Preprints.org

Article

Understanding Vulvar Health in Nigeria: Self-Examination Practices, Knowledge, Attitude and Disease Prevalence

Tolu Adedipe * , Kofo Sanni-Sule , Laureen -Ashley K Djissi , Sylvia N Kama-Kieghe , Yetunde Ayo-Oyalowo , Olu A Adedipe , Chika Kingsley Onwuamah

Article

Understanding Vulvar Health in Nigeria: Self-Examination Practices, Knowledge, Attitude and Disease Prevalence

Running Title: Vulvar Self-Examination in Nigeria

Tolu Adedipe [1,2,*], Kofo Sanni-Sule [2], Laureen -Ashley K Djissi [2], Sylvia N Kama-Kieghe [3], Yetunde Ayo-Oyalowo [4], Olu A Adedipe [5] and Chika Kingsley Onwuamah [6]

[1]   Hull University Teaching Hospital, Hull, UK

[2]   Hull York Medical School, Hull, UK

[3]   SYNT faculty, Sheffield, UK

[4]   Clinical Lecturer, University of Lagos, Lagos, Nigeria

[5]   OmidcareNet Inc, Calgary, Canada

[6]   Nigerian Institute of Medical Research, Centre for Human Virology and Genomics

*   Correspondence: busolade@gmail.com

Abstract

<u>Background</u>: Vulvar diseases remain underreported and possibly under-recognised in Nigeria due to limited awareness, primarily, poor health-seeking behaviour, and absence of structured screening programmes. Vulvar self-examination (VSE) has been proposed as a low-cost method for early detection of vulvar pathology. <u>Objective</u>: To assess the knowledge, attitudes and practices surrounding vulvar self-examination and determine vulvar disease prevalence in a community-based Nigerian cohort. <u>Methods:</u> This cross-sectional observational study was conducted in September 2025 across three centres (two urban and one rural). Women attending a community cervical screening programme were recruited through convenience sampling. Participants completed a survey assessing knowledge, attitudes and practices related to VSE. Clinicians performed vulvar examinations, and detailed findings were recorded. Descriptive and inferential statistics were used. <u>Results:</u> A total of 183 women participated, with only 2.2% of women demonstrating some knowledge of structured VSE. Over 95% admitted they had benefited from the VSE education. The prevalence of vulvar disease was 15.8%, with all conditions being benign. Increasing age, urban residence and longer duration of menopause were significantly associated with higher odds of vulvar disease, though not statistically significant. <u>Conclusion:</u> Knowledge and practice of vulvar structured self-examination are poor among Nigerian women and represent a significant unmet need. Structured education on VSE may facilitate earlier detection of vulvar disease and improve outcomes.

Keywords: vulvar health; vulvar self-examination; Nigeria; women's health; gynaecology

Introduction

Vulvar health, an often-neglected component of women's health, particularly in low- and middle-income countries (LMICs), ranges from dermatoses, pain syndromes, pre-malignant lesions to malignancies. Specific to the Nigerian context, there is poor disease recognition due to limited awareness both in the woman and her Healthcare professional (HCP), social stigma, health inequity, and underreporting. Consequently, many women present late, often after failed self-medication or worsening symptoms.

There is a notable paucity of research on vulvar dermatoses and pain syndromes in Nigeria, with available literature predominantly focusing on vulvovaginal infections and a limited number of centre-based longitudinal studies on vulvar cancers.

The prevalence of Vulvar cancer in Nigeria is variable, with reports from different facilities, identifying rates of 2.6- 4% of all gynaecology cancers [1–3]. Though some studies align with the recognised global prevalence of 4%[4]; with the most common histologic subtype being Squamous cell carcinoma[5]. There is a question whether these figures reflect some degree of under-reporting due to poor disease recognition rather than a lack of disease.

Vulvar Squamous Cell carcinoma accounts for 80-90% of all vulvar cancers[4,5]; with Lichen Sclerosus, being a precursor lesion following a period of dysplasia in 3-7% of cases [6], and or being histologically present in adjacent cancer tissue in 50-60% [7].

It is recognised that early disease identification helps to reduce treatment burden, malignant disease transformation and may also help reduce the 30% of women who present with advanced VSCC disease with subsequent treatment morbidity and disease-mortality.[8] With a 44% risk of late-stage VSCC presentation in a southwest Nigerian study[3], this early identification tool is even more pertinent.

