

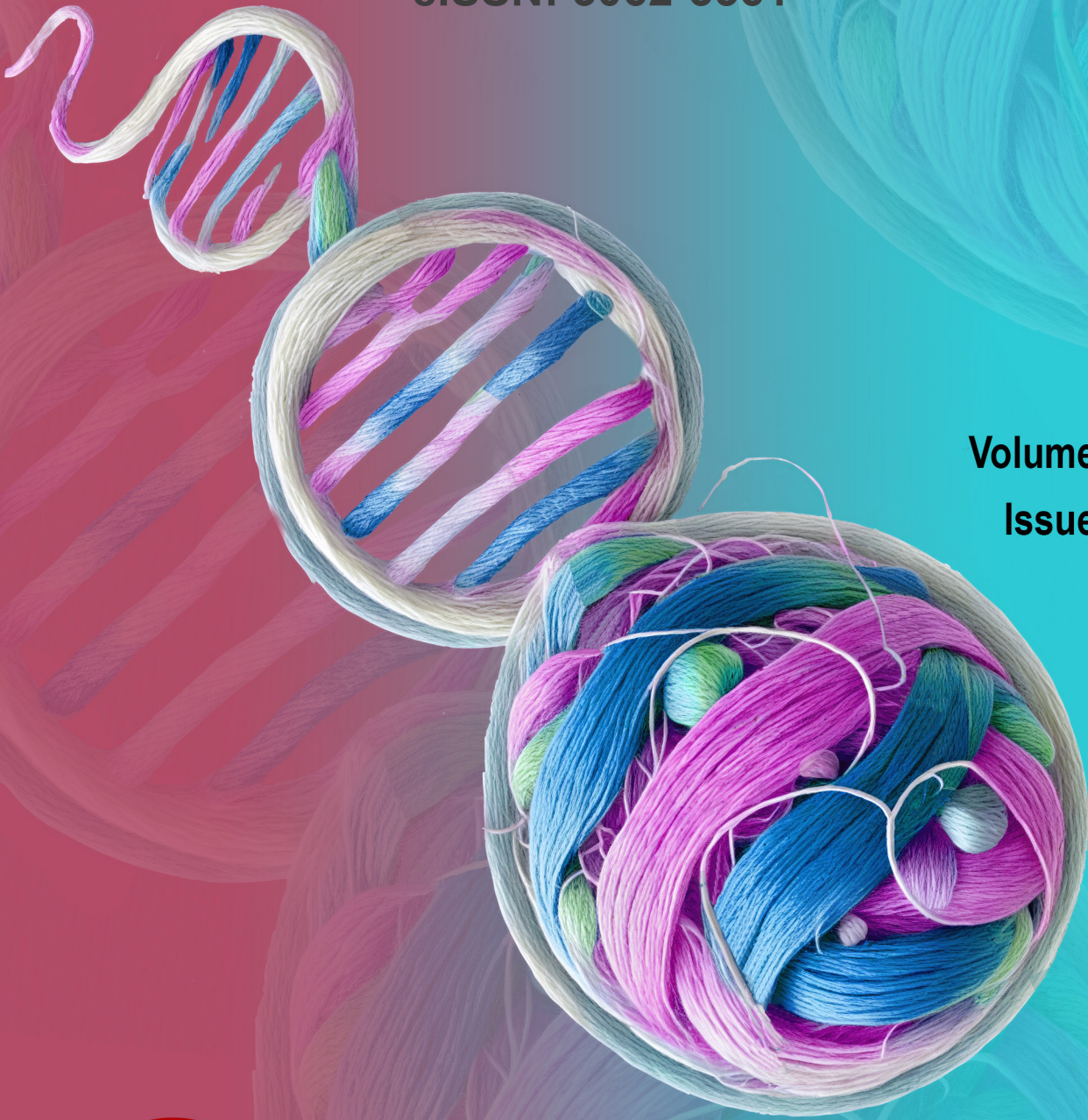


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Dear Readers,

We are delighted to present the first issue of 2026, marking the beginning of another year dedicated to advancing the global discourse on sexual science. At International Journal of Sexual Science, our commitment remains steadfast: to provide a rigorous platform for cutting-edge research that addresses the multifaceted nature of sexual and reproductive health.

This inaugural issue of the year features a diverse collection of articles that bridge the gap between clinical outcomes and social dynamics. The research presented explores a wide range of critical themes, from the physiological impact of surgical interventions on quality of life to the complex patterns of gender-based experiences and healthcare equity. By examining both the clinical nuances of sexual function and the systemic challenges faced by diverse populations, these studies offer invaluable insights for both practitioners and academics.

As an international publishing platform, we continue to evolve through the high-quality contributions of researchers and health professionals worldwide. We cordially invite you to submit your original work to our journal and join our mission to expand the boundaries of scientific knowledge in this field. We hope that this first issue of 2026 serves as an inspiring and informative resource for all our readers.

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Sincerely,

Prof. Dr. Cengiz GÜLEÇ
Editor-in-Chief



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ORIGINAL ARTICLE

Sexual Health Before and After Menopause: A Golombok Rust Sexual Satisfaction Scale-Mediated Assessment

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Abstract

Objective: Menopause is often accompanied by changes in sexual desire, arousal, orgasm, and genital pain. We aimed to examine how premenopausal sexual functioning predicts postmenopausal desire, orgasm, aversion, and vaginismus/dyspareunia, and to explore the predictive value of the Golombok-Rust Inventory of Sexual Satisfaction (GRISS).

Methods: In this cross-sectional clinic-based study, 113 postmenopausal women with DSM-5-TR-diagnosed female sexual dysfunction attending psychiatry, gynecology, or urology outpatient clinics of a university hospital were enrolled. Sociodemographic and clinical data were collected with a structured form. Using the GRISS framework, participants retrospectively rated premenopausal desire, arousal, orgasm, and attitudes, and concurrently rated current postmenopausal sexual functioning. Within-subject changes were analysed with the Wilcoxon signed-rank test; associations with clinical variables were examined by Spearman correlations and chi-square tests. Binary logistic regression estimated odds ratios (OR) for postmenopausal aversion and vaginismus/dyspareunia according to premenopausal GRISS items.

Results: Sexual desire significantly declined after menopause ($p < 0.001$). Higher premenopausal desire was positively associated with pre- and postmenopausal arousal and orgasm, and independently predicted maintenance of orgasm after menopause (OR = 4.02, 95% CI: 1.85–8.74, $p < 0.005$). Among women without premenopausal disgust, favourable responses to GRISS items on adequate foreplay and enjoyment of affection were associated with markedly reduced odds of postmenopausal aversion, whereas reporting disgust during intercourse (“always”) strongly predicted aversion (OR \approx 24). In women without premenopausal vaginismus/dyspareunia, more positive premenopausal responses regarding foreplay, comfortable penetration, relationship satisfaction, and orgasm were associated with substantially lower odds of postmenopausal vaginismus/dyspareunia (OR range \approx 0.04–0.17).

Conclusion: Premenopausal desire, arousal, and orgasm markedly shape postmenopausal sexual functioning. Item-level GRISS responses, especially those related to disgust, foreplay, and pain-free penetration, may help identify women at increased or decreased risk for postmenopausal aversion and vaginismus/dyspareunia and support more targeted counseling around the menopausal transition.

Keywords: aversion, dyspareunia, menopause, Golombok-Rust Inventory of Sexual Satisfaction, sexual function, vaginismus

INTRODUCTION

Sexual health is defined by the World Health Organization as a state of physical, emotional, mental, and social well-being in relation to sexuality, and not merely the absence of disease or dysfunction (1). The menopausal transition is frequently accompanied by changes in sexual desire, arousal, orgasm, and genital pain or dryness, which may adversely affect women's quality of life and intimate relationships (2–7). These complaints arise from a complex interplay of hormonal changes, psychosocial factors, and relationship dynamics, and they often persist rather than resolve spontaneously.

Several studies have suggested that sexual difficulties observed before menopause tend to continue into the postmenopausal period, and that premenopausal levels of sexual desire and arousal are important determinants of later sexual adjustment (6–8). Female sexual response is usually conceptualized as a sequence of desire, arousal, and orgasm with overlapping phases, and disturbances in one domain may influence the others (8–10). However, relatively few studies have examined how specific aspects of premenopausal sexual functioning, as recalled by women, are reflected in postmenopausal outcomes such as aversion or vaginismus/dyspareunia.

The Golombok-Rust Inventory of Sexual Satisfaction (GRISS) is a validated self-report instrument that assesses sexual difficulties and relationship quality in heterosexual couples and has been adapted for use in the Turkish population (3,4). Beyond providing subscale scores, GRISS item responses may offer clinically meaningful, item-level indicators of risk or protection. The present study aimed to examine how premenopausal sexual desire, arousal, and orgasm relate to postmenopausal sexual desire and orgasm, and to evaluate whether specific GRISS items can predict the development of postmenopausal aversion and vaginismus/dyspareunia in women with clinically diagnosed sexual dysfunction.

MATERIALS AND METHODS

Study Design and Setting

This was a cross-sectional observational study with retrospective assessment of premenopausal sexual functioning. It was conducted between 11 April 2006 and October 16, 2007, at the psychiatry, obstetrics

and gynecology, and urology outpatient clinics of a tertiary university hospital. During the study period, consecutive postmenopausal women presenting to these clinics for various reasons were screened for eligibility and invited to participate.

Participants

Women were eligible for inclusion if they met all of the following criteria:

- Being in natural or surgical menopause at the time of assessment (according to clinical evaluation and patient report),
- Being in a stable heterosexual relationship,
- Meeting DSM-5-TR diagnostic criteria for female sexual dysfunction, as evaluated by clinicians experienced in sexual disorders,
- Having sufficient cognitive capacity to understand and complete self-report questionnaires,
- Providing written informed consent.

Exclusion criteria were:

- Sexual dysfunction due to the direct physiological effects of a substance (e.g., alcohol, illicit drugs, or prescribed medication) or a general medical condition,
- Presence of major mental disorders accompanied by cognitive impairment (such as dementia or delirium),
- Not being in menopause at the time of the interview.

In line with these criteria, a total of 113 postmenopausal women with clinically diagnosed sexual dysfunction were included in the study.

Measures

Sociodemographic and Clinical Data Form

Participants completed a 28-item sociodemographic and clinical data form developed by the researchers. This form collected information on age, education, occupation, marital status, number of children, place of residence, origin (rural/urban), presence of systemic diseases, presence of psychiatric disorders, regular medication use, smoking status, and menopausal characteristics (type of menopause and duration).

Golombok-Rust Inventory of Sexual Satisfaction (GRISS)

Sexual functioning and satisfaction were assessed with the Golombok-Rust Inventory of ORSexual GRISS, a self-report instrument developed to evaluate sexual

difficulties and relationship quality in heterosexual couples. The GRISS consists of 28 items rated on a 5-point Likert-type scale. Items are summed to yield a total score and several subscale scores; some items are reverse-coded, and higher scores indicate more pronounced sexual dysfunction and relationship difficulties.

The Turkish adaptation and standardization of the GRISS has demonstrated acceptable reliability and validity. In the present study, the GRISS was used to evaluate sexual desire, arousal, orgasm, aversion, and vaginismus/dyspareunia dimensions.

Sexual functioning before and after menopause was evaluated as follows: at the time of data collection (when all women were postmenopausal), participants were instructed to rate their sexual experiences both for the premenopausal period ("before menopause") and for their current postmenopausal period ("after menopause") using the GRISS framework. Thus, pre- and postmenopausal sexual desire, arousal, and orgasm could be compared within the same individual. The presence of orgasm was accepted according to the patients' own perceptions and subjective experience.

Procedure

All potentially eligible women attending the participating clinics during the study period were informed about the aims and procedures of the study. Those who agreed to participate provided written informed consent. Afterwards, the sociodemographic and clinical data form and the GRISS were administered in a quiet room under the supervision of a clinician, who was available to clarify any questions. All questionnaires were completed prospectively at the time of the clinic visit.

Sample Size and Power

Prior to data collection, a power analysis was performed using G*Power software to determine the required sample size. Assuming a moderate effect size (Cohen's $d = 0.50$), a power of 80%, and a two-tailed alpha level of 0.05, the minimum required sample size was calculated as 88 participants. To compensate for potential missing data and to increase the robustness of the analyses, 113 women who met the inclusion criteria were ultimately enrolled, which was considered statistically adequate according to the initial power calculations.

Statistical Analysis

Descriptive statistics were used to summarize sociodemographic and clinical characteristics. Continuous variables are presented as mean \pm standard deviation (SD) and categorical variables as frequencies and percentages.

The distribution of GRISS scores and related variables was examined visually and descriptively. As the majority of these variables did not meet the assumptions of normality, non-parametric tests were preferred. Differences between premenopausal and postmenopausal GRISS domain scores (e.g., desire, arousal, orgasm) within the same individuals were analysed using the Wilcoxon signed-rank test. Associations between GRISS scores and clinical variables (such as presence of systemic disease, psychiatric disorder, or regular medication use) were examined using the chi-square (χ^2) test for categorical variables and Spearman's rank correlation coefficient for ordinal/continuous variables.

To estimate the strength of the relationships between premenopausal GRISS responses and postmenopausal outcomes such as aversion and vaginismus/dyspareunia, separate binary logistic regression analyses were performed. In these univariate binary logistic regression models, the dependent variable was the presence or absence of the relevant postmenopausal symptom (e.g., aversion present vs. absent), and the independent variables were premenopausal GRISS items or subscale scores that had shown significant associations in the univariate binary analyses. Results of the logistic regression analyses are reported as odds ratios (OR) with 95% confidence intervals (CI).

All statistical analyses were carried out using the Statistical Package for the Social Sciences (SPSS) for Windows (SPSS Inc., Chicago, IL, USA). A two-tailed p -value < 0.05 was considered statistically significant.

Ethical Approval

The study protocol was approved by the Ethics Committee of Uludağ University (Date: 2006-04-11, Decision: 2006-8) and conducted in accordance with the principles of the Declaration of Helsinki. Written informed consent was obtained from all participants prior to enrolment.

RESULTS

Sociodemographic and Clinical Characteristics

A total of 113 postmenopausal women with clinically diagnosed sexual dysfunction were included in the study. The mean age of the sample was 53.3 ± 8.5 years (range 25–74). Almost half of the women were housewives or retired, and the great majority were married and living with their spouse. Most participants had at least a primary school education, and the number of children was typically between two and three. Regarding family structure and living environment, a considerable proportion of the women had grown up in a village or district, whereas more than half were living in a provincial centre at the time of the study. Detailed sociodemographic characteristics, including education, marital status, family structure, and current place of residence, are presented in Tables 1 and 2.

With respect to clinical and menopause-related variables, 67.6% of the women had at least one systemic disease, and 27.5% had a diagnosed psychiatric disorder. 69.1% were using regular medication,

and 10.8% were current smokers. Among those with available data, most had entered menopause naturally, while a smaller proportion had undergone surgical menopause. Clinical and menopause-related characteristics of the sample are summarized in Table 3.

Changes in Sexual Desire, Arousal, and Orgasm

There was a statistically significant decline in sexual desire after menopause compared with the premenopausal period ($p < 0.001$). Premenopausal desire was positively correlated with both premenopausal arousal ($r = 0.53$, $p < 0.001$; $n = 104$) and postmenopausal arousal ($r = 0.20$, $p < 0.050$; $n = 104$). Similarly, premenopausal desire showed positive correlations with premenopausal orgasm ($r = 0.52$, $p < 0.010$; $n = 104$) and postmenopausal orgasm ($r = 0.29$, $p < 0.005$; $n = 104$).

Premenopausal desire was not significantly related to general attitudes towards sexuality, whereas postmenopausal desire showed a significant association with patients' current approach to sexuality ($p < 0.050$).

Table 1. Sociodemographic characteristics of the participants

Variable (valid n)	Category	n	%
Education level (n = 111)	No literacy	2	1.8
	Primary school	50	45.0
	Middle school	12	10.8
	High school	17	15.3
	University / College	30	27.0
	Marital status (n = 110)	Never married	1
Married		109	99.1
Form of marriage (n = 110)	Arranged marriage	60	54.5
	Self-choice / by meeting	50	45.5
Occupation (n = 111)	Housewife	51	45.9
	Worker	1	0.9
	Officer	4	3.6
	Retired	54	48.6
	Other	1	0.9
Sexual partner (n = 101)	Present	91	90.1
	Absent	10	9.9

Table 2. Family structure and living environment

Variable (valid n)	Category	n	%
Number of children (n = 109)	0	4	3.7
	1	12	11.0
	2	48	44.0
	3	36	33.0
	4	6	5.5
	5	3	2.8
Presence of an elderly person at home (n = 106)	None	82	77.4
	Mother	2	1.9
	Father	3	2.8
	Mother-in-law	9	8.5
	Father-in-law	2	1.9
	Other	8	7.5
Current place of residence (n = 109)	Village	8	7.3
	District	40	36.7
	Province / City	61	56.0
Place of origin (n = 111)	Village	45	40.5
	District	36	32.4
	City	30	27.0

Table 3. Clinical characteristics and menopause-related variables

Variable (valid n)	Category	n	%
Type of menopause (n = 87)	Natural	68	78.2
	Surgical	19	21.8
Systemic disease (n = 111)	Present	75	67.6
	Absent	36	32.4
Psychiatric disorder (n = 109)	Present	30	27.5
	Absent	79	72.5
Regular medication use (n = 110)	Yes	76	69.1
	No	34	30.9
Cigarette smoking (n = 111)	Yes	12	10.8
	No	99	89.2

Among women with low premenopausal sexual desire, the correlation between pre- and postmenopausal attitudes towards sexuality was inverse ($r = -0.37$, $p = 0.001$; $n = 76$), indicating a further deterioration in sexual attitude after menopause. In contrast, in women who reported adequate premenopausal desire, no significant change was observed in their attitudes towards sexuality after menopause.

When premenopausal desire was entered into a logistic regression model, the odds of maintaining orgasm after menopause were approximately four times higher in women who had premenopausal desire compared with those who did not (OR = 4.02, 95% CI: 1.85–8.74, $p < 0.005$).

Premenopausal Arousal, Systemic Disease, and Medication Use

Premenopausal arousal was moderately correlated with postmenopausal orgasm ($r = 0.70$, $p < 0.050$). Women who reported premenopausal arousal problems had significantly lower odds of reaching orgasm after menopause than those without such problems (OR = 4.02, 95% CI: 1.85–8.74, $p < 0.005$), whereas women without premenopausal arousal problems had a marked increase in the likelihood of achieving orgasm (OR = 4.02, 95% CI: 1.85–8.74, $p < 0.005$). There was no statistically significant association between either premenopausal or postmenopausal

desire and the presence of a psychiatric disorder ($p > 0.050$). However, in women with systemic disease, low premenopausal desire was significantly associated with low postmenopausal desire ($r = 0.37$, $p = 0.001$; $n = 104$). In addition, postmenopausal desire was significantly related to regular medication use ($p = 0.005$; $r = 0.30$, $p < 0.050$; $n = 103$). Among participants without psychiatric illness, both systemic disease and medication use were positively correlated with postmenopausal desire ($r = 0.44$ and $r = 0.32$, respectively; both $p < 0.001$; $n = 72$).

Determinants of Postmenopausal Aversion (disgust)

In women who did not report premenopausal disgust on the GRISS, several premenopausal items were significantly associated with the development of postmenopausal aversion. More favourable responses to the items “Do you think the time you and your partner spend on foreplay (kissing, caressing, etc.) is sufficient?” (item 5) and “Do you enjoy hugging and caressing your spouse?” (item 9) were negatively correlated with later aversion ($r = -0.35$ and $r = -0.32$, respectively; both $p < 0.005$). By contrast, premenopausal reports of disgust during lovemaking, assessed by the item “Are you disgusted by what you do during lovemaking?” (item 23), were positively correlated with postmenopausal aversion ($r = 0.34$, $p < 0.005$). Negative correlations were also observed for items 25 and 28 ($r = -0.45$ and $r = -0.31$, respectively; $p < 0.005$).

Binary logistic regression analyses confirmed these patterns. Compared with women who answered “never”, those who answered “most of the time” to item 5 (“Do you think the time you and your partner spend on foreplay is sufficient?”) had an eight-fold reduction in the odds of developing postmenopausal aversion (OR = 0.09, 95% CI: 1.85–8.74 $p < 0.050$). Women who answered “most of the time” or “always” to item 9 (“Do you enjoy hugging and caressing your spouse?”) were also substantially less likely to develop aversion (OR = 0.06 and OR = 0.05, respectively; both $p < 0.050$).

