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## Vaginal douching: Methods, practices and health risks

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**Abstract**

Vaginal Douching has been practiced by women in different times and cultures but the reasons have remained the same i.e. to clean menstrual blood, feel hygienic, avoiding pregnancy, vaginal itching or the tightening of vagina. Scientific researchers have identified the health risks associated with the practice of douching which range from occurrence of bacterial vaginosis, pelvic inflammatory disease, ectopic pregnancy, cervical chlamydial infections, preterm birth etc., yet women continue to follow this practice, since it has been passed on to them through mothers in many cases. Relation of HIV and douching too has been identified by researchers. Commercial and non-commercial products have been used by women for the purpose of douching. Besides water and vinegar other douching materials too have been used frequently for the purpose which include cotton wool, lemon juice, cloth, herbs, powder, roots, salt, disinfectant, oil, Vicks, sugar, baking soda, ice, toothpaste etc. The studies suggest that if physicians are to help women understand the ill effects of douching they are more likely to stop the practice of douching. Discussions along with patient centered, non-judgmental counseling may help women to overcome the habit of douching and thus be able to avoid severe health consequences.

### 1. Vaginal Douching

Vaginal douching has been used since ancient times for various reasons such as contraception, vaginal cleansing, treatment of vaginal infections, and personal beliefs<sup>1</sup>. It is the process of intravaginal cleansing with a liquid solution<sup>2-3</sup>. However, it is interesting to note that increased risk of pelvic inflammatory disease (PID), ectopic pregnancy, cervical chlamydial infections, bacterial vaginosis, and reduced fertility has been linked to vaginal douching<sup>4-5</sup> as reported by various researchers from time to time. Even more, vaginal douching more than once a week has been proposed as a risk factor in cervical carcinoma<sup>6</sup>. Pregnant women may continue to do vaginal douching, although the risk of preterm birth and low birth weight infant has been linked to vaginal douching<sup>7</sup>. Infections were the implicated mechanism leading to preterm birth<sup>8</sup>.

### 2. Practices and Methods of Vaginal Douching

Women have been performing vaginal douching due to various reasons. To “avoid pregnancy”, “feel good and fresh”, “remove vaginal discharge and odour”, “remove menstrual blood”, “avoid vaginal itching”, even “to avoid going to a doctor” are the reasons reported by women who use vaginal douche in the literature<sup>9-11</sup>.

Vaginal practices, such as cleansing the vagina and genital area with commercial and non-commercial products, wiping inside the vagina, or inserting substances inside the vagina, are commonly employed by women<sup>12-13</sup>. Amongst other reasons, as reported by Braunstein and Van<sup>12</sup>, reasons for vaginal practices include hygiene (removing menstrual blood, vaginal discharge, and odours), sexual pleasure, pregnancy prevention, fertility, and prevention and treatment of vaginal infections. Various studies have shown how menstruation is viewed with superstitions, illogical beliefs and misinterpretation which are more common than accurate understanding of the process of menstruation, menstrual hygiene and self care practices<sup>14</sup>. These practices reflect the perception of menstrual blood loss as an 'impure' state and not as a normal human physiological phenomenon<sup>15</sup>. Thus it is not surprising why women would also prefer douching to remove menstrual blood and feel pure again.

Vaginal practice norms have been found to be linked to ideas about sexuality and the body, gender roles, age, education, geographic area, ethnicity, marital status, and rituals<sup>12</sup>. For example, douching being a common practice among African American women and has been found to be associated with health risks, including adverse reproductive health outcomes<sup>16</sup>. Other vaginal practices, including type of protection used during menstruation<sup>17</sup> and insertion of vaginal products<sup>18</sup>, also vary geographically and cross-culturally. Douching or otherwise cleansing the vagina around the time of sex may unintentionally dilute, remove, or interact with a microbicide product, having potentially harmful effects<sup>13</sup>. Lower educational attainment<sup>19</sup>, lower income<sup>20</sup>, black race<sup>19</sup> and living in the south-eastern region of United States<sup>19</sup> are characteristics of women who are more likely to douche. It has also been found that behavioural factors associated with vaginal douching include early initiation of sexual intercourse, higher number of lifetime sexual partners, more frequent intercourse, history of STIs, cigarette smoking, and infrequent condom use<sup>11, 21</sup>.