Given the paucity of longitudinal data within the Nigerian context, it is difficult to identify high-risk populations; therefore, a low-cost population-wide intervention such as VSE might be prudent to identify this rare disease, its precursors, facilitate prompt referrals and management, and gather evidence within local cohorts whilst mitigating limitations identified earlier.

This could reduce late-stage vulvar cancer presentation, reducing treatment morbidity (mutilating surgery: combined chemotherapy and radiotherapy interventions) and prolonging survival[1–3,8].

Vulvar self-examination (VSE) is an affordable, patient-led and potentially effective tool for early disease detection. Despite its potential, awareness and practice of VSE remain limited, even among educated populations. Structured vulvar examination is being advocated as a tool by various societies such as the European Society of Gynaecological Oncology (ESGO), International Society for the Study of Vulvovaginal Disease (ISSVD), European College for the Study of Vulval Disease (ECSVD), and European Federation for Colposcopy (EFC)[9] : to be an effective intervention to identify and monitor disease at time of cervical screening or as a patient-led model in the high-risk population

However, effective utilisation can be complicated by a limited understanding of the vulva anatomy, regardless of educational status, as demonstrated by studies which have shown that 56% of highly educated women identified their vulva erroneously as a vagina and only 33% could correctly draw and label a simple sketch of the vulva, raising concerns about effective communication to healthcare providers, of any vulvar concerns [10,11].

Within a high-risk population with several previous encounters with HCPs, ongoing recognised limitations with self-examinations, as revealed by the EDuCATE study, have been identified. 40% of a high-risk cohort of 455 women were not confident about recognising vulval abnormalities during a structured self-examination routine, requiring face-to-face specialist teaching, with underlying factors such as lack of awareness (38%), confidence (31%) and physical difficulties visualising the vulva (32%) being the top barriers[12].

This supports the need for repeated education to reinforce good practice and behaviours.

Objectives

This study aimed to evaluate the knowledge, attitudes and practices of VSE in a Nigerian cohort and measure the prevalence of vulvar pathology in a community setting.

Methodology

This was a cross-sectional observational study conducted over a week in September 2025, at 3 locations (2 urban and 1 rural). A convenience sampling approach was used.

Approval was received from the local Ethics Board.

The cohort included 183 women who had attended a community cervical screening outreach programme. Participation in the questionnaire following the cervical screening programme, which had included these 3 interventions: the visual inspection with acetic acid (VIA), the use of a urine

HPV dipstick (Synthgene©) test and Cervicovaginal sampling with the Evalyn Brush, implied consent, with an opt-out protocol, in place.

A detailed vulvar examination was performed at the time of the VIA and or at the time of obtaining the cervicovaginal sampling with the Evalyn© Brush, utilising the principles listed below.

Principles of vulvar self-examination:

. A structured process that involves both visual inspection and palpation of the vulva, including the clitoris, labia majora and minora, urethra, perineum, and anus.

. An external inspection of the mons pubis, labia majora, and perineum for any changes in colour, texture, or swelling; followed by gentle separation of the labia majora to examine the labia minora, clitoris, and vestibule, looking for growths, rashes, sores, or unusual discharge.

. A palpation of the vulvar tissue, noting any lumps, bumps, thickening, or areas of tenderness, with a final inspection of the area between the vagina and anus for lesions or other skin changes.

. Skin colour or texture, persistent itching, burning, or pain, non-healing sores or ulcers- lasting longer than 2-4 weeks, unusual growths such as warts or pimple-like lesions, and symptoms that do not improve with topical treatments were identified, and management was instituted.

The women were advised to perform this examination every 1-3 months, ideally between menstrual periods in a premenopausal woman, using a hand mirror or phone camera, in a well-lit, comfortable space. They were informed of the warning signs, which include those highlighted above, and the presence of a new lump or rapidly growing/ hard vulva growth, persistent unexplained bleeding unrelated to menstruation, persistent severe pain, persistent itching despite conservative care/treatment, thickening /white/depigmented patches that persist or cause scarring that would require further medical attention as previously detailed[13].

The brief questionnaire explored their knowledge, attitudes, and habits of a structured self-examination with a focus on knowledge of vulvar anatomy, awareness of VSE, hygiene practices and attitudes to education and self-assessment.

