommendations of the evidence,
8 dissemination strategies and guidelines for future studies will be discussed. In the second
9 conference, the final report of the research will be presented which will conclude with the
10 practical recommendations, dissemination strategies and outlines for future studies
11 contributed by the panel of experts at the first meeting.

13 **ETHICS AND DISSEMINATION**

14 As it will be a review study, without human involvement, there will be no need for ethical
15 approval. The results will be disseminated in a scientific journal, as well as in various
16 media, such as: conferences, seminars, congresses or symposia.

17 The results of the review will be disseminated in an open access journal to ensure access for
18 undergraduate and graduate students, researchers, academics, and research groups, and will
19 be disseminated at conferences aimed at students, researchers, health teams and the
20 community of nursing women.

21
22 The stages of the review will be presented in the following table.

Stage of review at time of this submission	Started	Completed
Preliminary searches	4/10/2017	30/11/2017
Piloting of the study selection process	11/12/2017	5/02/2018
Formal screening of search results against eligibility criteria	08/02/2018	No
Data extraction	No	No
Risk of bias (quality) assessment	No	No
Data analysis	No	No

Authors' Contributions

As this is a review of the scope of the literature, this review is being conducted by a team of 12 researchers. M. Fuentealba-Torres, D. Cartagena-Ramos, proposed the development of the study and coordinated the construction of this protocol, M. Fuentealba-Torres, D. Cartagena-Ramos, J.C Sierra, L. Lara, L. I. Silva, Nascimento and R. Arcêncio, development the theoretical aspects of method. M. Fuentealba-Torres, D. Cartagena-Ramos, J.C Sierra, L. Lara, S. Okano, T. Berra, L. Alves, A. Leite, M. Calori, L. I. Silva, L. Nascimento and R. Arcêncio discussed, consensus of the three research questions and articulated for the purpose of the review. M. Fuentealba-Torres, D. Cartagena-Ramos, S. Okano, T. Berra, L. Alves, A. Leite, M. Calori, performed the systematic search of the seven electronic databases. All authors read and approved the final manuscript.

Acknowledgements

The authors acknowledge the funding received from the Coordination for the Improvement of Higher Education Personnel (CAPES) and National Council for Scientific and

1
2
3 1 Technological Development (CNPq), PEC-PG-Program, to the first and second authors, as
4
5 2 Doctoral Scholarships.

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7 3
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9 4 **Competing interests**

10 5 The authors declare that they have no competing interests.

11 6
12
13 7 **Funding**

14 8 This research was funded by the Coordination for the Improvement of Higher Education
15
16 9 Personnel and National Council for Scientific and Technological
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18 10 Development (CAPES/CNPq), Processes numbers 9243143 and 9191134.

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PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015 checklist: recommended items to address in a systematic review protocol*

Section and topic	Item No	Checklist item	Information report		Justification	Line number(s)
			Yes	No		
ADMINISTRATIVE INFORMATION						
Title:						
Identification	1a	Identify the report as a protocol of a systematic review		X	Not applicable	
Update	1b	If the protocol is for an update of a previous systematic review, identify as such		X	Not applicable	
Registration	2	If registered, provide the name of the registry (such as PROSPERO) and registration number		X	Not applicable	
Authors:						
Contact	3a	Provide name, institutional affiliation, e-mail address of all protocol authors; provide physical mailing address of corresponding author	X			p.1, 1.6--26
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review	X			p.11, 1.2-12
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		X	Not applicable	
Support:						
Sources	5a	Indicate sources of financial or other support for the review	X			p.12, 1.4-7
Sponsor	5b	Provide name for the review funder and/or sponsor	X			p.12, 1.4-7
Role of sponsor or funder	5c	Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol	X			p.12, 1.4-7
INTRODUCTION						
Rationale	6	Describe the rationale for the review in the context of what is already known	X			p.3, 1.1-21
Objectives	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO)	X			p.3, 1.22-24
METHODS						
Eligibility criteria	8	Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years considered, language, publication status) to be used as criteria for eligibility for the review	X			p.5, 1.5-119

Information sources	9	Describe all intended information sources (such as electronic databases, contact with study authors, trial registers or other grey literature sources) with planned dates of coverage	X		p.6, l.4-8
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	X		p.5, l. 8-13 p.6, l.1-3
Study records:					
Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review	X		p.6, l.11-17
Selection process	11b	State the process that will be used for selecting studies (such as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis)	X		p.6, l.18-23 p.7, l. 1-4
Data collection process	11c	Describe planned method of extracting data from reports (such as piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators	X		p.7, l.22-23 p.8, l.1-7
Data items	12	List and define all variables for which data will be sought (such as PICO items, funding sources), any pre-planned data assumptions and simplifications	X		p.9, l.6-19
Outcomes and prioritization	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale		X	Not applicable
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	X		p.8, l.18-24 p.9, l.1-3
Data synthesis	15a	Describe criteria under which study data will be quantitatively synthesised	X		p.9, l.5-11
	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 (such as I^2 , Kendall's τ)	X		p.9, l. 12-14
	15c	Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression)		X	Not applicable
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned	X		p.9, l.15-19
Meta-bias(es)	16	Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies)		X	Not applicable
Confidence in cumulative evidence	17	Describe how the strength of the body of evidence will be assessed (such as GRADE)		X	Not applicable

*** It is strongly recommended that this checklist be read in conjunction with the PRISMA-P Explanation and Elaboration (cite when available) for important clarification on the items. Amendments to a review protocol should be tracked and dated. The copyright for PRISMA-P (including checklist) is held by the PRISMA-P Group and is distributed under a Creative Commons Attribution Licence 4.0.**

