ORIGINAL ARTICLE

Endometriosis and its epidemiological reality in Brazilian Northeast

Mirella Pascoal Pereira Sombra, José Antonio da Silva Júnior, Ellany Gurgel Cosme do Nascimento

ABSTRACT

Fundamentals: Endometriosis is a condition in which tissue like the endometrium, the lining of the uterus, develops outside the uterine cavity. The diagnostic investigation process can be prolonged, as it requires a lot of attention from the physician to the various clinical manifestations that the condition may present, being a highly prevalent, underdiagnosed and undertreated disease that causes negative repercussions on women's health. **Objective:** To map the prevalence and profile of hospitalizations due to endometriosis in the Federative Units of the Northeast region. **Methods:** Epidemiological, observational and cross-sectional study, using data from the Hospital Information System, on the number of hospitalizations for endometriosis in women, in the Northeast region, from 2012 to 2021. **Results:** the states of Ceará, Maranhão and Rio Grande do Norte had the highest prevalence. The peak of hospitalizations occurred in 2012, followed by a decline until 2020. The predominance occurs in the adult age group, in the brown race, in elective care, on an urgent basis, in private establishments and the amount spent in attendance totaled R$ 23,812,361. **Conclusion:** A reduction in hospitalizations for endometriosis was identified in the region, and this result may be related to underdiagnosis and undertreatment of the disease. Therefore, further studies are needed to clarify the reasons for the decline.
Keywords: Endometriosis, Epidemiology, Public health, Cross-sectional studies.

INTRODUCTION

Endometriosis is a condition in which a tissue like the endometrium, the layer that coats the uterus internally, develops outside the uterine cavity. It is a chronic inflammatory gynecological disease that affects up to 10% of women of reproductive age, and of patients suffering from chronic pelvic pain and infertility, 30% to 50% will be diagnosed with this disease[1].

The symptomatology of the disease changes according to the area affected by endometrial tissue, however it is common for women to have chronic pelvic pain, which intensifies in the menstrual period, intense and irregular bleeding, fertility problems, dysmenorrhea, deep dyspareunia, cyclic dysuria, gastrointestinal disorders and pain in the sacral region.[2]

The diagnostic investigation process can be prolonged, since it requires the doctor to pay close attention to the various clinical manifestations that the condition may present. With this in view, it is a very underdiagnosed and underdiagnosed disease, in which women can travel long periods, from eight to twelve years, with symptoms that impair their quality of life until they receive a conclusive diagnosis.[3]

The diagnosis of endometriosis requires a careful physical examination combined with imaging techniques capable of

State University of Rio Grande do Norte, Faculty of Health Sciences, Mossoró, (RN), Brazil.

https://doi.org/10.11606/issn.2176-7262.rmrp.2024.214123

determining the location and extent of the disease. Ultrasonography is the first method of choice because it is more accessible, low-cost and non-invasive, either transabdominal, transvaginal or transrectal. However, some deep infiltrative lesions are only visualized with magnetic resonance imaging, which also has its limitations, requiring, in some cases, a surgical approach such as laparoscopy. The most effective treatment option to eliminate the foci of endometriosis is the surgical method, requiring the hospitalization of these women to reduce symptoms.[4]

Considering the symptomatology of the disease and the difficulty of its diagnosis, there is a negative impact on the quality of life of patients since this condition can interfere in several fields. Symptoms, if left untreated, can cause impairment in interpersonal and affective relationships, sexual dysfunctions, dysregulated sleep, mood swings, anxiety, depression, in addition, may also have impairments in the professional sphere, after all this condition can provoke intense bleeding and chronic fatigue.[5]

Another obstacle faced in the disease is infertility: about 30% to 50% of carrying women have difficulty getting pregnant, either by anatomical changes in the pelvis, formation of adhesion between tissues, healed fallopian tubes, pelvic structures under constant inflammation, amount of eggs affected or difficulties in their implantation. This condition contributes even more to the suffering and anguish of patients, who repeatedly cope with unsuccessful attempts to become pregnant.[6]

Therefore, faced with a disease of high prevalence, underdiagnosed, subtracted that causes so many negative repercussions in various areas of women's health, the present research to map the prevalence and socioeconomic profile of hospitalizations for endometriosis in the Federative Units of the Northeast region.