Factors such as a culture or ethnicity, educational level and socioeconomic status are thus associated with the practice<sup>22</sup>. The results obtained from social studies concerning the vaginal douching frequencies, range from 38.0 to 70.0% in the literature<sup>23</sup>. Similar frequencies (50.2 - 61.5%) have been reported<sup>24-25</sup> in the studies carried out in Turkey. In the study conducted by Caliskan *et al.*<sup>24</sup> the rate of women who learned it by themselves was 42.8%, the rate of women who performed it right after the intercourse was 64.9% and the rate of women who performed it for cleaning purposes was 73.7%. Another study<sup>25</sup> reported that 47.6% perform the practice for cleaning purposes and 35.4% are for post-intercourse. Gazmararian<sup>26</sup> reports in a study that women utilize such practice under the influence of their friends and mothers.

Cultural or religious values and ideas that describe women's bodies as contaminated or impure influence women's perceptions of their own bodies and sexuality, men's perceptions of women's bodies and sexuality, and individuals'

and couples' sexual behaviour<sup>27</sup>. Women believe that such practices promote cleanliness, fertility, and good health, and enhance their male partner's sexual arousal and pleasure<sup>28</sup>. In some countries, women may remove vaginal secretions to dry the vagina in preparation for sex, or use substances to tighten or warm the vagina<sup>29</sup>. Women report that a dry, tight vagina ensures their male partners' sexual satisfaction by enhancing friction and heat in the vagina during sex. Men may interpret the presence of vaginal lubrication during sex as an indication of a woman's infidelity—as a sign that she has had recent sexual relations with another man<sup>30</sup>. Women whose partners express such concerns may insert substances to remove vaginal secretions prior to sex to ensure their partners' sexual satisfaction and the security of the relationship. Such reasons not only reveal the secondary status of women in maintaining sexual relations but also subduing their enjoyment of the phenomenon considered so important by men.

Another reason cited by women for engaging in vaginal practices is the enhancement or preservation of fertility. For example, the practice of dry sex is promoted in Zimbabwe, in part, by a widespread belief that fertilization can only take place in a clean, dry environment<sup>31</sup>. Studies have also show that "dry sex" practices include a wide range of practices, including application to the vulva or insertion into the vagina, intravaginal cleansing, steaming or oral ingestion of products. "Dry sex" practices refer to practices that women use to achieve a drier, tighter vagina, because they believe this enhances pleasure for the man and sometimes for themselves<sup>32-33</sup>. Women also may perform vaginal practices or undergo surgery to restore and tighten the vaginal walls and muscles after childbirth<sup>28</sup>. Studies conducted on sex workers reveal that they may engage in vaginal practices in order to clean the vagina between clients so as to remove "evidence" of previous clients; to ensure the sexual satisfaction of clients; and to prevent or treat infection<sup>34-35</sup>. Orubuloye *et al.*<sup>36</sup> reported that Nigerian women who fail to clean their vaginas prior to sex may be reprimanded by their male partners, forced to clean themselves, or deprived of sex.

Social, cultural and educational factors thus influence the douching practices. Therefore it has been found that women in different parts of the world gave similar reasons for their varied douching practices<sup>37-38</sup>. Hence, the most common reasons identified are: (1) to enhance sexual experience through sensations of vaginal dryness, tightness or warmth; (2) to cleanse the vagina before, after, or between acts of intercourse; to treat gynecologic diseases; (3) to prevent sexually transmitted infections and (4) to restore and tighten the vagina after delivery.

Specific preparations used for douching may vary according to the cultural factors. While in Muslim countries, water and soap is the most widely used vaginal douching preparation; commercial preparations are utilized for this purpose in the Western societies<sup>39</sup>. In Indonesia, soap with water is used preferentially, before water alone<sup>40</sup>, while douching with commercial antiseptics was predominant and frequent (35%) in Central Africa among women attending a