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4 From: Shamseer L, Moher D, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart L, PRISMA-P Group. Preferred reporting items for systematic review and
5 meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. *BMJ*. 2015 Jan 2;349(jan02 1):g7647.
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For peer review only

Supplementary file 2

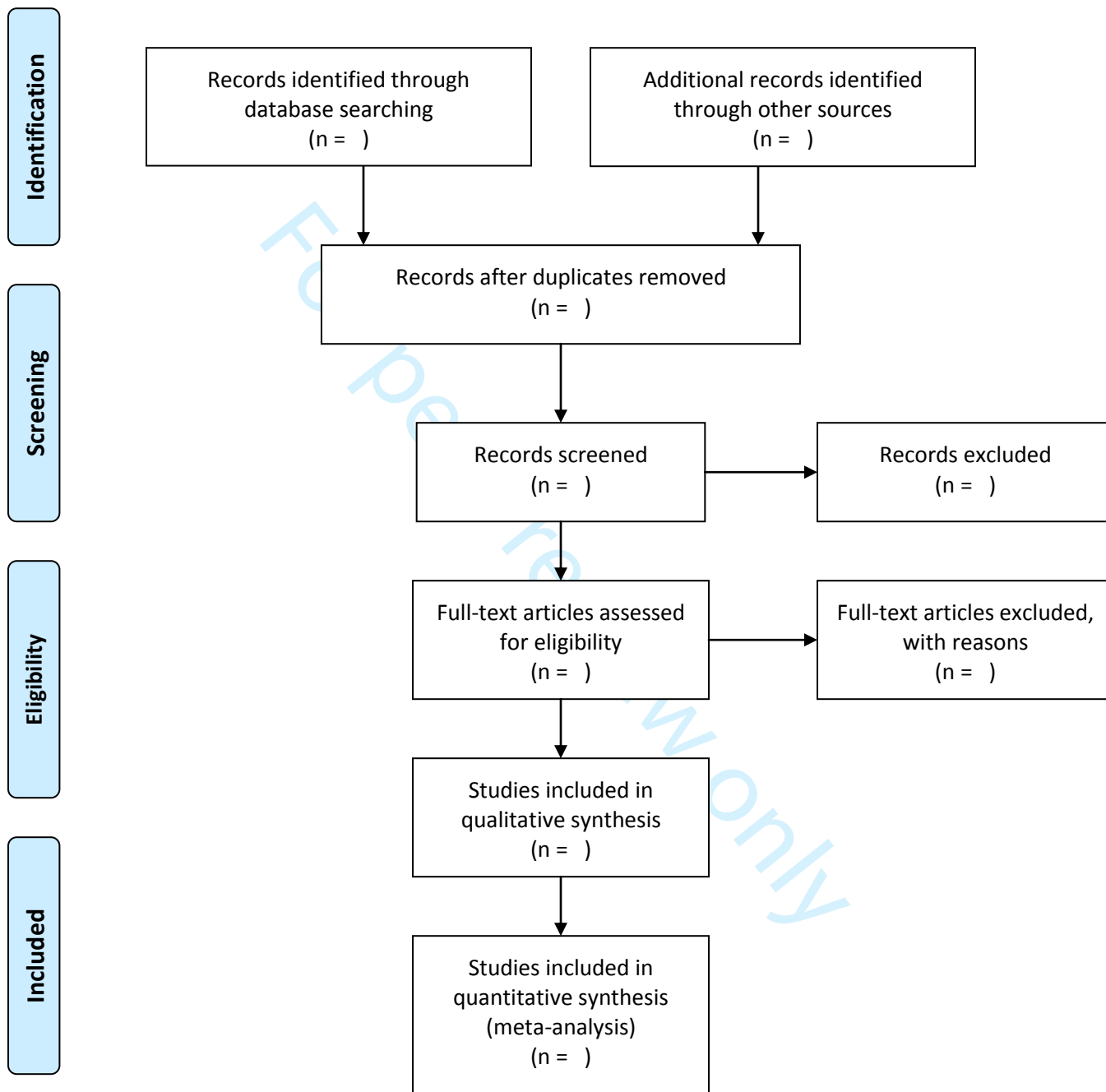
Search strategy

Search: PubMed strategy

1. "Breast Feeding"[Mesh]
2. "Lactation"[Mesh]
3. "Postpartum Period"[Mesh]
4. "Lactation"
5. "Breast Feeding"
6. "Postpartum Period"
7. OR/1-6
8. "Sexuality"[Mesh]
9. "Sexual Behavior"[Mesh]
10. "Sexual Partners"[Mesh]
11. "Sexuality"
12. "Sexual Behavior"
13. "Sexual Partners"
14. OR/8-13
15. "Sexual Dysfunction, Physiological"[Mesh]
16. "Sexual Dysfunctions, Psychological"[Mesh]
17. "Sexual Dysfunction, Female"
18. "Psychosexual Disorders"
19. "Sexual Dysfunction, Physiological"
20. "Physiological Sexual Dysfunction"
21. "Physiological Sexual Dysfunctions"
22. "Sexual Dysfunctions, Physiological"
23. "Sexual Disorders, Physiological"
24. "Physiological Sexual Disorder"
25. "Physiological Sexual Disorders"
26. "Sexual Disorder, Physiological"
27. "Sex Disorders"
28. "Sexual Dysfunctions, Psychological"
29. "Dysfunction, Psychological Sexual"

