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Contraceptive practices and sexual health in premenopausal women with breast cancer: a prospective study from a Moroccan oncology center

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Abstract

Background. In premenopausal women with breast cancer, contraception, fertility, and sexual health are major issues that remain insufficiently addressed in clinical practice.

Objective. To assess contraceptive practices, desire for pregnancy, informational needs, and sexual health among premenopausal women with breast cancer.

Methods. This was a prospective, single-center study conducted between 2023 and 2025, including 100 premenopausal women aged 23 to 49 years with breast cancer, followed at the National Institute of Oncology in Rabat. All patients were assessed while receiving active treatment. Data were collected using a structured questionnaire and analyzed descriptively.

Results. The mean age of the patients was 40.9 ± 5.5 years, and 91% had at least one child. Before diagnosis, 91% of patients used a contraceptive method, predominantly combined oral contraceptives (96.7%), compared with 51% after diagnosis, reflecting a marked decline in contraceptive use. After diagnosis, 49% of patients were not using any contraceptive method. Only 21% of patients had received clear information regarding infertility risks, while 24% expressed a desire for pregnancy. Sexual difficulties were frequent, particularly decreased libido, vaginal dryness, and dyspareunia. Furthermore, 94% of patients had never discussed these issues with their healthcare providers.

Conclusion. Premenopausal women with breast cancer have significant unmet needs regarding contraception, fertility, and sexual health. The systematic integration of reproductive and sexual counseling at the time of diagnosis is essential to improve quality of life and overall patient care.

Introduction

Breast cancer is the most common cancer among women worldwide and remains a major public health issue (1). Although its incidence increases with age, a substantial proportion of patients are diagnosed before menopause, raising specific concerns related to fertility, contraception, and sexual health.

Advances in cancer treatment have significantly improved survival, leading to a growing population of survivors and highlighting the importance of quality-of-life issues (2). In young women, anticancer treatments, particularly chemotherapy and endocrine therapy, may impair ovarian function, compromise fertility, and contribute to sexual difficulties, including decreased libido, vaginal dryness, and dyspareunia (3).

Contraception is a major issue in this population, as certain hormonal methods may be contraindicated depending on tumor characteristics. This situation requires adaptation of clinical practice and individualized patient counseling. International guidelines emphasize the importance of early information and a multidisciplinary approach integrating fertility preservation and contraceptive counseling (4).

However, available data on contraceptive use in this population are mainly derived from retrospective studies or small cohorts (5–8). Moreover, a non-negligible proportion of pregnancies after breast cancer are unplanned, reflecting persistent gaps in contraceptive counseling (5–7). Some patients use ineffective methods, or no contraception at all, partly because of the misconception that treatment-induced infertility necessarily prevents pregnancy (7,8).

In parallel, breast cancer survivors frequently experience impaired quality of life, particularly in relation to sexual health, which remains underrecognized in clinical practice (9–11). Sexual health is still insufficiently addressed during oncology consultations because of barriers related to both patients and healthcare professionals (12–14).

In this context, it is essential to assess contraceptive practices, reproductive intentions, and patients' informational needs. The aim of this study was to evaluate these aspects, as well as sexual health, among premenopausal women with breast cancer, using a questionnaire based on selected items from the EORTC QLQ-SH22 module (15) to explore different dimensions of sexuality.

Materials and Methods

Study design and population

This was a prospective, single-center study conducted at the Department of Medical Oncology of the National Institute of Oncology in Rabat between 2023 and 2025. Patients were consecutively enrolled during follow-up consultations. The study included premenopausal women aged 23 to 49 years with breast cancer. At the time of assessment, all patients were receiving active treatment, either in the neoadjuvant, adjuvant, or palliative setting, including ongoing endocrine therapy when indicated.

The inclusion criteria were as follows:

• histologically confirmed breast cancer;

• age under 50 years at the time of diagnosis;

• premenopausal status, defined by the presence of menstrual cycles before diagnosis, regardless of treatment-induced secondary amenorrhea;

• willingness to participate in the study.

The exclusion criteria were:

• confirmed menopause;

• incomplete data regarding contraceptive practices.

Data collection

Data were collected using a structured questionnaire administered during follow-up consultations. The questionnaire was administered face-to-face by a physician or trained staff member to ensure proper understanding and data quality. All data were collected anonymously and confidentially.