METHODS

This is an epidemiological, observational, descriptive and cross-sectional study. Data were obtained through the Hospital Information System (SIH) provided by the Department of Informatics of the Unified Health System (DATASUS). We also used the most recent data from the Study of Population Estimates by Municipality, Sex and age 2000-2021 - Ministry of Health/SVS/DASNT/CGIAE, accessed by DATASUS of the years related to the study and in the age group of 10 to 80 or over. The collection was conducted from August to September 2022. The study population consisted of all cases of women from 10 years of age hospitalized for endometriosis treatment in the Northeast region, recorded from January 2012 to December 2021.

The research included data on the number of hospitalizations per year, the nature of the care, the type of hospitalization regime, age group, color/race and the value of the hospital service in each Federative Unit of the Northeast of Brazil. The data collected were organized in spreadsheets in the Microsoft Excel 2013 program for analysis, to determine the prevalence of endometriosis in each northeastern state in relation to the number of women in the respective state, correlating with the other data collected. The prevalence was calculated from the number of cases of hospitalization for endometriosis in the period studied divided by the number of women in the population in the same period in the

Federative Units of the Northeast region of Brazil, and this value multiplied by a constant. All data collected were from women aged 10 to 80 or older.

$$Prevalence = \frac{nº\ of\ cases\ of\ hospitalization\ due\ to\ endometriosis\ in\ the\ period\ studied}{number\ of\ women\ in\ the\ population\ in\ the\ same\ period}\ x\ 100.000$$

The prevalence was also calculated based on the number of cases of hospitalization for endometriosis in the age groups of 10 to 19, 20 to 59 and 60 or more, and these groups were represented, respectively, as adolescents, adults and elderly, in the period studied, population by age group in each year studied, and this value multiplied by a constant.

$$Prevalence = \frac{number\ of\ cases\ of\ hospitalization\ for\ endometriosis\ by\ age\ group}{population\ estimate\ by\ age\ group}\ x\ 100.000$$

Since DATASUS is a public domain database, the research did not need to be submitted to the Research Ethics Committee. For the other phases of the research were observed all the ethical precepts that guide the research carried out with secondary data, being made all the due references of their original sources.

RESULTS

Between January 2012 and December 2021, the total number of hospitalizations for endometriosis in the Northeast region was 32,465 cases. The year with the highest number of hospitalizations was 2012, with 4,263 occurrences, followed by a decline in hospitalizations in subsequent years. The year with the lowest number of hospitalizations was 2020, registering 1,937 cases, according to data recorded in DATASUS.

It was found that the adult and elderly age groups had the highest number of cases, having remained the adult age always above the overall prevalence of hospitalizations. The prevalence of these visits was calculated from the number of women in the Northeast region in each year studied, according to the population estimates data accessed by DATASUS, these numbers are organized in the overall prevalence of hospitalization cases in the Northeast and in the prevalence by age group (Graphic 1).

It was observed that the states Ceará, Maranhão, Rio Grande do Norte and Paraiba had the highest percentages. In the period from 2012 to 2015, the data showed a significant prevalence, however there was a decrease in subsequent years, especially some percentage falls abruptly, as occurred in the state of Ceará between the years 2016 (25.79) and 2017 (15.33) between 2013 (28.39) and 2014 (17.58). The state of Pernambuco stood out for having presented, in 2021, the lowest rate of cases in the region studied. In addition, in a general overview, it is possible to note that, in 2020, all northeastern states showed a significant decrease in the number of cases compared to the previous year (Table 1).

Rio Grande do Norte, which showed the highest prevalence in 2012 (26.76),

was only sixth in total number of cases in the year, with 384 hospitalizations. This disparity in the rankings of prevalence and total cases is due to the number of women in the state that year. In contrast, Ceará, which had the highest number (828 hospitalizations), ranked fourth in the prevalence ranking (21.72) (Table 1).1

Table 1: Prevalence of hospitalizations for endometriosis by Northeast Federative Unit from 2012 to 2021 in the age group from 10 years old. Mossoró, Rio Grande do Norte, Brazil, 2022.

	Year of attendance									
States/Region	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Alagoas	9.12	11.09	11.46	11.90	14.48	11.94	13.94	12.21	6.22	5.78
Bahia	10.61	8.04	8.97	5.68	6.45	9.65	9.62	9.25	6.19	5.42
Ceará	21.72	25.83	29.42	30.62	25.79	15.33	16.32	16.31	12.48	10.76
Maranhão	25.16	22.28	17.88	15.71	17.50	13.81	17.57	13.46	10.09	15.11
Paraiba	24.72	28.39	17.58	9.88	14.16	11.41	13.83	13.01	8.25	12.41
Pernambuco	19.58	19.03	18.35	8.81	9.30	9.00	7.95	9.40	4.14	3.77
Piaui	15.77	13.06	14.88	16.74	16.12	12.04	12.18	12.80	9.18	18.67
Rio Grande do Norte	26.75	25.78	18.47	12.61	14.64	16.64	16.91	19.81	8.12	8.61
Sergipe	15.02	11.95	13.87	6.48	10.26	7.12	5.94	3.92	2.13	3.93
Northeast	18.01	17.60	16.77	13.16	13.58	11.67	12.36	11.99	7.59	8.57

Source: DATASUS, 2022.

