

A Cross-Sectional Study to Determine the Types of Vaginal Tightening Agents used by Women in an Urban Setting in Zimbabwe

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ABSTRACT

Introduction: Vaginal loosening is a common problem for many women. This problem occurs due to a number of reasons including vaginal delivery, hormonal imbalances, and having numerous sex partners. It has been reported informally that Zimbabwean women use different agents to alter the size of the vagina. This study was aimed at determining the agents currently used by women in an urban setting to tighten their vaginas.

Materials and Methods: A questionnaire was administered to women who visited eight different pharmacies around Harare central business district. The women were English or Shona speakers of reproductive age ($n = 213$). Statistical analysis was done using Epi info and SPSS and Chi-square tests were performed to test the significance of association.

Results: The prevalence of vaginal loosening among the study participants was shown to increase with age ($P = 0.021$). Of the 213 participants, 134 (63%) admitted to have used vaginal tightening agents and these were mainly in the 31-40 age group, unemployed (81), and not married. The participants mainly used *mutundo wegudo* (baboon urine), *Garcinia buchanani*, *Chimhandara* (different plants), *Jubernadia globiflora*, lemons, salt, and cold water. 91% of the study participants reported that the agents they used were effective in tightening the vagina. The majority of those who used these agents did not report any effects from using the different agents.

Conclusion: This study showed that women use different agents to reduce the size of the vagina so as to attain a preferred vaginal state. Scientific evidence, however, is lacking with regards to the effectiveness of some of these products and more research needs to be conducted.

Keywords: Loose vagina, Vaginal atrophy, Vaginal dryness, Vaginal practices, Vaginal tightening

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INTRODUCTION

It is well-known that men and women in many areas of the world use substances to enhance sexual performance and pleasure.¹ Women mainly use these substances to increase sexual pleasure for their partners. As a result having a loose vagina is considered problematic. At some point during their lifetime, some if not most women will experience loosening of the vagina. As a result, one may find it difficult to get orgasms and sexual pleasure which may lead to unsatisfactory sexual encounters.² Many factors contribute to vaginal muscles loosening including: Childbirth, frequent sex

during adolescence, insertion of large objects during masturbation, postmenopausal estrogen deficiency, and aging.^{2,3} This can cause a wide variety of embarrassing and distressing situations for women, which in turn leads to problems in relationships, leading to feelings of anxiety and depression.¹

Vaginal atrophy due to estrogen deficiencies in the female genitalia has also been linked with vaginal loosening and dryness. This deficiency can be a result of hormonal imbalances during menstruation, side effects of medication e.g., oral contraceptives or antidepressants, menopause, unhealthy lifestyle, episiotomy during

childbirth, chemotherapy, and stress.⁴ As a result, urinary incontinence, vaginal prolapse, pain in the vagina, pelvis or back, and pain during intercourse, will occur.

Women therefore, feel the need to condition the vaginal muscles through what are known as vaginal practices.³ Vaginal practices are widespread throughout the world, particularly in sub-Saharan Africa.⁵ These practices include intravaginal cleansing, vaginal drying, and vaginal tightening.⁵ They are commonly performed by women worldwide⁶⁻⁹ for many reasons e.g., hygiene (particularly during menstruation, prior to or following sex, or during pregnancy), for disease or pregnancy “prevention,” to meet expectations or preferences of sexual partners (to cleanse, dry, or “tighten” the vagina.), or simply to follow traditional norms as learnt from mothers or grandmothers in childhood.^{9,10} Vaginal practices are usually done using water or detergents to douche; insertion of fingers, cloths or cotton wool; or insertion of natural, household, or commercially available products into the vagina.¹