STD clinic, whereas douching with water was rare. In the United States, vinegar is used by majority of the women who practice vaginal douching, which is potentially more irritating than water or soap<sup>41</sup>. In a study by Misra et al.<sup>42</sup> and Gazmararian et al.<sup>26</sup> vinegar was the most preferred preparation for vaginal douching practices, while Ege et al.<sup>25</sup>, Caliskan et al.<sup>24</sup> and Kukul<sup>43</sup> have reported that water was the most-preferred preparation for vaginal douching. It has been revealed that approximately, 29% of American women purchased non prescription douches, spending about \$500 million per year<sup>22</sup>. Gazmararian<sup>26</sup> found that women preferred the vaginal douching mostly for its hygiene and a feeling of cleanliness; it was also reported in the study that this attitude obtained from the family members at a very young age is quite difficult to change. Simpson et al.<sup>3</sup> reported that many women preferred the vaginal douching time to be after menstruation, before and after the intercourse and during the vaginal symptoms and these women performed the practice in order to feel clean and refreshed, this rate was put forth as 64.9% and by Kukul<sup>43</sup> as 92.9%. Studies highlight that this practice has a connection with increase in age, low socio-economic level, low education level<sup>25</sup> having a PID history<sup>24</sup> children with low birth weight history, ectopic pregnancy history and preterm delivery history<sup>2</sup>.

Early anthropological and ethnographic works from the 1950s, have documented the use of vaginal practices within traditional ethno-medical belief systems that have involved the use of local substances for rites and rituals associated with the preparation of young women for sexual debut, menses, sexual prowess in relationships and marriage, motherhood and menopause<sup>44</sup>. It has also been mentioned that, during the colonial period (prior to 1970), clinicians documented notable cases of poor maternal health outcomes, exceptionally low fertility rates and poisoning to draw conclusions about the potential harm of vaginal practices and product use<sup>45</sup>.

It has been reported in sub-Saharan, central, east, and west Africa, and in the Dominican Republic, Haiti, Indonesia, Qatar, Thailand, and the United States<sup>46, 35</sup>. They include wiping the vagina or inserting substances into the vagina to dry it by removing vaginal fluids; inserting herbal or non-herbal preparations to constrict or tighten the vaginal walls; or inserting commercial or non-commercial substances to douche or cleanse the vagina and genital area. Substances used may include stones, leaves, herbs, powders, water with or without soap, dry cloth, pharmaceutical products (such as antiseptic liquid soaps and commercial douches), and tissue or toilet paper. Different douching products used by women have been shown in Table 1.

**Table 1.** Some of the types of Vaginal Products used by women

Ingredients	Function	Commercial	Home Preparation
5% acetic acid (vinegar)	Acidifying agent	x	x
Benzoic acid, citric acid, lactic acid, sorbic acid	Acidifying agent	x	
Bleach (sodium hypochlorite and sodium hydroxide)	Cleanser		x
Cetylpyridinium chloride	Antimicrobial, antiseptic, germicidal, surfactant	x	
Decyl glucoside	Nonionic detergent, mild surfactant, solubilizes water-insoluble materials	x	
Diazolidinyl urea	Acidifying agent	x	
Disodium EDTA, † edetate † disodium	Preservative, antibacterial agent, metal chelator (binds magnesium and calcium)	x	
Lysol (alkyl 50% C14, 40% C12, 10% C16, dimethylbenzyl-ammonium chloride 2.7%; Reckitt & Coleman, Wayne, NJ)	Cleanser		x
Octoxynol-9	Surfactant, produces a mucolytic or proteolytic effect, spermicide	x	
Povidone-iodine ‡	Antimicrobial	x	
SD Alcohol 40 †	Liquid vehicle	x	
Sodium benzoate	Preservative (prevents bacteria from growing in solution that contains citrate and lactate)	x	
Sodium bicarbonate (baking soda)	Alkalizing agent	x	x
Sodium citrate	Acidifying agent	x	
Sodium lactate	Acidifying agent	x	
Water	Liquid vehicle, cleansing	x	x
Yogurt	Potential source of nonhuman strain of <i>Lactobacillus</i>		x

Adopted from: Handbook of Non-prescription Drugs. Washington, DC: American Pharmaceutical Association and the National Professional Society of Pharmacists, 1982.

† EDTA, ethylenediaminetetraacetic acid; edetate, ethylenediaminetetraacetate; SD Alcohol 40, specially denatured alcohol, followed by a number or a number-letter combination that indicates how the alcohol was denatured, according to the formulary of the US Bureau of Alcohol, Tobacco, and Firearms.

‡ Medicated douches.