The age group from 10 to 19 stood out because, despite the symptoms, usually arise during this period, it is not an age interval in which hospitalizations due to the disease are common. Among the states studied, Alagoas, Piaui and, notably, Sergipe deserved prominence, because they were the ones that had more years without registered cases. On the other hand, Rio Grande do Norte and Maranhão had the highest rates, with the state of Potiguar registering the highest prevalence of hospitalizations for the age group in question (Table 2).

Table 2: Prevalence of hospitalizations for endometriosis by Northeast Federative Unit from 2012 to 2021 in the age group of 10 to 19 years. Mossoró, Rio Grande do Norte, Brazil, 2022.

States/Region	Year of attendance									
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Alagoas	0.61	0.00	0.00	0.94	0.32	0.97	1.32	0.68	0.00	0.36
Bahia	0.46	0.31	0.16	0.40	0.40	0.25	0.42	0.52	0.18	0.27
Ceará	0.61	1.23	0.63	1.68	1.19	0.95	0.56	0.28	0.73	0.45

Maranhão	1.44	0.72	1.16	1.45	1.02	1.47	2.54	1.37	1.55	2.19
Paraiba	0.29	0.00	1.18	0.60	2.11	0.61	1.87	0.00	0.65	0.33
Pernambuco	0.49	1.10	1.24	0.50	0.76	0.64	0.52	0.53	0.27	0.69
Piaui	0.66	0.33	0.00	0.68	0.34	0.00	0.36	1.10	0.75	0.00
Rio Grande do Norte	2.07	2.10	1.77	0.71	1.08	3.30	1.86	1.13	0.77	0.78
Sergipe	0.00	0.00	0.50	0.51	0.00	0.53	0.00	0.00	0.00	0.56
Northeast	0.70	0.69	0.70	0.85	0.80	0.83	0.98	0.63	0.55	0.68

Source: DATASUS, 2022.

In the age group of 20 to 59, it is evident that there was a significant predominance of hospitalizations, corresponding to the sample that held the highest number of cases. It is noticed that the states Ceará, Maranhão, Rio Grande do Norte and Paraiba had the highest rates, but that there was a reduction in the percentages over the years. Despite the decline in cases, these states continued with a prevalence higher than that calculated in the Northeast. The highlight, as in the previous table, was Sergipe, followed closely by Bahia, as the state with the lowest prevalence of hospitalizations (Table 3).

Table 3: Prevalence of hospitalizations due to endometriosis by Northeast Federative Unit from 2012-2021 in the age group of 20 to 59. Mossoró, Rio Grande do Norte, Brazil, 2022.

States/Region	**Year of attendance**									
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Alagoas	12.51	15.34	16.45	17.30	20.69	16.20	18.99	16.70	9.01	8.02
Bahia	14.50	10.43	12.50	7.52	8.94	13.55	13.24	12.61	8.63	7.28
Ceará	30.69	35.25	40.86	41.91	35.46	20.71	21.18	21.41	16.76	14.45
Maranhão	36.51	32.13	25.36	22.36	24.52	18.89	24.23	18.68	14.15	20.82
Paraiba	36.87	41.93	24.64	13.63	19.69	16.01	19.62	18.50	12.05	18.38
Pernambuco	28.57	26.90	26.25	12.81	13.17	12.88	11.14	13.51	5.80	5.22
Piaui	22.98	19.85	22.19	24.38	23.93	17.81	17.86	18.45	13.29	26.79
Rio Grande do Norte	34.65	31.97	22.31	14.78	19.26	21.26	21.86	25.84	10.76	11.04
Sergipe	17.03	14.81	19.71	9.38	14.05	9.21	8.19	4.90	2.88	5.06
Northeast	25.32	24.27	23.42	18.16	18.89	16.09	16.83	16.39	10.54	11.76

Source: DATASUS, 2022.

