Production on prenatal care in health science dissertations and theses: a bibliometric study

Produção sobre a assistência pré-natal nas dissertações e teses das ciências da saúde: estudo bibliométrico

Producción sobre la atención prenatal en disertaciones y tesis de ciencias de la salud: estudio bibliométrico

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ABSTRACT
Objective: to describe Brazilian scientific production in health science dissertations and theses on prenatal care in Brazil. **Method**: this bibliometric study examined the production available on the Theses and Dissertations Portal of Brazil's Coordination for the Improvement of Higher Education Personnel, applying Lotka, Bradford and Zipf Laws and descriptive statistics. **Results**: of the 864 productions included, 682 (78.9%) were dissertations, most produced in the Southeast region (44.6%), by nurse authors (45.7%), medical and nursing advisors and nurses (39,9% and 32.5%, respectively). Descriptive-exploratory studies predominated (75%), with quantitative approaches (64%), investigating prenatal care/assessment (25%), in populations of pregnant women (66%) and with primary health care facilities as the main scenarios (50.8%). The most frequent keyword was "prenatal care". **Conclusion**: the studies were predominantly descriptive, quantitative, from the Southeast and South regions and at evidence level 6.
Descriptors: Bibliometric; Health sciences; Pregnancy Women; Prenatal Care.

RESUMO
Objetivo: descrever a produção científica brasileira das dissertações e teses das ciências da saúde acerca da assistência pré-natal no Brasil. **Método**: estudo bibliométrico das produções disponibilizadas no Portal de Teses e Dissertações da Coordenação de Aperfeiçoamento de Pessoal de Nível Superior. Foram aplicadas as Leis de Lotka, Bradford e Zipf e estatística descritiva. **Resultados**: das 864 produções incluídas, 682 (78,9%) eram dissertações, a maioria produzida na região Sudeste (44,6%), por autores enfermeiros (45,7%), orientadores médicos e enfermeiros (39,9% e 32,5%, respectivamente). Predominaram estudos descritivo-exploratórios (75%), com abordagem quantitativa (64%), que investigaram a assistência/avaliação pré-natal (25%), com as gestantes como população (66%) e a Unidade Básica de Saúde como principal cenário (50,8%). A palavra-chave mais frequente foi cuidado pré-natal. **Conclusão**: observou-se a predominância de estudos do tipo descritivo, quantitativos, oriundos das regiões Sudeste e Sul, nível de evidência 6.
Descritores: Bibliometria; Ciências da saúde; Gestantes; Cuidado Pré-Natal.

RESUMEN
Objetivo: describir la producción científica brasileña de disertaciones y tesis en ciencias de la salud sobre la atención prenatal en Brasil. **Método**: estudio bibliométrico de las producciones puestas a disposición en el Portal de Tesis y Disertaciones de la Coordinación para el Perfeccionamiento del Personal de Educación Superior. Se aplicaron las leyes Lotka, Bradford y Zipf y la estadística descriptiva. **Resultados**: de las 864 producciones incluidas, 682 (78,9%) fueron disertaciones, la mayoría producidas en el Sureste (44,6%), por enfermeras autoras (45,7%), asesores médicos y de enfermaría (39,9%, 32,5% respectivamente). Predominaron los estudios descriptivos-exploratorios (75%), con abordaje cuantitativo (64%), que investigaron la atención / valoración prenatal (25%), con gestantes como población (66%) y la Unidad Básica de Salud como escenario principal (50,8%). La palabra clave más frecuente fue atención prenatal. **Conclusión**: se observó el predominio de estudios descriptivos, cuantitativos, provenientes de las regiones Sudeste y Sur, nivel de evidencia 6.
Descriptores: Bibliometría; Ciencias de la Salud; Mujeres embarazadas; Atención Prenatal.

INTRODUCTION

Prenatal assistance is the set of measures to ensure monitoring, development and observation of gestational aspects. To such an end, it encompasses prevention, identification and correction of maternal and/or fetal anomalies, in addition to guidelines on pregnancy, delivery, puerperium and care with the newborn[1]. Not providing this assistance, or providing it adequately, is related to greater rates of potentially avoidable maternal and child morbidity and mortality events[2].