In contrast, women who answered “sometimes” to item 23 (“Are you disgusted by what you do during lovemaking?”) had approximately a six-fold higher risk of postmenopausal aversion than those who answered “never” (OR = 6.54, 95% CI: 1.85–8.74 $p < 0.050$), and those who answered “always” had about a 24-fold higher risk (OR = 25.50, $p < 0.050$). In the

multivariable model, endorsement of “always” on item 23 emerged as the strongest independent predictor of postmenopausal aversion (OR = 24.58, 95% CI: 1.85–8.74, $p < 0.050$). Items addressing enjoyment of being loved and caressed (item 25) and satisfaction during intercourse (item 28) did not contribute additional explanatory power once these variables were included.

Determinants of Postmenopausal Vaginismus/Dyspareunia

Among women who had not experienced vaginismus or dyspareunia before menopause, several premenopausal GRISS items were associated with the emergence of these problems in the postmenopausal period. Significant differences in postmenopausal vaginismus/dyspareunia were observed according to responses to items 4, 5, 8, 17, 20, 22, and 26 (all $p < 0.050$). In the same subgroup, significant negative correlations were found between postmenopausal vaginismus/dyspareunia and items 5, 8, 10, 17, 21, 22, 26, and 28 (r values ranging from -0.23 to -0.39 ; all $p < 0.050$), suggesting a protective effect of more positive premenopausal sexual experiences.

Logistic regression analysis showed that women who answered “always” to item 5 (“Do you think the time you and your partner spend on foreplay, such as kissing and caressing, is sufficient?”) had about a nine-fold reduction in the risk of developing postmenopausal vaginismus or dyspareunia compared with those who answered “never” (OR = 0.06, 95% CI: 1.85–8.74, $p < 0.050$). Women who reported being able to reach satisfaction “sometimes” on item 8 (“Can you reach satisfaction (orgasm) during sexual intercourse?”) were approximately eight- to ninefold less likely to develop dyspareunia than those who answered “never” (OR = 0.09 and OR = 0.07, both $p < 0.050$).

Women who answered “always” to item 10 (“Do you find your sexual relationship with your spouse satisfactory?”) were almost ninefold less likely to develop dyspareunia (OR = 0.06, 95% CI: 1.85–8.74, $p < 0.050$). Those who answered “most of the time” or “always” to item 21 (“Can your partner’s genitals enter your genitals without causing discomfort?”) had markedly reduced odds of postmenopausal vaginismus (OR = 0.17 and OR = 0.06, respectively; $p < 0.050$). Likewise, affirmative answers (“most of the time” or “always”) to item 22 (“During lovemaking, is the time allocated only

for intercourse sufficient for you?”) were associated with an approximately 8.8-fold reduction in the risk of vaginismus (OR = 0.17 and OR = 0.04, respectively; $p < 0.050$). Finally, women who answered “always” to item 28 (“Do you reach orgasm during sexual intercourse?”) were about ninefold less likely to develop vaginismus than those who answered “never” (OR = 0.06, 95% CI: 1.85–8.74, $p < 0.050$). The results of the logistic regression analyses examining premenopausal GRISS items as predictors of postmenopausal aversion and vaginismus/dyspareunia are summarized in Table 4.

DISCUSSION

The main finding of this study is the strong continuity between premenopausal and postmenopausal sexual desire in women with sexual dysfunction. Women who reported preserved desire before menopause were markedly more likely to report desire after menopause than those without premenopausal desire. This result is consistent with previous reports indicating that sexual problems in the premenopausal period frequently persist into the postmenopausal years and that premenopausal desire is a key determinant of later sexual adjustment (6,7). Clinically, our findings suggest that low desire before menopause should be regarded as a potential early marker of long-term hypoactive sexual desire rather than as a transient phase.

Our results also underscore the close relationship between desire, arousal, and orgasm. Premenopausal desire correlated positively with both pre- and postmenopausal arousal and orgasm, and women without premenopausal arousal problems were considerably more likely to continue to reach orgasm after menopause. This pattern supports models that view female sexual response as a dynamic sequence in which desire, arousal, and orgasm influence each other (8–10). As noted in earlier literature, women who experience chronic arousal difficulties rarely achieve orgasm and may be misclassified as having a primary orgasmic disorder (9). The present data reinforce the idea that premenopausal desire and arousal problems should be addressed proactively, as they may foreshadow persistent orgasmic difficulties in the postmenopausal period.

The role of systemic disease and medication use appeared more complex than expected. In most studies, climacteric symptoms, comorbid physical

Table 4. Logistic regression analysis of GRISS items predicting postmenopausal aversion and vaginismus/dyspareunia

Outcome	GRISS item (summary content)	Response category* (reference: "Never")	OR	p
Aversion	Item 5 – "Do you think the time you and your partner spend on foreplay is sufficient?"	Most of the time	0.089	< 0.05
	Item 9 – "Do you enjoy hugging and caressing your spouse?"	Most of the time	0.063	< 0.05
		Always	0.048	< 0.05
	Item 23 – "Are you disgusted by what you do during lovemaking?"	Sometimes	6.538	< 0.05
Always		24.575	< 0.05	
Vaginismus / dyspareunia	Item 5 – "Do you think the time you and your partner spend on foreplay is sufficient?"	Always	0.059	< 0.05
	Item 8 – "Can you reach satisfaction (orgasm) during sexual intercourse?"	Sometimes	0.089	< 0.05
	Item 10 – "Do you find your sexual relationship with your spouse satisfactory?"	Always	0.057	< 0.05
	Item 21 – "Can your partner's genitals enter your genitals without causing discomfort?"	Most of the time	0.173	< 0.05
		Always	0.064	< 0.05
	Item 22 – "During lovemaking, is the time devoted only to intercourse sufficient for you?"	Most of the time	0.167	< 0.05
		Always	0.044	< 0.05
Item 28 – "Do you reach orgasm during sexual intercourse?"	Always	0.061	< 0.05	

conditions, and mood symptoms are associated with reduced sexual desire and satisfaction (5,11–13). In our sample, however, among women without psychiatric disorders, systemic disease and regular medication use were positively associated with postmenopausal desire. One plausible explanation is that effective treatment of chronic disease improves overall well-being and indirectly enhances sexual interest (14). Another possibility is that women who are regularly followed for systemic illness may have greater access to health information and counseling, including opportunities to discuss sexual concerns. Because we did not differentiate between treated and untreated systemic conditions or examine disease severity and specific medications, these findings should be interpreted cautiously and considered hypothesis-generating.

An important contribution of this study is the demonstration that specific GRISS items related to disgust and aversion provide clinically meaningful information. Among women without premenopausal disgust, items reflecting sufficient foreplay and enjoyment of affectionate contact were associated with

a markedly reduced risk of postmenopausal aversion, whereas endorsing disgust during lovemaking was a strong predictor of later aversion. The item "Are you disgusted by what you do during lovemaking?" emerged as the most powerful single predictor. Aversion disorder, characterized by persistent or recurrent extreme disgust and avoidance of genital contact with a partner, has been conceptualized as a phobic-like condition in some frameworks (15–17). Our findings indicate that even subclinical or item-level indicators of disgust before menopause may foreshadow a postmenopausal aversion pattern. From a clinical point of view, careful attention to these GRISS items may allow earlier identification of women who would benefit from psychoeducational or psychotherapeutic interventions targeting disgust and avoidance (4,15–17).

Similarly, analyses restricted to women without premenopausal vaginismus or dyspareunia showed that GRISS items reflecting adequate foreplay, satisfaction with the relationship, comfortable penetration, sufficient time allocated to intercourse, and the ability to reach orgasm were associated with a reduced risk of

postmenopausal vaginismus/dyspareunia. Vaginismus and dyspareunia in the menopausal period may arise from psychogenic mechanisms, vulvovaginal atrophy, or a combination of both, and can lead to avoidance behaviors that seriously impair sexual functioning (4,16,18). Our results support the view that positive sexual experiences before menopause, including sufficient foreplay, enjoyable intimacy, and pain-free penetration, provide a protective background. In contrast, even modest premenopausal difficulties in these areas may, in the context of hormonal changes and relationship stressors, contribute to the emergence of vaginismus or dyspareunia in later life (4,7,16,18).

Taken together, these findings highlight the value of GRISS as more than a global measure of sexual satisfaction. The scale offers a structured framework for simultaneously evaluating desire, arousal, orgasm, communication, avoidance, vaginismus, and pain (2–4,8). Our study suggests that both subscale scores and specific items can help clinicians to identify women whose premenopausal sexual functioning places them at higher risk for postmenopausal problems, to recognize early signs of disgust and avoidance, and to detect protective patterns that may buffer against genital pain or vaginismus. Integrating such structured assessments into routine counseling before and during the menopausal transition may facilitate more individualized, preventive, and timely interventions in sexual medicine and menopause clinics (1,4–7,11–13,16–18).

Limitations

This study has several limitations that should be acknowledged. First, the sample consisted exclusively of postmenopausal women who were diagnosed with sexual dysfunction and referred to psychiatry, gynecology, or urology clinics. Therefore, the results cannot be generalized to community samples or to women without clinically significant sexual complaints. Second, a cross-sectional observational study with retrospective assessment of premenopausal sexual functioning, information on premenopausal sexual functioning was based on retrospective self-report, which is vulnerable to recall bias and possible idealization or minimization of past experiences. Third, we did not systematically assess important variables such as partner sexual function, marital satisfaction, relationship conflict, or partner's health

status, despite evidence that these factors are closely related to sexual satisfaction and sexual functioning in marriage (17). Fourth, we did not include biological markers such as hormone levels, degree of urogenital atrophy, or detailed information about hormone replacement therapy and other medications. As a result, we cannot fully disentangle psychogenic mechanisms from organic contributors.

Finally, a relatively modest sample size was used for multiple regression models that included numerous GRISS items and clinical variables. This increases the risk of unstable odds ratio estimates and type I error, particularly for subgroup analyses with smaller effective sample sizes. Correction for multiple comparisons was not performed, and the findings regarding specific items should therefore be considered exploratory and hypothesis-generating rather than confirmatory.

CONCLUSION

Menopause represents a critical turning point in women's sexual lives. The present study demonstrates that sexual attitudes and behaviors before menopause—especially levels of desire, arousal, orgasm, and the presence of disgust or pain—are strongly reflected in postmenopausal sexual functioning. Our results show that women with preserved premenopausal desire and arousal are more likely to maintain desire and orgasm after menopause, whereas those with early desire and arousal difficulties remain at risk for persistent dysfunction (6–10). In addition, even in the absence of overt premenopausal aversion or vaginismus, certain patterns of disgust and discomfort captured by GRISS items may predict the subsequent development of postmenopausal aversion and vaginismus–dyspareunia (4,7,16–19).

From a clinical standpoint, these findings support the systematic use of validated instruments such as GRISS in the assessment of women approaching or undergoing menopause (2,3,8). Careful interpretation of both subscale scores and item-level responses can help clinicians to recognize high-risk profiles early, provide targeted counseling, and, when necessary, refer patients for specialized psychosexual or couple-based interventions. In particular, addressing low desire, negative sexual cognitions, disgust, and pain symptoms before they become entrenched may prevent long-term deterioration in sexual health and

relationship quality (18,19).

In conclusion, sexual health after menopause is not determined solely by hormonal changes; it is also the continuation of a lifetime pattern of sexual attitudes, behaviors, and relationship dynamics. Evaluating these patterns with structured tools and integrating the findings into individualized counseling at the onset of menopause may help many women to preserve or regain a satisfying sexual life rather than accepting sexual dysfunction as an inevitable consequence of aging and menopause.

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Author Contributions: The authors contributed equally to the study.

- Concept and Design: S.Z., R.D.
- Supervision: O.E.
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- Materials: S.K.
- Analysis and/or Interpretation: S.Z., R.D.
- Literature Search: S.Z., Y.S.
- Writing and Critical Review: S.Z., R.D., O.E.

REFERENCES

1. Akdemir, C., Balci, M. F., Yıldırım, F., Kıncı, M. F., & Pay, R. E. (2026). ChatGPT as a patient education tool in female sexual dysfunction: A clinician-based evaluation. *International Journal of Sexual Health*, 1–10. <https://doi.org/10.1080/19317611.2026.2649956>
2. Varma, G. S., Oğuzhanoglu, N. K., Karadağ, R. F., Özdel, O., & Amuk, T. (2005). Doğal ve cerrahi menopozda depresyon ve anksiyete düzeyleri ile cinsel doyum arasındaki ilişki. *Klinik Psikiyatri Dergisi*.
3. Tuğrul, C., Öztan, N., & Kabakçı, E. (1993). Golombok-Rust Cinsel Doyum Ölçeği'nin standardizasyon çalışması. *Türk Psikiyatri Dergisi*, 4(2), 83–88.
4. Şahin, M. D. (2021). Menopozal dönem ve cinsel sağlık. E. Pek, M. A. Ünsal, F. Beyazıt, & S. Hacivelioglu (Ed.), *Menopoz içinde* (ss. 1–16). Selen. (Online ISBN: 978-605-74100-1-6). www.kliniktipdergisi.com
5. Kavlak, T., & Hisar, F. (2017). The impact of anxiety on sexual satisfaction in menopausal women. *Journal of Human Sciences*, 14(3), 2722–2729. <https://doi.org/10.14687/jhs.v14i3.4637>
6. Bozkurt, Ö. D., & Sevil, Ü. (2016). Menopoz ve cinsel yaşam. *Celal Bayar Üniversitesi Sağlık Bilimleri Enstitüsü Dergisi*, 3(4).
7. Beigi, M., & Fahami, F. (2012). A comparative study on sexual dysfunctions before and after menopause. *Iranian Journal of Nursing and Midwifery Research*, 17(2 Suppl 1), S72–S75.
8. İncesu, C. (2004). Cinsel işlevler ve cinsel işlev bozuklukları. *Klinik Psikiyatri Dergisi*, 7(3), 3–13.
9. Basson, R. (2006). Sexual desire and arousal disorders in women. *New England Journal of Medicine*, 354(14), 1497–1506. <https://doi.org/10.1056/NEJMcp050154>
10. Arcos-Romero, A. I., Expósito-Guerra, D., & Sierra, J. C. (2022). Sexual desire and its relationship with subjective orgasm experience. *International Journal of Impotence Research*, 34, 93–99. <https://doi.org/10.1038/s41443-020-00375-7>
11. Varma, G. F., Karadağ, F., Oğuzhanoglu, N. K., Özdel, O., & Kökten, S. (2006). Menopause: The relationship between climacteric symptoms and sexual satisfaction. *New Symposium*. <https://hdl.handle.net/11499/4500>
12. Api, A. (2005). Menopause and sexuality. *Journal of the Turkish-German Gynecological Association*, 6(3), 28–36.
13. Schnatz, P. F., Whitehurst, S. K., & O'Sullivan, D. M. (2012). Sexual dysfunction, depression, and anxiety

- among patients of an inner-city menopause clinic. *Journal of Women's Health*, 19(10), 1843–1849. <https://doi.org/10.1089/jwh.2009.1800>
14. Stanton, A. L., Revenson, T. A., & Tennen, H. (2007). Health psychology: Psychological adjustment to chronic disease. *Annual Review of Psychology*, 58(1), 565–592. <https://doi.org/10.1146/annurev.psych.58.110405.085615>
 15. Doğan, S. (2006). Cinsellikten tiksinti duyma bozukluğu: Davranışçı tedaviye olumlu ve hızlı yanıt veren bir olgu. *Klinik Psikiyatri*, 9(4), 191–197.
 16. Pitkin, J. (2009). Sexuality and the menopause. *Best Practice & Research Clinical Obstetrics & Gynaecology*, 23(1), 33–52. <https://doi.org/10.1016/j.bpobgyn.2008.10.004>
 17. Kartal, S. (2020). Evli bireylerde çatışma çözme becerileri, evlilik doyumu ve cinsel yaşam doyumu arasındaki ilişkilerin incelenmesi [Thesis]. İstanbul Sabahattin Zaim Üniversitesi.
 18. Ergin, O., & Karav, M. (2019). Vajinusmuslu hastalarda hipnoterapi uygulamasında yeni bir algoritma: KARAV. *International Hippocrates Congress on Medical and Health Sciences*, 420.
 19. Karav, H. M., Dursun, R., & Şanlı, Z. D. (2025). Hypnotherapeutic KARAV Algorithm in vaginismus treatment: A retrospective evaluation of a novel therapeutic approach. *International Journal of Sexual Science*, 1(2), 64–69. <https://doi.org/10.33719/sexscij.2508.18>
 20. Akdemir et al. (2026). ChatGPT & sexual dysfunction: Recent menopause & sexual health review (2022-2024).

ORIGINAL ARTICLE

Patterns of Sexual and Gender-based Violence and Gaps in Integrated Care in a Resource-Limited Setting: A Two-Year Retrospective Study from Southeast Nigeria

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Abstract

Objective: Sexual and gender-based violence (SGBV) remains a major public health and human rights concern, particularly in low-resource settings where access to timely, integrated survivor care is limited. Evidence on patterns of care is sparse.

Methods: A retrospective descriptive review was conducted at the National Obstetric Fistula Centre, Abakaliki, Southeast Nigeria. Records of all SGBV survivors managed between June 2023 and May 2025 were reviewed. Data on socio-demographic characteristics, type of violence, timing of presentation, and services provided were extracted using a structured proforma. Analysis was performed using SPSS version 25, with descriptive statistics and chi-square tests applied. Statistical significance was set at $p < 0.05$.

Results: A total of 312 SGBV cases were identified, with a mean age of 21.3 years; 97% were female, and 66% resided in rural areas. Sexual assault accounted for 60% of cases, followed by physical assault (30%). Adolescents and young adults were most affected. All survivors received psychological counselling, but only 22% received empirical prophylaxis for sexually transmitted infections. Among 186 sexual assault survivors, 35% presented within 72 hours and were eligible for HIV post-exposure prophylaxis (PEP). Of 129 survivors of reproductive age, 36% received emergency contraception within the recommended timeframe. Legal action was initiated in only 3% of cases. Early presentation was significantly associated with receipt of PEP ($p = 0.016$).

Conclusion: SGBV disproportionately affects young females in Southeast Nigeria. Despite universal counselling, substantial gaps in timely care persist, largely due to delayed presentation. Strengthening integrated, survivor-centred care and community awareness counts.

Keywords: psychosocial support, post-exposure prophylaxis, sexual and gender-based violence, social gynecology

INTRODUCTION

Sexual and gender-based violence (SGBV) is a pervasive violation of human rights and a major burden for public health. Nearly one in three women globally has suffered physical and/or sexual violence in her lifetime, most often at the hands of an intimate partner. The impact of SGBV is profound: survivors often sustain physical injuries (e.g., lacerations, fractures, obstetric fistulae) and are at increased risk of sexually transmitted infections (including HIV) and unintended pregnancy (2). Survivors commonly suffer from depression, post-traumatic stress disorder (PTSD), and anxiety, which can persist for years if untreated (2). Socially, survivors may be stigmatised or abandoned by their communities, compounding their trauma (3).

In low- and middle-income countries like Nigeria, SGBV is exacerbated by weak health systems, cultural norms that condone violence, and poor law enforcement (4). Sub-Saharan Africa reports some of the world's highest rates of intimate partner and non-partner violence (4). Factors such as early marriage, low female education, poverty, and entrenched patriarchy further increase women's vulnerability (4). Nigeria, Africa's most populous nation (>200 million), has alarmingly high SGBV prevalence. The 2018 Demographic and Health Survey found that 30% of Nigerian women (age 15–49) had experienced physical violence since age 15, and 9% had experienced sexual violence[5]. Other studies report even higher rates in certain regions[6]. Although Nigeria's 2015 Violence Against Persons (Prohibition) Act criminalised all SGBV, enforcement remains inconsistent, and under-reporting is common due to stigma and distrust (7).

Healthcare facilities are on the frontline of the SGBV response (8). Survivors often first present to hospitals, where they require comprehensive care: emergency medical treatment, psychosocial support, forensic documentation, prophylaxis against infection, emergency contraception, and referral to legal or social services (8). However, very few Nigerian hospitals have standardised SGBV protocols or dedicated teams for survivor care[9]. In Southeast Nigeria, cultural stigma, poverty, and limited healthcare access mean survivors often delay seeking care until complications arise (10). The National Obstetric Fistula Centre (NOFIC) in Abakaliki is a federal specialist hospital that traditionally treats obstetric fistula but has expanded its services

to include reproductive health and SGBV care (10). To date, few studies have described NOFIC's experience with SGBV survivors.

This study fills that gap by retrospectively reviewing NOFIC's SGBV cases from June 2023 to May 2025. We aimed to characterise the socio-demographic profile and assault patterns of survivors, to evaluate the medical and psychosocial care they received, and to identify gaps in service delivery that could inform improvements.