In the age group from 60, it is noteworthy that even after the reproductive age, there is still a large percentage of women who needed to undergo hospitalization due to endometriosis. As in the other tables, there was a decrease in the number of hospitalizations over the years, but it is possible to observe that the state of Rio Grande do Norte remained in all years with high hospitalization rates, such as Ceará. On the other hand, Pernambuco, Piaui and Bahia recorded the lowest hospitalization rates among elderly women (Table 4).

Table 4: Prevalence of hospitalizations for endometriosis by Northeast Federative Unit from 2012-2021 in the age group of 60 years or older. Mossoró, Rio Grande do Norte, Brazil, 2022.

States/Region	Year of attendance									
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Alagoas	7.85	9.92	6.76	3.81	7.36	8.64	8.84	7.59	2.29	2.65
Bahia	7.60	8.17	5.06	4.47	3.19	4.19	4.91	4.94	2.88	3.22
Ceará	13.24	19.44	18.58	19.30	14.76	9.47	13.66	12.34	7.63	6.08
Maranhão	14.16	14.03	11.83	8.60	12.24	10.26	10.21	7.62	4.68	7.41
Paraiba	7.06	9.48	9.30	5.95	6.17	5.37	4.26	5.44	1.87	1.82
Pernambuco	5.92	8.48	6.26	2.08	3.27	2.56	3.22	2.41	1.79	1.20
Piaui	6.31	1.54	3.99	5.82	3.77	3.21	3.12	3.46	2.52	6.52
Rio Grande do Norte	25.33	29.86	23.04	17.90	10.85	12.20	12.62	14.55	5.31	6.57
Sergipe	31.13	17.20	4.98	0.80	6.20	5.98	2.88	4.17	1.34	2.58
Northeast	10.72	12.18	9.69	7.79	7.09	6.21	7.04	6.64	3.61	3.99

Source: DATASUS, 2022.

The year 2012 had the highest prevalence of hospitalizations for endometriosis in the period studied in all age groups. In the adolescent age group, the states with the highest prevalence, in the first year analyzed, were Rio Grande do Norte and Maranhão, while Sergipe did not obtain registered cases. In 2021, Maranhão registered an increase in the number of hospitalizations in adolescents, maintaining the highest prevalence, and Piaui did not indicate hospitalizations (Figure 1).

In the adult age group, in 2012, Paraiba was the highest prevalence, while Alagoas had the lowest. Piaui, which had not pointed out cases in adolescents in 2021, found itself, in the same year, first in the ranking of prevalence in adults, keeping wide interval of the second place, Maranhão. Sergipe and Pernambuco, in turn, were the last ranked (Figure 1).

In 2012, Sergipe, which had not registered cases among adolescents, was the state with the highest prevalence in the elderly age group, followed by Rio Grande do Norte. Ranked first among adolescents and second among adults, both in 2021, Maranhão remained in the spotlight as the first ranked among elderly women in the same year. The state of Pernambuco, as it occurred in the adult age group, remained in the last (Figure 1).