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- 3 30. "Dysfunctions, Psychological Sexual"
- 4 31. "Psychological Sexual Dysfunction"
- 5 32. "Psychological Sexual Dysfunctions"
- 6 33. "Sexual Dysfunction, Psychological"
- 7 34. "Psychosexual Dysfunctions"
- 8 35. "Dysfunction, Psychosexual"
- 9 36. "Dysfunctions, Psychosexual"
- 10 37. "Psychosexual Dysfunction"
- 11 38. "Psychosexual Disorders"
- 12 39. "Disorder, Psychosexual"
- 13 40. "Disorders, Psychosexual"
- 14 41. "Psychosexual Disorder"
- 15 42. "Hypoactive Sexual Desire Disorder"
- 16 43. "Sexual Aversion Disorder"
- 17 44. "Aversion Disorders, Sexual"
- 18 45. "Disorders, Sexual Aversion"
- 19 46. "Sexual Aversion Disorders"
- 20 47. "Orgasmic Disorder"
- 21 48. "Disorders, Orgasmic"
- 22 49. "Orgasmic Disorders"
- 23 50. "Sexual Arousal Disorder"
- 24 51. "Arousal Disorders, Sexual"
- 25 52. "Disorders, Sexual Arousal"
- 26 53. "Sexual Arousal Disorders"
- 27 54. "Frigidity"
- 28 55. OR/15-54
- 29 56. 7 AND 14 AND 55
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Figure 1 PRISMA Flow Diagram



Supplementary file 4
Data collection form

Title of review	Factors that contributing to development of the sexual dysfunction in nursing women: A Systematic Scoping Review Protocol
Reviewer	
Date of review	
Form version	
Contact with author	Date, reason, resolved
Notes	
Study identification	
Report number	Last name first author-year of the reference
Study number	Last name first author-year of the primary reference
Title	Author(s)
	Source <input type="checkbox"/> research article <input type="checkbox"/> abstract <input type="checkbox"/> conference proceeding <input type="checkbox"/> non-research article <input type="checkbox"/> review <input type="checkbox"/> guideline <input type="checkbox"/> recommendation other (eg. Unpublished date)
Source 2	<input type="checkbox"/> PubMed <input type="checkbox"/> Excerpta Medica Database (EMBASE) <input type="checkbox"/> Cumulative Index to Nursing and Allied Health Literature (CINAHL) <input type="checkbox"/> PsycINFO <input type="checkbox"/> Science Direct <input type="checkbox"/> Web of Science <input type="checkbox"/> Google Scholar
Year	
Volume	
Page (start-end)	
Contact	
Country	
Language	
Funding	
Notes	
Eligibility of study in the review	
Inclusion criteria	Literature in English, Spanish and Portuguese focused on one or more three research questions. Original studies of qualitative or quantitative approach; literature review independent of the method used; communications. Gray literature, annals of congresses, conferences, organizations societies; academic dissertations, theses conference, books, chapters of books and governmental documents.
Notes	
Study details	

Setting	Country(ies)/province(s)/state(s)
Period of study	Dates start-end
Study exclusion criteria	Studies focusing on the sexuality of pregnant women and reports with partial or inconsistent results will be excluded.
REB approval	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unclear
Study design	
Primary data source	
Secondary data source	
Other data sources	
Notes	
Population characteristics	
Sample size (n)	Patients:
Age	e.g. n(%), mean (SD), median (quartiles)
Sexual behaviors of nursing women	
Aspects related to sexuality in nursing women	
Types of sexual dysfunction of the nursing women	
Factors that contributing to sexual dysfunction in nursing women	

*Adapted from Cochrane Consumer and Communication Review Group Data extraction template.

BMJ Open

What are the factors that contribute to the development of sexual dysfunction in breastfeeding women? A systematic scoping review protocol

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2018-022863.R1
Article Type:	Protocol
Date Submitted by the Author:	23-Jun-2018
Complete List of Authors:	Fuentealba-Torres, Miguel; University of São Paulo, Department of Maternal-Infant and Public Health Nursing; Cartagena-Ramos, Denisse ; University of São Paulo, Department of Maternal-Infant and Public Health Nursing Sierra, JC; University of Granada, Department of Personality, Evaluation and Psychological Treatment Lara, Lúcia ; University of São Paulo, Department of Gynecology and Obstetrics Okano, Sérgio; University of São Paulo, Department of Gynecology and Obstetrics Berra, Thaís; University of São Paulo, Department of Maternal-Infant and Public Health Nursing Alves, Luana; University of São Paulo, Department of Maternal-Infant and Public Health Nursing Leite, Ana Carolina; University of São Paulo, Department of Maternal-Infant and Public Health Nursing Yamamura, Mellina; University of São Paulo, Department of Maternal-Infant and Public Health Nursing Silva, Isília; University of São Paulo, Department of Maternal-Infant and Psychiatric Nursing Nascimento, Lucila; University of São Paulo, Department of Maternal-Infant and Public Health Nursing Arcêncio, Ricardo; University of São Paulo, Department of Maternal-Infant and Public Health Nursing
Primary Subject Heading:	Obstetrics and gynaecology
Secondary Subject Heading:	Obstetrics and gynaecology, Sexual health
Keywords:	Breast Feeding, Physiological Sexual Dysfunction, Psychological Sexual Dysfunction, Sexual Behavior, Sexual Health

SCHOLARONE™
Manuscripts

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3 1 **What are the factors that contribute to the development of sexual dysfunction in**
4
5 2 **breastfeeding women? A systematic scoping review protocol**

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8 3 Miguel Fuentealba-Torres 1, Denisse Cartagena-Ramos 1, Juan Carlos Sierra 2,
9
10 4 Lúcia Alves Lara 3, Sérgio Pires Okano 3, Thaís Zamboni Berra 1, Luana Seles
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12 5 Alves 1, Ana Carolina Andrade Biaggi Leite 1, Mellina Yamamura 1, Isília
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51
52
53 24 **Keywords:** Breast Feeding, Physiological Sexual Dysfunction, Psychological Sexual
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55 25 Dysfunction, Sexual Behavior, Sexual Health
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1
2
3 **1 ABSTRACT**
4