MATERIAL AND METHODS

We conducted a retrospective descriptive study at the National Obstetric Fistula Centre, Abakaliki, Ebonyi State, Nigeria (NOFIC), Abakaliki. NOFIC is a federal referral centre specialising in fistula repair and other maternal health services, which has become a referral hub for SGBV survivors. We included all survivors of SGBV who presented to NOFIC from June 2023 to May 2025 (n=312). A total of 28 records were excluded owing to incomplete documentation or falls outside the defined study period, leaving 312 eligible cases for final analysis. Data were collected using a structured proforma from hospital registers, inpatient files, counselling records, and pharmacy and laboratory logs. The proforma captured the following domains: survivor socio-demographics (age, sex, residential location, occupation, and educational level); type and nature of violence (sexual assault, physical assault, intimate partner violence, female genital mutilation, and other forms); timing and circumstances of the incident; clinical findings on presentation; interventions received (including STI prophylaxis, HIV post-exposure prophylaxis, emergency contraception, wound care, and psychosocial counselling); and legal referrals or actions taken. A census sampling approach was used (all eligible cases were included).

Data was entered into a secure database and analysed in SPSS version 25. Descriptive statistics (frequencies, percentages, means) summarised the sample. χ^2 tests assessed associations between categorical variables (significance set at $p < 0.050$). Findings are presented in tables and text.

Ethical approval was obtained from the NOFIC Ethics and Research Committee (Approval No. NOFIC/REC/2023/07; Date: 15th June 2023). As this was a

chart review, informed consent was waived. Patient identifiers were replaced with anonymised codes, and data were used solely for research and policy purposes.

RESULTS

A total of 312 SGBV survivors were identified (mean age 21.3 years). Most were female (97%) and from rural areas (66%). Adolescents and young adults were over-represented: 57% were aged under 21 years (Table 1).

Table 2 presents the distribution of diagnoses and interventions. The most common diagnosis was sexual assault (60%), followed by physical assault (30%). Other forms of violence were comparatively uncommon. All survivors (100%) received psychological counselling.

Empirical prophylaxis for STIs was provided in 22% of cases, and physical injury intervention in 18%. Other care combinations (counselling combined with prophylaxis, PEP, or both) were provided to smaller subgroups.

Table 1. Socio-demographic characteristics of SGBV survivors (N=312).

Socio-Demographic Variables	Frequency (n=312)	Percentage (%)
Age in Years		
1 – 10	75	(24)
11 – 20	102	(33)
21 – 30	61	(20)
31 – 40	46	(15)
41 – 50	17	(5)
51 – 60	(3)	(1)
61 – 70	8	(3)
Mean Age = 21.3 ± 14.2 years		
Gender		
Male	8	(3)
Female	304	(97)
Residence		
Rural	206	(66)
Urban	106	(34)

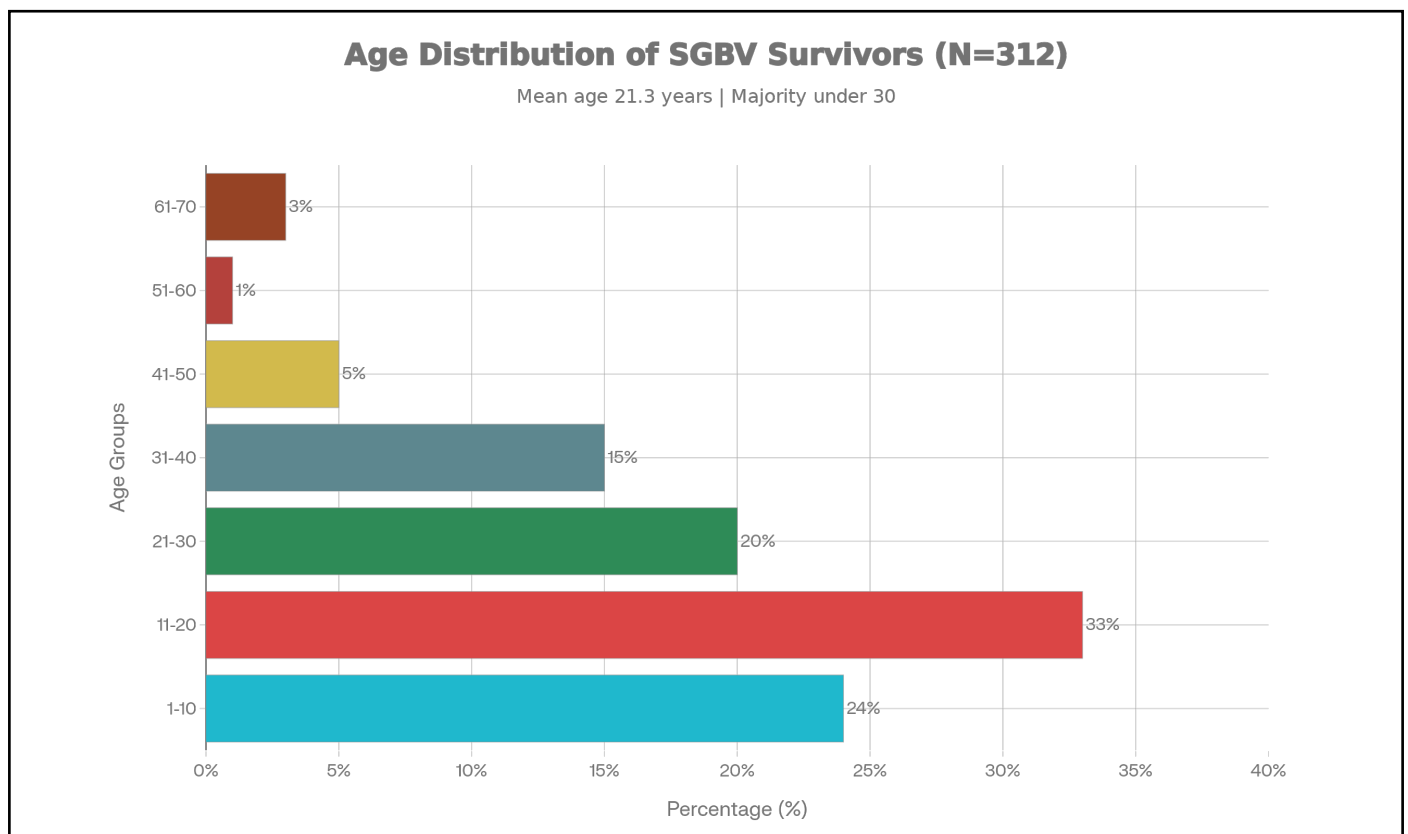


Figure 1. Age distribution of survivors.

Table 2. Diagnosis and Intervention of SGBV survivors (N=312).

Variable	Frequency (n=312)	Percentage (%)
Diagnosis		
Sexual Assault	186	(60)
Physical Assault	93	(30)
Psychological & Emotional Assault	22	(7)
Domestic Violence	4	(1)
Female Genital Mutilation	3	(1)
Abandonment	2	(1)
Forced Marriage	1	(0)
Socio-economic Assault	1	(0)
Intervention		
Psychological Counselling	312	(100)
Empirical Prophylaxis STI	70	(22)
Empirical Prophylaxis & PEP	68	(22)
Physical Injury/Wound Intervention	55	(18)
Physical Injury & Psychological Counselling	26	(8)
Empirical Prophylaxis & Psychological Counselling	25	(8)
PEP, Empirical Prophylaxis, Physical Injury Intervention	23	(7)
PEP & Psychological Counselling	20	(6)
Empirical Prophylaxis, Psychological Counselling, Physical Injury Intervention	12	(4)
Empirical Prophylaxis STI, Physical Injury	8	(3)
Psychological Counselling, Empirical Prophylaxis & PEP	8	(3)
Shelter Provision	1	(0)

Table 3. Prevalence/Incidence charting

Prevalence	Frequency (n=312)	Percentage (%)
Month of Incidence		
January	15	5
February	20	6
March	19	6
April	15	5
May	27	9
June	36	12
July	30	10
August	33	11
September	31	10
October	32	10
November	26	8
December	28	9
Year of Incidence		
2023	149	48
2024	128	41
2025	35	11
Intimate Partner Violence		
Yes	46	15
No	266	85
Period of Incidence Presentation for Sexual Assault Survivor (n=186)		
Within 3 days of incidence	65	35
After 3 days of incidence	121	65
Sexually Assault Survivors in their reproductive age (n=186)		
Yes	129	69
No	57	31
Sexual Assault Survivors in their reproductive age who got emergency contraceptive pills (n=129)		
Within 3 days of incidence	46	36
After 3 days of incidence	83	64
Sought Legal Action Against Perpetrators (n=312)		
Yes	10	3
No	302	97

Table 3 illustrates the prevalence of SGBV from several

months and years. June had the highest number of reported cases (12%), and January and April had the fewest number of cases (5%). The incidence of SGBV cases varied by month and year. By year, 48% of cases occurred in 2023, 41% in 2024, and 11% in early 2025. Only 15% of all cases were classified as intimate partner violence (IPV). Among the 186 sexual assault survivors, 65 (35%) presented to NOFIC within 72 hours of the incident (and thus were eligible for PEP), while 121 (65%) presented later. Of the 186 sexual assault cases, 129 (69%) were of reproductive age (15–49 years), but only 46 of those (36%) received emergency contraception within 3 days. Legal action against perpetrators was pursued by only 3% of survivors (10 out of 312).

A series of chi-square analyses examined associations between key socio-demographic variables and

outcomes (Table 4). A significant association was found between age category (seven groups: 1-10, 11-20, 21-30, 31-40, 41-50, 51-60, and 61-70 years) and type of violence experienced ($\chi^2(6) = 15.23, p = 0.019$); post-hoc review revealed that survivors in the youngest age groups (1-10 and 11-20 years) were disproportionately more likely to have experienced sexual assault. Residence (rural vs. urban) was significantly associated with access to psychological counselling ($\chi^2(1) = 8.54, p = 0.003$), with urban residents more likely to receive this support. Period of presentation (within 72 hours vs. after 72 hours of the incident) was significantly associated with receipt of empirical STI prophylaxis and PEP ($\chi^2(1) = 5.78, p = 0.016$), with early presenters considerably more likely to receive these time-sensitive interventions.

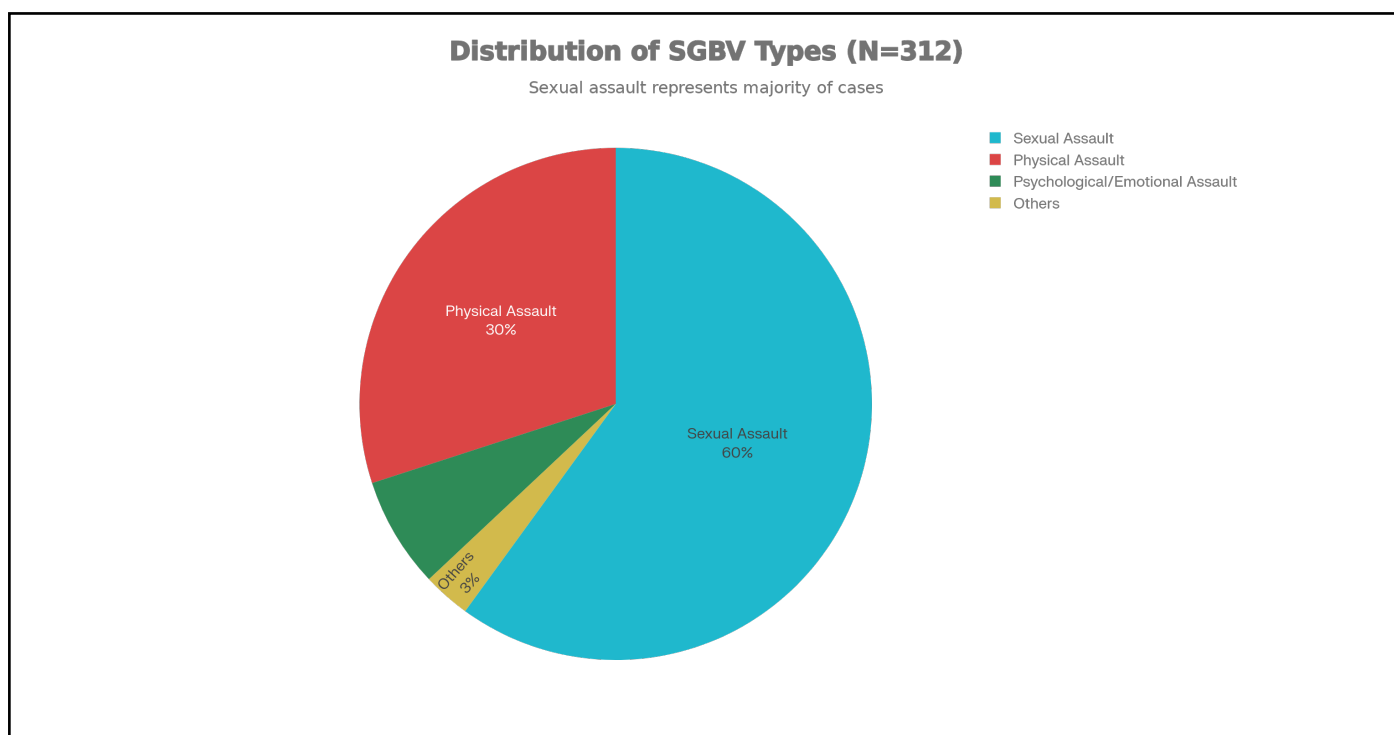


Figure 2. A pie chart, depicting the violence types based on our study findings.

Table 4. Chi-Square Analysis Results

Socio-demographic Variable	Diagnosis and Intervention	χ^2 Value	df	p-value
Age Category	Type of Violence	15.23	6	0.019
Residence	Access to Psychological Counselling	8.54	1	0.003
Period of Incidence Presentation	Empirical Prophylaxis STI	5.78	1	0.016

DISCUSSION

This review of NOFIC's data provides important insight into the profile of SGBV survivors and services in Southeast Nigeria. The predominance of sexual assault (60%) is consistent with other Nigerian studies (14). The fact that nearly all survivors were female (97%), most of them adolescents or young women, underscores the gendered nature of SGBV. Our finding that younger survivors were significantly more likely to have experienced sexual assault highlights the urgent need for child and adolescent protection programmes. The majority of survivors coming from rural areas align with evidence that rural women face greater vulnerabilities due to limited education, poverty, and weaker legal protections (10-14).

The high provision of STI prophylaxis (22%) and injury treatment (18%) indicates that NOFIC appropriately prioritised immediate medical needs. Importantly, every survivor (100%) received psychological counselling. This universal counselling is a strength of care at NOFIC and reflects adherence to trauma-informed standards. Addressing psychological trauma is paramount to long-term recovery (15). However, the finding that urban survivors were more likely to receive counselling than rural survivors suggests unequal access to mental health resources outside the centre. This urban-rural disparity may reflect the concentration of qualified counsellors in cities (15-17).

Timely presentation to care was critical. Survivors who presented within 72 hours were significantly more likely to receive PEP for HIV prevention. This reinforces global recommendations that PEP should be given as soon as possible after exposure (17). Unfortunately, only 35% of sexual assault survivors reached care in time for PEP. Delayed presentation is a well-known barrier; survivors often delay seeking help due to stigma, shame, lack of awareness of PEP, or logistical challenges [15-18]. Similar studies have documented low PEP utilisation linked to these factors (19-22).

Emergency contraception represented another critical gap: only 36% of reproductive-age survivors received it within 72 hours (23-25). Since emergency contraceptives are most effective soon after assault (17-18), this underuse may reflect delayed presentation and missed counselling opportunities. Training healthcare providers to routinely offer emergency contraception

could address this need.

Legal follow-up was almost nonexistent (3% pursued action), mirroring national trends (15). Barriers to justice include fear of retaliation, re-traumatisation by the legal system, and lack of trust in authorities (15). Enhancing legal aid and advocacy for survivors is therefore crucial (26).

This study's strengths are considerable. It constitutes one of the few systematic, facility-based analyses of SGBV survivor profiles and service gaps in Southeast Nigeria, drawing on a two-year consecutive dataset of 312 unselected cases. The census sampling approach eliminated selection bias, while triangulation of data from hospital registers, clinical case files, pharmacy and laboratory logs, and counselling records strengthened the validity of the extracted variables. The documented evidence on service gaps offers concrete, policy-relevant findings in a region with limited published SGBV literature. Limitations include the retrospective design, which is subject to incompleteness of existing records, and the single-centre setting, which may limit generalisability beyond the Southeast Nigeria context. Future research should incorporate survivor-reported experiences and prospective designs to supplement the findings of this study (25-26).

RECOMMENDATIONS

Strengthening health systems constitutes the foundational priority. NOFIC and comparable facilities should establish standardised SGBV case documentation systems that capture the type and nature of violence, perpetrator relationship, survivor needs, and all interventions rendered, while enabling structured survivor follow-up. Healthcare providers at all levels, particularly in emergency departments and primary care settings, require formal training in SGBV protocols, PEP administration, emergency contraception counselling, and trauma-informed communication. Sexual Assault Referral Centre (SARC) units should be established within primary healthcare facilities, particularly in underserved rural communities, to deliver multidisciplinary care closer to where survivors reside.

Reducing barriers to timely care requires coordinated clinical and community-level action. Community outreach programmes targeting schools and high-

risk populations should raise awareness of available services including PEP and emergency contraception, and should emphasise the critical importance of presenting within 72 hours of assault. Confidential pre-screening via telephone or telemedicine reduces stigma-related deterrents to care-seeking. PEP must be available at all hours in every emergency facility and should be decoupled from mandatory police reporting, so that survivors are not discouraged from accessing treatment by fear of legal proceedings. The adoption of unified national PEP guidelines across all facilities is needed to eliminate variability in clinical practice.

Psychosocial and financial support must be expanded concurrently with clinical services. Dedicated counselling facilities staffed by trained SGBV counsellors are needed within health centres, particularly to address the urban-rural disparity in access to psychological care identified by this study. Government subsidies, insurance coverage, or fully funded programmes for PEP and related SGBV services are essential to remove the financial burden on survivors, many of whom present from low-income rural backgrounds.

Justice system strengthening is indispensable to a complete survivor-centred response. Legal aid and advocacy services should be made readily available, with accessible information on survivor rights and assistance navigating judicial processes. Trauma-informed training for police officers and judiciary personnel would foster a more supportive institutional response to SGBV disclosures and rebuild the public trust necessary to improve reporting rates.

CONCLUSIONS

This study provides valuable information on SGBV survivors and service delivery at NOFIC, Abakaliki. Young rural females suffering sexual assault were the predominant group. While immediate medical care (STI prophylaxis, wound treatment) and psychological counselling were consistently provided, other supports (e.g., emergency contraception, legal aid) were underutilised due to delayed presentation and system gaps. The low rate of timely PEP administration highlights the need for earlier access to care.

Overall, these findings emphasise the importance of comprehensive, prompt SGBV care. Efforts must focus on reducing barriers to care and raising public

and provider awareness to improve outcomes. Many gaps in SGBV service delivery and data management were identified and must be addressed to ensure high-quality, accessible care in Southeast Nigeria.

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Consent to participate: No direct patient contact was involved. Not applicable.

Availability of data and materials: Data were retrieved from hospital records, including outpatient and emergency registers, inpatient case notes, counseling and psychosocial service records, and laboratory and pharmacy logs. A structured proforma was designed for data extraction. Data fields will include demographics, clinical details, services received, and outcomes.

Author contributions:

C.O: Conceptualization, Writing—original draft, Writing—review & editing.

P.A: Supervision and Validation. All authors: Writing—original draft, Writing—review & editing. All authors gave approval to the final submission.

REFERENCES

1. World Health Organization, Sexual and Reproductive Health and Research (SRH). Violence against women prevalence estimates, 2018. Geneva: WHO; 2021. Available from: <https://www.who.int/publications/m/item/violence-against-women-prevalence-estimates-2018>.