In many African cultures, plants and other intra-vaginal desiccants are used to minimize vaginal secretions. This practice, known as ‘dry sex’, creates a vagina that is dry, tight, and heated, which is supposed to generate an increased sensation for the man during intercourse. Although this is uncomfortable and painful, African women express the need to please their husbands with dry sex in order to keep them from leaving and to minimize the number of girlfriends.² A woman’s desire to be dry and tight vagina cannot be separated from her “longer-term desire to maintain successful monogamous love relationships” and secure economic male support.⁹ Scorgie *et al.* (2009) also reported that the belief that a women’s pain during sex is tolerated or overshadowed by the greater need or desire to please their partners. In addition, women are culturally expected to endure pain and forfeit their own sexual pleasure for the sexual pleasure of their male partners. It is informally reported that many Zimbabwean women employ herbal agents to alter the experience of sexual intercourse.¹¹ The problem, however, is that in addition to using herbal medicines, women practicing “dry sex” also use a variety of pharmaceutical products to achieve the desired physical effects.¹¹ Little if any, research has been done on these traditional products to determine their safety and efficacy. Their use is also poorly regulated, and some of the products may contain adulterated products resulting in possible adverse effects.¹² Vaginal practices have also been suggested as risk factors that may increase women’s vulnerability to HIV¹³ as the agents inserted may cause irritation and damage to the mucosal lining. Therefore, there is increased need to understand these practices in detail.

The present study aimed at highlighting some of the vaginal practices of Zimbabwean women in an urban setting, following increased use of vaginal tightening agents in Zimbabwe.

MATERIALS AND METHODS

Study Population and Sample Size

Experimental protocols and procedures used in this study were approved by the Joint Research and Ethics Committee of the University of Zimbabwe. The study was carried out at 8 different pharmacies around Harare, chosen using convenient sampling, and it was done as a cross-sectional study. Participants were drawn randomly from the women of reproductive age (above 18 years of age) who visited the data collection sites in the Harare Central Business District from 15 December 2014 up to 2 March 2015. Eligible participants had to be Shona or English speaking women, and they also needed to be able to give their full informed consent. The study needed a sample size of 213 people, which was calculated using the formula by Kothari (2002).

$$N = \frac{t^2 \times p(1-p)}{m^2}$$

Description:

N = required sample size

t = confidence level at 95% (standard value of 1.96)

p = estimated the prevalence of use of vaginal tightening herbs = 0.834 (based on the prevalence of use of vaginal tightening herbs (83.4%) among participants interviewed during the pilot study)

m = margin of error at 5% (standard value of 0.05)

Therefore

$$N = \frac{1.96^2 \times 0.834 (1-0.834)}{0.05^2} = 212.74$$

Therefore, the sample size was at least 213 women.

Since there was 8 study locations, each location had at least 27 participants, although as many as possible were interviewed.

Pilot Study

A pilot study was done to access the effectiveness of the data collection tool. It took an average of 4 min to answer the questionnaire. The data collection tool was shown to be effective.

Sampling and Data Collection Techniques

Data were collected at the data collecting points during normal working days (Monday to Friday). Participants who gave their full informed consent were asked to complete the self-administered, structured, mixed type of questionnaire, which was available in both English and Shona. The validity of the questionnaire was assessed by a statistician in our department. At least 30 participants per site were recruited. The questionnaire was administered to participants and collected as soon as they finished answering the questions.

Data Processing and Analysis

Collected data were entered on a Microsoft Excel 2007® spreadsheet for mathematical operations like calculation of totals, means, and proportions and for the construction of tables and charts. Epi info and SPSS were also used in data analysis and statistical tests. Chi-square tests were performed to test the significance of association and a $P < 0.05$ was considered to be significant. Data were treated as confidential and anonymity of participants was guaranteed through the use of study-generated participant code.