5 **2 Introduction:** Female Sexual Dysfunction constitutes a public health problem.
6

7
8 Evidence indicates that the population of nursing women is more vulnerable to the
9
10 phenomenon due to breastfeeding. Thus, this protocol was developed to explore the
11
12 factors that contribute to the development of sexual dysfunction in breastfeeding
13
14 women.
15

16 **7 Methods and analysis:** The systematic scoping review will be conducted in six stages,
17
18 according to the PRISMA-P. The databases used will be: PubMed, Excerpta Medica
19
20 Database (EMBASE), Cumulative Index to Nursing and Allied Health Literature
21
22 (CINAHL), PsycINFO, Science Direct, Web of Science and Google Scholar. The
23
24 searches were made until June 01, 2018 and no retrospective time limit was used. For
25
26 the organization of the literature retrieved from the databases, the EndNote Basic
27
28 manager will be used. The Cochrane model will be used for the data extraction. The
29
30 analysis of the quantitative data will be carried out through descriptive statistics and the
31
32 qualitative data will be submitted to thematic analysis. The methodological quality of
33
34 the empirical studies will be evaluated using the Mixed Methods Appraisal Tool
35
36 (MMAT).
37
38

39
40 **18 Ethics and dissemination:** As it will be a review study, without human involvement,
41
42 there will be no need for ethical approval. The results will be disseminated in a
43
44 scientific journal, as well as in various media, such as: conferences, seminars,
45
46 congresses or symposia.
47

48
49 **22 Strengths and limitations of this study:**
50

51 ➤ This protocol reduces the possibility of duplication, gives transparency to the
52
53 methods and processes that will be used, reduces possible biases and allows peer
54
55 review.
56
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- 1
2
3 1 ➤ This scoping review will be the first to explore of the factors that contribute to
4 the development of sexual dysfunction in breastfeeding women.
5
6
7 3 ➤ The scarcity of empirical studies, the publication bias and the methodological
8 quality of the gray literature found may be the main limitations of the study.
9
10

11 **Keywords:** Breast Feeding, Physiological Sexual Dysfunction, Psychological Sexual
12 Dysfunction, Sexual Behavior, Sexual Health
13
14

15 16 7 INTRODUCTION

17
18
19 8 Sexual dysfunctions are a heterogeneous group of disorders, which affects the capacity
20 for sexual response or sexual pleasure.¹ These disorders have been related to biological,
21 psychological, cultural, behavioral and interpersonal determinants.²
22
23
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27 11 Female Sexual Dysfunction (FSD) is considered a public health problem, affecting
28 more than 40% of the world population of women.³ A systematic review estimated that
29 the prevalence of FSD in populations over 18 years of age ranges from 5.5% to 73.2%⁴
30 and a meta-analysis estimated that the prevalence of sexual dysfunction among middle-
31 aged women age is 40.9%.⁵
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38 16 The literature evidenced that women who breastfeed may have a higher risk of sexual
39 dysfunction.⁴⁻⁸ Hyperprolactinemia, hypoestrogenism and the demand for infant care
40 may increase female sexual dysfunctions in this period.⁷⁻¹² Despite this evidences, few
41 studies have been conducted to identify factors that contribute to the development of
42 FSD among breastfeeding women.^{13,14}
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50 21 Previous studies have investigated sexual dysfunction in the puerperium.^{9,13,15,16}
51
52 22 However, most of these studies combine populations of women who are breastfeeding
53 with populations of women who do not breastfeed. This analyzed has not allowed to
54 identify specific risk factors for FSD in women who breastfeed.
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1
2
3 1 Due to the scarcity of epidemiological studies of FSD in these women, the real
4
5 2 prevalences and risk factors for FSD in this population are still unknown. This panorama
6
7 3 has made it impossible, at present, to conduct classic systematic reviews. In spite of this
8
9 4 situation, it is possible to identify factors that contribute to the FSD of women who
10
11 5 breastfeed between gray literature, book chapters, studies in development and research
12
13 6 with a diversity of designs. This study consists of a protocol of a Systematic Scoping
14
15 7 Review developed with the objective of exploring the factors that contribute to the
16
17 8 development of FSD in the population of women who breastfeed and to promote the
18
19 9 development of new research.
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21
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10

11 **METHODS AND ANALYSIS**

12 This work constitutes a protocol for a Systematic Scoping Review, which will be
13 developed according to the steps proposed by Arksey and O'Malley¹⁷ and subsequent
14 recommendations.^{18,19} The six stages consist of: 1) Identifying the research question; 2)
15 Identifying relevant studies; 3) Study selection; 4) Charting the data 5) Collating,
16 summarizing, and reporting results; and 6) Consultation.^{17,18}

17 This protocol follows the PRISMA-P guidelines (Supplementary file 1) for the
18 bibliographic search process.²⁰ Currently, this research is in the second stage, which
19 consists of identifying the relevant studies.

20 **1. Identifying the research question**

21 The research questions were discussed by the authors and, from a consensus, three
22 research questions were elaborated, articulated for the purpose of the review. The
23 questions were broad in nature and structured from three components: 1) the definition

1 of the concept to be researched, 2) the target population and 3) the results of interest in
 2 health.¹⁸ (Table 1)

3 Table 1 Structure of the research questions of the systematic scoping review protocol

Questions	Concept	Target population	Results of interest in health
What happens to female sexual performance in the course of breastfeeding?	Female sexual performance	Breastfeeding women	Female sexual performance in the course of breastfeeding
What are the biological and psychosocial aspects that interfere with the sexual function of women who breastfeed?	Biological and psychosocial aspects	Breastfeeding women	Biological and psychosocial aspects that interfere with the sexual function
What are the sexual dysfunction problems in breastfeeding women?	Sexual dysfunction problems	Breastfeeding women	The types of sexual dysfunction problems