- [who.int/publications/i/item/9789240022256](https://www.who.int/publications/i/item/9789240022256)
2. Lortkipanidze M, Javakhishvili N, Schwartz SJ. Mental health of intimate partner violence victims: depression, anxiety, and life satisfaction. *Front Psychol.* 2025;16:1531783. <https://doi.org/10.3389/fpsyg.2025.1531783>
 3. Dworkin ER, Menon SV, Bystrynski J, Allen NE. Sexual assault victimization and psychopathology: a review and meta-analysis. *Clin Psychol Rev.* 2017;56:65–81. <https://doi.org/10.1016/j.cpr.2017.06.002>
 4. Rivara F, Adhia A, Lyons V, et al. The effects of violence on health. *Health Aff (Millwood).* 2019;38(10):1622–1629. <https://doi.org/10.1377/hlthaff.2019.00480>
 5. Joseph DD, Jones AD. Understanding violence against women in the Caribbean through an exploration of men’s perspectives. *Violence Against Women.* 2023;29(5):1005–1023. <https://doi.org/10.1177/10778012221104845>
 6. McDonald F. Nearly a billion women face domestic or sexual violence, report finds. *BMJ.* 2025;391:r2483. <https://doi.org/10.1136/bmj.r2483>
 7. Jewkes R, Flood M, Lang J. From work with men and boys to changes of social norms and reduction of inequities in gender relations: a conceptual shift in prevention of violence against women and girls. *Lancet.* 2015;385:1580–1589.
 8. National Population Commission (NPC) [Nigeria], ICF. Nigeria demographic and health survey 2018. Abuja: NPC and ICF; 2019.
 9. Adebowale AS, Salawu MM, Fagbamigbe AF, Fawole OI. Spectrum of intimate partner violence against women in Nigeria: examining regional disparities using a nationally representative survey. *Ann Ib Postgrad Med.* 2025;23(1):53–68.
 10. Danjibo N, Akinkuotu A. A pandemic within a pandemic: COVID-19 and the crime of rape in Nigeria. 2021. https://doi.org/10.34517/jahss.10.3_39
 11. IntraHealth Librarian. Responding to intimate partner violence and sexual violence against women: WHO clinical and policy guidelines. HRH Global Resource Center. Available from: <https://www.hrresourcecenter.org/node/5219.html>
 12. Ajayi AI, Alex-Ojei CA, Ahinkorah BO. Sexual violence among young women in Nigeria: prevalence, reporting and care-seeking behaviours. *Afr Health Sci.* 2023;23(1):286–300. <https://doi.org/10.4314/ahs.v23i1.31>
 13. Ahmed AMK, Azees AS, Fasiku MM, Jimoh OS, Imhonopi GB, Temitayo-Oboh AO, et al. Prevalence, pattern, and effect of intimate partner violence against women in Abeokuta, South West Nigeria. *Niger Postgrad Med J.* 2024;31(2):130–138. https://doi.org/10.4103/npmj.npmj_23_24
 14. Ugoji DP, Uwakwe EC, Ortuanya KE, Okoye PC, Enemma EC, Elom C. Domestic violence among antenatal attendees at Alex Ekwueme Federal University Teaching Hospital, Abakaliki, Ebonyi State, Nigeria: prevalence, pattern and determinants. 2024. Available from: <https://tjog.org/index.php/tjog/article/view/412>
 15. Udam NG, Udoh RA, Essien EA, et al. Prevalence and patterns of gender-based violence among undergraduate students in Nigeria. *Int J Med Students.* 2025;13(3):285–293. <https://doi.org/10.5195/ijms.2025.2592>
 16. Goldstein E, Chokshi B, Melendez-Torres GJ, Rios A, Jelley M, Lewis-O’Connor A. Effectiveness of trauma-informed care implementation in health care settings: systematic review of reviews and realist synthesis. *Perm J.* 2024;28(1):135–150. <https://doi.org/10.7812/TPP/23.127>
 17. World Health Organization. Violence against women prevalence estimates, 2023. Geneva: WHO; 2025. Available from: <https://reliefweb.int/report/world/violence-against-women-prevalence-estimates-2023>
 18. Wang MJ, Khodadadi AB, Turan JM, White K. Access to emergency contraception for sexual assault victims in emergency departments: a scoping review. *Trauma Violence Abuse.* 2021;22(2):413–421. <https://doi.org/10.1177/1524838019882023>
 19. Gilmore AK, Leone RM, Hahn CK, Oesterle DW, Davidson TM. Barriers to accessing mental health care after a sexual assault medical forensic examination. *J Forensic Nurs.* 2021;17(2):84–92. <https://doi.org/10.1097/JFN.0000000000000321>
 20. Asadi L, Noroozi M, Salimi H, et al. A qualitative exploration of the psychological needs of women survivors of rape in Iran. *BMC Psychol.* 2023;11:302.

- <https://doi.org/10.1186/s40359-023-01332-x>
21. White DAE, Jewett M, Burns M, et al. A quality improvement initiative to increase HIV post-exposure prophylaxis treatment for emergency department patients after sexual assault. *PLoS One*. 2025;20(3):e0320690. <https://doi.org/10.1371/journal.pone.0320690>
 22. Calhoun CD, Stone KJ, Cobb AR, Patterson MW, Danielson CK, Bendezú JJ. The role of social support in coping with psychological trauma: an integrated biopsychosocial model. *Psychiatr Q*. 2022;93(4):949–970. <https://doi.org/10.1007/s11126-022-10003-w>
 23. Leelakanok N, Methaneethorn J. Adverse effects of levonorgestrel emergency oral contraceptive: a systematic review and meta-analysis. *Clin Drug Investig*. 2020;40(5):395–420. <https://doi.org/10.1007/s40261-020-00901-x>
 24. Peterson ZD, Koss MP, Anderson RE. Preliminary prevalence estimates of sexual exploitation measured by the SES-V in a national US sample. *J Sex Res*. 2024;61(6):904–921. <https://doi.org/10.1080/00224499.2024.2359639>
 25. Brewin CR, Atwoli L, Bisson JI, Galea S, Koenen K, Lewis-Fernández R. Post-traumatic stress disorder: evolving conceptualization, evidence, and future research directions. *World Psychiatry*. 2025;24(1):52–80. <https://doi.org/10.1002/wps.21269>
 26. Wieberneit M, Thal S, Clare J, Notebaert L, Tubex H. Silenced survivors: barriers to reporting, investigating, prosecuting, and sentencing adult female rape and sexual assault. *Trauma Violence Abuse*. 2024;25(5):3742–3757. <https://doi.org/10.1177/15248380241261404>

ORIGINAL ARTICLE

Impact of Cataract Surgery on Sexual Quality of Life in Women: A Prospective Study Using the Sexual Quality of Life–Female

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Abstract

Objective: To evaluate the impact of cataract surgery on sexual quality of life in female patients using the Sexual Quality of Life–Female (SQOL-F) questionnaire.

Material and Methods: This prospective observational study included 67 female patients who underwent cataract surgery. Sexual quality of life was assessed preoperatively and again at 3 months postoperatively using the Sexual Quality of Life–Female (SQOL-F) scale. This is a validated 18-item Likert-type instrument that assesses emotional, psychological, and relational aspects of sexual life. Scores were transformed to a 0–100 scale, with higher scores indicating better sexual quality of life. Demographic variables included age, education level, employment status, and economic status. Statistical comparisons between preoperative and postoperative scores were performed.

Results: Sixty-seven women participated. Sexual quality-of-life scores improved after cataract surgery. For patients over 60 years, SQOL-F scores rose from 58.7 ± 7.2 to 76.9 ± 11.3 ($p < 0.05$). Patients under 60 showed no significant improvement. Those with lower education and those with low or high economic status showed significant gains ($p < 0.05$), whereas university-educated or employed patients did not. These results show that cataract surgery's impact on sexual quality of life differs by sociodemographic group.

Conclusion: Cataract surgery can improve sexual quality of life in women, especially older patients and those with lower socioeconomic status. This suggests cataract surgery offers psychosocial benefits beyond vision improvement. Larger studies are needed to confirm these findings.

Keywords: cataract surgery, functional vision, sexual function, Sexual Quality of Life–Female (SQOL-F)

INTRODUCTION

Cataract is a leading cause of visual impairment worldwide, particularly among aging populations. It is associated with progressive deterioration in visual acuity and functional vision. This decline often results in significant restrictions in daily activities, reduced independence, and diminished overall quality of life.

Cataract surgery remains the most effective treatment. It provides not only restoration of visual function but also meaningful improvements in general well-being, including psychological health and social engagement (1–4). Recent systematic reviews and meta-analyses have further confirmed improvements in vision-related quality of life and mental health outcomes after cataract

surgery (3,4). Improved vision following surgery has been shown to enhance autonomy and promote active participation in social life. It can also contribute to a more positive emotional state and greater life satisfaction (5,6).

Despite these benefits, few studies have examined how cataract surgery affects sexual quality of life, especially in women. Sexual health includes emotional, psychological, and relational factors, all of which visual impairment may affect. Reduced vision can lower self-esteem, lead to social withdrawal, and impair relationships (6), which may harm sexual quality of life. Whether cataract surgery improves these areas is still unclear.

A review of the existing literature reveals a notable gap. Only a limited number of studies address the relationship between visual function and sexual well-being, and even fewer focus specifically on women. Moreover, most available studies have primarily evaluated sexual function rather than sexual quality of life. This approach overlooks important psychosocial dimensions, such as emotional well-being, self-perception, and relational intimacy (7–10).

Therefore, the present study aims to evaluate changes in sexual quality of life in female patients following cataract surgery using the Sexual Quality of Life–Female (SQOL-F) questionnaire. Additionally, this study seeks to examine the association between improvements in visual function and changes in sexual quality of life. It also aims to explore the broader psychosocial effects of cataract surgery beyond visual rehabilitation.

MATERIALS AND METHODS

Study Design and Participants

We conducted a prospective observational study at the Ophthalmology Department. Female patients with age-related cataract who had uncomplicated phacoemulsification with intraocular lens implantation were included.

The study followed the Declaration of Helsinki and was approved by the Pamukkale University Non-Interventional Clinical Research Ethics Committee (Approval No: E-60116787-020-767116; Date: October 16, 2025). All participants gave written informed consent before enrollment.

Inclusion and Exclusion Criteria

Inclusion criteria: women 50 years or older, sexually active, diagnosed with senile cataract causing significant visual loss, and able and willing to complete the questionnaire. Sexually active was defined as having engaged in sexual activity within the last 3 months.

Exclusion criteria: diabetic neuropathy, advanced heart disease, chronic renal failure, major psychiatric illness, prior pelvic surgery, or use of drugs known to impair sexual function, including antidepressants, antipsychotics, and phosphodiesterase inhibitors.

Surgical Procedure

One experienced surgeon performed all operations using topical anesthesia and a standard clear corneal phacoemulsification technique. All patients received a foldable hydrophobic acrylic intraocular lens in the capsular bag.

After surgery, patients used antibiotic and corticosteroid eye drops, gradually tapering over four weeks.

Data Collection

Uncorrected and best-corrected visual acuities (UCVA and BCVA) were assessed using a standard Snellen chart. Demographic and clinical data, including age, education level, employment status, and socioeconomic status, were recorded. Sexual quality of life was assessed preoperatively and again at 3 months postoperatively using the Sexual Quality of Life–Female (SQOL-F) questionnaire.

Assessment Tool: Sexual Quality of Life–Female (SQOL-F)

The SQOL-F is a validated, self-administered questionnaire consisting of 18 items. It evaluates the impact of sexual dysfunction on women's quality of life across emotional, psychological, and relational domains. Each item is rated on a 6-point Likert scale (1 = completely agree to 6 = completely disagree). The total raw score ranges from 18 to 108 and is transformed to a standardized 0–100 scale using the formula: $(\text{raw score} - 18) \times 100 / 90$. Higher scores indicate better sexual quality of life. The questionnaire assesses multiple aspects, including emotional well-being, sexual self-esteem, relationship satisfaction, and behavioral responses to sexual activity.

Outcome Measures

The primary outcome was the change in SQOL-F scores between preoperative and three-month postoperative assessments. Secondary analyses compared subgroups by age, education, employment, and economic status.

Statistical Analysis

Statistical analyses were performed using SPSS version 26.0 (IBM Corp., Armonk, NY, USA). The normality of data distribution was assessed using the Kolmogorov–Smirnov test. Continuous variables were expressed as mean ± standard deviation.

Paired comparisons between preoperative and postoperative scores were performed using the paired t-test for normally distributed data and the Wilcoxon signed-rank test for non-normally distributed data. Between-group comparisons were conducted using the independent-samples t-test or the Mann–Whitney U test, as appropriate. A p-value <0.050 was considered statistically significant.

RESULTS

We studied 67 women undergoing cataract surgery. We measured changes in sexual quality of life scores before surgery and at three months, analyzing different demographic subgroups.

The mean preoperative best-corrected visual acuity (BCVA) was 0.53 ± 0.18 logMAR. This significantly improved to 0.14 ± 0.09 logMAR at the first postoperative month (p < 0.001), reflecting a substantial gain in visual

function. This improvement may have contributed to better quality-of-life outcomes.

Overall, the mean SQOL-F score significantly increased from 51.6 ± 7.8 preoperatively to 64.5 ± 10.5 at 3 months postoperatively (p < 0.001).

Overall, postoperative SQOL-F scores demonstrated an increasing trend across most subgroups. In the age-based analysis, patients older than 60 years showed a statistically significant improvement in sexual quality-of-life scores, increasing from 58.7 ± 7.2 preoperatively to 76.9 ± 11.3 at 3 months postoperatively (p < 0.050). In contrast, patients younger than 60 years showed a non-significant increase from 44.8 ± 5.5 to 52.4 ± 6.4 (p > 0.050).

Patients with primary or high school education had a significant increase in SQOL-F (60.3 ± 7.7 to 74.4 ± 9.8, p < 0.050). The increase for university-educated patients (53.4 ± 4.2 to 61.7 ± 5.8) was not significant (p > 0.050).

Regarding employment status, neither retired nor working patients demonstrated a statistically significant improvement in sexual quality of life. In retired patients, SQOL-F scores increased slightly from 46.9 ± 4.3 to 48.1 ± 7.4, while in working patients, scores increased from 56.2 ± 6.1 to 65.5 ± 6.7; however, these changes did not reach statistical significance (p > 0.050 for both).

Analysis based on socioeconomic status revealed that patients with low and high economic levels experienced

Table 1. Comparison of preoperative and postoperative 3rd-month SQOL-F scores according to demographic characteristics in female patients undergoing cataract surgery

Parameter	Subgroup (n)	Preoperative SQOL-F (Mean ± SD)	Postoperative 3rd Month SQOL-F (Mean ± SD)	P value
Age	>60 years (n=33)	58.7 ± 7.2	76.9 ± 11.3	<0.050
	<60 years (n=34)	44.8 ± 5.5	52.4 ± 6.4	>0.050
Education level	University (n=12)	53.4 ± 4.2	61.7 ± 5.8	>0.050
	Primary–High school (n=55)	60.3 ± 7.7	74.4 ± 9.8	<0.050
Employment status	Employed (n=18)	56.2 ± 6.1	65.5 ± 6.7	>0.050
	Retired (n=49)	46.9 ± 4.3	48.1 ± 7.4	>0.050
Economic status	Low (n=28)	52.7 ± 9.2	65.4 ± 11.8	<0.050
	Middle (n=24)	50.3 ± 6.9	54.8 ± 6.3	>0.050
	High (n=15)	48.2 ± 5.9	69.3 ± 9.4	<0.050

significant improvements in SQOL-F scores (low: 52.7 ± 9.2 to 65.4 ± 11.8 ; high: 48.2 ± 5.9 to 69.3 ± 9.4 ; both $p < 0.050$). However, no statistically significant change was observed in patients with moderate economic status (50.3 ± 6.9 to 54.8 ± 6.3 ; $p > 0.050$).

These findings indicate that improvements in sexual quality of life following cataract surgery were more pronounced in older patients and in certain sociodemographic groups, particularly those with lower educational and economic status.

DISCUSSION

The present study demonstrates that cataract surgery is associated with improvements in sexual quality of life in women, particularly in domains related to emotional well-being, sexual self-esteem, and relational intimacy as assessed by the SQOL-F questionnaire. These improvements were more pronounced in older patients and certain sociodemographic subgroups, suggesting that baseline characteristics may influence postoperative outcomes.

Previous studies have shown that sexual quality of life is largely shaped by psychosocial factors, including emotional status, relationship dynamics, and overall life satisfaction, rather than purely physiological function (11). In this context, improvements in visual function may indirectly enhance sexual quality of life by positively affecting psychological and relational domains.

The greater improvement observed in patients aged 60 years or older is consistent with prior research indicating that cataract surgery leads to significant gains in vision-related quality of life, particularly in elderly populations (12,13). Furthermore, evidence from systematic reviews suggests that cataract surgery contributes not only to visual rehabilitation but also to improvements in overall well-being, mental health, and functional independence (4). Given the well-established association between visual impairment and depression, reduced autonomy, and impaired social functioning (6), restoration of vision may exert a more pronounced psychosocial impact in older individuals, thereby enhancing sexual quality of life.

Differences observed across educational and socioeconomic subgroups may reflect variations in baseline psychosocial status. Individuals with lower

preoperative quality of life or limited psychosocial resources may experience greater relative improvements following visual rehabilitation, consistent with previous quality-of-life research demonstrating larger effect sizes in individuals with lower baseline functioning (14).

The strengths of this study include its prospective design, the use of a standardized surgical technique performed by a single experienced surgeon, and the application of a validated instrument (SQOL-F) to assess sexual quality of life.

Despite these strengths, several limitations should be acknowledged. The relatively small sample size may have limited the statistical power, particularly in subgroup analyses. In addition, the study's inclusion of only female patients and the absence of a control group represent further limitations. As the follow-up period was limited to three months, the findings primarily reflect early postoperative outcomes. Further studies with larger sample sizes and longer follow-up durations are required to evaluate the long-term stability and progression of changes in sexual function.

Another important limitation of this study is the absence of a control group. Therefore, although significant improvements in sexual quality of life were observed following cataract surgery, these changes cannot be attributed solely to the surgical intervention. Other factors, including psychological adaptation, placebo effects, or unmeasured confounders (such as menopausal status, presence of a sexual partner, systemic diseases, and depression or overall psychological status), may have contributed to the observed outcomes. Further studies incorporating control groups and accounting for these variables are needed to better establish the causal relationship between cataract surgery and changes in sexual quality of life.

CONCLUSION

Cataract surgery not only improves functional vision but also substantially impacts overall quality of life by enhancing sexual quality of life through its psychosocial effects, particularly in the emotional, self-perceptive, and relational domains. Further studies with larger sample sizes and longer follow-up periods are required to better understand the long-term effects

of this relationship and its variations across different subgroups.

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Conflict of Interest: The authors declare no conflict of interest.

Informed Consent: Written informed consent was obtained from all participants before enrollment in the study.

Ethics Approval: Approved by the Pamukkale University Non-Interventional Clinical Research Ethics Committee (Approval No: E-60116787-020-767116, Date: October 16, 2025).

Authors' Contributions

İ.S. conceived and designed the study, and drafted the manuscript. T.A. collected and organized the clinical data, performed all surgical procedures G.K.A. performed statistical analysis and literature review.

Consent to Publish: All participants provided consent for anonymized data to be published in a scientific journal.

The data supporting the findings of this study are available from the corresponding author on reasonable request.






REFERENCES

- Lundström, M., Albrecht, S., Nilsson, M., & Åström, B. (2006). Benefit to patients of cataract extraction: A randomized controlled study. *Journal of Cataract & Refractive Surgery*, 32(5), 826–830. <https://doi.org/10.1016/j.jcrs.2006.01.039>
- Lamoureux, E. L., Fenwick, E., Pesudovs, K., & Tan, D. (2011). The impact of cataract surgery on quality of life. *Current Opinion in Ophthalmology*, 22(1), 19–27. <https://doi.org/10.1097/ICU.0b013e3283414288>
- Zhao, J., Xu, X., Ellwein, L. B., et al. (2020). Cataract surgery and quality of life outcomes: A systematic review and meta-analysis. *Ophthalmology*, 127(4), e21–e30. <https://doi.org/10.1016/j.ophtha.2019.10.019>
- Kandel, H., Khadka, J., Goggin, M., & Pesudovs, K. (2017). Impact of cataract surgery on quality of life: A systematic review and meta-analysis. *Clinical & Experimental Ophthalmology*, 45(5), 491–502. <https://doi.org/10.1111/ceo.12927>
- Ishii, K., Kabata, T., & Oshika, T. (2008). The impact of cataract surgery on depressive mental status in elderly patients. *American Journal of Ophthalmology*, 146(3), 404–409. <https://doi.org/10.1016/j.ajo.2008.04.017>
- Nyman, S. R., Gosney, M. A., & Victor, C. R. (2010). Psychosocial impact of visual impairment in older people. *Journal of Advanced Nursing*, 66(10), 2197–2208. <https://doi.org/10.1111/j.1365-2648.2010.05367.x>
- Flynn, K. E., Lin, L., Cyranowski, J. M., et al. (2016). Sexual satisfaction and the importance of sexual health to quality of life throughout the life course of U.S. adults. *The Journal of Sexual Medicine*, 13(11), 1642–1650. <https://doi.org/10.1016/j.jsxm.2016.08.011>
- Symonds, T., Boolell, M., & Quirk, F. (2005). Development of a questionnaire on sexual quality of life in women. *Journal of Sex & Marital Therapy*, 31(5), 385–397. <https://doi.org/10.1080/00926230591006502>
- Stephenson, K. R., & Meston, C. M. (2015). The conditional importance of sex: Exploring the association between sexual well-being and life satisfaction. *Journal of Sex & Marital Therapy*, 41(1), 25–38. <https://doi.org/10.1080/0092623X.2013.811450>
- Laumann, E. O., Paik, A., & Rosen, R. C. (1999). Sexual dysfunction in the United States: Prevalence and predictors. *JAMA*, 281(6), 537–544. <https://doi.org/10.1001/jama.281.6.537>
- Mark, K. P., & Lasslo, J. A. (2022). Maintaining sexual well-being: A narrative review of psychological and relational factors associated with sexual quality of life. *The Journal of Sex Research*, 59(6), 715–730. <https://doi.org/10.1080/00224499.2021.1998277>
- Finger, R. P., Kupitz, D. G., Fenwick, E., et al. (2012).