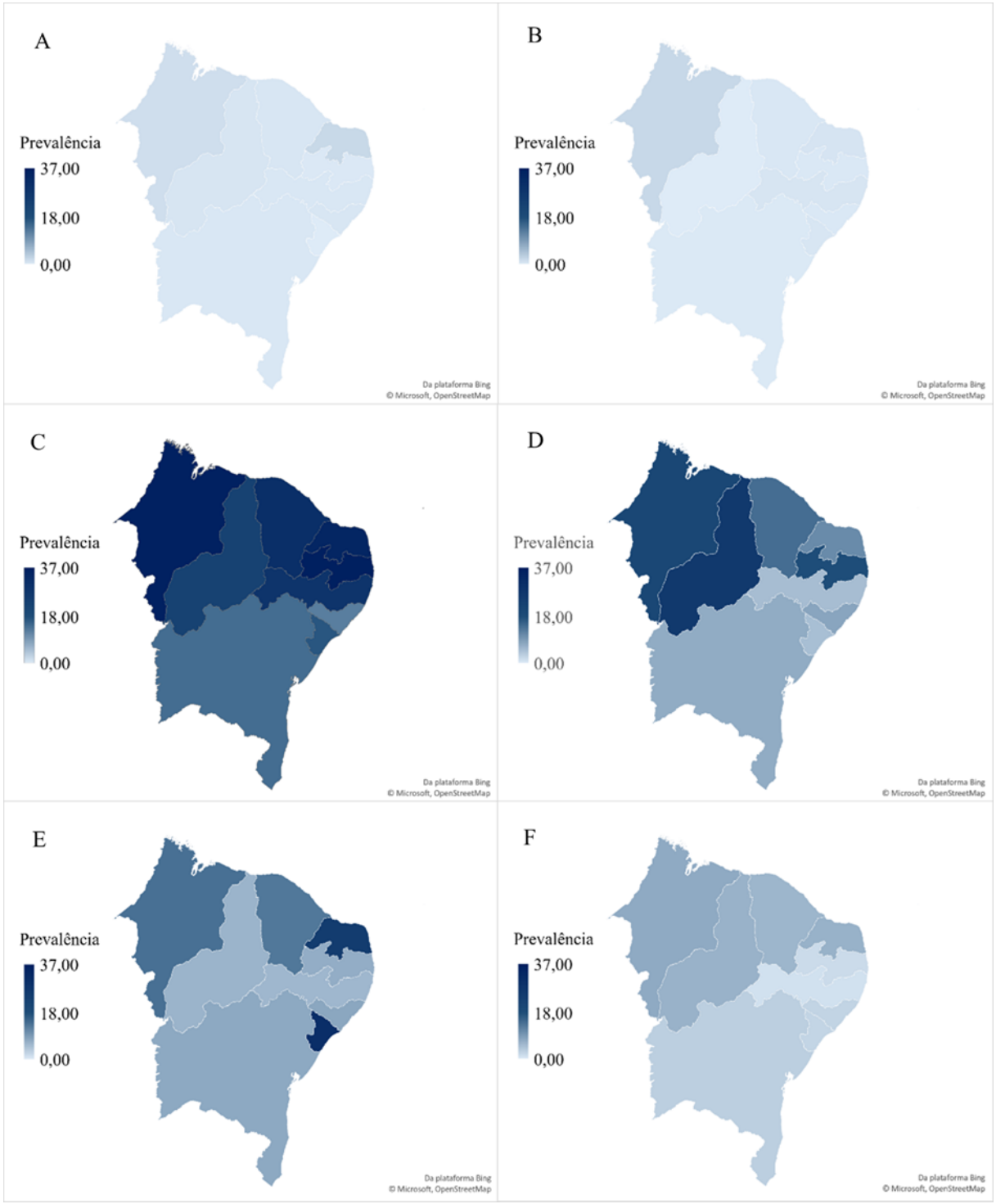

Figure 1: Comparison of the prevalence of hospitalizations due to endometriosis in the years 2012 and 2021 in the elderly, adult, and adolescent age group. Mossoró, Rio Grande do Norte, Brazil, 2022.

Note: Prevalence of hospitalizations for endometriosis in adolescents in 2012 (A) and 2021 (B) Prevalence of hospitalizations for endometriosis in adults in 2012 (C) and 2021 (D). Prevalence of hospitalizations due to endometriosis in elderly women in 2012 (E) and 2021 (F).

Source: DATASUS, 2022.

Regarding color and race, in the entire Northeast region, 18,173 patients were registered as brown (56.07%), 2,599 as white (8.01%), 918 as yellow (2.38%), 604 as black (1.86%), 6 as indigenous (0.01%) and 10,111 did not provide information (31.1%).

Regarding the nature of care, 22,487 hospitalizations were elective, corresponding to 69.38%, and 9,924 as an emergency, which is equivalent to 30.61%, and this pattern was maintained in all Federal Units in the region. Regarding the hospitalization regime, 7,888 (24.33%) cases were treated in private facilities, 7,377 (22.76%) attended in public institutions and 17,146 (52.90%) did not present information in this category. The states Maranhão, Rio Grande do Norte, Bahia and Piaui had more hospitalizations in public agencies, while the others had most hospitalizations in private agencies.

The total amount spent on care for endometriosis in the Northeast region in the period studied totaled R$ 23,812,361, with Ceará being the most onerous state, with expenses that reached R$ 5,765,482. The average value of hospitalization for endometriosis was R$ 724.11. Among all diseases of the genitourinary system, grouped according to the ICD-10 classification, the expenditure on hospitalization related to endometriosis is lower only than for renal failure. In addition, the average cost of care was above the average value spent on diseases of the genitourinary system in most of the years studied, except for only three occasions, namely 2017, 2020 and 2021.