The behaviors adopted during the prenatal period must be based on scientific evidence, which contributes to the health professionals' decision-making. In Brazil, more studies consolidating such evidence are necessary[3]. Thus, the development of research studies on prenatal care in the Health Sciences area is relevant, as it enables investigating aspects inherent to multiprofessional work.

Among the sources of scientific production, *Stricto Sensu* Graduate Programs in the health area stand out, contributing with science by disseminating research reports in the form of dissertations and theses, which are requirements for obtaining the degrees of MSc and PhD[4]. Considering that these programs act as centers of knowledge construction, with training to stimulate critical thinking about issues inherent to health care, the dissertations and theses produced by these programs reflect views, questionings, criticisms and perspectives of the scientific community. Therefore, it has become relevant to analyze bibliometric indicators of the scientific production disseminated by dissertations and theses in the health area on prenatal care in Brazil.

Based on that analysis, it will possible to know the evolution of the production over the years, to perceive the most studied strands, and to know the methodological paths used. This study will contribute to the identification of gaps that may guide the conduction of future studies.

Given the above, the objective of this study was to describe the Brazilian scientific production of the health sciences' dissertations and theses on prenatal assistance in Brazil.

THEORETICAL FRAMEWORK

Through the Program for Humanization of Prenatal and Childbirth Care, the Ministry of Health recommends activities that ensure appropriate prenatal monitoring and care to pregnant and puerperal women, which involve laboratory tests, vaccination, educational activities, and prenatal and puerperal consultations[5].

However, despite the significant increase in the number of prenatal consultations, the maternal and neonatal mortality rates from preventable causes are still high, which suggests failures in this service, although these areas have gained priority over the last decades[6]. Due to the recognized vulnerability typical of the pregnancy period, prenatal care has become an essential instrument to change the epidemiological profile of women's health though improvements in prenatal care[7].

Given the above, the development of research studies in prenatal care emerges as an instrument to subsidize the increase in the numbers of health actions, in addition to providing elements to transform the care practice.

METHOD

A bibliographic and documentary study, with a quantitative approach. Bibliometrics quantifies scientific studies and measures their production; furthermore, it allows retrieving information and keeps track of what is produced in a given area of study[8,9].

This research was conducted from March to April 2020, based on online access to the Theses and Dissertations Portal of the Coordination for the Improvement of Higher Level Personnel (*Coordenação de Aperfeiçoamento de Pessoal de Nível Superior*, CAPES) to refer to the productions catalogued in the portal[10]. No time limit was established; however, the full texts were available since 2013. The study material consisted in the dissertations and theses available in the CAPES Portal. The following inclusion criteria were defined: dissertations or theses from the broad Health Sciences knowledge area and addressing prenatal assistance. The exclusion criteria adopted were not being available for online access and being duplicated in the searches.

The most used individual descriptor to search for the studies was "*Cuidado Pré-Natal*" ("Prenatal Care)", extracted after consulting the Descriptors in Health Sciences (*Descritores em Ciências da Saúde*, DeCS). In addition to that, the following non-controlled descriptors were used in different and separate searches: "*Pré-Natal*" ("Prenatal") and "*Assistência Pré-natal*" ("Prenatal Assistance"), extracted from the synonyms of the controlled descriptor.

The bibliographic survey identified 2,144 scientific productions; of these, 199 were found using the descriptor "*Cuidado Pré-Natal*" ("Prenatal Care"), 260 using the descriptor "*Assistência Pré-natal*" ("Prenatal Assistance"), and 1,685 using the descriptor "*Pré-Natal*" ("Prenatal"). After a detailed reading of the titles and abstracts, there were 434 duplicate titles, which were counted only once, and 846 were excluded for not addressing Prenatal Care. Therefore, 864 scientific productions were included in the sample.

It is highlighted that the search was conducted by two members of the research team, simultaneously and independently. The results obtained were compared to identify contradictions in the identification of studies between researchers.

Data from each selected study were registered using an instrument developed in the Microsoft Excel 2010® software, which included the following bibliometric indicators: type of scientific production (thesis or dissertation); year of production; institution and department where the study was conducted; state and geographical region of the institution; professional category of author and advisor; theme addressed; study population and time of the reproductive cycle; data collection locus; methodological approach; type of study; level of evidence and descriptors/keywords.

