



# Endometriosis according to the female population: a prospective observational cross-sectional study

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DOI: <https://doi.org/10.54448/mdnt25109>

Received: 10-21-2024; Revised: 01-28-2025; Accepted: 02-17-2025; Published: 02-20-2025; MedNEXT-id: e25109

**Editor:** Dr. Hae Shin Chung MD, Ph.D.

## Abstract

**Introduction:** One of the problems that affects the female population of childbearing age or postmenopause is endometriosis, which is a chronic condition that affects between 2 and 17% of women of reproductive age. **Objective:** This study was conducted to verify the knowledge that female participants, from private practices or health insurance and the Unified Health System (SUS), have about endometriosis, aiming to obtain data that can support educational actions in public health policies. **Methods:** This study followed a prospective observational and cross-sectional model, following the STROBE rules. This study was carried out through an electronic questionnaire. It was carried out with a random sample of 204 female participants, 18 years of age or older. The form applied consisted of a questionnaire validated by the reliability of Cronbach's alpha coefficient. Pearson's Chi-Square test was performed, and the statistically associated variables presented  $p < 0.05$  (rejecting  $H_0$ ). The project was submitted to the Research Ethics Committee of the Unilago University, located in the city of São José do Rio Preto, São Paulo, Brazil. After approval under numbers 6,901,539. Through the analysis of a standardized research questionnaire, the aim is to obtain quantitative data that elucidate the objective of the research. **Results and Conclusion:** Knowledge of endometriosis among women showed a statistically significant difference between the variables public health (SUS) versus private health. A better understanding of the pathophysiology of endometriosis is imperative for the development of new therapeutic strategies that are continuous for both the diagnosis and treatment of endometriosis. A brief education program on menstrual

health and endometriosis can improve knowledge and attitudes among women. Artificial intelligence can be an important tool for educating and informing patients about endometriosis, providing accurate and comprehensive answers to common questions, and facilitating a better understanding of the condition.

**Keywords:** Endometriosis. Women's health. Knowledge. Education.

## Introduction

One of the gynecological problems that affects the female population of childbearing age or postmenopausal age is endometriosis, which is a chronic condition that affects between 2 and 17% of women of reproductive age. It is a multifactorial, chronic, benign, and estrogen-dependent disease, defined by the ectopic implantation of stroma and/or endometrial glandular epithelium located outside the uterus, most commonly found in the pelvic peritoneum, ovaries, and rectovaginal septum and, less commonly, in the pericardium, pleura, and central nervous system [1-5].

The American Society of Reproductive Medicine (1996) classifies endometriosis as minimal, mild, moderate, and severe, according to the location, extent, and depth of the disease in the pelvic and adjacent structures [1]. According to Viganò et al. (2004) [6], endometriosis can affect 3 to 5% of women in the postmenopausal phase and is one of the main causes of hospitalization in industrialized countries.

According to Moretto et al. (2021) [7], it takes about seven years between the initial symptoms and the effective diagnosis, which can probably be much longer, due to the quality of care provided to the

community, including the lack of knowledge about the disease among patients and doctors, in addition to the difficulty in accessing laparoscopic surgery in public health services.

Due to the “nonspecific symptoms and stigmatization that prevents open discussions on the subject, the absence of definitive biomarkers, and the lack of knowledge among both the general public and health professionals” [7], it is a disease that is difficult to diagnose, further aggravated by the fact that 3 to 22% of women are asymptomatic [8] and by the lack of correlation between symptoms and the severity of the disease [9]. Cardoso et al. (2011) [10] also highlight that, as the clinical symptoms of the disease may take a long time to manifest, the diagnosis is usually made in infertile adult women, which can cause “irreversible damage to the female anatomy and the functions of their reproductive organs” in some patients.

The gold standard diagnosis of endometriosis is made through surgical intervention, especially by video laparoscopy, with a collection of a biopsy for histological analysis. However, well before surgery, it is necessary to correlate information from the anamnesis, physical exams, imaging, and laboratory tests, which can indicate, with a “high degree of reliability, that the patient has endometriosis” [5].