- The impact of successful cataract surgery on quality of life, household income, and social status in South India. *PLoS One*, 7(8), e44268. <https://doi.org/10.1371/journal.pone.0044268>
13. Lansingh, V. C., Carter, M. J., & Martens, M. (2014). Global cost-effectiveness of cataract surgery. *Ophthalmology*, 121(5), 951–958. <https://doi.org/10.1016/j.ophtha.2013.10.017>
 14. Brown, G. C., Brown, M. M., Sharma, S., & Busbee, B. (2003). Quality of life associated with visual loss: A time tradeoff utility analysis comparison with medical health states. *Ophthalmology*, 110(6), 1076–1081. [https://doi.org/10.1016/S0161-6420\(03\)00085-1](https://doi.org/10.1016/S0161-6420(03)00085-1)

ORIGINAL ARTICLE

Investigation of the Relationships Between Physical Activity Levels and Sexual Response During Pregnancy

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Abstract

Objective: The aim of this study was to investigate the relationships between physical activity types and intensity levels and the subdomains of sexual response during pregnancy.

Methods: Healthy pregnant women between 10 and 35 gestational weeks were included in the study. Participants' descriptive characteristics and obstetric histories were recorded. Physical activity levels were assessed using the Pregnancy Physical Activity Questionnaire, and sexual responses were evaluated with the Pregnancy Sexual Response Inventory. Spearman correlation analysis was performed to examine relationships between numerical variables, and statistical significance was set at $p < 0.05$.

Results: In the study, including a total of 139 pregnant women, positive correlations were observed between light- and moderate-intensity physical activity levels and various subdomains of sexual function (frequency, arousal, orgasm, satisfaction, etc.) ($p < 0.05$). In particular, sports/exercise activity levels were found to be associated with the greatest number of sexual function subdomains ($p < 0.05$). In contrast, no associations were identified between vigorous-intensity activity or household/caregiving activity levels and sexual response dimensions ($p > 0.05$).

Conclusion: While light- to moderate-intensity activities and sports/exercise activities during pregnancy were associated with better sexual response, this was not the case for high-intensity activities or non-pleasurable household/caregiving tasks. Further studies are needed to elucidate the interaction between physical activity and sexual response during pregnancy.

Keywords: physical activity, pregnancy, sexual response

INTRODUCTION

Pregnancy is a dynamic process in a woman's life, involving numerous physical, physiological, and psychosocial changes. Hormonal fluctuations, increased cardiovascular load, metabolic adaptations, and weight gain during pregnancy affect the expectant mother's physical capacity, body image, sleep quality, and energy levels (1,2). Moreover, psychological stress, altered body perception, decreased physical comfort, changes in the relationship with the partner, and beliefs about the potential negative consequences of sexual activity during pregnancy, as well as sociocultural factors, can influence sexual function dimensions in pregnant women, including sexual desire, frequency of sexual activity, arousal, satisfaction, and orgasm (3).

Sexual dysfunction in pregnant women has been reported to have a high global prevalence, reaching up to 70%. Considering that pregnancy is a natural process in a woman's life, and that sexual dysfunction—an often neglected issue—significantly affects quality of life during this period, it is important to increase the evidence base regarding sexuality during pregnancy and to develop strategies for the prevention of these disorders (2,4).

One of the important factors affecting sexual response is the level of physical activity. Physical activity is defined as any bodily movement produced by skeletal muscles that results in energy expenditure above resting levels. Regular physical activity is associated with numerous benefits, including a reduced risk of premature mortality, prevention of risks associated with various chronic diseases, alleviation of anxiety and depressive symptoms, and improvement of mental health (5).

Although studies investigating the effects of physical activity on sexual function in women are limited and inconsistent, some research has reported that higher levels of physical activity are associated with better sexual function in women (5). Exercise may enhance sexual function by promoting relaxation, reducing body fat percentage, increasing muscle mass, improving physical comfort, and enhancing self-confidence and body image (6,7). A systematic review and meta-analysis conducted in 2025 demonstrated that sexual dysfunction is more prevalent among women with low or no physical activity compared to more active women (5). Various studies indicate that adequate

levels of physical activity may play a significant role in the prevention of sexual dysfunction (6,7). In this context, multiple healthcare professionals may be involved in interventions related to sexual function; however, physiotherapists represent a professional group with overlapping expertise in pregnancy, sexual function, and physical activity. Therefore, the role of physiotherapists becomes increasingly important in the management of problems observed in this population.

Although the relationship between physical activity and sexuality has been examined in specific female populations, such as postmenopausal women, breast cancer survivors, and women with type 1 diabetes (6,8,9), to our knowledge, it has been addressed in only one study among pregnant women. In that study, the primary focus was not directly on physical activity and sexuality; rather, it aimed to compare sexual response in pregnant women with and without pelvic girdle pain and to examine whether sexual response was associated with physical activity levels (2). Therefore, the aim of the present study is to comprehensively examine sexual response during pregnancy and to investigate its relationship with physical activity levels.

MATERIALS AND METHODS

This study was conducted on pregnant women referred for obstetric physiotherapy and rehabilitation to the Pelvic Health and Women's Health Physiotherapy and Rehabilitation Unit at Hacettepe University Faculty of Physical Therapy and Rehabilitation. The study was carried out in accordance with the principles of the Declaration of Helsinki. The study protocol was reviewed and approved by the Non-Invasive Clinical Research Ethics Committee of Hacettepe University and was deemed ethically appropriate from a medical standpoint (Approval: GO 17/507-31, Date: 2017-07-04).

The inclusion criteria for the study were: age between 20 and 45 years, gestational age between 10 and 35 weeks, and no impediment to completing the study questionnaires. The exclusion criteria included pregnant women with conditions limiting or contraindicating physical activity, such as diabetes, hypertension, multiple pregnancy, heart disease, or chronic kidney disease, as well as conditions limiting or contraindicating sexual activity, including placenta previa, risk of preterm birth, cervical insufficiency, antepartum bleeding, premature rupture of membranes, and genital infections.

Demographic, physical, obstetric, and medical information of the pregnant women was recorded. Physical activity levels were assessed using the Turkish version of the Pregnancy Physical Activity Questionnaire (PPAQ) (10), while sexual activity and sex-related problems were evaluated using the Turkish version of the Pregnancy Sexual Response Inventory (PSRI) (11).

The PPAQ determines the weekly physical activity level based on the time spent on a total of 32 activities. The questionnaire includes activity categories of household/caregiving activities (13 items), occupational activities (5 items), sports/exercise activities (8 items), transportation activities (3 items), and inactivity (3 items). The PPAQ also calculates the MET value for each activity according to the time spent performing it. The intensity of each activity is classified as follows: sedentary (<1.5 MET), light (1.5–3.0 MET), moderate (3.0–6.0 MET), and vigorous (>6.0 MET). In this way, the average weekly energy expenditure in MET-hours/week is calculated for each activity level (12).

PSRI was developed to evaluate sexual activity during pregnancy and pregnancy-related sexual problems. The subheadings assessed by the PSRI include sociodemographic characteristics, perceptions of sexuality before and during pregnancy, and sexual behaviors. The questionnaire consists of a total of 38 items. Questions related to sexuality and sexual activity are divided into nine domains, including frequency of sexual activity, sexual desire, sexual satisfaction in women/men, arousal, orgasm, dyspareunia, beginning of sexual intercourse, sexual difficulty in women, and the pregnant woman’s perception of her partner’s sexual response (sexual difficulty in men). For the total sexual function score, the PSRI is divided into 10 domains, including 8 related to the woman’s feelings and 2 related to the pregnant woman’s perceptions of her partner. Scores range from 0 to 100, with higher scores indicating better sexual response (13).

We used the STROBE reporting guideline (14) to draft this manuscript, and the STROBE reporting checklist (15) when editing, included in supplement A.

Statistical Analysis

Statistical analyses were performed using IBM SPSS Statistics 27. The normality of numerical data was assessed both visually (histograms and probability

plots) and analytically (Kolmogorov–Smirnov and Shapiro–Wilk tests). Descriptive numerical data were presented as means with standard deviations and minimum–maximum values. Relationships between variables were analyzed using Spearman’s correlation test. A p-value of <0.05 was considered statistically significant for all analyses.

RESULTS

A total of 157 pregnant women were initially screened for the study, of whom 18 were excluded due to not meeting the inclusion criteria (insufficient literacy, n = 2; vaginal bleeding, n = 3; risk of miscarriage, n = 3; risk of preterm birth, n = 5; or unwillingness to participate, n = 5). Consequently, 139 pregnant women were included in the study. A flow diagram of the study selection process is presented in Figure 1.

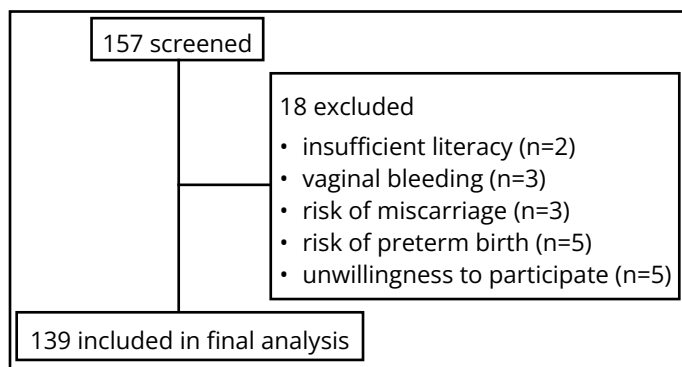


Figure 1. Flow Diagram of Study Participants

The participants had a mean age of 29.5 ± 4.8 years and a mean gestational age of 27.01 ± 6.21 weeks. Most participants were in their second or subsequent pregnancy (55.4%), while additional demographic and clinical characteristics are presented in Table 1.

Table 1. Descriptive Characteristics of Pregnant Women

Parameters	Participants (n=139)
Age (years)	29.5 ± 4.8 (20-40)
Body Weight (kg)	75.2 ± 10.5 (45-110)
Height (m)	1.64 ± 0.06 (1.50-1.77)
Body Mass Index (kg/m²)	26.95 ± 4.56 (18.07-38.67)
Gestational Week	27.01 ± 6.21 (14-35)
Gravidity	
First Pregnancy	62 (44.6%)
Second and Subsequent Pregnancies	77 (55.4%)

n: Number of participants, %: percentage. Data were presented as mean±standard deviation (minimum-maximum).

No significant relationship was found between total physical activity, vigorous-intensity activity, and household/caregiving activity scores and sexual response scores ($p > 0.050$).

Sedentary activity scores were weakly and positively correlated with the male satisfaction subscale ($p < 0.050$) (Table 2).

Light-intensity activity scores showed weak-to-moderate positive correlations with the frequency, arousal, orgasm, satisfaction, and male satisfaction subscales, as well as the total score ($p < 0.050$) (Table 2). Moderate-intensity activity scores showed weak positive correlations with the frequency, arousal, orgasm, female difficulty subscale scores, and the total score ($p < 0.050$) (Table 2).

Occupational activity scores showed weak-to-moderate positive correlations with the frequency, arousal, orgasm, satisfaction, female difficulty, and male satisfaction subscale scores, as well as the total score ($p < 0.050$) (Table 2).

Weak-to-moderate positive correlations were observed between sports/exercise activity scores and the frequency, desire, arousal, orgasm, satisfaction, intercourse initiation, female difficulty, and male satisfaction subscale scores, in addition to the total score ($p < 0.050$) (Table 2).

DISCUSSION

To our knowledge, this study is the first to examine the relationship between physical activity types and intensity levels and sexual response in pregnant women. The findings indicate that the association between physical activity and sexual response during pregnancy varies according to both the type and intensity of the activities. Total physical activity, vigorous-intensity activity, and household/caregiving activities were not found to be associated with sexual response. On the other hand, light- and moderate-intensity activities and occupational activities and sports/exercise activities demonstrated weak-to-moderate associations with various sexual response subdomains.

Studies examining the effects of physical activity on female sexual function are limited and methodologically heterogeneous. Existing research has primarily

focused on specific female populations, such as peri- and postmenopausal women, individuals with type 1 diabetes, and breast cancer survivors (8,9). To our knowledge, only one study has addressed this topic during pregnancy, with a primary focus on pregnancy-related pelvic girdle pain (2). In that study, sexual function was compared between pregnant women with and without pelvic girdle pain, and correlations between women's physical activity levels and sexual function were also assessed, revealing significant positive associations similar to those observed in the present study. Furthermore, the study reported a marked decline in sexual function during pregnancy compared to the pre-pregnancy period, highlighting the impact of pregnancy on sexual health and the importance of not overlooking associated issues (2). In addition, several studies in non-pregnant populations have reported a positive association between higher levels of physical activity and sexual function (6,8,9).

In the present study, no significant associations were found between total physical activity, vigorous-intensity activity, or household/caregiving activity levels and sexual response subdomains. This suggests that, rather than the overall level of physical activity, the type and intensity of activity may be more influential on sexual function. The absence of an association between vigorous-intensity activity and sexual response may be explained by pregnant women rarely engaging in or avoiding vigorous activity due to fear, anxiety, or safety concerns (16). Additionally, the lack of association for household/caregiving activities may be attributed to their specific nature and the fact that a large proportion of the participants in the study were primiparous.

A meta-analysis examining the prevalence of female sexual dysfunction according to physical activity levels reported a higher prevalence of sexual dysfunction among women with low physical activity levels or a sedentary lifestyle (5). The findings of the present study, in which low- and moderate-intensity physical activity was associated with various sexual response subdomains in pregnant women compared to sedentary activity, support this observation.

In a retrospective cross-sectional study including 322 pre- and postmenopausal women, it was reported that women with higher levels of physical activity had better sexual function compared to sedentary women, with

Table 2. Relationship of Types of Physical Activity and Sexual Response Scores During Pregnancy

Types of Physical Activity-Sexual Response		Frequency of sexual activity	Sexual desire	Arousal	Orgasm	Sexual satisfaction in women	Dyspareunia	Beginning of sexual intercourse	Sexual difficulty in women	Sexual difficulty in men	Sexual satisfaction in men	Total score
Total activity	r	-0.50	-0.003	0.051	0.001	-0.077	0.091	0.006	-0.058	0.096	-0.053	0.011
	p	0.556	0.974	0.551	0.987	0.367	0.286	0.944	0.494	0.262	0.537	0.897
Sedentary activity	r	0.143	0.018	0.156	0.162	0.111	-0.091	0.035	0.024	0.013	0.179	0.115
	p	0.094	0.835	0.067	0.057	0.193	0.287	0.682	0.780	0.878	0.035*	0.178
Light-intensity activity	r	0.304	0.118	0.284	0.277	0.181	-0.026	0.050	0.076	0.151	0.232	0.243
	p	<0.001*	0.168	<0.001*	<0.001*	0.033*	0.764	0.558	0.371	0.077	0.006*	0.004*
Moderate-intensity activity	r	0.207	0.059	0.264	0.223	0.167	0.038	0.092	0.236	0.076	0.077	0.240
	p	0.014*	0.491	0.002*	0.008*	0.050	0.660	0.281	0.005*	0.373	0.368	0.004*
Vigorous-intensity activity	r	0.136	0.063	0.071	0.107	0.104	-0.117	-0.037	-0.001	0.018	0.132	0.066
	p	0.109	0.463	0.409	0.209	0.222	0.170	0.662	0.993	0.834	0.121	0.441
Household/caregiving activity	r	0.042	0.020	0.100	0.104	-0.041	0.004	0.027	-0.012	0.160	0.034	0.065
	p	0.623	0.813	0.240	0.224	0.629	0.959	0.756	0.885	0.060	0.695	0.450
Occupational activity	r	0.291	0.105	0.289	0.396	0.257	0.071	0.162	0.213	-0.071	0.216	0.297
	p	<0.001*	0.220	<0.001*	<0.001*	0.002*	0.406	0.056	0.012*	0.408	0.011	<0.001*
Sports/ exercise activity	r	0.544	0.179	0.618	0.487	0.447	0.157	0.264	0.319	0.138	0.372	0.551
	p	<0.001*	0.035*	<0.001*	<0.001*	<0.001*	0.065	0.002*	<0.001*	0.105	<0.001*	<0.001*

r: Correlation Coefficient. *p<0.050. p: Spearman Correlation.

the differences being particularly pronounced in sexual desire, arousal, and lubrication. Interestingly, the 'highly active' group with the highest levels of physical activity exhibited lower scores in certain psychosexual parameters. In this group, sexual satisfaction was reduced, and some psychopathological symptoms were more prevalent, with certain parameters even scoring lower than those in the sedentary group (6). Similarly, in the present study, no associations were observed between vigorous-intensity activity and sexual response subdomains. As previously noted, the avoidance or minimal engagement in vigorous physical activity by the pregnant population may be an important factor explaining this lack of association.

Another key finding of the study is that sports/exercise activities were significantly associated with more sexual response subdomains than other activity types, while occupational activities were positively associated with several sexual response dimensions. This suggests that physical activity may be more effective in its sports or exercise component, but its benefits are not limited to these activities, as being active in daily life can also contribute positively to sexual health. On the other hand, no associations were found between household/caregiving activities and sexual response subdomains. This indicates that mandatory activities, such as household tasks, which may lack elements of enjoyment or pleasure, do not appear to have a positive impact on sexual function.

The strength of this study lies in being the first to comprehensively and multidimensionally examine the relationship between physical activity and sexual response during pregnancy. In addition, the use of pregnancy-specific instruments rather than general scales to assess physical activity and sexual function represents another strength of the study. On the other hand, a major limitation is the cross-sectional and correlational design, which precludes causal inferences. Furthermore, the potential confounding effects of various factors that may influence sexual function, such as psychosocial factors, hormonal changes, and partner relationship dynamics, were not controlled, representing an additional limitation of the study.

CONCLUSION

Based on the study findings, sexual response during pregnancy appears to vary according to the intensity

and type of physical activity. Light- and moderate-intensity activities, particularly those involving sports or exercise, may enhance sexual function in pregnant women, whereas high-intensity activities or physically demanding but non-pleasurable tasks, such as household chores, do not seem to contribute significantly to sexual function. High-quality, methodologically robust future research is needed to more clearly elucidate the relationship between physical activity and sexual function during pregnancy.

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- Concept and Design: G.G., T.A.
- Supervision: S.O., T.A.
- Data Collection and/or Processing: G.G., M.S.B.
- Materials: G.G., M.S.B.
- Analysis and/or Interpretation: H.D., G.G.
- Literature Search: H.D., G.G., S.O.
- Writing and Critical Review: H.D., G.G., S.O., T.A.