In studies revealing the prevalence and type of vaginal practices by women worldwide, women were reported inserting products to tighten the vagina using a range of kitchen, household, and traditional substances, including cotton wool, lemon juice, cloth, herbs, powder, roots, salt, disinfectant, oil, Vicks, sugar, vinegar, baking soda, ice, and toothpaste<sup>47-48</sup>. A large qualitative study, one of the most comprehensive, was conducted through individual interviews with men and women in Indonesia, Mozambique, South Africa, and Thailand<sup>49</sup>. Like the practices of participants in analyses, women in these countries also reported using a range of substances for various cleansing, drying, and tightening functions, including traditional formulations of herbs, leaves, and bark, food ingredients (lemon juice, vinegar), and commercially available products such as douching solutions, soaps and detergents, and vaginal creams.

### 3. Relationship between Vaginal Douching and the Health of Women

Vaginal douching has been linked to a number of adverse reproductive health outcomes, including increased risk for pelvic inflammatory disease (PID)<sup>50</sup>, ectopic pregnancy<sup>41</sup>, preterm birth<sup>8</sup>, reduced fertility<sup>51</sup>, increased susceptibility to sexually transmitted infections (STIs)<sup>40</sup> including human immunodeficiency (HIV) infection<sup>52</sup> and bacterial vaginosis (BV)<sup>53</sup>. Although cause and effect has been debated<sup>54</sup>, the evidence suggests that vaginal douching increases the risk of negative health outcomes<sup>2</sup>.

The term Bacterial Vaginosis is used to describe the condition of a patient complaining of fishy odour, sticky mucopurulent discharge from vagina adherent to vulva and secretions staining the fomites. The patient is frustrated and not getting a cure for so many a months from the medical practitioners. The patients prone to get Bacterial vaginosis include: (1) Couple using Condom lubricated with Nanoxynol-9 a spermicidal, bactericidal destroys the *Doderline bacilli* ( $H_2O_2$  producing *Lactobacilli*) a commensal in the vagina which maintain the acid pH in the vagina to prevent bacterial vaginosis an ascending retrograde infection from perineum and anus. (2) Perverted sex activities like cunnilingus and both homo and hetero sexual active couple acquire to get bacterial vaginosis. (3) Saline douching of the vagina alters the pH as alkaline and facilitates bacterial vaginosis. (4) Tampooing or napkins kept for long duration without knowing the consequences of menstrual bleeding as a culture media for bacterial vaginosis to occur as a retrograde infection<sup>55</sup>. Among women who douche monthly or more often, alterations in vaginal pH and flora increase the risk of vaginal infections, particularly bacterial vaginosis<sup>2, 56, 5, 57</sup>.

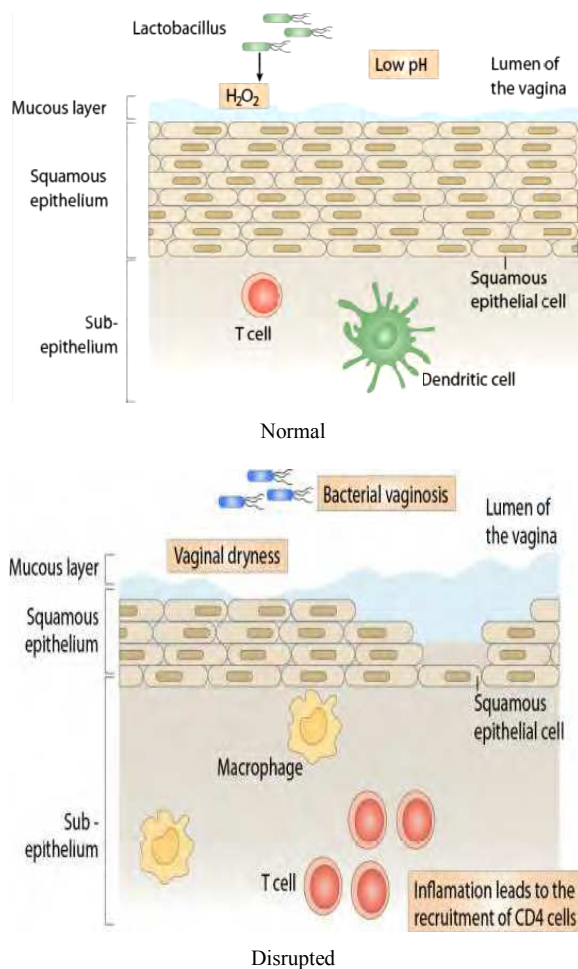
In a study by Me-Linh Luong *et al.*<sup>58</sup>, significant associations were observed between douching and preterm birth ( $P < 0.05$ ), especially for preterm labour ( $P < 0.001$ ) and for early preterm birth ( $P < 0.001$ ). Douching was strongly associated with BV (11.3% of those with BV vs. 5.0%