4

5 In this step, the concepts and their definitions to be used to support the questions of this
 6 review were also determined. (Table 2)

7 Table 2 Key concepts and definitions pertaining to the study questions

Concept	Definition

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Breastfeeding women	Breastfeeding is when the child receives breastmilk directly from the breasts and the following types are considered: exclusive breastfeeding (only breastfeeding), predominant breastfeeding (breastfeeding in combination with fluids), complementary breastfeeding (breastfeeding in combination with solids or semi-solid). ²¹
16 17 18 19 20 21 22 23	Sexuality	This involved a broad perspective with some conceptual elements of the WHO definition. ²² In which biological and psychosocial aspects are considered.
24 25 26 27 28	Biological aspects	Consider the interaction of prolactin and oxytocin with female sex hormones including estrogen and progesterone.
29 30 31 32 33 34 35	Psychosocial aspects of sexuality	It considers the intrapsychic and social aspects of the sexual response of women who breastfeed, including depression, body image, fatigue, sleep deprivation and parental tasks.
36 37 38 39 40 41 42 43 44	Female sexual performance	It is a component of sexual behavior that is a consequence of the interrelation between hormonal actions in the brain, sexual arousal and expectations of sexual competence that results in the performance of the individual. ²³
45 46 47 48 49 50 51 52 53 54 55 56	Sexual dysfunction	Involves a group of disorders that are typically characterized by clinically significant disorders in a person's ability to respond sexually or experience sexual pleasure. ¹ These disorders affect the dimensions of desire, excitement, lubrication, orgasm, satisfaction and pain. ²⁴

1

2 **Identification of relevant studies**

3 **Search Strategy**

4 The search strategies were articulated with the research questions and were developed
5 by a team of librarians and researchers with experience in bibliographic searches in
6 databases of the health area. The searches were made until June 01, 2018 and no
7 retrospective time limit was used. The controlled vocabulary terms from the MeSH,
8 APA Thesaurus, CINAHL Subject Headings and Entree Thesaurus were used in
9 combination with keywords and the Boolean operators AND and OR. The search
10 strategies were adapted according to the specificities of each database. The filters used
11 were: literature with humans; in the Spanish; Portuguese or English languages; without
12 time limit or restrictions according to the type of study (Supplementary file 2).

13 The following multidisciplinary and health sciences electronic databases were used:
14 PubMed, Excerpta Medica Database (EMBASE), Cumulative Index to Nursing and
15 Allied Health Literature (CINAHL), PsycINFO, Science Direct, plus Google Scholar in
16 the search for gray literature. In addition, studies will be identified through the
17 references of the studies retrieved in the databases and selected for the review.

18 **Study Selection**

19 The selection process will be presented through the flow diagram Preferred Reporting
20 Items for Systematic and Meta-Analyses (PRISMA), according to the steps: 1)
21 identification; 2) screening; 3) eligibility and 4) inclusion.²⁵ (Supplementary file 3).

22 In the identification stage of the literature retrieved, all studies will be organized with
23 the help of the EndNote Basic program, which manages the organization, storage,

1 identification and removal of duplicate studies. Then the references will be exported to a
2 database constructed using Microsoft Excel, version 2016.

3 In the screening stage, the pre-selection of potentially eligible literature will be
4 performed. In order to reduce possible bias in this step, independent reading of the titles
5 and abstracts of the pre-selected studies will be performed independently by two
6 reviewers (DCR and MFT). Using the SPSS version 23.0 software, the inter-observer
7 agreement index between the reviewers DCR and MFT, using the Kappa criterion >80%
8 ($p < 0.05$)²⁶ will be calculated. In case of disagreement in the selection of the studies, a
9 third reviewer (RA) will be consulted.

10 The eligibility stage will be developed by a team of two reviewers (MFT and DCR). To
11 avoid possible biases, the reviewers will independently and comprehensively read the
12 literature pre-selected in the screening stage. In case of disagreement, a third reviewer
13 (RA) will be consulted.

14 To evaluate the inclusion or exclusion of eligible studies, reviewers will use the
15 following criteria:

16 **Inclusion criteria:**

- 17 1. Literature in English, Spanish or Portuguese, focused on the research questions
18 detailed in table 1.
- 19 2. Literature focusing on sexual dysfunction in the nursing population, including:
20 qualitative or quantitative empirical studies; studies of literature review, regardless of
21 the method used; and brief communications of ongoing studies.

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3 1 3. Gray literature focusing on sexual dysfunction in the nursing population,
4
5 2 including: annals of congresses, conferences of organizations or societies; academic
6
7 3 dissertations, theses, books, book chapters, and government documents.
8
9

10 4 4. Cohort studies focusing on the sexual function of nutritious women, who have
11
12 5 followed up from pregnancy to post-partum, will also be included.
13
14

15 6 **Exclusion criteria:**

16
17
18 7 Studies focusing on the sexuality of pregnant women and brief communications with
19
20 8 inconsistent results will be excluded.
21
22

23 9 **Patient and Public Involvement**

24
25
26 10 There was no participation of patients in this study.
27
28

29 11 **Charting the data (extraction of the data)**

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31
32 12 In this step, the data will be extracted from the literature included, evaluating the quality
33
34 13 of the individual studies selected.
35
36

37 14 The following data will be extracted based on the Cochrane Consumer and
38
39 15 Communication Review Group Data extraction template (2015)²⁷: database, year,
40
41 16 volume, pages, funding agency, country, language, title, type of study, method,
42
43 17 inclusion and exclusion criteria, sample, characteristics of the population, place and
44
45 18 period of the study. In addition, information will be extracted regarding the sexual
46
47 19 behaviors of women who breastfeed, the types of sexual dysfunctions and the factors
48
49 20 that contribute to female sexual dysfunction. (Supplementary file 4).
50
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53 21 **Mapping of the literature included**