The following questionnaire was used to conduct the study

Questionnaire No.
Section A: Demographics

- Age Marital status Employed Y/N Highest level of education Religion
- Area of residence Low density Medium density High density

Section B:

1. Have you encountered vaginal loosening Y/N
2. If yes how did you manage the problem
 - i) Surgery ii) herbal agents (specify) iii) exercise iv) Others (specify)

Section C:

1. Did any one advise you to use the method you used?
 - i) relative ii) friend iii) pharmacist iv) herbalist v) other (specify)
2. Why did you choose that method
 - i) cheap ii) safe iii) available iv) effective v) other (specify)
3. Did the chosen vaginal tightening method work? Y/N
4. Have you experienced any unwanted effects from using the chosen method? Y/N
If yes what did you experience

RESULTS

Demographic Details

A total of 213 participants were interviewed at the 8 study sites. The participants' age ranged from 18 years to over 40 years of age, indicating an all adult target group. Of these, 134 (63%) admitted to have used vaginal tightening agents, while 79 (37%) reported not to have done so. In addition, the study showed that 77 (57%) participants out of the 134 participants who used vaginal tightening agents were not married, and that 81 participants were actually unemployed. The majority of the people who used these agents resided in the high density areas. All participants had, however, at

least attended primary school indicating some level of education. Demographic results are shown in Table 1.

The Prevalence of Vaginal Loosening in the Study Population

The prevalence of vaginal loosening among the study participants was shown to increase with age and this association was shown to be statistically significant ($P = 0.021$). Figure 1 shows the prevalence level of vaginae study participants.

Table 1: Demographic details obtained from study participants

Demographic character	Frequency n (%) (n=213)		Total (n=213 [100])
	Vaginal tightening agent users (n=134 [63])	Non users (n=79 [37])	
Age (years)			
18-20	8 (4)	29 (14)	37 (17)
21-25	17 (8)	23 (11)	40 (19)
26-30	27 (13)	16 (8)	43 (20)
31-40	53 (25)	8 (4)	61 (27)
>40	29 (14)	3 (1)	32 (15)
Marital status			
Married	57 (27)	15 (7)	72 (34)
Not married	77 (36)	64 (30)	141 (66)
Employment status			
Employed	53 (25)	44 (21)	97 (46)
Unemployed	81 (38)	35 (16)	116 (54)
Residential area			
Low density	31 (15)	21 (10)	52 (24)
Middle	37 (17)	29 (14)	66 (31)
High	66 (31)	29 (14)	95 (45)
Education level			
None	0 (0)	0 (0)	0 (0)
Primary	3 (1)	2 (1)	5 (2)
Secondary	114 (54)	64 (30)	178 (84)
Tertiary	17 (8)	13 (6)	30 (14)
Religion			
Christian	122 (91)	75 (35)	197 (93)
African tradition	7 (3)	4 (2)	11 (5)
Others*	5 (2)	0 (0)	5 (2)

*Other religions include Islam (n=3), Indian (n=1) and Hindu (n=1)

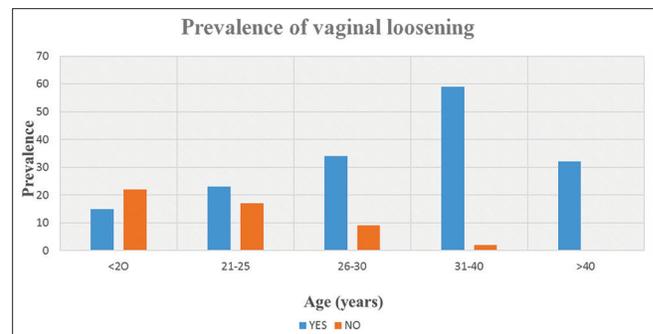


Figure 1: The prevalence of vaginal loosening in the study population

Vaginal Tightening Methods used by the Study Participants

Study participants reported to use different vaginal tightening methods in order to overcome the problem of vaginal loosening, and these include herbal medicines, exercise, and others like salt and cold water. Using vaginal tightening agents was statistically significant ($P < 0.008$) compared to not using any agents. A greater percentage, (84 people or 63%) reported to have used herbs to tighten their vagina, followed by exercise with 32 (24%), then other methods like coarse salt and cold water added up to 18 (13%). Figure 2 shows the different types of vaginal tightening methods used by the study participants.