of those without BV,  $P < 0.001$ ) and with the presence of clue cells (18.3% vs. 8.5%,  $P < 0.001$ ), but not with vaginal pH  $> 4.5$  (19.8% vs. 14.3%,  $P = 0.08$ ). Douching was significantly associated with placental inflammation (36% vs. 21%,  $P = 0.04$ ). The most common assumption is that douching promotes the ascent of bacteria into the upper part of the uterus, leading to chronic colonization of the uterus with microorganisms which may cause local inflammation, resulting in preterm birth<sup>59</sup>.

Epidemiological study done by Mann *et al.*<sup>60</sup> in Kinshasa, Democratic Republic of Congo (then Zaire) amongst 377 female sex workers reported that no specific sexual or vaginal practice was associated with HIV seropositivity, but that HIV infection was more common amongst women who placed any product into their vagina for 'douching, menstrual care, lubrication, pregnancy prevention, disease prophylaxis or in order to tighten their vagina. Ethno-medical constructs too remain highly relevant for understanding these practices<sup>61-62</sup>. For example, Green<sup>63</sup> documented that traditional healers in Manica, Mozambique, recognize two categories of sexually transmitted infections (Siki and Nyoka-related) that have traditional explanatory frameworks:

"[Siki] corresponds with the more serious common STDs of western biomedicine -- syphilis, gonorrhoea, chlamydia and chancroid -- and is believed to be caused by a common invisible microscopic agent, *khoma*. Nyoka-related illnesses are understood in terms of traditional ideas of pollution, and denote less serious, self-limiting genito-urinary conditions." Thus, he notes that traditional healers have used these constructs to explain and find treatments for reproductive tract and sexually transmitted infections which included vaginal insertion, cutting and douching.

Martin *et al.*<sup>64</sup> and McClelland *et al.*<sup>65</sup> found an association between the intravaginal use of soap and incident HIV infection in a cohort of female sex workers in Mombasa, Kenya. Thus it becomes clear that a woman's effort to alter her vaginal state may undermine vaginal defenses against pathogens. These practices potentially exert physical (e.g. micro-abrasions) and chemical harm that may increase susceptibility to reproductive tract and sexually transmitted infections (STI) including HIV; yet the mechanisms seem to be relatively unclear. The healthy vaginal microbiome is dominated by *Lactobacillus spp.*, a kind of beneficial bacteria, which produces lactic acid and sometimes hydrogen peroxide. Together, lactobacilli, the cervicovaginal epithelial lining, and the local mucosal immunity are the first line of defense against many pathogens including STIs and HIV. When this microenvironment is disturbed, there is increased likelihood for infection<sup>66-67</sup>. Based on above mentioned findings, a causal pathway linking intravaginal practices with BV, might facilitate HIV transmission, which has been shown in Figure 1<sup>68</sup>.



**Figure 1.** Vaginal microenvironment (Adopted from Lederman et al. 2006<sup>68</sup>)

According to Van De et al.,<sup>69</sup> vaginal practices have been reported to cause undesirable pro-inflammatory effects. These practices may alter the vaginal microbiome, decreasing protective lactobacilli<sup>70, 71</sup>. As per Van De et al.,<sup>71</sup> evidence about whether intravaginal cleansing or insertion of substances increases risk for HIV acquisition is only available from a few studies, which have conflicting findings.

Emerging evidences have also suggests that vaginal douching may provide a vehicle (pressurized fluid) for the transport of pathogens, aiding the ascend of vaginal infections to regions above the cervix into the uterus, fallopian tubes, or abdominal cavity to cause solitary or widespread pelvic inflammatory diseases (PIDs), including chronic pelvic pain, dyspareunia, pelvic adhesions, pyosalpinx, tubo-ovarian abscess, ectopic pregnancy, and infertility<sup>2</sup>. Research findings have also indicated that most adolescents and young adults have their first menstruation and sexual experience at about this period, thus leading to a higher rate of douching<sup>11</sup>, as most women may douche regularly at about this age owing to the false belief that the vagina is unclean during menstruation and sexual intercourse<sup>10</sup>. Lichtenstein and Nansel,<sup>20</sup> conducted studies among African Americans and white women in the southern United States, reporting that most women douched after menstruation and sex because of their concern about odour

and cleanliness. A higher rate of douching with associated complications is therefore expected in women with a higher frequency of sexual intercourse, such as sex workers<sup>10</sup> and women with many partners<sup>72</sup>.