Collected information included:

• sociodemographic characteristics (age, marital status, educational level, and socioeconomic status);

• gynecological and obstetric history (parity, age at first pregnancy, and desire for pregnancy);

• clinical and treatment-related data (tumor characteristics, including hormone receptor and HER2 status, disease stage, and treatments received);

• contraceptive practices (methods used before and after diagnosis, contraceptive counseling received, and sources of information).

Assessment of sexual health

Sexual health was assessed using a questionnaire based on selected items from the EORTC QLQ-SH22 module (15). The questionnaire explored different dimensions of sexuality, including sexual desire, satisfaction, treatment-related impact on sexuality, dyspareunia, vaginal dryness, body image, and communication with both the partner and the healthcare team.

Responses were recorded using a four-point Likert scale (never, sometimes, often, always). Results were expressed as frequencies and percentages, without calculation of standardized EORTC scores. The selected items were chosen to explore clinically relevant dimensions of sexual health in this specific population.

Statistical analysis

Statistical analysis was performed using Jamovi software (version 2.3). Quantitative variables were described using means, standard deviations, and ranges where applicable, while qualitative variables were presented as frequencies and percentages. Missing data were excluded from the analysis without imputation.

Given the descriptive nature of the study, no comparative or inferential analyses were performed. No prior sample size calculation was conducted because of the exploratory design of the study. The main variables of interest were contraceptive use, level of information regarding fertility, and sexual health outcomes.

Ethical considerations

The study was conducted after obtaining informed consent from all participants and approval from the ethics committee of the National Institute of Oncology in Rabat, in accordance with ethical standards for research involving human participants.

Results

Patient characteristics

A total of 100 premenopausal women with breast cancer were included in this study. The patients' ages ranged from 23 to 49 years, with a mean age of 40.9 ± 5.5 years. Regarding educational level, 40% of the patients had no formal education, 43% had a primary level of education, 15% had a secondary level of education, and 2% had a higher level of education. The vast majority of the patients were married (97%). In addition, 91% of the patients had at least one child, whereas 9% were nulliparous. Among those who had children, the majority had two or three children. Regarding the desire for pregnancy, 24% of the patients expressed a desire for pregnancy, whereas 66% did not and 10% remained undecided. The mean age at menarche was 13.1 ± 1.5 years. All patients were considered premenopausal at the time of diagnosis. At the time of the survey, 51% of the patients reported persistent

menstrual cycles, whereas 49% presented with secondary amenorrhea. Finally, 69.4% of the patients reported being sexually active at the time of the survey.

Clinical characteristics of breast cancer

Regarding tumor characteristics, 34% of the patients had hormone-sensitive breast cancer, 10% had non-hormone-sensitive breast cancer, whereas 56% were unaware of their tumor subtype. At the time of diagnosis, the disease was localized in 22% of cases, locally advanced in 2%, and metastatic in 12%. Disease stage was unknown in 64% of the patients. Most patients had received multimodal treatment. Chemotherapy was the most commonly administered treatment (93%), followed by surgery (74%), radiotherapy (62%), and endocrine therapy (54%). Targeted therapies had also been administered to 20% of the patients.

Detailed sociodemographic, reproductive, and clinical characteristics of the patients are presented in Table 1.

Table 1. Sociodemographic, reproductive, and clinical characteristics of patients

Characteristic	Patients, n (%)
Age at diagnosis, mean (SD), years	40.9 (5.5)
Age range, years	23–49
Marital status	
Married	97 (97%)
Unmarried	3 (3%)
Educational level	
No formal education	40 (40%)
Primary education	43 (43%)
Secondary education	15 (15%)
Higher education	2 (2%)
Parity	
With children	91 (91%)
Nulliparous	9 (9%)
Desire for pregnancy	
Yes	24 (24%)
No	66 (66%)
Uncertain	10 (10%)
Age at menarche, mean (SD), years	13.1 (1.5)
Current menstrual status*	
Persistent menstrual cycles	51 (51%)
Secondary amenorrhea	49 (49%)
Tumor subtype	
Hormone-sensitive	34 (34%)

Non–hormone-sensitive	10 (10%)
Unknown	56 (56%)
Stage at diagnosis	
Localized	22 (22%)
Locally advanced	2 (2%)
Metastatic	12 (12%)
Unknown	64 (64%)
Treatments received	
Surgery	74 (74%)
Chemotherapy	93 (93%)
Radiotherapy	62 (62%)
Endocrine therapy	54 (54%)
Targeted therapies	20 (20%)

Notes: Menopausal status was defined according to clinical criteria without biological confirmation.