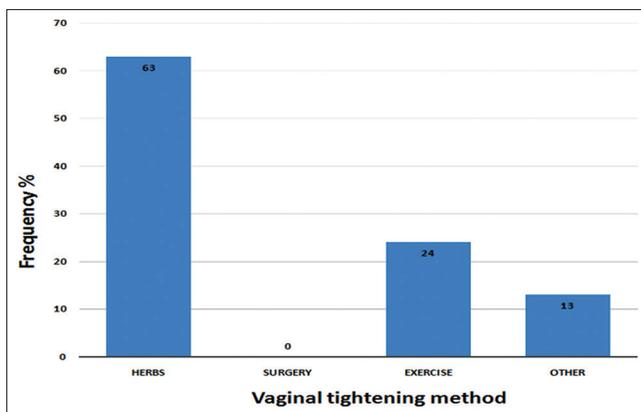


Figure 2: Vaginal tightening methods used by the study participants. *other include coarse salt and cold water ($n = 26$), abstaining from sex ($n = 2$)

Comparison of the Extent of use of Vaginal Tightening Herbs in Married and Unmarried

Women

The study reported that, out of the 134 participants who used vaginal tightening herbs, 57 of them 42 (54%) were married and the greater proportion was unmarried, 77 (57.46%). Marital status and use of vaginal tightening herbs were not statistically significant ($P = 0.337$).

The Commonly used Vaginal Tightening Herbs

The most commonly used vaginal tightening herbs, the main source, and the dosing regimens are summarized in Table 2. Some of the study participants used more than one herbal product to tighten the vagina.

Source of Information Concerning Vaginal Tightening Agents

All the users of the vaginal tightening agents had some sort of source of information. The majority of the women obtained information from their friends (66 people or 49%) and relatives (44 people or 33%). Out of the 134 users, 24 (18%) participants reported to have got the information from herbalists. The association between having a source of information was highly significant ($P = 0.000$). No participant reported pharmacists as being the source of information for using vaginal tightening herbs. Of all the users, 44 (33%) admitted to have advised other people to use vaginal tightening agents.

Table 2: The commonly used vaginal tightening agents

Agent used	Number of users	Source	Dose used and effective period
<i>M. wegudo</i> (baboon urine)	56	Baboons urinate in the same area and the stones or soil from that place are crushed to make a powder	The powder is wrapped in cotton wool or soft cloth and inserted into the vagina Effective in a period of 1 h
<i>Mutunduru</i> (<i>Garcinia buchanani</i>)	43	Roots or bark of the <i>Mutunduru</i> tree are used	Roots and bark are ground into a powder The powder is wrapped in cotton wool and inserted into the vagina Effects are shown within a period of 30 min after insertion
<i>Chimhandara</i> (group of plants used to constrict vagina)	32	The source not exactly known, but found in mining areas	It is in powder form A small amount is wrapped in cotton wool and inserted into the vagina Effects are shown within a period of 30 min If used in excess may cause cancer
<i>Munondo</i> (<i>Julbernardia globiflora</i>)	18	Bark of the <i>Munondo</i> tree	The bark is ground into a powder Powder is wrapped in cotton wool and inserted into the vagina
Lemons (<i>Citrus Limonum</i>)	11	lemon citrus fruit	The juice of the lemon fruit is applied on cotton wool and inserted into the vagina in the morning Effective after 1 h
Others		Coarse salt Cold water	Coarse salt is wrapped in cotton wool and inserted into the vagina or its dissolved in cold water and used to wash the vagina daily Cold water is used to wash the vagina daily These two agents both draw out moisture and cause constriction of the vaginal muscles

Table 3: Reported side effects associated with vaginal tightening herbs

Reported adverse effect	Name of agent used	Frequency
Cancer	<i>Chimhandara</i> (group of plants used to constrict vagina) if used in excess	8
High libido	<i>Mutundo wegudo</i> (Baboon urine)	3
Pruritus/itching	<i>Mutunduru (julbernadia globiflora)</i>	11
Itching	Lemons (<i>Citrus limonum</i>)	4

Effectiveness of Vaginal Tightening Agents in the Study Participants

Out of 134 participants who admitted to have used vaginal tightening agents, 122 of them (91%), reported that these agents were effective in tightening their vaginal muscles whilst 12 (9%) reported that they were ineffective. Participants were asked to justify why they decide to use a specific vaginal tightening agent. 96% said they used their agent of choice because that agent was safe, 85% because they were effective, 72% because they are readily available, 67% because they are cheap, while 3% used them because they are easy to use.