The definition of the levels of evidence corresponding to the studies was made according to a classification hierarchized into seven levels: level 1 – meta-analysis or systematic review; level 2 – randomized controlled trial; level

3 – non-randomized clinical trial; level 4 – cohort and case-control study; level 5 – systematic reviews of descriptive and qualitative studies; level 6 – descriptive or qualitative studies; and level 7 – specialists' opinions[11].

The data were imported to the *Statistical Package for the Social Sciences (SPSS)* software, version 21.0, and analyzed through descriptive statistics (absolute and relative frequencies).

For the analysis, fundamentals from three laws of bibliometrics were applied[12]: The fundamentals of the first law (Lotka's law), which refer to the most productive authors, were considered in the identification of the number of dissertations and theses supervised by each professor/advisor[12,13]. The fundamentals of the second law (Bradfort's law), which refer to the dissemination vehicle of scientific production, were considered in the measurement of the number of dissertations and theses produced by each teaching institution, which enabled observing which institutions had the highest and the lowest production on the study theme[12]. The fundamentals of the third law (Zipf's law), which refer to word frequency count, were considered in the measurement of the descriptors/keywords used in the dissertations and theses[12].

As this is a study with data in the public domain, there was no need for approval by any Committee of Ethics in Research with Human Beings.

RESULTS

Of the 864 scientific productions included in the sample, 682 (78.9%) were dissertations and 182 (21.1%) were theses. Full-text studies available from 2013 to 2019 were found; of which, 91 (10.5%) dissertations and 18 (2.1%) theses were published in 2013, 93 (10.8%) dissertations and 23 (2.6%) theses in 2014, 102 (11.9%) dissertations and 28 (3.2%) theses in 2015, 108 (12.5%) dissertations and 22 (2.5%) theses in 2016, with a peak in production in 2017, when 110 (12.7%) dissertations and 33 (3.9%) theses were identified. A total of 101 (11.6%) dissertations and 41 (4.8%) theses were recorded in 2018, while 77 (8.9%) dissertations and 17 (2.0%) were from 2019.

It was observed that the dissertations and theses were affiliated to 99 institutions; of these, 37 (37.4%) were located in the Brazilian Southeast, 25 (25.2%) in the South region, 23 (23.2%) in the Northeast region, eight (8.1%) in the Midwest region, and six (6.1%) in the North region. With regard to the number of studies by geographic region, the Southeast had 385 (44.6%) dissertations and thesis published in the Health Sciences area on prenatal care, with the states of São Paulo (207; 24.0%) and Rio de Janeiro (117; 13.5%) standing out. The region with the second highest number of productions was the Northeast, with 232 (26.8%), and the states with the highest production were Ceará (76; 8.8%) and Pernambuco (45; 5.2%). It is also noteworthy that, in the Northeast region, the two states with the lowest number of productions were identified, namely: Alagoas with four (0.5%) and Sergipe with three (0.3%).

In the South region, the total production was 170 (19.6%), with the states of Rio Grande do Sul (109; 12.6%), and Paraná (41; 4.7%) standing out. 53 (6.2%) productions were identified in the Midwest region, with higher numbers in the state of Goiás (17; 2%) and in the Federal District (16; 1.9%). 24 (2.8%) productions were found in the North region, with Amazonas (9; 1%) and Pará (8; (0.9%) standing out.

Regarding the institutions' administrative category, it was observed that 742 (85.9%) were public and 122 (14.1%) private. The majority, 576 (66.7%), was located in the capital and 288 (33.3%) in the inland of the states. The details of the production of dissertations and theses, in the institutions and by state and region, are shown in Table 1.

A total of 27 professional categories related to the authorship of the dissertation and thesis were identified (Figure 1). II was observed that 395 (45.7%) productions were authored by nurses, 199 (23%) by physicians, 81 (9.4%) by nutritionists, 51 (5.9%) by dental surgeons, 33 (3.8%) by physical therapists, 28 (3.2%) by psychologists, 23 (2.7%) by pharmacists, and 13 (1.5%) by biomedical scientists.