Contraceptive practices

Before the diagnosis of breast cancer, 91% of patients (91/100) reported using a contraceptive method. Among these patients, the most commonly used method was the combined estrogen-progestin pill (96.7%), followed by the copper intrauterine device (IUD) (14.3%), withdrawal (4.4%), the calendar method (4.4%), the male condom (1.1%), and injectable contraception (1.1%).

After diagnosis, contraceptive use declined markedly: 51% of patients (51/100) reported using a contraceptive method, whereas 49% (49/100) were not using any contraception. Overall changes in contraceptive use before and after diagnosis are summarized in Table 2.

Among patients using contraception after diagnosis (n = 51), the most frequently reported methods were withdrawal (37.3%), the copper IUD (31.4%), and the male condom (23.5%). The use of hormonal methods declined substantially, with the combined pill reported by 13.7% of patients. The calendar method was used by 9.8% of patients. Detailed data on contraceptive methods before and after diagnosis are presented in Table 3.

Regarding the duration of combined estrogen-progestin pill use before diagnosis (n = 88), the majority of patients had used it for 5 to 10 years (42.0%), followed by more than 10 years (38.6%), between 3 and 5 years (10.2%), and less than 3 years (9.1%). The duration of combined estrogen-progestin pill use before diagnosis is presented in Table 4.

Among patients not using contraception after diagnosis, the main reasons reported were lack of information (61.2%), absence of sexual intercourse (34.7%), and desire for pregnancy (14.3%) (multiple answers were possible).

Table 2. Overall contraceptive use before and after breast cancer diagnosis

Variable	Before diagnosis, n (%)*	After diagnosis, n (%)*
Use of contraception	91 (91%)	51 (51%)
No contraception	9 (9%)	49 (49%)

*Notes *: Percentages were calculated based on the total study population (n = 100).*

Table 3. Contraceptive methods before and after breast cancer diagnosis

Contraceptive method	Before diagnosis, n (%)*	After diagnosis, n (%)**
Combined estrogen–progestin pill	88 (96.7%)	7 (13.7%)
Copper IUD	13 (14.3%)	16 (31.4%)
Male condom	1 (1.1%)	12 (23.5%)
Withdrawal	4 (4.4%)	19 (37.3%)
Injectable contraception (DMPA)	1 (1.1%)	NR
Calendar method	4 (4.4%)	5 (9.8%)

*Notes: * Percentages before diagnosis were calculated among women using contraception before diagnosis (n = 91). ** Percentages after diagnosis were calculated among women using contraception after diagnosis (n = 51). Multiple contraceptive methods could be reported by the same patient (multiple answers were possible). Abbreviations: IUD, intrauterine device; NR, not reported.*

Table 4. Duration of combined estrogen–progestin pill use before diagnosis

Duration	n (%)*
< 3 years	8 (9.1%)
3–5 years	9 (10.2%)
5–10 years	37 (42.0%)
> 10 years	34 (38.6%)
Total	**88 (100%)**

*Notes: * Percentages were calculated among the 88 patients who used the combined estrogen-progestin pill before diagnosis (n = 88).*

Contraceptive counseling and fertility information

Overall, 63% of patients reported having received contraceptive counseling after the diagnosis of breast cancer. This counseling was mainly provided by the oncologist (48.4%) or the gynecologist (43.8%).

Approximately half of the patients (51%) reported being satisfied with the information they had received regarding contraception. However, only 21% of patients reported having received clear information about the risk of infertility related to anticancer treatments before treatment initiation.