Reported Side Effects Associated with Vaginal Tightening Herbs

This study revealed that most women who use traditional/herbal medicines to tighten their vaginas regard them as safe. They, however, reported some adverse effects associated with their use. These are summarized in Table 3.

DISCUSSION

This study highlights how women in an urban setting use vaginal tightening agents. Not only does the study identify the agents used by the study participants, it also shows how the products are currently used. Of the 213 people who participated in the study, 134 (63%) reported to have used vaginal tightening agents, while 79 (37%) reported not to have done so. In an effort to determine the reason why agents were used, women were asked if they had any history of vaginal loosening. The 18-20 years age groups had the highest number of participants who reported not to have suffered from vaginal loosening. This could be attributed to the fact that the majority of women in that age group have not had children yet. This is supported by a study by Martinez *et al.*¹⁴ who concluded that the mean age of child birth for women is 23 years. Interestingly, 59% of those who admitted to suffering from vaginal loosening were mainly in the 31-40 years age group. This age group had a prevalence of 28% as compared a prevalence of 11% among the 21-25 years age group. Age and prevalence of vaginal loosening were shown to be statistically significant ($P = 0.021$). This could be explained by the

fact that at that age women would have most likely given birth to children. Though study participants were not asked as to the method of delivery they used, studies done in Zimbabwe show that vaginal delivery is the most common method of delivery.¹⁵ Women, however, believe that structural changes occur to the vagina after vaginal delivery and this is the main reason why they use these agents.

The physiological processes of pregnancy and parturition require dramatic adaptations of the vaginal wall and pelvic floor to allow for marked vaginal distension. This process should normally be followed by a rapid return to a pre-pregnant-like state.¹⁶ Yet, numerous epidemiologic studies suggest that many women fail to recover completely from this event. As a result, vaginal distension trauma occurs and this plays an important role in the cause of pelvic organ prolapse. Vaginal delivery confers a 4- to 11-fold increase in the risk of prolapse development.^{17,18} In women with evident prolapse of the vaginal vault, there is pathologic stretching of the vagina. This could be the reason why women who have given birth vaginally complain of vaginal loosening, and tightening the vagina becomes a goal for many women.

About 63% of the participants who used vaginal tightening agents chose herbs as their agent of choice. In addition, all the study participants who used the herbal medicines to tighten their vaginal muscles were recommended by someone else to use them. The association between having a source of information was highly significant ($P = 0.000$). This is because herbs are perceived to be safe, effective, readily available, and cheap. In addition to tightening the vagina, the insertion of herbs is associated with increasing warmth of the vagina and reduction of vaginal secretions,¹¹ which increases sexual pleasure. Pitts *et al.*¹⁹ reported that Zimbabwean men had a preference for dry and tight vaginas as this increased sexual satisfaction and pleasure for both parties, and this could account for the increased use of these products by Zimbabwean women. A study by Runganga *et al.*¹¹ revealed that women in rural areas in Zimbabwe used herbal and non-herbal agents to tighten the vagina. These agents include *mutundo wegudo*, Hwange stone, *Mutunduru*, salt, banana plant root, *mutondo* bark, *zvanamina*, and others to tighten the vagina. These agents were also reportedly used in a study by Civic and Wilson²⁰, which determined the implications of dry sex on condom use. Some of the agents listed in these studies were also identified in our study.

The actual effects of the herbs used have not yet been fully established. These effects however, seem less important than the perceived effects because women believe these agents work. This is supported by the

fact that 91% of the participants who used the vaginal tightening agents acknowledged that they worked while 8% said they had no effect.