The dissertations and theses were supervised by researchers from 24 professional categories. Among the advisors, there were 345 (39.9%) physicians, 281 (32.5%) nurses, 61 (7.1%) dental surgeons, 55 (6.4%) nutritionists, 33 (3.8%) pharmacists, 20 (2.3%) psychologists, and 13 (1.5%) physical therapists. The 56 (6.5%) remaining productions were supervised by professionals from 17 different categories, such as biologists, physical education professionals, biomedical scientists, statisticians, and speech therapists.

Considering the direct counting method, 569 advisors were identified, who were responsible for the 864 productions. Of these, 413 (72.6%) supervised only one production each; 84 (14.7%) supervised two productions; and 38 (6.6%) supervised three productions. In contrast, 34 (6.1%) researchers together were responsible for 169 supervisions, accounting for 19.6% of all the supervisions. Of these, 20 (3.5%) supervised four productions, 7 (1.2%) five productions, 2 (0.4%) six productions, 2 (0.4%) seven productions, 2 (0.4%) eight productions, and only 1 (0.2%) advisor supervised 12 productions.

In the broad Health Sciences area, the Nursing Department presented the highest number of productions on prenatal care (202; 23.4%); followed by the Departments of Collective Health (147; 17%); Health Sciences (81; 9.4%); Medical Sciences/Medicine (46; 5.3%); Public Health (43; 5%), and Nutrition (35; 4.1%). The 310 (35.8%) remaining

productions were supervised in 37 different departments from Health areas such as obstetrics and gynecology, women's health, children's and adolescents' health, family health, comprehensive health, and dentistry.

TABLE 1: Distribution of the production of dissertations and theses in the Health Sciences area on prenatal care, according to region and institution, extracted from the CAPES Theses and Dissertations Portal in the 2013-2019 period (n=864). Brazil, 2020.

Region	Institutions with five or more productions	Dissertation n	Thesis n	Total n	%
North	Federal University of Acre*	6	0	6	0.7
	Federal University of Pará*	6	0	6	0.7
	Note: 4 institutions with less than 5 productions each	11	1	12	1.4
Northeast	Federal University of Maranhão*	18	9	27	3.1
	Prof. Fernando Figueira Comprehensive Medical Institute**	8	15	23	2.7
	Federal University of Ceará*	16	7	23	2.7
	University of Fortaleza*	21	0	21	2.4
	State University of Ceará*	18	3	21	2.4
	Federal University of Rio Grande do Norte*	15	5	20	2.3
	Federal University of Bahia*	11	6	17	2.0
	Federal University of Pernambuco*	9	6	15	1.7
	Oswaldo Cruz Foundation (Fiocruz)*	11	0	11	1.3
	State University of Feira De Santana*	10	0	10	1.2
	Federal University of Piauí*	8	1	9	1.0
	Fiocruz (Aggeu Magalhães Research Center)*	5	1	6	0.7
	*Instituto de Ensino Superior do Piauí Ltda***	5	0	5	0.6
	Note: 4 institutions with less than 5 productions each	20	4	24	2.7
Midwest	Federal University of Goiás*	14	3	17	2.0
	University of Brasília*	8	2	10	1.2
	Federal University of Mato Grosso*	9	1	10	1.2
	Federal University of Mato Grosso do Sul*	8	0	8	0.9
	Note: 4 institutions with less than 5 productions each	8	0	8	0.9
Southeast	University of São Paulo*	29	17	46	5.3
	University of São Paulo (Ribeirão Preto) *	26	13	39	4.5
	Oswaldo Cruz Foundation (Fiocruz)*	29	9	38	4.4
	State University of Campinas*	26	10	36	4.2
	Federal University of Rio de Janeiro*	25	7	32	3.7
	Federal University of Minas Gerais*	22	4	26	3.0
	Fluminense Federal University*	26	0	26	3.0
	Júlio de Mesquita Filho São Paulo State University (Botucatu)*	14	7	21	2.4
	Federal University of São Paulo*	10	8	18	2.1
	Federal University of Espírito Santo*	15	1	16	1.9
	University of the State of Rio De Janeiro*	8	2	10	1.2
	Estácio de Sá University**	7	0	7	0.8
	Saúde Abc University Center**	3	3	6	0.7
	Federal University of Juiz de Fora*	6	0	6	0.7
	Federal University of São Carlos*	6	0	6	0.7
	Júlio de Mesquita Filho São Paulo State University (Araçatuba)*	5	0	5	0.6
	Note: 21 institutions with less than 5 productions each	44	3	47	5.4
South	Federal University of Rio Grande do Sul*	24	4	28	3.2
	Federal University of Rio Grande*	14	4	18	2.1
	State University of Maringá*	12	4	16	1.9
	Federal University of Pelotas*	6	9	15	1.7
	Federal University of Santa Catarina*	9	6	15	1.7
	Franciscan University**	15	0	15	1.7
	Federal University of Paraná*	13	0	13	1.5
	Federal University of Santa Maria*	10	1	11	1.3
	Catholic University of Pelotas**	7	2	9	1.0
	State University of Londrina*	4	1	5	0.6
	Note: 15 institutions with less than 5 productions each	22	3	25	2.9