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1
2
3 1 In order to visualize the geographic location of the literature included the articles will be
4
5 2 geocoded, through the correspondence address of the first author listed in the article.
6
7 3 Through the Google Earth™ Version 7.15 software, the geographic coordinates of these
8
9 4 addresses will be obtained and later geocoded using the TerraView version 4.2.2
10
11 5 software. The final file of the geocoded addresses will follow the Universal Transverse
12
13 6 Mercator (UTM) projection and the Geocentric Reference System for the Americas
14
15 7 (SIRGAS) 2000 datum. Finally, the articles included in the scoping review will be
16
17 8 presented on the map of the world.
18
19
20

21 **Risk of bias (quality) assessment of individual studies**

22
23
24 10 To reduce possible biases, the data will be extracted by a team of six reviewers using
25
26 11 the standardized extraction form adapted from the Cochrane Consumer and
27
28 12 Communication Review Group Data extraction template (2016).²⁷ The quality of the
29
30 13 empirical studies included in the review will be evaluated using the Mixed Methods
31
32 14 Appraisal Tool (MMAT).²⁸ This instrument was developed to evaluate the
33
34 15 methodological quality of empirical studies included in systematic reviews, conducted
35
36 16 through qualitative, quantitative and mixed methods. Subsequently, the evidence of
37
38 17 methodological quality of the scope of the literature will be presented, including the
39
40 18 evidence of studies that present low scores in the quality evaluation, which will not be
41
42 19 excluded from the sample analyzed.
43
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49 **Collating, summarizing, and reporting the data**

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52 22 The selected studies will be characterized and the extracted data will be summarized to
53
54 23 discuss the evidence that will support possible answers to the research questions and
55
56 24 recommendations for future studies.
57
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59
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1
2
3 1 The characterization of the studies will cover: authors; year of publication; countries;
4
5 2 aim of the study; population and sample size; place of study; method; results and
6
7 3 evaluation of the methodological quality of empirical studies. (Supplementary file 5).

8
9 4 For the descriptive analysis of the characteristics of the included literature, the SPSS
10
11 5 program is going to be applied calculating absolute frequencies and percentages.

12
13
14 6 The summarization of the quantitative evidence is going to carry out in a narrative form
15
16 7 by identification categories.

17
18
19 8 The summary of the qualitative evidence will be presented through the themes,
20
21 9 constructed from the thematic deductive analysis. The thematic analysis process will be
22
23 10 performed through the following steps: 1) familiarization with the data, 2) generation of
24
25 11 initial codes, 3) search for themes, 4) review of themes, 5) definition of the themes, and
26
27 12 6) articulation of the themes with the literature of the area and production of the final
28
29 13 analysis.²⁹

30 31 32 33 14 **Stakeholder consultation**

34
35
36 15 This is the final step of the review and will consist of consulting a panel of experts
37
38 16 regarding the clinical implications of the evidence summarized in the study.¹⁸

39
40
41 17 The panel will be made up of three specialists: a researcher with experience in the area
42
43 18 of breastfeeding; a researcher with training in psychology and with experience in the
44
45 19 subject of sexuality; and a medical sexologist, with experience in research into sexual
46
47 20 dysfunction.

48
49
50 21 In this procedure, a synthesis with the preliminary results of the literature will be sent to
51
52 22 the panel of specialists, later, two web-based conferences, approximately one hour long,
53
54 23 will be scheduled to develop a group discussion regarding their opinions about the

1 evidence found in the literature. In the first conference, the practical recommendations
 2 of the evidence, dissemination strategies and guidelines for future studies will be
 3 discussed. In the second conference, the final report of the research will be presented
 4 which will conclude with the practical recommendations, dissemination strategies and
 5 outlines for future studies contributed by the panel of experts at the first meeting.

6 **ETHICS AND DISSEMINATION**

7 As it will be a review study, without human involvement, there will be no need for
 8 ethical approval. The results will be disseminated in a scientific journal, as well as in
 9 various media, such as: conferences, seminars, congresses or symposia.

10 The results of the review will be disseminated in an open access journal to ensure access
 11 for undergraduate and graduate students, researchers, academics, and research groups,
 12 and will be disseminated at conferences aimed at students, researchers, health teams and
 13 the community of nursing women.

14 The stages of the review will be presented in the following table.

Stage of review at time of this submission	Started	Completed
Preliminary searches	4/10/2017	30/11/2017
Piloting of the study selection process	11/12/2017	5/02/2018
Formal screening of search results against eligibility criteria	08/02/2018	No
Data extraction	No	No

Risk of bias (quality) assessment	No	No
Data analysis	No	No

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2 **Authors' Contributions**

3 As this is a review of the scope of the literature, this review is being conducted by a
 4 team of 12 researchers. M. Fuentealba-Torres, D. Cartagena-Ramos, proposed the
 5 development of the study and coordinated the construction of this protocol, M.
 6 Fuentealba-Torres, D. Cartagena-Ramos, J.C Sierra, L. Lara, L. I. Silva, Nascimento
 7 and R. Arcêncio, development the theoretical aspects of method. M. Fuentealba-Torres,
 8 D. Cartagena-Ramos, J.C Sierra, L. Lara, S. Okano, T. Berra, L. Alves, A. Leite, M.
 9 Yamamura, L. I. Silva, L. Nascimento and R. Arcêncio discussed, consensus of the
 10 three research questions and articulated for the purpose of the review. M. Fuentealba-
 11 Torres, D. Cartagena-Ramos, S. Okano, T. Berra, L. Alves, A. Leite, M. Yamamura,
 12 performed the systematic search of the seven electronic databases. All authors read and
 13 approved the final manuscript.