DISCUSSION

In the study of the data collected, a decline in hospitalizations of women due to endometriosis was observed, and this pattern was maintained in all Federative Units of the Northeast region. Previous studies indicate that the prevalence of endometriosis is 2% to 10% of the female population in total.[7] Thus, it was expected that the percentage of hospitalizations found in the present study had a greater expressiveness, whereas surgery is the most effective method for the removal of ectopic endometrial foci, and that, consequently, hospitalizations would be necessary to proceed with surgical intervention. In this sense, it is possible that the low numbers found are due to Subdiagnóstico and the subtraction of the disease.

Endometriosis is a gynecological condition of great clinical variability and does not yet have a specific method of investigation, which is why patients receive their diagnoses late. According to the Brazilian Ministry of Health, one in ten women have symptoms related to endometriosis. However, often these symptoms are normalized and mistakenly associated with the natural repercussions of the menstrual period. Thus, the stigmatization of the menstrual period causes the woman to normalize irregularities in bleeding, cramps, dyspareunia, among other symptoms, thus masking health problems such as endometriosis.[8]

Adding to this, other factors may hinder the diagnosis, such as the difficulty of

instituting endometriosis as a differential diagnosis, the devaluation of symptoms by professionals and the difficulty of access to specialists in the subject and the financial impact from the beginning of research to the treatment of the disease. Consequently, the delay in diagnosis negatively affects the quality of life of this woman and allows the emergence of serious consequences for lack of treatment, such as infertility and lesions in underlying organs.[9]

During the analyzed interval, the year with the lowest prevalence was 2020, with approximately 7.59 occurrences per 100,000 women. In the previous year, 2019, the emergence of the Coronavirus Disease (COVID-19) occurred and to prevent the spread of the disease, measures of social distancing and quarantine were implemented in several countries.[10] Through this reality, During this period, urgent medical activities were prioritized, and elective outpatient procedures were suspended, affecting the care of patients with chronic diseases, such as endometriosis.

Therefore, the COVID-19 pandemic may have brought to these patients consequences such as discontinuity of treatments, high psychological impact, exacerbation of chronic pain, as well as fear, insecurity and insomnia.11 In view of this, is likely to be the main justification for the low rates of hospitalizations found in 2020.

When analyzing the prevalence of hospitalizations for endometriosis in the Northeast, it is noticed that the states that had the highest predominance were Ceará, Maranhão, Rio Grande do Norte and Paraiba, and the states with the lowest rates were Bahia, Sergipe and Pernambuco. The Northeast region, when analyzed and compared to the rest of the country, has a lower concentration of specialists in gynecology and obstetrics compared to the base population.[12]

Thus, the difficulty of access to qualified specialists in the diagnosis of the disease may be related to the low prevalence rates of hospitalizations in the region. However, Maranhão and Ceará are noteworthy for having the highest prevalence of hospitalizations, although they are among the states with the lowest distribution of gynecology and obstetrics specialists in relation to their population quantities.[12]

The reduction of hospitalizations due to endometriosis in the Northeast follows the decreasing trend that occurs nationally, as demonstrated by a study conducted evaluating hospitalization between the years 2010 and 2019, in which a reduction of 238% in the number of occurrences and highlights the Northeast as the macro-region with the highest reduction index.[13]

In the age group analysis, it was found that hospitalization occurs more frequently in women aged 20 to 59 , while adolescents aged 10 to 19 form the group with the lowest occurrence. Endometriosis is an estrogen-dependent disease and therefore affects women during the reproductive period, which begins after menarche and ends in menopause. Symptoms, in about 40% to 50% of cases, begin in adolescence, however they are nonspecific and make differential diagnoses with other pathologies. Therefore, the diagnosis is established late in adulthood, around 30 , and this delay is a plausible justification for the higher prevalence in this age group.[7]

After menopause, the action of the hormone estrogen reduces, and with it is uncommon progression of the disease. Therefore, endometriosis affects approxi-

mately 2.2% of women in this period. The present study shows that the age group of 60 or over showed a significant prevalence, although not so high compared to the other ranges studied. It is possible that hospitalization in this age group is motivated by the control of symptoms that may persist in some cases, since the regression of lesions due to lack of the hormone occurs, but it is not possible to eliminate them.[14]

About color/race, as presented in this research, self-reported brown people had a higher prevalence in hospitalizations for endometriosis in the Northeast. Despite this, previous studies have shown that the incidence of endometriosis is higher in white patients.[15] However, the northeastern population is ethnically composed mostly of browns, which may explain the predominance of hospitalizations of brown women.[16] that approximately 31% of hospitalizations did not provide information in this category. This data shows that this issue may not have been given due importance at the time of patient admission, thus preventing a more reliable association between race and hospitalization for endometriosis in the region.