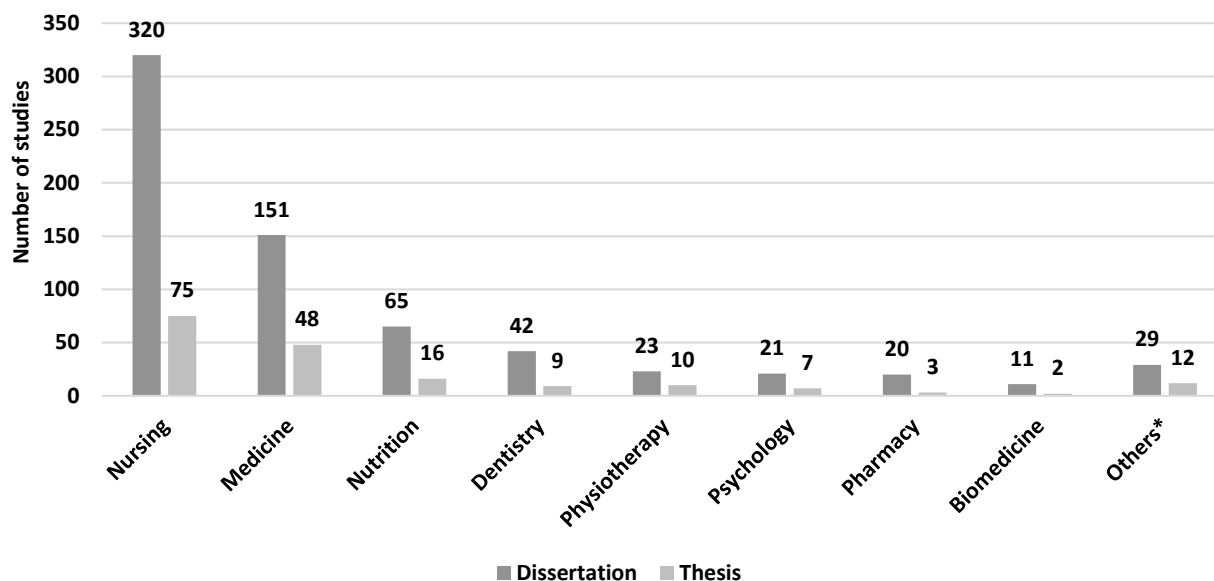*Public Institution; **Private Institution

FIGURE 1: Distribution of the production of dissertations and theses in the Health Sciences area on prenatal care, by professional category of the authors. Recife, Pernambuco, Brazil, 2020.
*Others - Biological Sciences; Physical Education; Social Service; Occupational Therapy; Pedagogy; Public Health; Speech Therapy; Social Sciences; Chemistry; Statistics; Physics; Electrical Engineering; Biomedical Informatics; Computer Science; Mathematics; Veterinary Medicine; System Analysis and Development; Journalism; Biotechnology

With regard to the methodological design, 553 (64%) productions had a quantitative approach and 218 (25.2%) were qualitative, whereas 93 (10.8%) used the mixed-methods modality (quantitative and qualitative). Most of the studies (629; 72.8%) were cross-sectional, followed by cohort studies (106; 12.3%), case-control studies (49; 5.7%), methodological studies (28; 3.2%), experimental studies (21; 2.4%), literature reviews (16; 1.9%), and quasi-experimental studies (15; 1.7%). With regard to the level of evidence, 648 (75%) studies had level of evidence 6, 156 (18.1%) level of evidence 4, 25 (2.8%) level of evidence 2, 18 (2.1%) level of evidence 3, ten (1.2%) level of evidence 1, and seven (0.8) level of evidence 5.