Sexual health

Patients' sexual health was assessed using a questionnaire based on selected items from the EORTC QLQ-SH22 module. Data collection in this domain was sometimes challenging because of the sociocultural context and the high proportion of patients with limited or no formal education, requiring adapted explanations during face-to-face administration of the questionnaire. Some patients were also reluctant or embarrassed to answer questions related to sexuality. Regarding the importance attached to sexual activity, 28% of patients reported that it was often important, 39% reported that it was sometimes important, and 33% reported that it was never important. Sexual satisfaction was generally low: 37% of patients reported that they were never satisfied with their sexual life, 40% were satisfied only

sometimes, and only 23% were often satisfied. A decrease in sexual desire was frequently reported, with 41% of patients stating that they never experienced sexual desire and 39% only sometimes. In addition, 64% of patients reported that treatment often had a negative impact on their sexuality. Sexual difficulties were frequent, as shown in Figure 1. Dyspareunia was reported as occurring sometimes or often by 83% of patients, while vaginal dryness was also commonly reported, with 68% of patients describing it as frequent. Body image was also impaired, with 56% of patients reporting that they often felt less attractive because of changes related to the disease or its treatments. Finally, communication about sexuality with the healthcare team remained very limited, as 94% of patients reported that they had never discussed these issues with their medical team.

Discussion

This study highlights substantial gaps in the management of contraception, fertility, and sexual health among premenopausal women with breast cancer. Our findings suggest that, despite their major impact on quality of life, psychological well-being, and reproductive planning, these issues remain insufficiently integrated into routine oncologic care.

Our results showed a marked decline in contraceptive use after breast cancer diagnosis, from 91% to 51%, together with a shift away from hormonal methods toward non-hormonal methods or, in many cases, no contraception at all. It should be noted that all patients in our cohort were

assessed while receiving active treatment, either in the neoadjuvant, adjuvant, or palliative setting, including ongoing endocrine therapy when indicated. This clinical context may partly explain the persistence of important unmet contraceptive and reproductive health needs observed in our study. This pattern is consistent with current

international recommendations, which generally discourage the use of hormonal contraceptives in patients with hormone receptor-positive breast cancer (4,21). Current guidelines favor non-hormonal methods, particularly the copper intrauterine device (IUD), because of the absence of systemic hormonal exposure (8,21). However, although copper IUD use increased after diagnosis in our cohort, a substantial proportion of patients did not use any contraceptive method, suggesting suboptimal implementation of these recommendations in clinical practice.

These findings are consistent with data from the CANTO and FEERIC studies, which also reported a significant reduction in hormonal contraceptive use after diagnosis, with a shift toward non-hormonal methods (5–8,20). Nevertheless, the proportion of women not using any contraception in our study was higher than that reported in these cohorts, suggesting disparities in contraceptive counseling and care. This situation is particularly concerning because it may expose patients to a non-negligible risk of unintended pregnancy, especially in the context of potentially teratogenic treatments or prolonged endocrine therapy. In addition, current evidence indicates that pregnancy planning after breast cancer should be discussed on an individualized basis, taking into account tumor subtype, treatments received, and the appropriate interval before conception, particularly in women receiving long-term endocrine therapy (3,7,22). A comparison of contraceptive patterns between our study and previously published cohorts is presented in Table 5.

Table 5. Comparison of contraceptive patterns between our study and published cohorts

Study	Population	Contraceptive use	No contraception	Hormonal contraception	Copper IUD	Key message
Our study	Premenopausal women with breast cancer (n = 100)	51%	49%	13.7%	31.4%	High unmet contraceptive needs after diagnosis
CANTO (Year 1)	Premenopausal women with early breast cancer	38.9%	61.1%	5.8%	77.4%*	Marked shift toward non-hormonal contraception after diagnosis
FEERIC	Young breast cancer survivors	78.9%	21.1%	Lower than before diagnosis	Most frequentl y used method	Copper IUD was the predominant post-cancer contraceptive method

*Notes: Data from published studies were not always reported using identical definitions, time points, or denominators; therefore, direct quantitative comparisons should be interpreted with caution. * In CANTO (Year 1), the copper IUD proportion was reported within the non-hormonal reversible methods used. For FEERIC, exact post-diagnosis percentages by method were not reported in the original publication; only qualitative comparisons were available. Abbreviation: IUD, intrauterine device.*

Contraceptive choice in this population remains challenging because of the tension between the need to avoid pregnancy and the restrictions associated with hormonal methods. The lack of universally standardized recommendations and the variability in clinical practice contribute to heterogeneous contraceptive strategies, underscoring the importance of individualized counseling tailored to each patient's oncologic profile and reproductive goals (22). In our setting, the high proportion of women not using contraception may also reflect sociocultural factors, limited access to information, and insufficient coordination among

healthcare providers. This interpretation is supported by previous studies showing that effective contraceptive use is strongly associated with the quality of gynecologic follow-up and the counseling provided by clinicians (20). Finally, the prolonged exposure to hormonal contraception before diagnosis observed in our cohort should also be considered. Although the association between hormonal contraception and breast cancer risk remains modest, some studies have suggested an increased risk with long-term use, possibly following a dose-response relationship (19).