Regarding the nature of care, it was observed that, mostly, the services provided to patients were elective, which corroborates the reduction in the number of hospitalizations during the period of the COVID-19 pandemic, since medical care not considered urgent, or emergency was reduced. Regarding the hospitalization regime, there is a small difference between public and private care, with this regime presenting a higher percentage. However, most hospitalizations, as occurred with color/race, did not expose information in this category.

In the analysis of the amount spent in the care of patients with endometriosis, there was a significant increase in hospitalization costs, even when there was a decline in hospitalizations in the region. The increase in costs was an expected event, since this disease causes a considerable economic impact due to the high cost of treatment, hospitalizations that can be frequent and the need for surgical interventions, delay in diagnosis may further burden the process. Adding to this, endometriosis is a condition with a lot of symptoms and a high rate of hospital admission, which directly interferes with the loss of productivity and performance at work of these patients.[17]

This study has some limitations, because through the DATASUS database we have access only to the number of hospitalizations for endometriosis and not to the correct prevalence of diagnoses in the Northeast, data do not allow to draw a more complete epidemiological and clinical profile of the women attended. In addition, there is a failure in filling out the data, with a lack of information in some categories, such as color/ race and service character.

CONCLUSION

It is noted that in the period studied there was a reduction in the number of hospitalizations for endometriosis in the Northeast region and that this result may be related to the subdiagnostic of the disease. Therefore, it is necessary to promote complementary studies that seek the reasons for the decline.

Thus, understanding how this disease affects the different age groups and its distribution in the states of the Northeast is an important strategy to recognize how this

disease behaves and what are the weaknesses of the region, in order to provide subsidies for the redesign of a health care network that prioritizes health promotion and early diagnosis of endometriosis, since these are burdens of great importance and should be the responsibility of professionals in the area, from primary health care.

It is necessary to invest in the qualification of primary health care professionals to prepare them for the clinical variability of endometriosis, as a differential diagnosis and for the early referral of patients to the specialist. Associated with this, it is necessary to improve and facilitate access to medical specialists and diagnostic methods of the disease.

Finally, it is worth mentioning that the health education of patients is a fundamental instrument for the recognition of natural and physiological processes of their organism, for the differentiation of symptoms that may be pathological and that should not be normalized and for as soon as possible, medical help.

REFERENCES

1. Marfil AA, Castillo EB, García RM, Guevara NML, Mazheika M. Epidemiology of Endometriosis in Spain and Its Autonomous Communities: A Large, Nationwide Study. Int J Environ Res Public Health. 2021;18(15):7861. doi: https://doi.org/10.3390/ijerph18157861.
2. Agarwal SK, Chapron C, Giudice LC, Laufer MR, Leyland N, Missmer SA, Singh SS et al. Clinical diagnosis of endometriosis: a call to action. Am J Obstet Gynecol. 2019; 220(4):354.e1-354.e12. doi: https://doi.org/10.1016/j.ajog.2018.12.039.
3. Signorile PG, Cassano M, Viceconte R, Spyrou M, Marcattilj V, Baldi A. Endometriosis: A Retrospective Analysis on Diagnostic Data in a Cohort of 4,401 Patients. In Vivo. 2022;36(1):430–438. doi: https://doi.org/10.21873/invivo.12721.
4. Filip L, Duică F, Prădatu A, Crețoiu D, Suciu N, Crețoiu SM, Predescu DV et al. Endometriosis Associated Infertility: A Critical Review and Analysis on Etiopathogenesis and Therapeutic Approaches. Medicina (Kaunas). 2020;56(9):460. doi: https://doi.org/10.3390/medicina56090460.
5. Della Corte L, Di Filippo C, Gabrielli O, Reppuccia S, La Rosa VL, Ragusa R, et al. The Burden of Endometriosis on Women's Lifespan: A Narrative Overview on Quality of Life and Psychosocial Wellbeing. Int J Environ Res Public Health. 2020;17(13):4683. doi: https://doi.org/10.3390/ijerph17134683.
6. Smolarz B, Szyłło K, Romanowicz H. Endometriosis: Epidemiology, Classification, Pathogenesis, Treatment and Genetics (Review of Literature). Int J Mol Sci. 2021 Sep 29;22(19):10554. doi: https://doi.org/10.3390/ijms221910554.
7. Torres JISL, Araújo JL, Vieira JA, Souza CS, Passos ING, Rocha LM. Endometriose, dificuldades no diagnóstico precoce e infertilidade feminina: Uma Revisão. Research, Society and Development. 2021;10(6):e6010615661. doi: http://dx.doi.org/10.33448/rsd-v10i6.15661.
8. Alves VSB, Silva ASC, Sampaio SMN. Desafios para o diagnóstico precoce da endometriose e a importância do acompanhamento da equipe de enfermagem. Research, Society and Development. 2022;11(13):e211111335501. doi: http://dx.doi.org/10.33448/rsd-v11i13.35501.
9. Silva CM, Cunha CF da, Neves KR, Mascarenhas VHA, Caroci-Becker A. Experiências das mulheres quanto às suas trajetórias até o diagnóstico de endometriose. Escola Anna Nery. 2021;25(4):e20200374. doi: https://doi.org/10.1590/2177-9465-EAN-2020-0374 v. 25, 2021.
10. Schwab R, Stewen K, Kottmann T, Theis S, Elger T, Hamoud BH, et al. Determinants of Pain-Induced Disability in German Women with Endometriosis during the COVID-19 Pandemic. Int J Environ Res Public Health. 2022 Jul 6;19(14):8277. doi: https://doi.org/10.3390/ijerph19148277.
11. Arena A, Orsini B, Degli Esposti E, Raimondo D, Lenzi J, Verrelli L, et al. Effects of the SARS-CoV-2 pandemic on women affected by endometriosis: a large cross-sectional online survey. Ann med. 2021;53(1):1924-1934. doi: https://doi.org/10.1080/07853890.2021.1991589.
12. Scheffer M, Cassenote A, Guerra A, Guilloux AGA, Brandão APD, Miotto BA, et al., Demografia Médica no Brasil 2020. São Paulo, SP: FMUSP, CFM; 2020.