There is still no ideal treatment for endometriosis [5,11], which must be multidisciplinary. Treatment must consider the severity of the symptoms, the extent and location of the disease, the patient's desire to become pregnant, her age, adverse reactions to medications, surgical complications, previous treatments, and the cost of procedures [7,12].

Treatment may be medication, surgery, or both. The main objective of medication is to prevent the emergence of an environment favorable to the growth and maintenance of endometrial implants [13]. It may or may not be hormonal and may be applied for long periods, reducing symptoms. However, Sepulcri and Amaral (2007) [14] warn that some side effects may occur, such as weight gain, hypertension, and abnormal bleeding.

When surgery is necessary because the patient does not respond to medication, the objective is to remove the endometriotic lesions [10]. It can be divided into two categories: conservative treatment, which preserves the patient's fertility, or radical treatment, which leads to hysterectomy. Amaral et al. (2009) [12] and Crosera et al. (2010) [15] also highlight the importance of laparoscopy, which, in addition to diagnosis, can also act to destroy endometriotic foci with electrocautery or laser, reducing foci of endometrial cells and improving the

symptoms and fertility of the patient.

The quality of life of women affected by endometriosis can be significantly affected, both physically and emotionally. The pain caused by endometriosis is the main cause of the sequence of negative consequences, as well as the difficulty in getting pregnant and/or maintaining pregnancy, reducing the quality of life, or even incapacitating the woman in her daily activities [8,16]. Consequently, “endometriosis affects the woman's social life, alters her sexual interest, changes her conception of womanhood due to infertility, causing mood swings, depression, and irritability” [8].

Ramos et al., (2018) [17], highlight another aspect related to endometriosis: the fact that most women affected by this disease are unaware of it. Despite the small sample, their data indicate that ignorance of the disease directly affects the quality of life of these women, since they may be seen as “crazy” by those they live with, as it is not a visible disease and the symptoms are considered to be made up.

These results reinforce the importance of health actions that provide quality information, as well as strategies that contribute to the quality of life of women with endometriosis, which are fundamental for adherence to treatment and the search for alternatives that improve their biopsychosocial aspects, as well as reducing the suffering caused by endometriosis [17].

This study aims to contribute to filling, albeit minimally, part of the research gap in this area, raising awareness of the need to invest in public health in this area, informing the population, and alerting physicians about the need to investigate endometriosis in female patients and proceed with treatment, thus minimizing their suffering. In addition, it is hoped to arouse the interest of other researchers to invest in this area. Based on the literature, this study hypothesizes that there is a great lack of knowledge on the part of the female population regarding what endometriosis is, treatments, and health consequences if it is not treated.

In light of these considerations, the objective of this prospective observational study was to verify the knowledge that female participants, from private or health insurance practices and the Unified Health System (SUS), have regarding endometriosis, aiming to obtain data that can support educational actions in public health policies.

## Methods

### Study Design, Participants and Questionnaire

This study followed a prospective observational and cross-sectional model, following the STROBE

(Strengthening the Reporting of Observational Studies in Epidemiology) rules. Available at: <https://www.strobe-statement.org/checklists/>. Accessed on: 10/27/2024. This study was conducted using an electronic questionnaire. It was conducted with a random sample of 204 female participants, aged 18 or over. All women, aged 18 or over, who attended these entities, were eligible to answer the questionnaire if they agreed. To achieve the research objective, the Knowledge Assessment Questionnaire on Endometriosis was constructed, based on the bibliography studied. The form applied consisted of a questionnaire validated by the reliability of Cronbach's alpha coefficient [18].

### Ethical Approval and Settings

This study was submitted to the Research Ethics Committee of the Unilago University, located in the city of São José do Rio Preto, São Paulo, Brazil. After approval under number **6.901.539**, the highest authority of the Women's Public Health Sector of the city of Novo Horizonte, São Paulo, and one or more private clinics in the city of Novo Horizonte, São Paulo, explained the objectives of the research, the absence of risks to patients, and the collection procedures, and authorization was requested for the questionnaires to be distributed to 100 female patients aged 18 or over in each entity.