One of the most striking findings of our study was the low level of fertility-related information provided to patients, with only 21% reporting having received such information before initiation of anticancer treatment. This finding is in line with several previous studies showing that fertility preservation remains insufficiently addressed in routine clinical practice (4,8). In our cohort, 24% of patients expressed a desire for pregnancy, highlighting the clinical importance of timely fertility counseling. Given that all patients were evaluated during active treatment, the need for early and appropriate fertility-related information appears particularly important. This gap between reproductive intentions and the information provided may lead to poorly informed decision-making and compromise opportunities for fertility preservation.

Indeed, the absence of early counseling may restrict access to fertility preservation strategies, such as oocyte or embryo cryopreservation, which need to be discussed before the initiation of gonadotoxic treatment. International guidelines, particularly those issued by ASCO and ESMO, emphasize the importance of systematic, early, and multidisciplinary counseling regarding the risk of infertility and the available preservation options (4,8). Furthermore, recent evidence suggests that fertility care should not be limited to initial counseling alone, but rather integrated into continuous support that takes patients' reproductive plans into account throughout the cancer care continuum (22). The lack of such a comprehensive approach may negatively affect quality of life and lead to decisional regret in some patients. In our context, the low level of fertility-related information observed may be explained by the absence of structured oncofertility pathways, insufficient coordination between oncologists and reproductive specialists, and sociocultural barriers limiting the expression of reproductive intentions. These findings underscore the need to systematically incorporate oncofertility counseling at the time of diagnosis in order to optimize care and better meet patients' expectations.

Our study also demonstrated a high burden of sexual difficulties among premenopausal women with breast cancer, mainly characterized by vaginal dryness, dyspareunia, and reduced sexual desire. These findings are consistent with the international literature, which reports a prevalence of sexual dysfunction ranging from 40% to 80% after breast cancer (9–11). This high frequency may partly be explained by the fact that patients were assessed during active treatment. These disorders are multifactorial in origin. From a biological perspective, hypoestrogenism induced by chemotherapy and endocrine therapy plays a central role by impairing vaginal lubrication and sexual desire (9). This is compounded by psychological factors, including anxiety, depression, and altered body image, as well as relational factors linked to couple dynamics (16–18). Altered body image, observed in more than half of the patients in our study, appears to be a major determinant of sexual health and has been widely associated in the literature with lower self-esteem and impaired intimate relationships (16,18). These findings are also in line with a recent clinical analysis from the EORTC QLQ-SH22 validation study, which showed that patients undergoing active curative anticancer treatment had lower sexual satisfaction, lower libido, and a greater treatment-related impact on sexuality than patients who had completed treatment (23). The

authors also observed that treatment effects on sexual activity decreased after treatment completion, whereas other psychosexual dimensions remained more stable (23). These data further support the hypothesis that active treatment plays a major role in the impairment of sexual health.

Despite the high burden of sexual difficulties, our study revealed a major communication gap, with 94% of patients reporting that they had never discussed these issues with their healthcare team. This finding is consistent with international data showing that sexual health remains insufficiently addressed in oncology practice (12–14). Several barriers may account for this lack of communication, including patients' modesty, the taboo surrounding sexuality, limited patient initiative, and, on the clinicians' side, insufficient training, lack of time during consultations, and discomfort in addressing sexual concerns. In our setting, this difficulty may also have been reinforced by the sociocultural context and the high proportion of patients with limited or no formal education, which made discussion of intimate issues more difficult. However, several studies have shown that patients have a clear need for information and support in this area (12–14). Failure to address sexual dysfunction may not only impair quality of life, but may also affect treatment adherence, particularly during prolonged therapies such as endocrine treatment. Taken together, these findings support the need for systematic screening for sexual dysfunction and for a proactive approach that integrates sexual health into routine oncology care.