REFERENCES

1. Cilar Budler, L., & Budler, M. (2022). Physical activity during pregnancy: A systematic review for the assessment of current evidence with future recommendations. *BMC Sports Science, Medicine and Rehabilitation*, 14(1), 133. <https://doi.org/10.1186/s13102-022-00524-z>
2. Yenişehir, S., Karakaya, İ. Ç., & Özbey, G. (2024). Sexual function of women with and without pregnancy-related pelvic girdle pain and its relationship with physical activity, kinesiphobia and body image: A cross-sectional comparative

- study. *Reproductive Sciences*, 31(10), 3122–3131. <https://doi.org/10.1007/s43032-024-01644-2>
3. Szymanska, E., & Kisielewski, R. (2024). Female sexual functioning during pregnancy. *Ginekologia Polska*, 95(1), 72–76. <https://doi.org/10.5603/gpl.93464>
 4. Grussu, P., Vicini, B., & Quatraro, R. M. (2021). Sexuality in the perinatal period: A systematic review of reviews and recommendations for practice. *Sexual & Reproductive Healthcare*, 30, 100668. <https://doi.org/10.1016/j.srhc.2021.100668>
 5. Salari, N., Hasheminezhad, R., Hosseini-Far, A., & Mohammadi, M. (2025). Global prevalence of female sexual dysfunction based on physical activity: A systematic review and meta-analysis. *BMC Women's Health*, 25(1), 200. <https://doi.org/10.1186/s12905-025-03738-8>
 6. Carcelén-Fraile, M. d. C., Aibar-Almazán, A., Martínez-Amat, A., Cruz-Díaz, D., Díaz-Mohedo, E., Redecillas-Peiró, M. T., et al. (2020). Effects of physical exercise on sexual function and quality of sexual life related to menopausal symptoms in peri- and postmenopausal women: A systematic review. *International Journal of Environmental Research and Public Health*, 17(8), 2680. <https://doi.org/10.3390/ijerph17082680>
 7. Maseroli, E., Rastrelli, G., Di Stasi, V., Cipriani, S., Scavello, I., Todisco, T., et al. (2021). Physical activity and female sexual dysfunction: A lot helps, but not too much. *The Journal of Sexual Medicine*, 18(7), 1217–1229. <https://doi.org/10.1016/j.jsxm.2021.04.004>
 8. Flotyńska, J., Filip-Bocian, N., Araszkiwicz, A., Zozulińska-Ziółkiewicz, D., & Uruska, A. (2023). Physical activity protects women with type 1 diabetes from sexual dysfunctions. *Journal of Sex & Marital Therapy*, 49(8), 932–938. <https://doi.org/10.1080/0092623X.2023.2224319>
 9. Paiva, C. E., Rezende, F. F., Paiva, B. S. R., Mauad, E. C., Zucca-Matthes, G., Carneseca, E. C., et al. (2016). Associations of body mass index and physical activity with sexual dysfunction in breast cancer survivors. *Archives of Sexual Behavior*, 45(8), 2057–2068. <https://doi.org/10.1007/s10508-016-0758-7>
 10. Tosun, O. C., Solmaz, U., Ekin, A., Tosun, G., Mutlu, E. K., Okyay, E., et al. (2015). The Turkish version of the pregnancy physical activity questionnaire: Cross-cultural adaptation, reliability, and validity. *Journal of Physical Therapy Science*, 27(10), 3215–3221. <https://doi.org/10.1589/jpts.27.3215>
 11. Nakip, G., Gürşen, C., Baran, E., Üzelpasaci, E., Çinar, G. N., Özgül, S., et al. (2021). Psychometric properties of the Turkish version of the Pregnancy Sexual Response Inventory. *Archives of Gynecology and Obstetrics*, 304(1), 101–107. <https://doi.org/10.1007/s00404-020-05933-4>
 12. Chasan-Taber, L., Schmidt, M. D., Roberts, D. E., Hosmer, D., Markenson, G., & Freedson, P. S. (2004). Development and validation of a pregnancy physical activity questionnaire. *Medicine & Science in Sports & Exercise*, 36(10), 1750–1760. <https://doi.org/10.1249/01.MSS.0000142303.49306.0D>
 13. Rudge, C. V., Calderon, I. M., Dias, A., Lopes, G. P., Barbosa, A. P., Maestá, I., et al. (2009). Design and validity of a questionnaire to assess sexuality in pregnant women. *Reproductive Health*, 6(1), 12. <https://doi.org/10.1186/1742-4755-6-12>
 14. von Elm, E., Altman, D. G., Egger, M., Pocock, S. J., Gøtzsche, P. C., Vandenbroucke, J. P., et al. (2007). The strengthening the reporting of observational studies in epidemiology (STROBE) statement: Guidelines for reporting observational studies. *Annals of Internal Medicine* [Internet], 147(8), 573–577. Available from: <https://www.acpjournals.org/doi/10.7326/0003-4819-147-8-200710160-00010>
 15. von Elm, E., Altman, D. G., Egger, M., Pocock, S. J., Gøtzsche, P. C., Vandenbroucke, J. P., et al. (2025). The STROBE reporting checklist. In: Harwood J, Albury C, Beyer J de, Schlüssel M, Collins G, editors. The EQUATOR network reporting guideline platform [Internet], The UK EQUATOR Centre, Available from: <https://resources.equator-network.org/reporting-guidelines/strobe/strobe-checklist.docx>
 16. Mudd, L. M., Nechuta, S., Pivarnik, J. M., & Paneth, N. (2009). Factors associated with women's perceptions of physical activity safety during pregnancy. *Preventive Medicine*, 49(2-3), 194–199. <https://doi.org/10.1016/j.ypmed.2009.06.004>

REVIEW ARTICLE

Health Discrimination Against LGBT+ Individuals and Arts-Based Approaches: A Systematic Review

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Abstract

Objective: Stigma remains a major barrier preventing LGBT+ individuals from accessing healthcare services. Many of these barriers arise from insufficient professional training and from persistent misconceptions that LGBT+ people seek care only for the treatment of sexually transmitted infections or for gender transition and reassignment procedures. This article explores healthcare discrimination experienced by LGBT+ populations in clinical settings and examines the role of arts-based mobilization strategies in improving healthcare provision in Brazil.

Methods: A systematic review of empirical and literature-based studies published between 2020 and 2025 was conducted. Articles in Portuguese and English were retrieved from BVSsalud, CINAHL, PsycINFO, PubMed, Scopus, Web of Science, CAPES, and SciELO, using the Boolean operators AND and OR and the following keywords: "arts-based intervention," "health disparities," "health outcomes," "knowledge mobilization," "prejudice," "sexism," and "sexual and gender minorities."

Results: Knowledge mobilization through the arts remains an underexplored approach in the Brazilian context. The studies reviewed revealed that LGBT+ individuals face multiple barriers to healthcare access, frequently linked to prejudice, discrimination, and violence. Another recurring issue was the lack of professional preparedness, attributed to the absence of LGBT+ related content in academic training and to persistent gaps in continuing education across all levels of healthcare. Furthermore, the vulnerability of older LGBT+ individuals was highlighted.

Conclusion: Overall, the findings depict a healthcare landscape marked by systemic inequalities, adverse effects on physical and mental health, limited technical and ethical readiness among professionals, and an urgent need for effective public policies and ongoing professional training to address these vulnerabilities.

Keywords: arts-based research, health personnel, health promotion, perceived discrimination, sexual and gender minorities

INTRODUCTION

Social stigma is defined as a condition in which an individual is denied full social acceptance (1,2). It is closely associated with the stress experienced by minority groups, including those related to sex and gender within the LGBT+ community (1). Stigma permeates multiple dimensions of LGBT+ individuals' lives. It contributes to a higher prevalence of chronic illnesses, mental health disorders, psychoactive substance use, and economic instability (1,3). LGBT+ individuals are particularly vulnerable to diseases such as diabetes, cardiovascular conditions, and certain cancers, and they are frequently subjected to recurrent violence, discrimination, and social exclusion. In mental health, this translates into higher rates of depression, anxiety, substance abuse, and suicide (1,4). The consequences of stigma extend beyond psychological harm, affecting physical health and access to essential healthcare services. Approximately 24% of sexual and gender minority individuals report avoiding healthcare services or government resources due to fear of discrimination, an immediate consequence of stigma (1,5).

Miskolci and colleagues (6) highlight that stigma and discrimination by healthcare professionals, combined with a lack of specific training, limited access to care networks, deficiencies in the SUS information systems, and managerial priorities focused more on data collection than on meeting real needs, all reinforce these barriers. Furthermore, the often-idealized view of primary care rarely reflects the lived experiences of LGBT+ individuals.

The social, economic, and emotional consequences of stigma include heightened vulnerability to unemployment and the deepening of social inequalities (1,7). Addressing these challenges requires that the specific needs of the LGBT+ population be incorporated into public policies and mental health strategies, ensuring their inclusion in psychological and psychiatric programs designed to mitigate symptoms such as anxiety and depression (1,5).

Family rejection and compromised mental health further contribute to risky behaviors, such as self-harm and substance abuse (1,8). Sexual and gender minorities exhibit significantly higher rates of suicidal behavior, from ideation to planning, alongside greater alcohol and tobacco use compared to the heteronormative

population (9). These behaviors are often exacerbated by social isolation, family conflict, and the absence of supportive networks (1,9).

A persistent stereotype assumes that LGBT+ individuals seek healthcare primarily for the treatment of sexually transmitted infections or gender-affirming procedures (10,11). However, Caetano et al. (12) demonstrated that 58.2% of LGBT+ participants reported having health insurance and accessing private services. Notably, 58.7% avoided disclosing their sexual orientation or gender identity to professionals at Basic Health Units.

Another recurring challenge concerns the inadequacy of health information systems in addressing the needs of trans and non-binary individuals. For example, Miskolci et al. (6) describe barriers in conducting gynecological exams (e.g., Pap smears) for trans men and prostate exams for trans women, largely due to rigid systems that fail to recognize such demands. Moreover, the alleged lack of knowledge and need for training are often cited by professionals and managers as justifications for avoiding accountability in implementing public policies (6,13).

Caetano et al. (12) further demonstrate that access to primary healthcare services in Brazil is shaped by social determinants, including gender identity and sexual discrimination. Ensuring equitable care requires that LGBT+ individuals are made aware of their rights, that gender and sexual diversity guidelines are effectively enforced and monitored, and that healthcare professionals are adequately trained to provide non-discriminatory services.

Findings underscore the urgency of continuous education for healthcare professionals, including those who identify as LGBT+, based on principles of humanization and free from biologicist frameworks that pathologize gender identities, such as in the case of HIV, thereby perpetuating stigma and negatively affecting mental health (10). The lack of LGBT+ specific content in healthcare training curricula compounds this issue (14).

The health needs of LGBT+ populations have become a structural concern, particularly in the field of public health policy. These needs challenge SUS and its care networks, requiring the attentive engagement

of science, professionals, and policymakers in both theory and practice (15). Reducing stigma and its consequences requires actions that actively denounce discrimination by public institutions, especially those in the health sector, while guaranteeing equal access to essential resources (1,5).

A promising approach lies in artistic interventions as tools for knowledge mobilization and perspective shifts. Hyde and O'Keefe-McCarthy (16) demonstrate that arts-based methods, when employed in patient and caregiver engagement processes, decentralize researcher power, minimize tokenism, and enhance the expression of lived experiences that are often difficult to articulate, such as emotions, feelings, and relationships. In this context, arts-based methods (ABM) can be understood as an approach that intentionally employs diverse artistic expressions to translate, circulate, and activate knowledge generated through research, thereby supporting the implementation of evidence-based practices. This approach is grounded in the understanding that knowledge is socially situated and constructed within specific contexts, and that engagement with art facilitates critical reflection, meaningful participation, and recognition of individuals' lived experiences. Consequently, ABM fosters creative, collaborative, and dialogical learning environments that enhance knowledge mobilization and shared understanding (16,17).

Art-based interventions include practices such as visual arts, theater, dance, music, and expressive writing, all of which contribute to positive health outcomes and well-being. According to Fancourt and Finn (17), these practices promote health, prevent mental illness and physical decline, support patients with chronic and neurological conditions, and provide care in palliative and end-of-life contexts. For example, concrete poetry enables metaphorical meanings to be conveyed through form, allowing readers to grasp concepts visually (18). The adoption of ABM has expanded in countries with research funding that supports this approach, promoting a shift from biomedical paradigms to person-centered care (16). Recent studies confirm that ABM not only deepens understanding of stigmatized issues but also serves as effective tools for engaging vulnerable populations, fostering co-construction of knowledge, and encouraging inclusive public policies (19).

Access to healthcare services remains one of the most challenging for the LGBT+ population. These challenges intersect with broader discussions on human rights for populations not yet fully recognized by health policies. Recognizing LGBT+ needs requires expanding societal perspectives, acknowledging that visible diversity represents only the surface of numerous identities that remain "submerged" in the public sphere(6).

In this context, knowledge mobilization through artistic interventions emerges as a valuable ally in promoting structural change and advancing public health policies. Accordingly, this study poses the following research question: "What are the intersections between healthcare discrimination and arts-based mobilization in shaping health promotion for LGBT+ individuals?" To address this question, this review explores the discrimination experienced by LGBT+ individuals in healthcare settings and examines the potential of arts-based mobilization strategies to improve healthcare provision in Brazil.

MATERIALS AND METHODS

A systematic review requires a structured and comprehensive plan with predefined research strategies designed to minimize bias through the identification, evaluation, and synthesis of relevant studies on the topic under investigation (20). In this study, the review was conducted in accordance with the PRISMA guidelines (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) proposed by Moher, Liberati, Tetzlaff, and Altman (21). The review protocol was registered in PROSPERO under registration number CRD42025641674.

The selected material consisted of empirical studies employing qualitative, quantitative, or mixed-method designs, as well as literature reviews addressing the use of arts-based interventions to mobilize healthcare professionals' knowledge regarding LGBT+ healthcare. The inclusion criteria were as follows: 1) articles published between 2020 and 2025; 2) peer-reviewed and indexed journals; 3) available in full text; 4) written in Portuguese or English; and 5) classified as open access by their publishers. The primary outcome assessed was the identification of indicators examining the impact of healthcare discrimination against LGBT+ individuals and the potential of arts-based strategies for knowledge mobilization.

Exclusion criteria included duplicate records across databases, commentaries, editorials, theoretical essays, and studies that addressed discrimination in healthcare but did not focus on LGBT+ populations or the use of arts-based interventions.

The databases searched included BVSsalud, CINAHL, PsycINFO, PubMed, Scopus, Web of Science, and the virtual libraries CAPES and SciELO (Scientific Electronic Library Online). These sources were selected due to their multidisciplinary coverage, inclusion of Brazilian publications, methodological relevance, and alignment with the scope of this review. Searches were conducted using Medical Subject Headings (MeSH) from the U.S. National Library of Medicine and Health Sciences Descriptors (DeCS) to identify appropriate terms in both English and Portuguese. The Boolean operators AND and OR were applied to combine the following descriptors: "arts-based intervention," "health disparities," "health outcomes," "knowledge mobilization," "prejudice," "sexism," and "sexual and gender minorities." The full search strategy is outlined in Appendix A.

RESULTS

The initial database search retrieved a total of 17.413 records, distributed as follows: SciELO (n=13), BVSsalud

(n=729), Scopus (n=799), PubMed (n=8.688), CINAHL (n=5.347), PsycINFO (n=144), Web of Science (n=1.652), and CAPES (n=41). After applying the inclusion criteria, 12.756 publications were excluded for reasons such as being letters to the editor or opinion pieces, duplicates, lack of focus on the target population, or language incompatibility. Subsequently, 4.657 titles and abstracts were screened for relevance. Of these, 4.552 articles were excluded because their title and abstract did not address the subject of the study.

Of the remaining records (n=105), full-text articles were retrieved and assessed in detail. Following this process, an additional 77 studies were excluded, primarily due to the absence of descriptions of arts-based interventions aimed at improving LGBT+ healthcare.

In total, 28 studies met the inclusion criteria and were incorporated into the qualitative synthesis. These studies were analyzed to summarize and map the current evidence on the use of arts-based interventions to enhance healthcare for LGBT+ populations. Figure 1 illustrates the PRISMA flow diagram detailing the study selection process. Table 1 provides a summary of the included studies, outlining the author(s), year, study objectives, sample characteristics, and main findings.

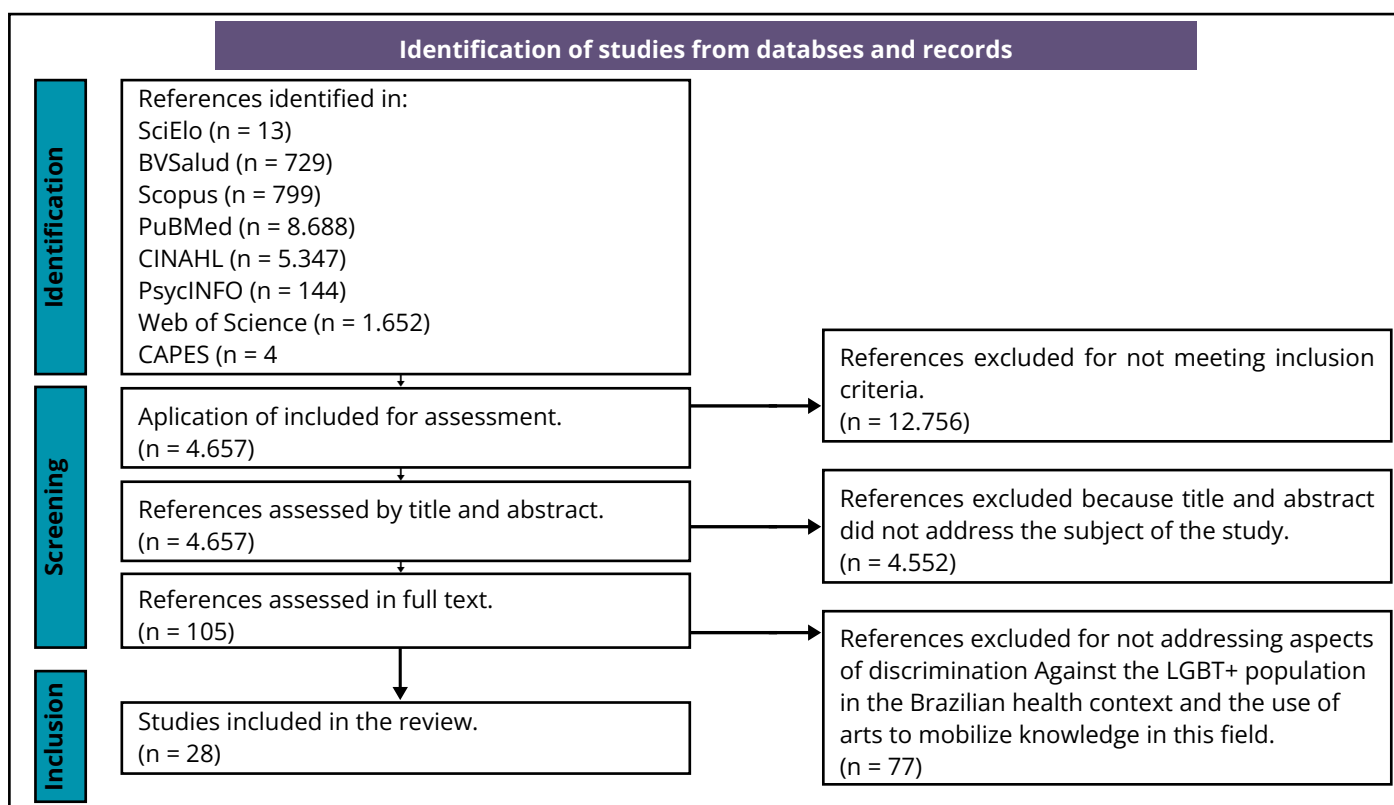


Figure 1. Flowchart of article selection in the databases.

Table 1. Summary of the included studies, outlining the author(s), year, study objectives, sample characteristics, and main findings.

Author / Year	Objective	Sample Characteristics	Main Findings
Almeida et al., (22) 2024	To analyze the main psychiatric comorbidities affecting LGBTQIA+ populations.	Integrative review of 11 articles (six reviews, one clinical trial, two qualitative studies, and two quantitative studies).	Depression, anxiety, and suicidal ideation were the most prevalent comorbidities, followed by drug abuse, stress, and self-harm. Limited healthcare access exacerbated mental health issues.
Barchin et al., (23) 2021	To evaluate undergraduate students' perceptions of LGBT+ health content during professional training.	335 undergraduate students in nursing, nutrition, medicine, physiotherapy, biomedicine, and pharmacy at a higher education institution in São Paulo (survey conducted online, Feb–Apr 2019).	48.36% did not feel prepared to provide comprehensive care for LGBTI+ populations; 82.39% reported that the National Policy for Comprehensive LGBT Health (PNSILGBT) was not covered during training. Students perceived insufficient coverage of LGBT+ health issues in their curricula.
Batista et al., (24) 2024	To analyze the association between internalized homophobia and depression among homosexual and bisexual individuals in Brazil.	926 participants from an online LGBT+ health survey conducted between August and November 2020.	Internalized homophobia was positively associated with depression only among homosexual participants. The overall prevalence of depression was 23.7%.
Cardoso, Paim, Catelan, & Liebross (25) 2023	To propose a schema therapy intervention for sexual and gender minorities (SGM), addressing sociocultural aspects to promote healthy functioning and counter internalized oppression.	Theoretical study without participants, focused on SGM populations.	The article proposed a schema therapy model tailored to minority stress and the "internal critic/sociocultural oppressor" schema mode. It emphasized strengthening individuals' healthy schema modes and promoting interventions that extend beyond clinical settings to drive positive social change. Common adverse experiences (abandonment, shame, emotional deprivation, inhibition, social isolation, approval-seeking, vulnerability, and punishment) were found to activate maladaptive schemas. Therapy should focus on limited reparenting, strengthening the healthy mode, and confronting the internal critic.
Domene et al., (26) 2024	To present the state of the art regarding cisgender same-sex parenting within public health.	Scoping review of 31 studies (empirical research, opinion papers, dossiers, essays, and reviews).	Discussions on same-sex parenting emphasized barriers—including legal, ethical, technical, financial, and prejudice-related—over facilitators such as acceptance, availability of reproductive methods, and professional training.
Ferreira, Batista, & Bouillet, (27) 2024	To categorize barriers faced by LGBTQIA+ populations in accessing Primary Healthcare (PHC).	Integrative review of 14 scientific articles.	Barriers were classified as (1) physical/organizational (e.g., lack of gender-neutral bathrooms), (2) social (prejudice), and (3) professional (lack of adequate training).
Figueiredo, Rezende, & Moura, (28) 2023	To examine the relationship between sexual prejudice and attitudes toward gay and lesbian individuals, assessing whether prejudice predicts such attitudes.	430 university students (mean age = 23.5 years; 72.5% women) from a public institution in João Pessoa, Paraíba. Instruments: Sexual Prejudice Scale and Attitudes Toward Gays and Lesbians Scale.	Sexual prejudice positively predicted pathologization, rejection of closeness, and heterosexism, while negatively predicting support for homosexuals. Prejudice was identified as a key explanatory mechanism for discriminatory attitudes.