After the highest representative of each entity gave their approval, the secretaries of each entity were contacted and the objective of the research and its procedure were explained again, and their participation was requested. The secretaries of the private clinics and Women's Health were asked to invite all users who attend health care services to participate in the study, clarifying that they were not identified at any time during the research, that the information obtained was used only for scientific purposes, and that there would be no harm in not wanting to participate or withdrawing during the process. The Informed Consent Form was applied and, after reading it, if the patient agreed to participate, the Endometriosis Knowledge Assessment Questionnaire was applied. The questionnaire was made available at the above-mentioned locations for users of these services to complete until a total of 204 questionnaires were completed.

### Statistical Analysis

The Stata 17 and Minitab 18 programs were used for statistical analysis. After data collection, they were entered into Excel spreadsheets. Descriptive statistical analysis was performed based on calculations of measures of central tendency and dispersion and

frequency counts. For inferential statistical analysis of quantitative variables, the Kolmogorov-Smirnov test was used to verify data normality. Then, the Student-t test was used for parametric variables (participants' ages), with  $p > 0.05$  without statistically significant difference (does not reject the null hypothesis  $H_0$ ). Pearson's Chi-Square test was performed, and the statistically associated variables presented  $p < 0.05$  (rejecting  $H_0$ ). The validation of the questionnaire proposed in this study was determined using the statistical technique of Cronbach's alpha ( $\alpha$ ), to know the reliability and measure of internal consistency. The calculation of Cronbach's alpha coefficient ( $\alpha$ ) required the administration of only one test to provide a single estimate of the reliability of the entire research. The reliability of Cronbach's alpha coefficient varies between 0 and 1 as a standard. The classification of the reliability of Cronbach's alpha coefficient followed the following limits: A.  $\alpha \leq 0.30$  – Very low; B.  $0.30 < \alpha \leq 0.60$  – Low; C.  $0.60 < \alpha \leq 0.75$  – Moderate; D.  $0.75 < \alpha \leq 0.90$  – High; E.  $\alpha > 0.90$  – Very high [18].

### Results

The validation analysis of the questionnaire proposed in this study using Cronbach's alpha statistical technique ( $\alpha$ ) showed that the reliability rating was high, with alpha ( $\alpha$ )=0.86, considering  $0.75 < \alpha \leq 0.90$ . The mean age of the PH group was  $40.02 \pm 13.16$  years (18 to 69), and of the P group, it was  $43.28 \pm 14.64$  (18 to 88) years, with  $p > 0.05$ , with no statistically significant difference.

Tables 1 and 2 present the results of the responses to the questionnaire that was applied to participants in the public health system (Unified Health System – SUS), with  $n=99$  participants, and to participants in the private health system (health insurance and private), with  $n=105$  participants, regarding general and specific knowledge of endometriosis among women.

Table 1. General data in numerical value and percentage (%) of questions and answers of the questionnaire to the public health audience (Unified Health System – SUS), with  $N_{\text{Total}} = 99$  participants. Note: S=Yes; N=No; NS= I don't know.

had or have endometriosis?			Can men have endometriosis?		
_PH	N	%	_PH	N	%
N	66	66.67	N	48	48.48
NS	22	22.22	NS	41	41.41
S	11	11.11	S	10	10.10

Know anyone who had/has?			Mother/Grandmother/Aunt?		
_PH	N	%	_PH	N	%
N	39	39.39	N	94	94.95
S	60	60.61	S	5	5.05

Sister/ Cousin?			Friend/ Acquaintance?		
_PH	N	%	_PH	N	%
N	91	91.92	N	52	52.53
S	8	8.08	S	47	47.47

Another person?			Drug treatment?			Know anyone Drug Treatment?		
_PH	N	%	_PH	N	%	_PH	N	%
daughter	1	1.01	N	90	90.91	N	55	55.56
N	95	95.96	S	9	9.09	S	44	44.44
daughter-in-law	1	1.01						
Patient	1	1.01						
niece	1	1.01						

Know anyone Surgery?			Have you ever had surgery?			If so, which organ?		
_PH	N	%	_PH	N	%	_PH	N	%
N	66	66.67	N	96	96.97	Gut	1	1.01
S	33	33.33	S	3	3.03	N	98	98.99