In addition, self-reported and newly diagnosed diseases were noted. Management was facilitated or reinforced.

The usual limitations of vulvar self-examination, which had been discussed with the woman, given the focus on external change detection with no vaginal/ vestibular /cervical disease identification, were not apparent in this study, as most attended a VIA.

Data Analysis

The collected data was analysed primarily with Microsoft Excel 2024. Secondary analysis involved a multivariate logistic regression, with descriptive statistics of variables were computed and presented in frequency tables.

Results

Demographics

The population comprised women aged 30-85 years. An average age of 45.69 years +/- 7.37 years was observed, with a predominant urban cohort at 55.2%. Overall disease prevalence was 15.85%, all of which were benign conditions. The 2 vulvar benign tumours had been previously investigated and were on regular long-term monitoring. The 28.6% who had received university-level education were the urban cohort.

The tables below present sociodemographic characteristics and disease prevalence, with a multivariate logistic correlation showing that age showed a small, non-significant increase in odds of vulvar disease per unit increase. Menopause status was not statistically independently associated with vulvar disease after adjustment. Douching did not demonstrate an independent association. Urban residence showed a trend toward higher odds, but this did not reach statistical significance.

No predictor was statistically significant at $\alpha = 0.05$ in the fully adjusted model.

A further stepwise multivariable logistic regression indicated that age and residence remained independently associated with vulvar disease presence, while menopause status and douching did not contribute meaningfully to model fit.

Observed correlations were with urban residence, duration of menopause, age, and douching – a practice linked to feminine hygiene practices and some religious ablutions.

Knowledge

Most thought daily washing of the vagina, an activity 100% of the cohort engaged in, was an adequate way of vulvar assessment. A smaller percentage felt that additional interventions, such as regular shaving and douching, provided adequate vulvar assessment. Over 95% felt the additional structured vulvar education provided during the programme was beneficial and quite useful.

Discussion

The overall prevalence of vulvar disease in Nigerian women is unknown, resulting in an underestimated assessment of disease impact on the woman, with formal health care engagement usually occurring due to poor response to treatments and or when cancer concerns arise [1].

This study looked at the potential of a patient-led structured self-examination as a viable, low-cost, and effective intervention, in addition to identifying disease prevalence.

Disease prevalence:

There were no malignancies identified in this study, with an overall 13% prevalence of inflammatory conditions such as vaginitis, cervicitis and significant atrophic vaginitis, and 2% of dermatitis and soft tissue benign tumours. The higher prevalence in urban residence might reflect the higher stress (environmental and economic factors) and reduced access to herbal remedies that these women undergo, coupled with reduced symptom tolerance due to increased disease recognition, a possible reflection of the prevalent higher educational status.

Though the mean age and parity of women in this study are relatively similar to previous studies, which had identified VSCC in Nigerian women with mean ages ranging from 47 to 52 years[1–3], mostly menopausal, and with significant parity > 4[1,3], there were no identified suspicious lesions.

The lack of pre-malignant or malignant conditions might be because of our population demographics, which showed a higher pre-menopausal status and a low prevalence of high-risk women, as there were no smokers, no cases of antiretroviral diseases, nor immunodeficient status, with no cases of female genital mutilation, though parity and low education status were comparable.

Menopause was seen to be largely associated with inflammatory vulvar conditions.

Practice and knowledge:

All identified that daily washing provided an adequate form of examination despite no visualisation. A further 1.7% who shaved at regular intervals felt the procedure provided extra information, sufficing as a structured examination, as it involved the use of mirrors to visually inspect the external vulva and perineum. Only 2.2% demonstrated some knowledge of a structured vulvar assessment. Douching, practised by 20.3%, largely as a feminine hygiene practice and sometimes in partial fulfilment of religious obligations, was felt to be adequate in examining the vestibule, but was observed in menopausal women to be linked with increased vaginal atrophy, possibly due to a disruption of the vaginal microbiome, in this study. There is evidence of association with sexually transmitted infections, an observation not identified in this study[14].

Application:

In this study, comprising a 28.6% highly educated cohort with tertiary-level formal education, more than 95% indicated that the VSE education was useful in identifying knowledge and practice deficits, a possible reflection of poor VSE knowledge within the general population. This is not surprising, as similar studies have identified a large percentage of knowledge gaps in well-educated populations

Effective utilisation can be complicated by a limited understanding of the vulva anatomy, regardless of educational status, as demonstrated by a study which showed 56% of highly educated women identified their vulva erroneously as a vagina and another study which showed only 33% could correctly draw and label a simple sketch of the vulva, raising concerns about effective communication to healthcare providers, of any vulvar concerns [2,3].