Participants also used exercises (24%), cold water, and coarse salt (13%) to tighten the vagina. Pelvic floor exercises, also known as kegel exercises, consist of repeatedly contracting and relaxing the muscles that form part of the pelvic floor. This is supposed to be done repetitively on a daily basis, preferably while sitting or standing, to improve muscle strength.²¹ These exercises have been reported to assist in tightening the vagina through strengthening the pelvic floor muscles. Coarse salt and cold water were also used by some of the participants as these two agents are believed to draw out excess fluid and contract the vaginal muscles.

It is important to note that the way women treat and care for their vaginas and genital area might affect their vulnerability to sexually transmitted infections (STIs, including HIV), and other sexual and reproductive morbidities.¹⁶ This is because inserting different agents into the vagina might alter normal vaginal flora. Lactobacilli account for >95% of the microorganisms present in the vagina in normal vaginal flora. They produce a number of compounds that inhibit other microorganisms, including lactic acid, hydrogen peroxide (HPO), lactacin, and acidolin. These compounds likely play an important role in regulating the vaginal flora by providing the HPO necessary for a halide-HPO–myeloperoxidase antimicrobial system and by maintaining an acidic pH in the vagina.¹⁹ Studies have shown that any disturbances in vaginal flora through insertion of fingers, douching or insertion of herbs, may lead to increased transmission of HIV and other sexually transmitted diseases.^{7,22} This is because HPO-producing lactobacilli have a virucidal effect on cell-free HIV-1 and *Neisseria gonorrhoeae in vitro*,^{23,24} and low vaginal pH reduces HIV infectivity.²⁵ Studies done in Zimbabwe and elsewhere in Africa where women practice these different vaginal practices show that only <50% of healthy African women harbor vaginal lactobacilli;^{7,26} leaving women susceptible to HIV infection.

None of the study participants were asked to disclose their HIV status, but self-reported complaints from a few of the study participants included suffering from cervical cancer, itching/pruritus, and high libido. These reported effects were however, not statistically significant ($P = 0.891$). It is therefore important to determine the prevalence and socioeconomic reasons why women use these agents as the popularity of intravaginal practices could have implications on the society as a whole. In addition, if intravaginal practices cause or perpetuate vaginal flora disturbances, and if these disturbances facilitate the acquisition of STIs and HIV, many cases of

HIV and other STIs could potentially be prevented by interventions such as the discouragement of intravaginal practices and the inclusion of bacterial vaginosis in the syndromic treatment procedure of abnormal vaginal discharge.⁷

LIMITATIONS OF THE STUDY

Participants were not asked to disclose their HIV statuses which might have been beneficial in determining the prevalence of HIV between vaginal tightening agent users and non-users. In addition, the questionnaire did not address when the women started using the vaginal agents and how frequent they used them. This might have been beneficial in determining the adverse effects of using these agents over a long period of time.

CONCLUSION

The study provides general information on the agents that are used by women to tighten the vagina and some of the reasons why these agents are used. Herbal agents like *mutundo wegudowegudo*, *Julbernadia globiflora*, *Garcinia burchanani*, *Chimhandara* to mention a few, were the agents preferred by a number of the participants as they are believed to be safe, effective, cheap and readily available. It would now be important to extend the study to cover a number of areas as the study is not a true reflection of the agents used by women in Zimbabwe as a whole. In addition, studies need to be conducted to determine the effects of these agents on the vagina.

ACKNOWLEDGMENTS

The authors would like to thank the different pharmacies involved for allowing us to use their premises for the study, as well as all the personnel involved in administering the questionnaires.

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How to cite this article: Sango T, Mudzviti T, Mawoza T. A Cross-Sectional Study to Determine the Types of Vaginal Tightening Agents used by Women in an Urban Setting in Zimbabwe. *Int J Adv Health Sci* 2015;2(1):1-7.

Source of Support: Nil, **Conflict of Interest:** None declared.