Hereditary?			Pelvic inflammatory process?			Only uterus?		
_PH	N	%	_PH	N	%	_PH	N	%
N	18	18.18	N	40	40.40	N	51	51.52
NS	53	53.54	NS	24	24.24	N	1	1.01
S	28	28.28	S	35	35.35	NS	24	24.24
						S	23	23.23

Different organs?			Only women of fertile age?			Is there no cure?		
_PH	N	%	_PH	N	%	_PH	N	%
N	50	50.51	N	60	60.61	N	68	68.69
NS	24	24.24	NS	24	24.24	NS	24	24.24
S	25	25.25	S	15	15.15	S	7	7.07

Is there drug treatment?			Surgery treatment only?			Causes infertility?		
_PH	N	%	_PH	N	%	_PH	N	%
N	29	29.29	N	68	68.69	N	62	62.63
NS	24	24.24	NS	24	24.24	NS	23	23.23
S	46	46.46	S	7	7.07	S	14	14.14

I do not know how to explain			Superficial peritoneal?			Ovarian endometrioma?		
_PH	N	%	_PH	N	%	_PH	N	%
NS	99	100.00	N	36	36.73	N	4	4.04
			NS	54	55.10	NS	63	63.64
			S	8	8.16	S	32	32.32

Deep infiltrative			I do not have that knowledge		
_PH	N	%	_PH	N	%
N	26	26.26	NS	99	100.00
NS	68	68.69			
S	5	5.05			

Cause - no information			Disease with multiple causes			I do not know how to say		
_PH	N	%	_PH	N	%	_PH	N	%
N	15	16.16	N	2	2.02	NS	98	98.99
NS	79	79.80	NS	77	77.78			
S	4	4.04	S	19	19.19			

Always has symptoms			local/back/ pelvis pain?		
_PH	N	%	_PH	N	%
N	25	25.25	N	13	13.54
NS	36	36.36	NS	39	40.63
S	38	38.38	S	44	45.83

Pain-sexual /bowel?			Irregular menstruation		
_PH	N	%	_PH	N	%
N	22	22.22	N	13	13.13
NS	39	39.39	NS	36	36.36
S	38	38.38	S	50	50.51

Constipation or excess gas			Nausea			Infertility		
_PH	N	%	_PH	N	%	_PH	N	%
N	42	42.42	N	44	44.44	N	26	26.26
NS	45	45.45	NS	47	47.47	NS	41	41.41
S	12	12.12	S	8	8.08	S	32	32.32

Bloating sensation			I do not know how to inform			Difficult Pregnant?		
_PH	N	%	_PH	N	%	_PH	N	%
N	40	40.40	NS	99	100.00	N	3	3.03
NS	46	46.46				NS	29	29.29
S	13	13.13				S	67	67.68

Affected part UTERUS			Affected part BLADDER		
_PH	N	%	_PH	N	%
N	5	5.05	N	35	35.35
NS	29	29.29	NS	39	39.39
S	65	65.66	S	25	25.25

Affected part OVARY			Affected part GUT			Affected part LUNG		
_PH	N	%	_PH	N	%	_PH	N	%
N	14	14.14	N	35	35.35	N	54	54.55
NS	32	32.32	NS	38	38.38	NS	43	43.43
S	53	53.54	S	26	26.26	S	2	2.02

Affected part HEART			Affected part BRAIN		
_PH	N	%	_PH	N	%
N	54	54.55	N	54	54.55
NS	45	45.45	NS	45	45.45

Affected part Organs			Affected part I do not know		
_PH	N	%	_PH	N	%
N	52	52.53	NS	99	100.00
NS	45	45.45	N=	99	
S	2	2.02			

Note: S=Yes; N=No; NS= I don't know.

Source: Own authorship.