14

15 **Acknowledgements**

16 The authors acknowledge the funding received from the Coordination for the
 17 Improvement of Higher Education Personnel (CAPES) and National Council for
 18 Scientific and Technological Development (CNPq), PEC-PG-Program, to the first and
 19 second authors, as Doctoral Scholarships.

20

21 **Competing interests**

22 The authors declare that they have no competing interests.

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2 **Funding**

3 This research was funded by the Coordination for the Improvement of Higher Education
4 Personnel and National Council for Scientific and Technological
5 Development (CAPES/CNPq), Processes numbers 9243143 and 9191134.

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PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015 checklist: recommended items to address in a systematic review protocol*

Section and topic	Item No	Checklist item	Information report		Justification	Line number(s)
			Yes	No		
ADMINISTRATIVE INFORMATION						
Title:						
Identification	1a	Identify the report as a protocol of a systematic review		X	Not applicable	
Update	1b	If the protocol is for an update of a previous systematic review, identify as such		X	Not applicable	
Registration	2	If registered, provide the name of the registry (such as PROSPERO) and registration number		X	Not applicable	
Authors:						
Contact	3a	Provide name, institutional affiliation, e-mail address of all protocol authors; provide physical mailing address of corresponding author	X			p.1, 1.6--26
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review	X			p.11, 1.2-12
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		X	Not applicable	
Support:						
Sources	5a	Indicate sources of financial or other support for the review	X			p.12, 1.4-7
Sponsor	5b	Provide name for the review funder and/or sponsor	X			p.12, 1.4-7
Role of sponsor or funder	5c	Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol	X			p.12, 1.4-7
INTRODUCTION						
Rationale	6	Describe the rationale for the review in the context of what is already known	X			p.3, 1.1-21
Objectives	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO)	X			p.3, 1.22-24
METHODS						
Eligibility criteria	8	Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years considered, language, publication status) to be used as criteria for eligibility for the review	X			p.5, 1.5-119

Information sources	9	Describe all intended information sources (such as electronic databases, contact with study authors, trial registers or other grey literature sources) with planned dates of coverage	X		p.6, l.4-8
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	X		p.5, l. 8-13 p.6, l.1-3
Study records:					
Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review	X		p.6, l.11-17
Selection process	11b	State the process that will be used for selecting studies (such as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis)	X		p.6, l.18-23 p.7, l. 1-4
Data collection process	11c	Describe planned method of extracting data from reports (such as piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators	X		p.7, l.22-23 p.8, l.1-7
Data items	12	List and define all variables for which data will be sought (such as PICO items, funding sources), any pre-planned data assumptions and simplifications	X		p.9, l.6-19
Outcomes and prioritization	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale		X	Not applicable
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	X		p.8, l.18-24 p.9, l.1-3
Data synthesis	15a	Describe criteria under which study data will be quantitatively synthesised	X		p.9, l.5-11
	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 (such as I^2 , Kendall's τ)	X		p.9, l. 12-14
	15c	Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression)		X	Not applicable
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned	X		p.9, l.15-19
Meta-bias(es)	16	Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies)		X	Not applicable
Confidence in cumulative evidence	17	Describe how the strength of the body of evidence will be assessed (such as GRADE)		X	Not applicable

*** It is strongly recommended that this checklist be read in conjunction with the PRISMA-P Explanation and Elaboration (cite when available) for important clarification on the items. Amendments to a review protocol should be tracked and dated. The copyright for PRISMA-P (including checklist) is held by the PRISMA-P Group and is distributed under a Creative Commons Attribution Licence 4.0.**

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4 From: Shamseer L, Moher D, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart L, PRISMA-P Group. Preferred reporting items for systematic review and
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For peer review only