It was possible to observe that the dissertations and theses addressed 26 subthemes on prenatal care, which ranged from the different periods of the pregnancy-puerperal cycle to maternal and fetal health problems. Among the populations studied in the dissertations and theses on prenatal care, there were 20 arrangements in terms of study population, including the mother-child dyad, companions/partners, students and health professionals, as observed in Table 2.

Of the 864 studies, 437 (50.8%) were conducted in Basic Health Units (*Unidades Básicas de Saúde*, UBS), 367 (42.5%) in hospital services, 40 (4.6%) in information databases, five (0.5%) in universities, three (0.3%) in Psychosocial Care Centers (*Centros de Atenção Psicossocial*, CAPS), and three (0.3%) in prisons; nine (1.0%) studies did not specify the sector where they were conducted.

Based on the application of Zipf's Law, it was possible to create a list of keywords used in the dissertations and theses. A total of 3,745 forms (keywords) were found, with 1,329 occurrences. The most frequent keyword was *"Cuidado Pré-Natal"* ("Prenatal Care") (197 occurrences; 14.9%), followed by "*Gestante"* ("Pregnant woman") (134; 10%), *"Gravidez"* ("Pregnancy") (125; 9.4%), "*Gestação*" ("Gestation") (96; 7.2%), *"Pré-Natal"* ("Prenatal") (93; 7%), and *"Enfermagem"* ("Nursing") (76; 5.7%). The remaining words (608; 45.8%) included health problems such as syphilis, gestational diabetes mellitus, pre-eclampsia, obesity, depression, anxiety, anemia, Zika virus, and toxoplasmosis.

TABLE 2: Subtopics and population under study of the dissertations and theses in the Health Sciences area on prenatal care, extracted from the CAPES Theses and Dissertations Portal during the 2013-2019 period (n=864). Brazil, 2020.

Variable	Dissertations	Theses	Total	
	n	n	n	%
Subtopics				
Assistance (quality/adequacy/assessment)	175	41	216	25.0
Sexually Transmitted Infections	98	14	112	13.0
Nutrition and eating habits (overweight and obesity, BMI*)	36	20	56	6.5
Chronic disease (DM**/SAH***/Hypothyroidism/Anemia/Hepatitis)	44	12	56	6.5
Pregnancy in adolescence	46	9	55	6.4
Infection/Infectious disease	35	9	44	5.1
Delivery	31	8	39	4.5
Oral and digestive health	33	4	37	4.3
Risk for maternal health	28	5	33	3.8
Alcohol and other drugs	19	8	27	3.1
Son/Daughter: fetus/neonate/newborn	21	6	27	3.1
Mental health of pregnant women	16	8	24	2.8
Hypertensive diseases Eclampsia/Heelp	12	5	17	2.0
Violence against pregnant women/mothers	12	5	17	2.0
Breastfeeding (breast)	12	2	14	1.6
Arboviroses (zika, dengue, chikungunya)	10	3	13	1.5
Pharmacological treatment	10	3	13	1.5
Congenital disease	10	1	11	1.3
Father, partner and family	6	5	11	1.3
Laboratory and imaging tests	7	4	11	1.3
Physical exercise (lifestyles)	5	4	9	1.0
Sexuality during pregnancy/postpartum	6	1	7	0.8
Cancer	3	2	5	0.6
Gynecological exam	2	2	4	0.4
Systemic lupus erythematosus	3	1	4	0.4
Sleep disorder during pregnancy	2	0	2	0.2
Population under study				
Pregnant women	407	103	510	59.0
Mothers: puerperal women/post-puerperium	85	22	107	12.4
Multi-professional team****	73	5	78	9.1
Mother and child	45	14	59	6.8
Pregnant women and professionals	20	13	33	3.8
Pregnant and puerperal women	13	7	20	2.3
Son/Daughter: newborn/child	16	4	20	2.3
Companion/Partner	8	3	11	1.4
Managers and professionals	3	2	5	0.6
Stillborns	2	2	4	0.5
Pregnant and non-pregnant women	0	4	4	0.5
Midwives	3	0	3	0.3
Pregnant women and managers	0	2	2	0.2
Health students	2	0	2	0.2
Mother, son/daughter and nurse	1	0	1	0.1
Partners and professionals	0	1	1	0.1
Pregnant woman and Physical Educ. Professional	1	0	1	0.1
Pregnant women and partners	1	0	1	0.1
Puerperal women and professionals	1	0	1	0.1
Puerperal woman and companion	1	0	1	0.1