Table 2. General data in numerical value and percentage (%) of questions and answers in the questionnaire in relation to the private healthcare public (private and health insurance), with N<sub>Total</sub> = 105 participants. Note: S=Yes; N=No; NS= I don't know. Source: Own authorship.

had or have endometriosis?			Can men have endometriosis?		
_P	N	%	_P	N	%
N	63	60.00	N	60	57.14
NS	21	20.00	NS	41	39.05
S	21	20.00	S	4	3.81

Know anyone who had/has?			Mother/ grandmother/ Aunt?		
_P	N	%	_P	N	%
N	32	30.48	N	99	94.29
S	73	69.52	S	6	5.71

SISTER/ COUSIN?			FRIEND/ ACQUAINTANCE?		
_P	N	%	_P	N	%
N	96	91.43	N	43	40.95
S	9	8.57	S	62	59.05

ANOTHER PERSON?			Drug treatment?			Know anyone Drug Treatment?		
_P	N	%	_P	N	%	_P	N	%
sister-in-law	4	3.81	N	87	82.86	N	39	37.14
daughter	1	0.95	S	18	17.14	S	66	62.86
N	99	94.29						
niece	1	0.95						

Know anyone Surgery?_P			Have you ever had surgery?_P		
N	%		N	%	
N	55	52.38	N	94	89.52
S	50	47.62	S	11	10.48

If so, which organ?_P			Hereditary?_P		
N	%		N	%	
Gut	2	1.90	N	31	29.52
N	100	95.24	NS	43	40.95
ovary, fallopian tube, intestine	1	0.95	S	31	29.52
uterus and ovaries	1	0.95			
uterus, ovaries and fallopian tubes	1	0.95			

Pelvic inflammatory process?_P			Only uterus?_P			Different organs?_P		
N	%		N	%		N	%	
N	48	45.71	N	60	57.14	N	48	45.71
NS	23	21.90	NS	23	21.90	NS	23	21.90
S	34	32.38	S	22	20.95	S	34	32.38

Only women of fertile age?_P			Is there no cure?_P			Is there drug treatment?_P		
N	%		N	%		N	%	
N	62	59.05	N	73	69.52	N	32	30.48
NS	23	21.90	NS	23	21.90	NS	23	21.90
S	20	19.05	S	9	8.57	S	50	47.62

Surgery treatment only?_P			Causes infertility?_P			I do not know how to explain?_P		
N	%		N	%		N	%	
N	74	70.48	N	59	56.19	NS	105	100.00
NS	23	21.90	NS	23	21.90			
S	8	7.62	S	23	21.90			

Superficial peritoneal?_P			Ovarian endometrioma?_P		
N	%		N	%	
N	41	39.05	NS	59	56.19
NS	57	54.29	S	46	43.81
S	7	6.67			

Deep infiltrative?_P			I do not have that knowledge?_P		
N	%		N	%	
N	35	33.33	NS	105	100.00
NS	58	55.24			
S	12	11.43			

Cause - no information?_P			Disease with multiple causes?_P			I do not know how to say?_P		
N	%		N	%		N	%	
N	32	30.48	N	5	4.76	NS	105	100.00
NS	68	64.76	NS	68	64.76			
S	5	4.76	S	32	30.48			

Always has symptoms?_P			local/back/pel vis pain?_P		
N	%		N	%	
N	28	26.67	N	24	22.86
NS	32	30.48	NS	23	21.90
S	45	42.86	S	58	55.24

Pain-sexual/bowel?_P			Irregular menstruation?_P			Constipation or excess gas?_P		
N	%		N	%		N	%	
N	49	46.67	N	19	18.10	N	71	67.62
NS	23	21.90	NS	23	21.90	NS	23	21.90
S	33	31.43	S	63	60.00	S	11	10.48

Nausea_P			Infertility_P			Bloating sensation_P		
N	%		N	%		N	%	
N	78	74.29	N	34	32.38	N	65	61.90
NS	23	21.90	NS	23	21.90	NS	23	21.90
S	4	3.81	S	48	45.71	S	17	16.19

I do not know how to inform?_P			Difficult Pregnant?_P			Affected part_UTERUS_P		
N	%		N	%		N	%	
NS	105	100.00	N	2	1.90	N	9	8.57
			NS	10	9.52	NS	11	10.48
			S	93	88.57	S	85	80.95