Guimarães et al., (29) 2024	To highlight the challenges faced by LGBTQIAP+ patients in dental care and strategies for improvement.	Integrative review of six scientific articles.	Oral health professionals often perceived their workplaces as welcoming; however, LGBTQIAP+ patients reported discomfort in environments that were not actively inclusive.
Guimarães, Lorenzo, & Mendonça, (30) 2021	To investigate stigmatizing discourses among physicians and nurses in primary care units in Brazil.	Physicians and nurses from 32 primary care units in the Midwest and Northeast regions of Brazil; qualitative discourse analysis.	LGBT identities were associated with risk groups, mental disorders, and condemnable behaviors in professionals' perceptions. Findings highlight the need for innovative training to challenge stigma within healthcare education.
Leite et al. (31) (2021)	To investigate the association between gender-based discrimination (GBD), medical consultations, and HIV testing among trans women in three major capitals of northeastern Brazil.	Cross-sectional study with 864 trans women recruited through respondent-driven sampling (RDS) in Salvador (n = 166), Recife (n = 350), and Fortaleza (n = 348) in 2017. Eligible participants identified as trans women, travestis, or another gender identity different from the male sex assigned at birth, were aged 18 or older, lived/ studied/worked in the study cities, had at least one sexual partner in the previous 12 months, and provided informed consent. Most reported having experienced gender-based discrimination at some point in life (87.3%).	Among participants, 67.0% had medical consultations and 45.8% underwent HIV testing in the last 12 months. Multivariate analysis showed that GBD was associated with reduced odds of medical consultation (OR = 0.29; 95% CI: 0.14–0.63) and HIV testing (OR = 0.41; 95% CI: 0.22–0.78). GBD reduced the likelihood of consultations by 71% and HIV testing by 59%, confirming its predictive role in limiting access to healthcare and HIV prevention technologies for trans women.
Lima & Silva Júnior (32) 2024	To characterize interpersonal and self-inflicted violence against LGBTQIA+ individuals in Belém (PA) between 2009 and 2022.	457 cases of violence were reported in the National System for Notifiable Diseases (SINAN).	Psychological/moral violence was most prevalent, occurring mainly in domestic settings and typically perpetrated by partners. Most victims were adults, mixed-race, and homosexual.
Macedo et al., (33) 2022	To describe health strategies and actions aimed at LGBT+ populations, with emphasis on multidisciplinary approaches.	33 undergraduate students from nursing, psychology, nutrition, and physiotherapy programs at a higher education institution in Mogi das Cruzes, São Paulo.	Most students were unfamiliar with public health policies for LGBT+ populations. The main obstacles to humanized care were prejudice and lack of knowledge.
Mendonça & Barros, (30) 2022	To identify barriers faced by older LGBTQIAPN+ individuals in accessing healthcare.	Integrative review of six studies (four cross-sectional and two qualitative), including 1,405 participants aged 55 years or older.	The main barriers included heteronormativity in healthcare services, fear of discrimination, unprepared professionals, and lack of specialized services.
Moura et al., (34) 2023	To identify vulnerabilities in LGBT+ health within healthcare services.	Integrative review of six articles published between 2017 and 2022.	Identified vulnerabilities included gender- and social-based inequalities, difficulties in STI prevention, prejudice, domestic violence, and lack of professional preparedness.
Oliveira et al., (35) 2022	To conduct a psychosocial analysis of violence against LGBT+ populations.	Literature review of articles, books, and reports.	Violence (physical, sexual, and psychological) and prejudice negatively affected LGBT+ physical and mental health, contributing to depression, anxiety, and suicidal ideation.

Oliveira et al., (36) 2023	To map programmatic vulnerability among older LGBTQIA+ individuals.	Scoping review of 18 articles, analyzed qualitatively.	Older LGBTQIA+ individuals experience programmatic vulnerability in healthcare services and LTCIs, primarily due to stigma and prejudice from professionals.
Oliveira, Sousa, & Torres, (37) 2024	To analyze the sociodemographic characteristics of sexual and gender minorities living with children and their association with healthcare.	958 participants from an online LGBT+ health survey conducted in Brazil in 2020.	The prevalence of living with children was 5.3%, higher among cisgender women and Black/brown participants. Frequent cohabitation with children was associated with receiving lower-quality healthcare.
Oliveira, Teixeira, & Costa, (38) 2023	To report the experience of a health group for LGBTQIA+ individuals in a primary care unit in northern Rio de Janeiro.	Group composed mainly of trans men, coordinated by female physicians and a community health agent.	The group increased discussions on sexual and gender diversity in the unit. The participation of a community health agent was crucial for conflict mediation and group sustainability.
Reis & Carvalho, (39) 2023	To analyze key issues in healthcare delivery to LGBTI+ populations in Brazilian PHC.	Integrative review of 16 publications (15 articles and one thesis) from 2012 to 2022, sourced from BVS and SciELO.	Moral and religious values influenced prejudice. Healthcare professionals, shaped by cultural and family teachings, contributed to the exclusion of LGBTI+ populations from SUS services.
Rufino, Carvalho Filho, & Madeiro, (40) 2022	To describe the experiences of violence against lesbian and bisexual women in Brazil.	437 cisgender women from all Brazilian regions; most were aged 20–29 (54.2%), white (59.5%), and with higher education (77.6%). 57.9% identified as lesbian and 37.2% as bisexual.	65% reported experiencing violence, predominantly psychological (39.8%), occurring mainly in public spaces (63%), perpetrated mostly by men (73.2%) and strangers (66.2%), and often repeated (82%). Lesbian women were more likely than bisexual women to experience repeated violence and public harassment. Narratives included intimidation, assault, sexual violence, insults, and denial of services in restaurants and bars. Such lesbophobic and biphobic events had severe repercussions, especially on mental health.
Santana et al., (41) 2020	To analyze barriers to healthcare access for LGBT+ individuals.	Integrative review of 10 scientific articles.	Access was hindered by stigma, prejudice, exclusion, and indifference. Despite existing public policies, professional unpreparedness and patients' fear of disclosing their identities remained significant barriers.
Santos et al., (42) 2024	To analyze LGBT+ access to Primary Healthcare (PHC) in Senhor do Bonfim, Bahia.	Ten LGBT+ individuals enrolled in municipal PHC services were interviewed through semi-structured methods.	Weaknesses in LGBT+ reception were identified, including reports of unqualified professionals, prejudice, discrimination, and stigma.
Santos Junior & Oliveira, (43) 2024	To analyze the weaknesses and strengths of PHC professionals in providing care to LGBTQIA+ users.	Integrative literature review (LILACS, BVS, SciELO) using descriptors: Reception, LGBT/ LGBTQIA+ individuals, Primary/ Basic Care.	Barriers included prejudiced and stigmatizing discourses, a lack of holistic care (overemphasis on STIs), and unqualified reception, which hindered access. Findings underscore the need for culturally sensitive professional training.
Santos, Vasconcellos, & Pereira (44) 2023	To examine the interactions between SUS professionals and LGBTQIA+ individuals in hospital care.	Semi-structured interviews and field observations with five healthcare professionals (nurses and technicians) in a hospital in Rio de Janeiro.	LGBTQIA+ individuals experienced prejudice in hospital settings, resulting from both insufficient professional training and the social biases of healthcare providers.

Senne et al., (45) 2023	To evaluate the quality of Primary Healthcare (PHC) as perceived by sexual and gender minorities (LGBTQIAP+).	314 LGBTQIAP+ individuals in Brazil (predominantly young, white, cisgender, homo/bisexual). Online cross-sectional descriptive-analytical survey using the reduced PCATool.	Frequent conditions included alcohol/drug use, weight changes, and mental illness. PHC was generally rated as low quality, with weaknesses in community orientation, coordination, family-centeredness, accessibility, and continuity of care.
Torelli, Bessa, & Graeff, (46) 2023	To investigate, describe, and analyze the scientific literature on prejudice against older LGBTQIA+ individuals in Long-Term Care Institutions for the Elderly (LTCIs).	Scoping review of 31 studies (qualitative, quantitative, bibliographic, documentary, and reviews) published between 2006 and 2021.	Lack of staff preparation and a history of prejudice foster fear of institutionalization among older LGBTQIA+ individuals. Staff training was identified as essential.
Torres, Gonçalves, Pinho, & Souza, (47) 2021	To characterize the LGBT+ population during the COVID-19 pandemic and assess its impacts.	976 LGBT+ individuals (≥18 years) in Brazil; online cross-sectional study with convenience sampling.	Most participants resided in the Southeast (80.2%); the mean age was 31.3 years. 4.8% tested positive for COVID-19. High levels of weekly discrimination (36%) and depression (24.8%) were reported. Mental health concerns and homophobia persisted, highlighting the continued need for professional training.
Vasconcelos et al., (48) 2023	To analyze the association between self-identified sexual orientation and violence in the Brazilian population.	Data from the 2019 National Health Survey (PNS), with 88,531 individuals aged 18 years or older.	LGBT+ individuals were more than twice as likely to experience violence (psychological, physical, or sexual) compared to heterosexual individuals.

As shown in Table 1, the studies were published between 2020 and 2024, with a predominance of publications in 2023 and 2024. This trend reflects growing academic interest in LGBT+ health issues within the Brazilian context. Study objectives ranged from investigating barriers to healthcare access, analyzing the impacts of LGBTphobia, and assessing healthcare professional training, to proposing clinical and educational interventions. Study samples included LGBT+ individuals, healthcare professionals, and students, and the methodological approaches encompassed qualitative, quantitative, and literature review designs.

The included studies addressed multiple dimensions related to LGBT+ health. For analytical clarity, the findings were organized into thematic categories: (1) Prejudice, Stigma, and Discrimination in Healthcare Access and Provision, (2) Mental Health and Homophobia, (3) Professional Training and Capacity-Building, and (4) Physical, Psychological, and Institutional Violence.

Prejudice, Stigma, and Discrimination in Healthcare Access and Provision

The evidence indicates that LGBT+ individuals face persistent barriers in accessing healthcare services, often related to institutional and interpersonal discrimination. Prejudice manifested in inappropriate conduct by professionals, lack of recognition of gender identity, and inadequate care environments, compromising the quality and continuity of care. These barriers contribute to inequalities in service availability and reinforce mistrust toward healthcare institutions.

Mental Health and Homophobia

Several studies highlighted the negative effects of discrimination on mental health outcomes among LGBT+ individuals. Internalized homophobia emerged as a recurring factor, strongly associated with higher rates of depression and psychological distress. These findings emphasize the cumulative impact of stigma and social exclusion on both emotional well-being and health-seeking behaviors.

Professional Training and Capacity-Building

A consistent theme across the studies was the insufficient preparation of healthcare professionals to address the specific needs of LGBT+ populations. This gap was attributed to the absence of LGBT+ health content in undergraduate curricula and to shortcomings in continuing education policies across different levels of care. As a result, professionals often lack technical and ethical competencies to provide inclusive and humanized care. The findings reinforce the need for ongoing professional education, the promotion of humanized care practices, and the development of specific public policies targeting LGBT+ health. The studies advocate for structural interventions aimed at reducing institutional violence and ensuring equitable access to healthcare services, highlighting the urgency of coordinated actions within the healthcare system.

Physical, Psychological, and Institutional Violence

Finally, the studies also emphasized heightened vulnerability among specific subgroups, particularly older LGBT+ individuals. Intersecting factors such as gender, race, age, and social class were identified as elements that exacerbate exposure to violence, discrimination, and barriers to care. These intersecting vulnerabilities directly influence health outcomes and access to services.

As proposed in one of the objectives of this review, exploring arts-based mobilization as a strategy to engage healthcare professionals in Brazil, it was observed that none of the included studies employed this type of intervention. This finding highlights an important gap in the literature regarding the use of arts-based approaches in the Brazilian healthcare context, suggesting an underexplored field with significant potential for future research and for the development of innovative practices in health education.

The present article aimed to explore the experiences of discrimination faced by LGBT+ individuals in healthcare contexts and to analyze the impact of arts-based strategies in mobilizing healthcare professionals' knowledge regarding this population. The use of artistic expressions as tools for awareness-raising and professional training in healthcare, specifically addressing LGBT+ populations, remains largely underexplored in the Brazilian context, with no studies on the subject identified in the databases consulted.

The study conducted by Dullius et al. (49) introduces an innovative approach by employing poems and paintings to convey LGBT+ perspectives on healthcare. However, the study does not address the direct applicability of these materials among healthcare professionals. In this study, arts-based knowledge mobilization through art, poetry, and education demonstrated significant potential to foster understanding of LGBT+ experiences and to challenge barriers within the healthcare system. However, the limited number of published studies in this area represents a notable limitation of this review, restricting a broader assessment of the impact of arts-based approaches. The barriers and forms of discrimination experienced by LGBT+ individuals are diverse and, for analytical purposes, were organized into four main categories.

Prejudice, Stigma, and Discrimination in Healthcare Access and Provision

The findings of this review demonstrate that discrimination is a determining factor in restricting LGBT+ populations' access to healthcare services, directly affecting the quality of care received. Studies such as those by Leite et al. (31) and Caetano et al. (12) show that gender- and sexuality-based discrimination is associated with lower rates of medical consultations and STI testing, as well as functioning as a predictive variable for the exclusion of trans women from healthcare services and HIV prevention strategies.

These barriers manifest in multiple dimensions, including social stigma, moral and religious factors, exclusion, indifference, social and gender vulnerabilities, domestic violence, inadequate professional training, institutional heteronormativity, lack of specialized services, and the recurrent fear of discrimination (27,30,34,42). Such factors contribute to the disengagement of LGBT+ populations from healthcare services, as noted by Reis and Carvalho (39), and underscore the urgent need for structural transformation in care models.

Furthermore, insufficient professional training and the absence of curricular content on sexual and gender diversity perpetuate discriminatory practices and limit the provision of humanized care (14,44). For example, reproductive care for same-sex couples continues to face significant barriers—even in contexts with welcoming attitudes and available methods—due to the lack of adequate professional training (26).

The invisibility of specific groups, such as older LGBT+ individuals, also emerges as a critical gap. Espínola et al.(50) highlight the “double invisibility” faced by this group, characterized by the absence of social and family support, psychological distress, and generic healthcare practices that overlook their specific needs. This reality underscores the importance of an intersectional approach that considers the multiple social markers shaping experiences of discrimination and exclusion (51).

In light of this scenario, it becomes evident that the full implementation of Brazil's National Policy for Comprehensive LGBT Health (52) is essential, with measures aimed at promoting equity, humanization, and recognition of the specific healthcare needs of LGBT+ populations. The inclusion of diversity-related content in undergraduate curricula and continuing professional education is a fundamental strategy to foster more inclusive practices and to dismantle the stigma that continues to permeate healthcare services in Brazil.

Professional Training and Capacity-Building

The gap in the training of healthcare students regarding the needs of LGBT+ populations is a recurring and concerning issue. Macedo et al. (33) found that most students are unaware of public health policies directed at this population, with prejudice and lack of knowledge being the main obstacles to adequate preparation. This lack of training compromises the quality of care and perpetuates discriminatory practices within healthcare services.

The need to strengthen social support networks is evident, particularly through the creation of welcoming care spaces and the training of professionals to address the specific health needs of older gay men. Bessa and colleagues (46) highlight the importance of safe intergenerational environments that promote mutual support, expand the perception of citizenship, and help prevent social isolation in old age.

Perceptions of unpreparedness are also reflected in the findings of Barchin et al. (23), whose study with healthcare students revealed that 48.36% did not feel prepared to provide comprehensive care for LGBT+ individuals, and 82.39% reported that the National Policy for Comprehensive LGBT Health was not addressed in

their academic training. This gap extends to practicing professionals as well. For example, Guimarães et al. (29) identified a discrepancy between oral healthcare professionals' perception of the inclusivity of their practice and LGBT+ patients' lived experiences, with patients frequently reporting discomfort in environments that are not actively inclusive.

Negative perceptions of aging, combined with institutional hostility, unethical conduct, and the absence of specific competencies for LGBT+ care among healthcare professionals, reinforce the urgency of mandatory training in cultural competence. Such measures are essential for mitigating systemic discrimination in healthcare services (53).

In the context of primary care, which serves as the main entry point into the health system, significant shortcomings persist. Prejudiced discourses, a narrow focus on STIs, and unqualified care provision are recurrent barriers. However, this setting also offers opportunities for developing more humanized and inclusive practices(43). Strategies such as establishing clinical case discussion groups within health units may contribute to improving care quality and mediating conflicts (38).

Finally, the expansion of national research on LGBT+ health in the context of continuing education is essential for developing effective training programs for healthcare professionals. Educational interventions have the potential to foster significant improvements in clinical practice, ensuring equitable, stigma-free care and greater healthcare access for LGBT+ individuals (53).

Mental Health and Homophobia

The mental health of LGBT+ populations is profoundly impacted by experiences of prejudice, discrimination, and social exclusion, occurring both in family and institutional environments. Recent studies indicate that depression, anxiety, suicidal ideation, substance abuse, chronic stress, and self-harming behaviors are significantly more prevalent among LGBT+ individuals (22). These conditions are exacerbated by the lack of qualified access to healthcare services, revealing a critical gap in the psychosocial support available to this population.

Internalized homophobia, for example, has been associated with depressive symptoms in a study conducted by Batista et al. (24), demonstrating how social prejudice can be subjectively incorporated, generating psychological suffering. This suffering is further aggravated by inadequate societal and healthcare responses, which often fail to recognize or address the specificities of LGBT+ mental health (47).

Family support also emerges as a determining factor in the mental health of LGBT+ individuals. Cohn-Schwartz et al. (54) found that relationships with biological family members tend to be more restricted and unstable, whereas bonds established with friends and partners, the so-called "chosen family", offer greater acceptance and support. Coexistence with these chosen families is associated with improved mental health indicators, contrasting with the negative effects observed in family contexts marked by rejection.

Bessa and colleagues (46) reinforce this perspective, showing that older gay men report receiving more support from friends and partners than from biological relatives. Participants emphasized the impact of historical context and intersectionality, noting that minority stress is a direct consequence of lifelong stigmatization, influenced by families, communities, and society at large.

These findings underscore the urgent need to train healthcare professionals to address the specific mental health demands of LGBT+ populations. The absence of cultural and ethical competencies within healthcare services contributes to the perpetuation of institutional hostility and neglect (53). As a therapeutic alternative, Cardoso et al. (25) suggest schema therapy as an effective approach to fostering healthier coping strategies and promoting positive interventions in LGBT+ mental healthcare.

In primary care, the cornerstone of the health system, serious weaknesses remain evident. Unqualified care, a narrow focus on STIs, and prejudiced discourses still predominate, although there is also potential for more humanized and inclusive practices (43). Strategies such as clinical case discussion groups within health units may contribute to improved care provision and conflict mediation (38).

Finally, expanding national research on LGBT+ mental health in the context of continuing education is crucial for developing effective training programs for healthcare professionals. Educational interventions are fundamental to ensuring equitable, stigma-free care and improved access to mental health services for LGBT+ populations (53).

Physical, Psychological, and Institutional Violence

Despite advances in public policy and the growing visibility of LGBT+ demands, healthcare environments remain marked by structural and symbolic barriers that perpetuate various forms of violence. Vasconcelos et al. (48) demonstrate that LGBT+ individuals are more than twice as likely to experience violence of any kind, with psychological or moral violence being the most prevalent, often occurring in domestic settings and frequently perpetrated by spouses (32).

The situation worsens in the context of aging. Older LGBT+ individuals face programmatic vulnerability within healthcare services and long-term care institutions, where stigma and prejudice remain pervasive (38). Many elderly individuals, fearing discrimination, choose to conceal their sexual orientation or gender identity as a strategy to access care without facing violence or stigma (55). While understandable, this concealment contributes to the silencing of identities and the intensification of psychological suffering.