Supplementary file 2

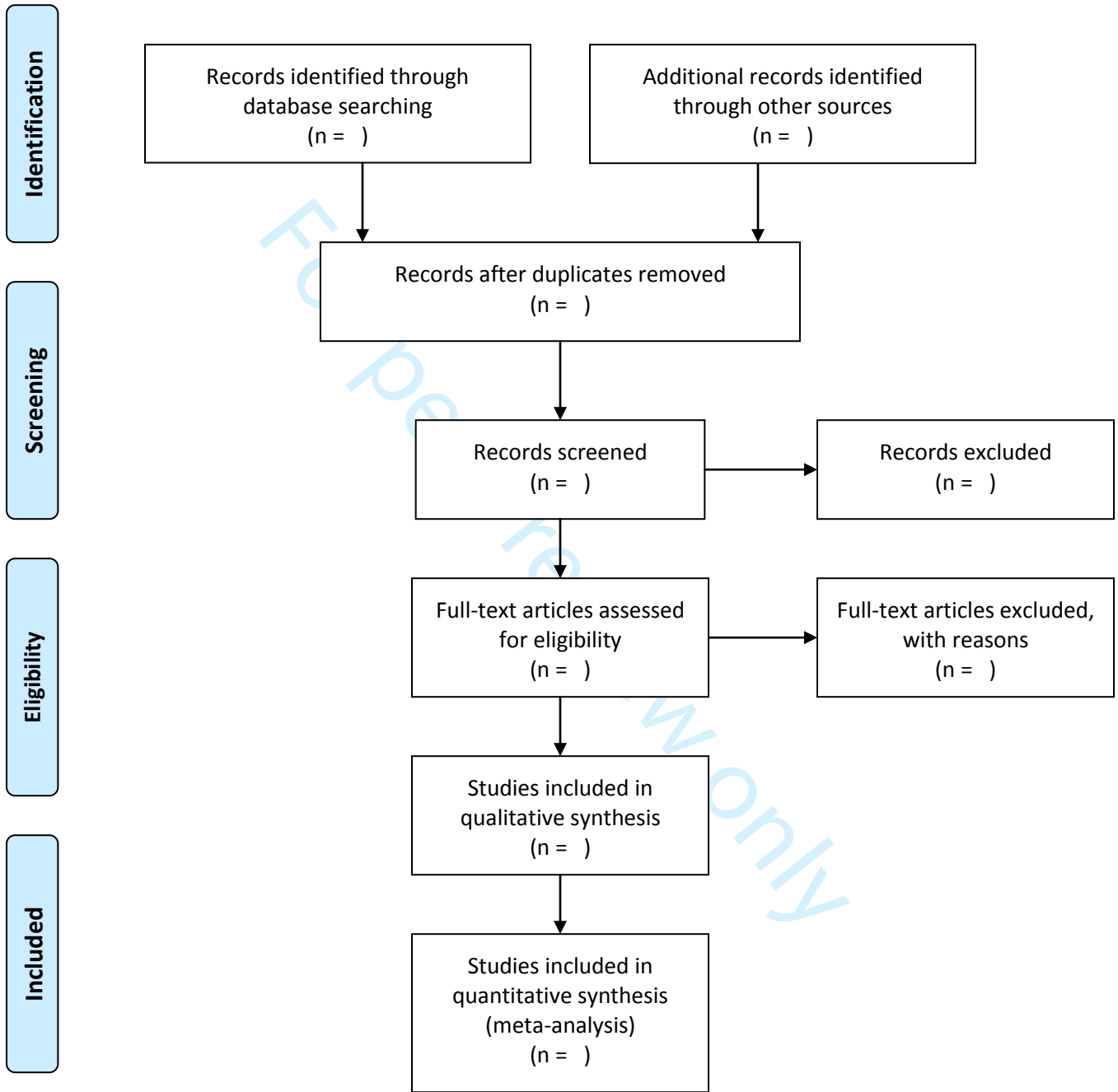
Search strategy

Search: PubMed strategy

1. "Breast Feeding"[Mesh]
2. "Lactation"[Mesh]
3. "Postpartum Period"[Mesh]
4. "Lactation"
5. "Breast Feeding"
6. "Postpartum Period"
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8. "Sexuality"[Mesh]
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13. "Sexual Partners"
14. OR/8-13
15. "Sexual Dysfunction, Physiological"[Mesh]
16. "Sexual Dysfunctions, Psychological"[Mesh]
17. "Sexual Dysfunction, Female"
18. "Psychosexual Disorders"
19. "Sexual Dysfunction, Physiological"
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27. "Sex Disorders"
28. "Sexual Dysfunctions, Psychological"
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- 10 37. "Psychosexual Dysfunction"
- 11 38. "Psychosexual Disorders"
- 12 39. "Disorder, Psychosexual"
- 13 40. "Disorders, Psychosexual"
- 14 41. "Psychosexual Disorder"
- 15 42. "Hypoactive Sexual Desire Disorder"
- 16 43. "Sexual Aversion Disorder"
- 17 44. "Aversion Disorders, Sexual"
- 18 45. "Disorders, Sexual Aversion"
- 19 46. "Sexual Aversion Disorders"
- 20 47. "Orgasmic Disorder"
- 21 48. "Disorders, Orgasmic"
- 22 49. "Orgasmic Disorders"
- 23 50. "Sexual Arousal Disorder"
- 24 51. "Arousal Disorders, Sexual"
- 25 52. "Disorders, Sexual Arousal"
- 26 53. "Sexual Arousal Disorders"
- 27 54. "Frigidity"
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Figure 1 PRISMA Flow Diagram



Supplementary file 4
Data collection form

Title of review	Factors that contributing to development of the sexual dysfunction in nursing women: A Systematic Scoping Review Protocol
Reviewer	
Date of review	
Form version	
Contact with author	Date, reason, resolved
Notes	
Study identification	
Report number	Last name first author-year of the reference
Study number	Last name first author-year of the primary reference
Title	Author(s)
	Source <input type="checkbox"/> research article <input type="checkbox"/> abstract <input type="checkbox"/> conference proceeding <input type="checkbox"/> non-research article <input type="checkbox"/> review <input type="checkbox"/> guideline <input type="checkbox"/> recommendation other (eg. Unpublished date)
Source 2	<input type="checkbox"/> PubMed <input type="checkbox"/> Excerpta Medica Database (EMBASE) <input type="checkbox"/> Cumulative Index to Nursing and Allied Health Literature (CINAHL) <input type="checkbox"/> PsycINFO <input type="checkbox"/> Science Direct <input type="checkbox"/> Web of Science <input type="checkbox"/> Google Scholar
Year	
Volume	
Page (start-end)	
Contact	
Country	
Language	
Funding	
Notes	
Eligibility of study in the review	
Inclusion criteria	Literature in English, Spanish and Portuguese focused on one or more three research questions. Original studies of qualitative or quantitative approach; literature review independent of the method used; communications. Gray literature, annals of congresses, conferences, organizations societies; academic dissertations, theses conference, books, chapters of books and governmental documents.
Notes	
Study details	

Setting	Country(ies)/province(s)/state(s)
Period of study	Dates start-end
Study exclusion criteria	Studies focusing on the sexuality of pregnant women and reports with partial or inconsistent results will be excluded.
REB approval	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unclear
Study design	
Primary data source	
Secondary data source	
Other data sources	
Notes	
Population characteristics	
Sample size (n)	Patients:
Age	e.g. n(%), mean (SD), median (quartiles)
Sexual behaviors of nursing women	
Aspects related to sexuality in nursing women	
Types of sexual dysfunction of the nursing women	
Factors that contributing to sexual dysfunction in nursing women	

*Adapted from Cochrane Consumer and Communication Review Group Data extraction template.