13. Guedes HHG, Bezerra AMF, Silva EN, Leite ES, Granjeiro WRO, Bezerra KKS. Hospitalizações por endometriose no Brasil (2010-2019): estudo ecológico. Temas em Saúde. 2021;21(6):97-111. doi: https://doi.org/10.29327/213319.21.6-5.
14. Domiciano CB, Oliveira TS, Trindade MG, Maia AC, Oliveira DCN, Lira CRP, et al. A evolução clínica de um caso de endometriose profunda na pós-menopausa. Revista Eletrônica Acervo Saúde. 2022;15(3): e9626-e9626. doi: https://doi.org/10.25248/reas.e9626.2022.
15. Salomé DGM, Braga ACBP, Lara TM, Caetano AO. Endometriose: epidemiologia nacional dos últimos 5 anos. Revista de Saúde. 2020;11(2):39-43. doi: https://doi.org/10.21727/rs.v11i1.2427.
16. Instituto Brasileiro de Geografia e Estatística [homepage na internet]. Pesquisa Nacional por Amostra de Domicílios Contínua [acesso em 11 jan 2023]. Disponível em: https://www.google.com/url?q=https://sidra.ibge.gov.br/tabela/6408%23resultado&sa=D&source=docs&ust=1674079492421813&usg=AOvVaw3ofZrXtDNBOcd9aOf0JtIJ.
17. Spigolon DN, Amaral VF, Barra CMCM. Endometriose: impacto econômico e suas perspectivas. Femina. 2012;40(3):129-134.

Financing
We declare that the author Silva Júnior, JA was on a scholarship from the Coordination for the Improvement of Higher Education Personnel.

Interest conflicts
The authors declared that they have no conflicts of interest

Authors' contribution
Sombra MPP: conception, study design, collection, analysis, and interpretation of data; writing the intellectual content of the manuscript; final approval of the version to be published; and responsibility for all aspects of the work, including ensuring its accuracy and completeness; Silva Júnior JA: conception, study design, data analysis, and interpretation; relevant critical review of the manuscript's intellectual content; final approval of the version to be published; and responsibility for all aspects of the work, including ensuring its accuracy and completeness; Nascimento EGC: conception, study design, analysis and interpretation of data; relevant critical review of the manuscript's intellectual content; final approval of the version to be published; and responsibility for all aspects of the work, including ensuring its accuracy and completeness.

Institutional ethical approval statement: As this is a study with secondary data from a government database, approval of the research by the ethics committee of the educational institution was not required.

Acknowledgements
Not applicable.

Corresponding Author:
José Antonio da Silva Junior
joseantonio.030@hotmail.com

Received: jul 06, 2023
Approved: sep 18, 2023
Editor: Profa. Dra. Ada Clarice Gastaldi