Jenny et al.<sup>73</sup> found that the frequency of douching and recent douching was associated with endometritis and upper genital tract infections in women with normal vaginal flora. The frequency of douching was significantly associated with genitourinary symptoms, and such symptoms were more prevalent in participants who douched from several times a week to once a day<sup>37</sup>.

Douching around the time of ovulation, when the cervical os gaps open and the mucus thins in response to the changing serum estrogen level, has been associated with a higher risk of ascending infection<sup>56</sup>. As reported by Shain et al.<sup>74</sup> douching in the immediate postcoital period may be particularly risky because the douching solution may propel and facilitate the entry of pathogens from the upper vagina into the endocervical canal. Evidence-based studies have shown that the internal cervical os may remain open during and shortly after menses or pregnancy termination, and also that the composition and consistency of the mucus varies during the menstrual cycle, compromising its effectiveness as a plug<sup>75</sup>. Similarly, higher-intensity/higher-pressure douching, such as that produced by a douching device that has a nozzle with a single, unshielded control opening or a douche bag and disposable products, is associated with a higher risk of PIDs and ectopic pregnancy.

Chlamydia and gonorrhoea have been reported to facilitate human immunodeficiency virus transmission. Several studies have found an association between douching and chlamydial infection<sup>4, 76</sup>. Scholes et al.,<sup>4</sup> found that women who reported douching 12 months prior to their clinic visit were twice as likely to have cervical chlamydial infection and that, as the frequency of douching increased, the likelihood of chlamydial infection also increased. In another study it was found that douching at least monthly was significantly associated with chlamydia in adolescents<sup>76</sup>. Gresenguet et al.,<sup>52</sup> reports that douching with irritating substances may make the vaginal mucosa more susceptible to sexually transmitted diseases, analogous to the use of intravaginal herbs as drying agents.

## 4. Interventions

Clinicians can play an important role in educating women about the harmful effects of douching and helping them to mitigate such practices. It has been found that if a health professional explained the adverse health consequences associated with douching, 85% of women claimed they would stop the practice<sup>77</sup>. Another study reported that clinicians were the principal discouraging influence with regards to douching; those women discouraged by physicians were less likely to douched<sup>78</sup>. Health care professionals can help overcome this practice by educating women about the damaging effects of douching on reproductive health through effective risk reduction education. One randomized

controlled trial in black adolescents in urban Alabama demonstrated success in reducing douching through behavioural change<sup>79</sup>.

## 5. Conclusion and Recommendations

Vaginal Douching is a harmful practice followed by millions of women over the world with little knowledge about its harmful effect on the reproductive and overall health. Due to the existing socio-cultural factors promoting the practice of douching the young and old women are equally at risk for STIs. Since in many cases the mothers themselves are responsible for passing such practices to their daughters it becomes even more difficult to deal with the problem of douching. Efforts to resolve the problem may include holding discussions on harmful effects of douching and related ill effects with young and old women equally. Douching prevention counselling should be organized that is patient-centered, nonjudgmental, and attuned to the patient's age, culture, sexual orientation, and developmental level. Influential members of the family may be involved for the same. As it has been revealed through the earlier discussions and researches vaginal practices are mostly done by women when alone or in secret to help create a sense of wellness, hygiene and preparedness for themselves. Thus women may be more adaptable to changing certain aspects of their vaginal practices if they are properly informed about them and the resultant risk of continuing such potentially dangerous practices. This can only be possible if the benefits appear to be stronger to them than the reasons for which the practices have been adopted. The research literature thus allows for further research into the area, related health risks and the interventions to be adopted. Also by reflecting upon the multiple methodological and theoretical perspectives, along with the broad array of cultural and social contexts, the current study has been able to shed light not only on the ethno-medical beliefs that have been influencing the use of specific practices, but the importance of these vaginal practices for women, which call for urgent attention and prevention.

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