*BMI – Body Mass Index; **DM – Diabetes Mellitus; ***SAH – Systemic Arterial Hypertension. ****physician, nurse, dental surgeon, community health agent, nutritionist, physical education professional.

DISCUSSION

The current study described the Brazilian scientific production of dissertations and theses in the Health Sciences area on prenatal care and found that the institutions with the greatest number of academic productions were located in the Southeast and South regions. A similar result was observed in a bibliometric analysis which

identified that these regions produced the greatest number of studies on Intensive Care Unit[4]. This result can be associated with the fact that these regions are pioneers in the implementation of *stricto sensu* courses in the health area. On the other hand, most of the papers were produced in Graduate Programs from the Southeast and Northeast regions. This finding corroborates results of a bibliometric study on Nursing in Palliative Care, in which those regions presented more scientific production[14]. This is possibly due to the presence of institutions and research groups of reference in the research studies on the topic analyzed. Considering that Brazil is a continental-sized country, with specific research demands in each region, increased investments are suggested to encourage productions in the other Brazilian regions.

Regarding the administrative category, most of the universities were public. This information is corroborated by a survey conducted by the Web of Science Group, which revealed that 15 public universities accounted for over 60% of the scientific knowledge produced in Brazil[15]. This finding can be explained by the expressive action of the public institutions, grounded on the triad that includes teaching, research and extension, as well as by the high quality of the researchers working at these institutions. In addition to that, these centers are the birthplace of the *Stricto Sensu* training, so they are responsible for the high number of scientific productions.

Most of the dissertations and theses came from the Nursing departments, and most of the authors of the productions were nurses. A similar result was observed in a study on patient safety in an Intensive Care Unit, in which that professional category represented 85% of the authors[16]. These findings resulted from the expansion of the Nursing role since nurses, in addition to providing health care, have increasingly contributed to the development of research studies promoting scientific advances to guide their professional performance, by means of their affiliation to research groups and engagement in Graduate Programs[17]. This fact has social relevance, because Nursing research and surveys are considered essential to qualify health care, since study production and integration of evidence-based practices influence and improve the performance of the most numerous category of health professionals, i.e., Nursing[18].

The bibliometric indicators pointed out a greater number of dissertations. Similar results were observed in another study that assessed the production of Graduate Programs in Nursing on the mobile emergency care service, which identified that master's dissertations accounted for the greatest number of studies[9]. These data are then explained by the fact that the master's degree courses are predominantly considered the first stage of academic-scientific training; in addition, they are more numerous and were the first to be implemented. However, with the progress in the scientific and technological activity in Brazil in recent years, an increasing number of PhD courses is also observed. Thus, it is expected that their theses will represent greater numbers in the bibliometric indicators from future studies[19].

With regard to the advisors, there is predominance of physicians and nurses. The high number of physician advisors can be related to the fact that the first research groups created in Brazil emerged from the Departments of Preventive and Social Medicine[20]. Moreover, the predominance of physician and nurse advisors can be justified by the fact that these researchers are also affiliated to Graduate Programs of several health science fields. However, it is worth highlighting the importance of other health professionals participating in research studies on prenatal care, in order to contemplate the perspectives of the other members of the multiprofessional team on the theme.

In relation to advisors' productivity, few researchers were responsible for the majority of supervisions, whereas most researchers supervised a small number of studies. This is consistent with Lotka's Law, which states that few authors are responsible for approximately 60% of the scientific production, whereas most of the authors contribute with few productions in a given scientific field[13]. It is worth emphasizing that the professor-advisors' productivity is influenced by the development of studies in their research groups, the profile of their advisees, whether they participated in and won financing tenders, and transversality of their research theme with prenatal care.