There are recognised limitations with vulvar self-examinations, even in a high -risk cohort who had encountered several physician-enabled examinations as the EDuCATE study identified that 40% of a high-risk cohort of 455 women, were not confident about recognising vulval abnormalities during a structured self-examination routine, requiring face-to-face specialist teaching, with underlying factors such as lack of awareness (38%), confidence (31%) and physical difficulties visualising the vulva (32%) being the top barriers [5].

This barrier can be tackled by regular information sessions to embed learning and reinforce confidence.

Clear demonstration of the vulva, which entails the external genitalia, comprising the labia majora, labia minora, clitoris, bulb of the vaginal vestibule and lesser and greater vestibular glands, reiterating the structured approach and frequency of examination, were the succinct nuggets that the women fed back, after an initial education session, which sometimes involved a diagrammatic sketch, demonstrating a clear understanding of the basic principles.

As the global prevalence of Vulvar disease is unknown within the Nigerian settings, the potential impact of VSE on early identification of vulvar conditions is yet to be assessed. More so, as the prevalence of dermatoses, differentiated Vulvar intraepithelial neoplasia, and vulvar pain syndromes, which may indicate and/or precede vulvar malignancies, in Nigeria is unknown, it was confirmed after a search of different databases, which include PubMed, Medline, Scopus, Google Scholar, DOAJ, and Elsevier.

As a result, this area warrants further research to assess prevalence and response to targeted interventions.

Limitations

The sample size limits generalisability, with the convenience sampling method likely to introduce a selection bias. As this cross-sectional analysis was carried out at an outreach event, there is a likelihood of disease underestimation with limited causation inference.

Conclusions

Though Vulvar cancer prevalence is reported to be low globally, with no occurrence in this population, there is an opportunity for early disease identification, given the slow disease life cycle, leading to a reduction in late-stage presentations, concomitant significant morbidity and mortality, which can be made worse by prevalent systemic health barriers. Structured VSE is not a substitute for professional examination. However, it offers a low-cost, practical method for early recognition of suspicious changes, especially in low-resource settings. Early identification and optimal management of benign disease can be effected through this intervention.

Given the relatively low reported prevalence, vulvar disease is under-recognised in Nigeria; this study demonstrates a significant gap in knowledge and awareness of vulvar health and a clear opportunity for low-cost education and intervention through structured VSE. Improving awareness could reduce delayed self-referral, presentation, disease burden, and associated morbidity.

Table 1. Sociodemographic characteristics.

Overall n- 183			comments
Age Mean ± SD	45.69yrs ± 7.37		
	Urban (46.8 ± 6.6yrs)	Rural (47 ± 8.54yrs)	

Educational level			
-Pre primary	3	1	
- Primary	17	16	
-Secondary	47	37	
-Vocational	4	2	
University	9	0	
Postgraduate	1	0	
Not declared	20	26	
Menopause -56 (31%)	32	24	
Douching	15	9	
Risk factors			
• HIV presence	0	0	
• Previous dermatoses	1	0	
• Familial hx VSCC	0	0	
• Previous cervical cancer	1	0	
• smoking	0	0	

Table 2. Examination findings.

Residence	Urban (101)	Rural (82)	comments
Findings **Inflammation**	20 (19.8%)	9 (11%)	1. 15.85% global disease prevalence.
• Severe vaginitis (disch)	3	0	2. 56% of the women in rural areas were postmenopausal
• Atrophic vaginitis	15	4	3. There was less disease in the rural cohort.
• Discharge from cervicitis	0	2	4. Douching was associated with atrophic vaginitis in 21.05%
Skin lesions			
• Vulvar eczema	0	1	
• Vulvar cystic lesion	0	1	
• Vulvar fibroma	1	0	

Associated symptoms • Discharge from ulcerated Pelvic organ prolapse • FGM • Not examined	1 0 2	1 0 4	

Table 3. Significant predictors.