Beyond their scientific interest, these findings carry direct implications for clinical practice. Reproductive and sexual health concerns are clearly present in this population yet remain largely unaddressed during oncology care. A first concrete step would be to systematically ask patients about these issues at the time of diagnosis — not waiting for them to raise the topic themselves, which our data suggest rarely happens. Structured screening using validated tools, including selected items from the EORTC QLQ-SH22 as used in this study, could help clinicians identify patients with the greatest unmet needs. Contraceptive counseling should be integrated into the oncologic care plan at diagnosis, with clear information about which methods are safe and effective given the patient's tumor characteristics. When fertility preservation is desired, referral to a reproductive specialist should occur as early as possible, before the initiation of gonadotoxic treatment. In resource-limited settings such as ours, where dedicated oncofertility programs are not yet available, joint training of oncologists and gynecologists in these areas may represent a pragmatic and achievable first step toward improving care.

Limitations

Our study has several limitations that deserve mention. As a single-center study conducted at one Moroccan institution, our results may not be directly transferable to other populations or healthcare systems with different sociocultural and organizational contexts. The relatively modest sample of 100 patients also restricts statistical power and the ability to draw conclusions about specific subgroups. Because all data on contraceptive practices and sexual health relied on self-report, responses may have been influenced by recall difficulties or by a tendency to give socially acceptable answers — a concern that is particularly relevant when discussing intimate topics in a conservative sociocultural environment. Additionally, our assessment captured a single snapshot during active treatment, so we cannot describe how contraceptive needs or sexual health evolved before diagnosis, during treatment, or after its completion. The lack of a comparison group of healthy premenopausal

women further limits our ability to distinguish cancer-specific effects from background levels of sexual dysfunction in this age group. Finally, a substantial proportion of patients had unknown tumor subtype or disease stage, which restricted our ability to explore differences by oncologic profile. Despite these limitations, we believe this work contributes useful real-world data on a topic that remains poorly documented in the North African and broader low- and middle-income country context.

Conclusion

Premenopausal women with breast cancer have substantial unmet needs regarding contraception, fertility, and sexual health. Our study highlights a marked decline in contraceptive use after diagnosis, limited information on treatment-related infertility risks, and a high burden of sexual difficulties that remains insufficiently addressed in routine clinical practice. These findings underline the persistence of important gaps in supportive care for this population, despite the major impact of these issues on quality of life, psychological well-being, and reproductive planning. They support the need for an early, comprehensive, and multidisciplinary care approach integrating contraceptive counseling, fertility-related information, and systematic assessment of sexual health. Improving communication between patients and healthcare providers, as well as developing structured care pathways dedicated to reproductive and sexual health, may contribute to better overall patient care and improved quality of life.

Declarations

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Competing interests

The authors declare no competing interests.

Data availability

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Author contributions

S.L. conceived the study. L.M. conducted the study, collected the data, performed the analysis, and drafted the manuscript. S.L. supervised the work and critically revised the manuscript. A.B.,H.M., I.E.G., S.B., and H.E. reviewed the manuscript and approved the final version. All authors read and approved the final manuscript.

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Figures

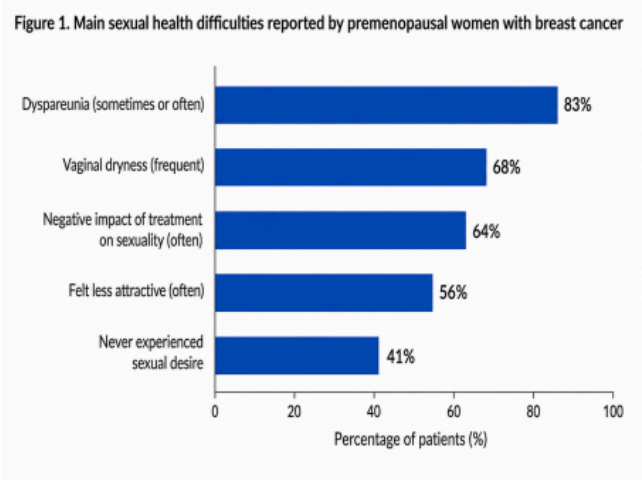


Figure 1

See image above for figure legend.

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- ContraceptivepracticesandsexualhealthinpremenopausalwomenwithbreastcanceraprospectivestudyfromaMoroccanoncologycentertables1.pdf