Regarding the methodological approach, a trend towards the conduction of quantitative research studies was observed, which was also found in a review about prenatal care[21]. This finding is relevant because quantitative studies allow researchers to investigate important aspects in prenatal care, due to the possibility of measuring numerical variables and conducting analysis of statistical associations/correlations, which may explain health phenomena. However, there is an urgent need for research studies with a qualitative approach, in order to reveal subjective aspects that are not addressed in quantitative studies and that are relevant for decision-making in health.

The prevailing type of study was descriptive (level of evidence 6). Although relevant, this type of study is restricted to describing the occurrence of events. Therefore, the need is evident for other studies with higher levels of evidence, which provide data on cause-effect and analyze interventions in the prenatal care area.

Despite the diversity of themes investigated in the dissertations and theses, there was greater emphasis on studies about "prenatal quality, adequacy, and assessment", followed by "sexually transmitted infections (STIs)". Investigating quality is relevant, as it exerts a direct impact on the prematurity and maternal-child morbidity and mortality rates A study on prenatal quality conducted in Ethiopia made it possible to observe the influence of low health care quality on pregnant women's health and showed that measures such as improved infrastructure, directed prenatal consultation, and promotion of maternal education result in reduced health expenses and improved health care quality[22]. With regard to the STIs, they represent a serious public health problem and are the second leading cause for the care demand in the health services, having high prevalence in pregnant women[23]; thus, STIs are a relevant theme of scientific research.

Regarding the population under study, pregnant women stood out, which was expected as the objective involved prenatal care. However, it is to be pointed out that the pregnancy-puerperal cycle involves two subjects, the pregnant woman and the fetus. Consequently, it is pertinent that more studies address the aspects related to fetal health during the prenatal period. In systematic reviews that addressed the mother-child binomial in the pregnancy-puerperal cycle, with a global search, no Brazilian studies were found[24,25]. In addition to the child, it is important that more studies are conducted with other actors involved in the pregnant women's support network, such as partners, family members and professionals. National studies showed that the presence of a companion has been increasing in the care provided to pregnant women and at childbirth; however, there was reduced access to this information, which limits this good care practice[26,27]. This reinforces the need to produce dissertations and theses involving these actors.

The main study locus of the scientific productions was the Basic Health Unit (UBS), which is considered the gateway of pregnant women to the Brazilian Unified Heath System (Sistema Único de Saúde, SUS), as well as a space targeted at prevention that includes prenatal consultation as one of its recommended activities. Hence, there is relevance in the researchers' interest to develop studies in this primary care environment. However, studies in other settings are needed, such as gestational complications treated at hospital units and reference institutions for high-risk prenatal care.

In the productions analyzed, the keywords mostly referred to prenatal care, in addition to those related to pregnancy, Nursing and gestational health problems. It is therefore noticed that these words mainly translated the investigated time of the pregnancy cycle, the professional category, and the health problems under study. Consequently, the importance of the careful selection of keywords for an academic paper is pointed out, since they should clearly translate the study essence and thus make it easier to find specific content during searches in the literature.

The study pointed to the characterization of dissertations and theses and, in doing so, revealed gaps regarding the production profile, the population under study and the types of studies. These results can guide researchers in the prenatal area, in order to contemplate the gaps identified in future studies. In addition to that, indicating the institutions with the greatest production may enable interinstitutional partnerships, as well as multicenter research studies on the theme.

Study limitations

One limitation of the current study is the possibility of missing eligible productions in the CAPES Theses and Dissertations Portal, since the time between presentation and recording of a production depends on bureaucratic procedures in the teaching institutions to make productions available in the online portal.

It is also emphasized that this research only assessed dissertations and theses in the Health Sciences area; therefore, its findings may not correspond to the reality of productions addressing prenatal care in other research areas.

CONCLUSION

Bibliometric indicators from dissertations and theses in the Health Sciences area on prenatal care allowed verifying the predominance of studies with the following characteristics: descriptive nature, level of evidence 6, quantitative approach, conducted in the Southeast and South regions, addressing prenatal care, and having pregnant women as study population.

There was predominance of studies affiliated to Nursing Departments, and nurses and physicians were both authors and advisors of most of the productions. Given the above, research studies in the various regions of the country are recommended, and that include other methodological approaches.

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