Multivariable Logistic Regression Results

Multivariable Logistic Regression Results (Predictor	Odds Ratio (OR)	95% CI	p-value
Age	1.04	0.96 – 1.11	0.36
Menopause	0.77	0.24 – 2.47	0.66
Douching	1.10	0.36 – 3.33	0.86
Residence	1.80	0.75 – 4.35	0.19

Conflicts of Interest: There are none to declare.

Ethics Statements: IRB board approval was obtained.

References

1. Olaofe OO. Vulva lesions seen at a tertiary health centre in southwest Nigeria. Ibom Medical Journal. 2024 May 1;17(2):377-81.
2. Okunowo AA, Olayioye OM, Habeebu MY, Anumni CC, Ohazurike EO, Okunade KS, Anorlu RI. Trend, Epidemiology, and Clinical Characteristics of Vulvar Cancers in Lagos, Nigeria: A Facility-Based Study. Cureus. 2025 Apr 26;17(4):e83041. doi: 10.7759/cureus.83041. PMID: 40421330; PMCID: PMC12105818.

3. Adekunle OO, Marliyya ZS, Sunday AA, Abimbola KO, Richard T, Habiba I, Korede KA. The pattern of carcinoma of the vulva in Zaria, Northern Nigeria. Nigerian Journal of Basic and Clinical Sciences. 2016 Jan 1;13(1):46-9.

4. Olawaiye AB, Cuello MA, Rogers LJ. Cancer of the vulva: 2021 update. International Journal of Gynaecology & Obstetrics. 2021 Oct;155:7-18.

5. Del Pino, M.; Rodriguez-Carunchio, L.; Ordi, J. Pathways of vulvar intraepithelial neoplasia and squamous cell carcinoma. Histopathology 2013, 62, 161–175.

6. Gutiérrez-Pascual M, Vicente-Martín FJ, López-Estebaranz JL. Lichen sclerosus and squamous cell carcinoma. Actas Dermo-Sifiliográficas (English Edition). 2012 Jan 1;103(1):21-8.

7. Lewis FM, Tatnall FM, Velangi SS, Bunker CB, Kumar A, Brackenbury F, Mohd Mustapa MF, Exton LS, McHenry PM, Leslie TA, Wakelin S. British Association of Dermatologists guidelines for the management of lichen sclerosus, 2018. British Journal of Dermatology. 2018 Apr 1;178(4):839-53.

8. Rogers LJ. Management of advanced squamous cell carcinoma of the vulva. Cancers. 2021 Dec 30;14(1):167.

9. Preti M, Lewis F, Carcopino X, Bevilacqua F, Ellis LB, Halonen P, Hemida R, Jach R, Kesic V, Kyrgiou M, Maggino T. Vulvar inspection at the time of cervical cancer screening: European Society of Gynaecological Oncology (ESGO), International Society for the Study of Vulvovaginal Disease (ISSVD), European College for the Study of Vulval Disease (ECSVD), and European Federation for Colposcopy (EFC) consensus statements. International Journal of Gynaecological Cancer. 2025 Jan 1;35(1):100007.

10. Sivalingam, V.N., Tamber, K.K., Newsham, J., Ogden, S., Winters, U., Walter, F.M., Edmondson, R., Gorman, L. and Crosbie, E., 2022. 2022-RA-916-ESGO The Early Detection of vulval CAncer Through self-Examination (EDuCATE) study: What women and clinicians think. International Journal of Gynaecological Cancer, 32, pp.A435-A436.

11. Adedipe T.O., Chukwujama U., Ewadh M., Vulval Misnomers: Impact On Diagnosis: Variation Between Perceived And Actual Impact. DOI: 10.13140/RG.2.2.24319.07848

12. Tu J, Reardon J, Selk A. Knowledge, Practices, and Acceptability of Vulvar Self-Examination in Patients in Colposcopy and Vulvar Dermatology Clinics. J Obstet Gynaecol Can. 2025 Jul;47(7):102920. doi: 10.1016/j.jogc.2025.102920. Epub 2025 May 14. PMID: 40379252.

13. Bisoyi D, Senapati A, Sahu RR, Pradhan RR. Vulval self-examination and mobile selfie. Journal of Skin and Sexually Transmitted Diseases• Volume. 2025 Jan;7(1):125.

14. Wireko, S., Ofosu, M., Agyemang, F., Dankluvi, H. E., & Cobbina, A. E. (2024). Vaginal douching and health risks among young women. *Health science reports*, *7*(2), e1882.