Affected part_BLADDER_P			Affected part_OVARY_P			Affected part_GUT_P		
N	%		N	%		N	%	
N	58	55.24	N	29	27.62	N	59	56.19
NS	11	10.48	NS	11	10.48	NS	12	11.43
S	36	34.29	S	65	61.90	S	34	32.38

Affected part_LUNG_P			Affected part_HEART_P			Affected part_BRAIN_P		
N	%		N	%		N	%	
N	93	88.57	N	93	88.57	N	93	88.57
NS	12	11.43	NS	12	11.43	NS	12	11.43

Affected part_Organs_P			Affected part_I do not know_P		
N	%		N	%	
N	93	88.57	NS	105	100.00
NS	12	11.43			

Note: S=Yes; N=No; NS= I don't know.  
Source: Own authorship.

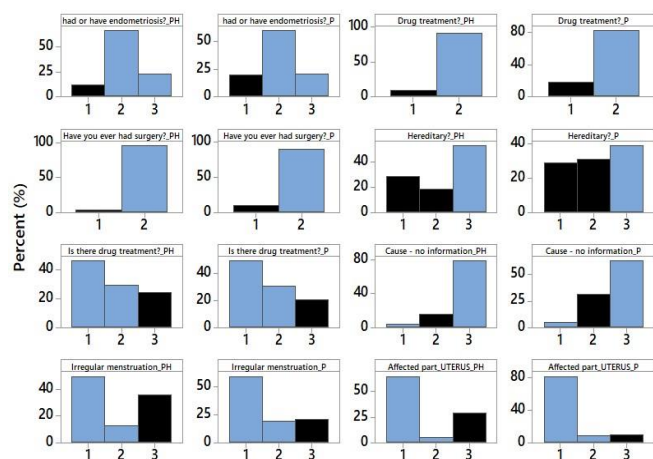
Figure 1 presents the results of the Pearson Chi-Square ( $\chi^2$ ) analysis between the Public Health-PH vs. Private Health-P variables on knowledge of endometriosis among women that presented a statistically significant difference, with  $p>0.05$ , highlighted in black in the graphs. The graphs in blue show the variables that presented a statistically significant association, with  $p<0.05$ . The codes 1, 2, and 3 represent, respectively, the answers to the questionnaire yes, no and I don't know. The variables that presented a statistically significant difference between the Public Health-PH vs. Private Health-P variables were:

- ✓ Had or have endometriosis?
- ✓ Drug treatment?
- ✓ Have you ever had surgery?
- ✓ Hereditary?
- ✓ Is there drug treatment?
- ✓ Cause- no information.
- ✓ Irregular menstruation?
- ✓ Affected part\_Uterus

The other Pearson Chi-Square analyses between the Public Health-PH vs. Private Health-P variables (Tables 1 and 2) did not show a statistically significant difference, with  $p<0.05$ .

Figure 1. Results of the Pearson Chi-Square ( $\chi^2$ ) analysis between the variables (Public HealthPH vs. Private Health-P) on knowledge of endometriosis among women, with  $p<0.05$  considered to be a statistical association.





Note: Pearson's Chi-Square ( $\chi^2$ ) test. Knowledge of endometriosis among women who presented a statistically significant difference, with  $p > 0.05$  (rejecting  $H_0$ ), is highlighted in black in the graphs. Source: Own authorship.

## Discussion

In the context of knowledge among women about endometriosis issues, this prospective observational study analyzed the knowledge of female participants, from private practices or health insurance plans and the Unified Health System (SUS), aiming to obtain data that can support educational actions in public health policies. For this purpose, a questionnaire validated by Cronbach's alpha statistical tool ( $\alpha$ ), which showed high reliability ( $\alpha = 0.86$ ), was applied to 204 women with a mean age of 40.02 years (PH group) and 43.28 years (P group).

The results showed that the variables that presented a statistically significant difference between the Public Health-PH vs. Private Health-P were *Had or have endometriosis?*, *Drug treatment?*, *Have you ever had surgery?*, *Hereditary?*, *Is there drug treatment?*, *Cause- no information*, *Irregular menstruation?*, and *Affected part\_uterus*, with  $p > 0.05$ .