Violence against lesbian and bisexual women also reaches alarming levels. Rufino, Carvalho Filho, and Madeiro (40) found that 65% of these women had experienced some form of violence, predominantly psychological, occurring in public spaces, largely perpetrated by men, and often repeated. Such experiences have direct repercussions on mental health, intensifying anxiety, depression, and stress.

Regardless of its form, physical, sexual, or psychological, violence has profound and lasting impacts on the physical and mental health of LGBT+ individuals (35). Society remains structured around entrenched stigmas and beliefs about sexuality and aging, which contribute to fragmented care and the weakening of support for older adults.

Given this scenario, the implementation of strategies to foster safer, more welcoming, and discrimination-

free care environments is urgently required. Training healthcare professionals is essential so that they can recognize and address the multiple forms of violence affecting LGBT+ populations. Schema therapy, as proposed by Cardoso et al. (25), offers a promising therapeutic approach to strengthening adaptive coping mechanisms and fostering positive interventions in mental healthcare for this population.

Some limitations should be considered when interpreting this study's results. First, the search was restricted to the Brazilian context, which may limit the generalizability of findings to other countries and sociocultural realities. Additionally, the search period and the databases selected may have influenced the breadth of materials identified, particularly given the scarcity of publications on certain topics, such as the use of arts-based strategies in health education targeting LGBT+ populations. The exclusion of materials such as theses, dissertations, and other academic works may also have limited the diversity of perspectives analyzed. These limitations point to the need for methodological expansion in future studies, incorporating diverse geographic contexts, data sources, and interdisciplinary approaches to enrich the understanding of both the challenges and potentialities of LGBT+ healthcare.

CONCLUSION

Healthcare provision for LGBT+ populations in Brazil continues to face numerous barriers and forms of discrimination, which manifest both directly and indirectly in care settings. Cultural assumptions and personal beliefs of healthcare professionals often override the principles of qualified care, thereby exacerbating these challenges. Insufficient academic training and deficiencies in continuing education perpetuate significant gaps in service delivery, particularly by neglecting the systematic incorporation of LGBT+ health into curricula and professional development programs.

Strengthening healthcare professionals' cultural competence regarding LGBT+ specificities, through the regular provision of training and educational initiatives, is an urgent priority for consolidating a truly humanized and equitable practice of care. Within this context, the exploration of innovative approaches—particularly the use of arts-based interventions as pedagogical strategies for professional sensitization—emerges as

a promising yet underexplored avenue in the Brazilian context.

Future research should prioritize arts-based approaches as potential tools to address persistent barriers to healthcare access and provision for LGBT+ populations. In particular, further studies should examine arts-based educational interventions for healthcare professionals that explicitly engage with LGBT+ health discrimination and structural barriers embedded within healthcare systems. Such research is critical for addressing health inequities and for supporting the development of equal and equitable healthcare responses. In addition, systematic evaluation of the impact of arts-based knowledge mobilization and educational initiatives on the attitudes, beliefs, and practices of healthcare professionals, policymakers, educators, and the general public is warranted. In the Brazilian context, where culturally entrenched heteronormative norms and ongoing discrimination against LGBT+ populations remain prevalent, arts-based representations of LGBT+ healthcare experiences may play a crucial role in raising awareness and promoting more inclusive, responsive, and affirming healthcare practices.

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- Materials: W.R.D., C.A.L.
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REFERENCES

1. Linhares, E. M., Andrade, J. da C., Meneses, R. O. C., et al. (2021). Angústia, insegurança e medo na população LGBTQIA+: Comprometimento da saúde mental na pandemia da COVID-19. *Research, Society and Development*, 10(8), e43810817136. <https://doi.org/10.33448/rsd-v10i8.17136>
2. Goffman E. (2004). *Estigma - notas sobre a manipulação da identidade deteriorada*. 4th rev. ed. São Paulo: LTC; 160 p.
3. Drabble, L. A., & Eliason, M. J. (2021). Introduction to special issue: Impacts of the COVID-19 pandemic on LGBTQ+ health and well-being. *Journal of Homosexuality*, 68(4), 545–559. <https://doi.org/10.1080/00918369.2020.1868182>
4. Gorczynski, P., Gibson, K., Clarke, N., Mensah, T., & Summers, R. (2020). Examining mental health literacy, help-seeking behaviours, distress, and wellbeing in UK coaches. *European Physical Education Review*, 26(3), 713–726. <http://dx.doi.org/10.1177/1356336X19887772>
5. Wallach, S., Garner, A., Howell, S., Adamson, T., Baral, S., & Beyrer, C. (2020). Address exacerbated health disparities and risks to LGBTQ+ individuals during COVID-19. *Health and Human Rights Journal*, 22(2), 313–316.
6. Miskolci, R., & Pereira, P. P. G. (2022). Sexual and reproductive health and rights: A sociodemographic profile of primary healthcare professionals in the city of São Paulo and their perceptions on the issue. *Sexuality Research and Social Policy*, 19(3), 946–955. <http://dx.doi.org/10.1007/s13178-022-00701-2>
7. Mendes-Santos, C., Weiderpass, E., Santana, R., & Andersson, G. (2020). Portuguese psychologists' attitudes toward internet interventions: Exploratory cross-sectional study. *JMIR Mental Health*, 7(4), e16817. <https://doi.org/10.2196/16817>
8. Fish, J. N., McInroy, L. B., Pacey, M. S., Williams, N. D., Henderson, S., Levine, D. S., et al. (2020). "I'm kinda stuck at home with unsupportive parents right now": LGBTQ youths' experiences with COVID-19 and the importance of online support. *Journal of Adolescent Health*, 67(3), 450–452. <https://doi.org/10.1016/j.jadohealth.2020.06.002>
9. Moore, S. E., Wierenga, K. L., Prince, D. M., Gillani, B., & Mintz, L. J. (2021). Disproportionate impact of the COVID-19 pandemic on perceived social support, mental health and somatic symptoms in sexual and gender minority populations. *Journal of Homosexuality*, 68(4), 577–591. <https://doi.org/10.1080/00918369.2020.1868184>
10. Paranhos, W. R., Willerding, I. A. V., & Lapolli, É. M. (2021). Training of health professionals to care for LGBTQI+. *Interface: Communication, Health, Education*, 25. <https://doi.org/10.1590/interface.200684>
11. Gahagan, J., & Subirana-Malaret, M. (2018). Improving pathways to primary health care among LGBTQ populations and health care providers: Key findings from Nova Scotia, Canada. *International Journal for Equity in Health*, 17(1). <https://doi.org/10.1186/s12939-018-0786-0>
12. Borges Romeiro Caetano, B., Dias Oliveira, D., Schaffer Ramos, T., Serra Bavaresco, C., Luiz Stefanello Busato, A., Itzel Acosta Moreno Vinholes, J., et al. (2024). LGBTQIA+ vs the Brazilian Unified Health System: Basic health unit use and associated factors. *Journal of Homosexuality*, 71(14), 3362–3380. <https://doi.org/10.1080/00918369.2023.2295331>
13. Paulino, D. B., Rasera, E. F., & Teixeira, F. D. B. (2019). Discourses on the healthcare of lesbian, gay, bisexual, and transgender (LGBT) people adopted by doctors working in Brazil's Family Health Strategy. *Interface: Communication, Health, Education*, 23. <https://doi.org/10.1590/Interface.180279>
14. Dullius, W. R., Martins, L. B., & Cesnik, V. M. (2019). Systematic review on health care professionals' competencies in the care of LGBT+ individuals. *Estudos de Psicologia (Campinas)*, 36. <https://doi.org/10.1590/1982-0275201936e180171>
15. Miskolci, R., Claudio, M., Canavese, D., Bonsucesso, F., Polidoto, M., et al. (2022). Health challenges in LGBTI+ population in Brazil: A scenario analysis through the triangulation of methods. *Ciência & Saúde Coletiva*, 27(10), 3815–3824. <https://doi.org/10.1590/1413-81232022710.06602022>
16. Hyde, E., & O'Keefe-McCarthy, S. (2023). Use of arts-based methods in research design to enhance patient engagement. *Canadian Journal of Cardiology*, 39(10), S109. <https://doi.org/10.1016/j.j>

- [cjca.2023.06.165](https://doi.org/10.33719/sexscij.2604.27)
17. Fancourt, D., & Finn, S. (2019). What is the evidence on the role of the arts in improving health and well-being? WHO Regional Office for Europe.
18. Meyer M. Concerte research poetry: a visual representation of metaphor. vol. 2, A Transdisciplinary Journal.
19. Phillips, E. K., Chudyk, A. M., Monnin, C., Schultz, A. S. H., Arora, R. C., Duhamel, T. A., et al. (2024). The use of arts-based methods to enhance patient engagement in health research. *Health Expectations*, 27. John Wiley and Sons Inc. <https://doi.org/10.1111/hex.70127>
20. Uman, L. S. (2011). Information management for the busy practitioner: Systematic reviews and meta-analyses. *Journal of the American Academy of Child & Adolescent Psychiatry*, 20(1), 57-59.
21. Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., et al. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *The BMJ*, 372. BMJ Publishing Group. <https://doi.org/10.1136/bmj.n71>
22. Almeida, N. K. S. de, Lavoratti, A. C., Sarolli, M. E. B., Nascimento, S. C. da S., & Ferreira, B. K. (2024). Desafios na saúde LGBTQIA+: A prevalência de comorbidades psiquiátricas na população LGBTQIA+. *Brazilian Journal of Health Review*, 7(5), e72980. <https://doi.org/10.34119/bjhrv7n5-214>
23. Barchin, V. F., De Carvalho, B., De Moraes Santos Marques, S., Franco, C. R. P., & Garzin, A. C. A. (2021). Perception of undergraduate health field students about approaching LGBTI+ health. *O Mundo da Saúde*, 45(1), 175-186. <https://doi.org/10.15343/0104-7809.202145175186>
24. Batista, T. S., Tavares, F. M. de P., Gonçalves, G. P., & Torres, J. L. (2024). Homofobia internalizada e depressão em mulheres e homens homossexuais e bissexuais: Inquérito de saúde LGBT+, 2020. *Ciência & Saúde Coletiva*, 29(9). <https://doi.org/10.1590/1413-81232024299.05412023>
25. Cardoso, B. L. A., Paim, K., Catelan, R. F., & Liebross, E. H. (2023). Minority stress and the inner critic/oppressive sociocultural schema mode among sexual and gender minorities. *Current Psychology*, 42(23), 19991-19999. <http://dx.doi.org/10.1007/s12144-022-03086-y>
26. Domene, F. M., Da Silva, J. D. L., Toma, T. S., da Silva, A., & Gomes, R. (2024). Reproduction in cisgender same-sex couples: A scoping review. *Ciência & Saúde Coletiva*, 29. Associação Brasileira de Pós-Graduação em Saúde Coletiva. <https://doi.org/10.1590/1413-81232024294.18172023EN>
27. Ferreira, L. M., Batista, G. G., & Boillet, L. É. M. (2024). Barreiras no acesso à Atenção Básica pela população LGBTQIA+. *Revista Brasileira de Medicina de Família e Comunidade*, 19(46), 3594. [https://doi.org/10.5712/rbmfc19\(46\)3594](https://doi.org/10.5712/rbmfc19(46)3594)
28. Vieira de Figueiredo, C., Teixeira Rezende, A., & Magalhães de Moura, H. (2023). O papel do preconceito sexual na compreensão das atitudes face a gays e lésbicas. *Psico*, 54(1), e39388. <https://doi.org/10.15448/1980-8623.2023.1.39388>
29. Guimarães, G. B. J., Ferreira, V. C. dos S., Santos, A. L. C. dos, Limeira, D. M., Frigerio, D. F. B., Moraes, A. J. da C., et al. (2024). A invisibilidade da comunidade LGBTQIAP+ na odontologia e seus impactos na saúde bucal: revisão de literatura integrativa. *Revista Contemporânea*, 4(10), e6234. <https://doi.org/10.56083/RCV4N10-138>
30. Guimarães, R. de C. P., Lorenzo, C. F. G., & Mendonça, A. V. M. (2021). Sexuality and stigma in health: An analysis of the pathologization of sexual diversity in the discourses of primary care professionals. *Physis: Revista de Saúde Coletiva*, 31(1). <https://doi.org/10.1590/S0103-73312021310128>
31. Leite, B. O., de Medeiros, D. S., Magno, L., Bastos, F. I., Coutinho, C., de Brito, A. M., et al. (2021). Association between gender-based discrimination and medical visits and HIV testing in a large sample of transgender women in northeast Brazil. *International Journal for Equity in Health*, 20(1). <https://doi.org/10.1186/s12939-021-01541-z>
32. Paz De Lima, G., Ferreira Da, A., & Júnior, S. (t.y.). Artigo original perfil das violências interpessoais e autoprovocadas contra pessoas LGBTIA+ na cidade de Belém/PA entre 2009 e 2022. <https://doi.org/10.36692/V16N3-32>
33. Alves Macedo, J. P., Santos Moreira Moraes, C., Lima Galeano, L., Aparecida Xavier Moreira da Silva, M., & Santana Santos, G. (2022). Políticas públicas de saúde à população LGBT: um olhar nas ações de

- saúde por meio da multidisciplinaridade. *Recisatec - Revista Científica Saúde e Tecnologia*, 2(1), e2154. <https://doi.org/10.53612/recisatec.v2i1.54>
34. Moura, L. P. de, Silva, K. V., Santos, A. T. dos, Capellari, C., & Berg, M. da S. (2023). Saúde e vulnerabilidade da população LGBT+: Uma revisão integrativa. *Research, Society and Development*, 12(5), e21512538966. <http://dx.doi.org/10.33448/rsd-v12i5.38966>
35. Sabóia, M., De Oliveira, P., Lima Do Nascimento, H., Silina, É., & Meneses, A. (2022). Análise psicossocial da violência contra a comunidade LGBT+. *Brazilian Journal of Science*, 1(9), 49–55. <https://doi.org/10.14295/bjs.v1i9.105>
36. Oliveira, F., Nóbrega Dantas, A.M., Lima Gome, G.L., dos Santos-Rodrigues, R.C., Oliveira de Albuquerque, F.K., Fernandes Barbosa, K.T. (2023). Vulnerabilidade programática sob a perspectiva de profissionais e pessoas idosas LGBTQIA+: uma revisão de escopo. *Saúde em Debate*, 47(1). <https://doi.org/10.1590/2358-28982023E19073P>
37. Oliveira, C. R. S., Sousa, C. C. V. de, & Torres, J. L. (2024). Quem são as minorias sexuais e de gênero que convivem frequentemente com filhos(as) e sua associação a cuidados em saúde. *Ciência & Saúde Coletiva*, 29(4). <https://doi.org/10.1590/1413-81232024294.19222023>
38. Oliveira, B. B., Teixeira, D. S., & Costa, B. F. da. (2023). Grupo LGBTQIA+ em uma unidade de saúde da família da zona norte do Rio de Janeiro. *Revista Brasileira de Medicina de Família e Comunidade*, 18(45), 3865. [https://doi.org/10.5712/rbmfc18\(45\)3865](https://doi.org/10.5712/rbmfc18(45)3865)
39. Reis, A. A., & Carvalho, H. R. de. (2023). A Atenção Primária à Saúde no Brasil e a população LGBTI+: uma revisão integrativa. *Saúde em Debate*, 47(spe1). <https://doi.org/10.1590/2358-28982023E19135P>
40. Rufino, A. C., Filho, C. E. W. B. de C., & Madeiro, A. (2022). Experiences of violence against lesbian and bisexual women in Brazil. *Sexual Medicine*, 10(2). <https://doi.org/10.1016/j.esxm.2021.100479>
41. Santana, A. D. da S., Lima, M. S. de, Moura, J. W. da S., Vanderley, I. C. S., & Araújo, E. C. de. (2020). Dificuldades no acesso aos serviços de saúde por lésbicas, gays, bissexuais e transgêneros. *Revista de Enfermagem UFPE on line*, 14. <https://doi.org/10.5205/1981-8963.2020.243211>
42. Santos, J. F. dos, Silva, A. A. da, Santos, E. A., & Silva, S. S. da. (2024). Acesso da população LGBT aos serviços de Atenção Primária à Saúde em uma cidade do interior baiano. *Physis: Revista de Saúde Coletiva*, 34. <https://doi.org/10.1590/S0103-7331202434094pt>
43. Santos Junior, G. D. dos, & Oliveira, J. L. B. C. de. (2024). O acesso e acolhimento da população LGBTQIA+ na Atenção Primária à Saúde. *REPIS (Revista Educação, Pesquisa e Informação em Saúde)*, e0250. <https://doi.org/10.71209/repis.2024.2.e0250>
44. Santos, A. N., Vaconcellos, L. C. F. de, & Pereira, E. A. (2023). Diversidade sexual e de gênero e estigmas sociais no SUS em relação às pessoas LGBTQIA+: observações no Rio de Janeiro. *Saúde em Debate*, 47(spe1). <https://doi.org/10.1590/2358-28982023E19009P>
45. Senne, E. R., do Carmo Miranda, L. F., de Souza, G. L. S., da Silva, S. A., & do Nascimento, M. C. (2022). Self-reported health conditions, quality of Primary Health Care and associated factors according to sexual and gender minorities. *Medicina (Ribeirão Preto)*, 55(4). <https://doi.org/10.11606/issn.2176-7262.rmrp.2022.194664>
46. Torelli, W. R. N., Bessa, T. A. de, & Graeff, B. (2023). Preconceito contra pessoa idosa LGBTQIA+ em Instituições de Longa Permanência para Idosos (ILPI): uma revisão de escopo. *Ciência & Saúde Coletiva*, 28(11), 3123–3135.
47. Torres, J. L., Goncalves, G. P., De Araujo Pinho, A., & Do Nascimento Souza, M. H. (2021). The Brazilian LGBT+ Health Survey: Methodology and descriptive results. *Cadernos de Saúde Pública*, 37(9). <https://doi.org/10.1590/0102-311x00069521>
48. Vasconcelos, N. M. de, Alves, F. T. A., Andrade, G. N. de, Pinto, I. V., Soares Filho, A. M., Pereira, C. A., et al. (2023). Violência contra pessoas LGB+ no Brasil: análise da Pesquisa Nacional de Saúde 2019. *Revista Brasileira de Epidemiologia*, 26(suppl 1). <https://doi.org/10.1590/1980-549720230005.supl.1.1>
49. Dullius, W. R., Michaelson, H. L., Nameghi, F. H., McCleary, L., Scortegagna, S. A., & O'Keefe-McCarthy, S. (2025). Using arts-based methods to

- understand LGBT+ experiences of accessing the Brazilian health care system. *Culture, Health & Sexuality*, 1–14. <https://doi.org/10.1080/13691058.2025.2539357>
50. Espinola, I. E. R., Carvalho, L. F. de, Silva, D. F. da, Souza, J. M. M., Oliveira, F. M. R. L. de, Galindo Júnior, J. U. F., et al. (2023). Aging and vulnerability: perspectives of LGBTQIA+ elderly persons. *Revista Rene*, 24, e83200. <http://dx.doi.org/10.15253/2175-6783.20232483200>
51. Da Silva Sousa, E. M., Alves, M. E. da S., De Araújo, L. F., Bezerra, I. E. de L., Silva, M. F. L., Lima Filho, G. de S., et al. (2022). People living with HIV, LGBT people and intersectional experiences: Young adults' conceptions of old age and aging. *Revista Portuguesa de Investigação Comportamental e Social*, 8(2), 1–14. <https://doi.org/10.31211/rpics.2022.8.2.243>
52. Ministério da Saúde. (2012). Política Nacional de Saúde Integral de Lésbicas, Gays, Bissexuais, Travestis e Transexuais. Secretaria de Gestão Estratégica Participativa. www.saude.gov.br/editora
53. Dullius, W. R., O'Keefe-McCarthy, S., McCleary, L., & Scortegagna, S. A. (2024). The LGBT+ individual perspective of aging in Brazilian society. *Psicologia: Teoria e Pesquisa*, 40. <https://doi.org/10.1590/0102.3772e40402.en>
54. Cohn-Schwartz, E., Gooldin, S., Meiry, L., Heidemann, R., & Bachner, Y. G. (2025). The unique characteristics of “families of choice” and families of origin of older LGBTQ + adults: Are they related to mental health? *Social Psychiatry and Psychiatric Epidemiology*. <https://psycnet.apa.org/doi/10.1007/s00127-025-02919-y>
55. Dullius, W. R., Gonçalves, D. T., & Scortegagna, S. A. (2022). Assistência dos Profissionais de Saúde No Envelhecimento Dos Indivíduos LGBT+. In: Scortegagna SA, Scortegagna HM, Fioreze C, editors. *Envelhecimento Humano: Saúde, Inovação e Desenvolvimento Sustentável*. 1 st ed. UPF Editora: Passo Fundo, p. 140-156.



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9. Acknowledgments

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