Based on this, the world literature shows that endometriosis, manifested by pain and infertility, is a chronic inflammatory disease, associated with a great incapacity of daily life, causing a diastrophic problem and socioeconomic burden. It is imperative to better understand the pathophysiology of endometriosis for the development of new therapeutic strategies to be continuous both for the diagnosis and treatment of endometriosis. The authors Wang et al. (2022) [19] presented an overview of the general and basic knowledge about endometriosis and emphasize the role of clinical diagnosis and possible medical treatment for the treatment of women with endometriosis.

In the same line of the present study, the authors Culley et al. (2013) [20] reviewed knowledge about the social and psychological impact of endometriosis on

women's lives and provided insights into women's experiences with endometriosis, as well as critically commenting on the current state of knowledge and making recommendations for future psychosocial research.

Similar to the present study, a cross-sectional clinical study examined Lebanese women's understanding and concerns about endometriosis. A survey of 725 Lebanese women (mean age 32.5 years) revealed low knowledge (25.9%) about the origin, symptoms, and treatment of endometriosis. More than 60% were unaware of the symptoms of endometriosis, while 9.9% mistakenly believed that menstrual cramps indicated the disease. Younger age (<35 years), higher education (master's degree or higher), professional occupation, lower pregnancy, and live birth rates, and no history of miscarriage, endometriosis, pelvic inflammatory disease, uterine or ovarian conditions, and pelvic surgeries were significantly associated with greater knowledge about endometriosis [21].

Furthermore, a randomized controlled clinical trial evaluated whether education about endometriosis and menstrual health improves knowledge and attitudes among adolescents. Two intervention classes and two control classes completed the study. A total of 71 students enrolled and 48 were present at baseline and follow-up days. The mean age was 15.7 years, and 53% were female. Knowledge scores increased by 1.86 points in intervention classes compared with 0.30 points in control classes, with an estimated mean difference of 1.56. Intervention classes showed greater confidence in endometriosis knowledge, prioritization of menstrual health knowledge, and comfort in discussing menstrual health, compared with control classes [22].

Finally, despite advances in diagnosis and treatment, patient education remains a critical challenge. Artificial intelligence (AI) has emerged as a potential tool to enhance patient education and access to information. Thus, authors Oliveira et al. (2024) [23] conducted a systematic review study to explore the role of AI in facilitating education and improving accessibility to information for individuals with endometriosis. The studies examined the use of AI models, such as ChatGPT (OpenAI), machine learning, and natural language processing, in providing educational resources and answering common questions about endometriosis. AI tools, particularly large language models, provide accurate answers to frequently asked questions with varying degrees of sufficiency across different categories. The integration of AI with social media platforms also highlights its potential to identify patient needs and enhance information dissemination.

## Limitations

There are significant gaps in the literature, especially regarding consideration of the impact on partners and children. It is recommended further prospective and longitudinal research using mixed-methods approaches and endometriosis-specific instruments to explore the impact of endometriosis in more diverse populations and settings.

## Conclusion

It was concluded that knowledge of endometriosis among women showed a statistically significant difference between the variables public health (SUS) versus private health. A better understanding of the pathophysiology of endometriosis is imperative for the development of new therapeutic strategies that are ongoing for both the diagnosis and treatment of endometriosis. A brief education program on menstrual health and endometriosis can improve knowledge and attitudes among women. Artificial intelligence can be an important tool for patient education and information about endometriosis, providing accurate and comprehensive answers to common questions and facilitating a better understanding of the condition.

## CRedit

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## Acknowledgment

Not applicable.

## Ethical Approval

This study was submitted to the Research Ethics Committee of Unilago University, located in the city of São José do Rio Preto, São Paulo, Brazil, and approved under number 6.901.539.

## Informed Consent

It was applicable.

## Funding

Not applicable.

## Data Sharing Statement

No additional data are available.

## Conflict of Interest

The authors declare no conflict of interest.

## Similarity Check

It was applied by Ithenticate®.

## Peer Review Process

It was performed.

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