

Study of Harmful Vaginal Practices of Women in the Municipality of Ouagadougou, Burkina Faso

Daniel Dori^{1,2,3*} , Ramata Porgo¹, Hyacinthe Zamané^{1,4}, Nicolas Méda³, Rasmané Semdé¹

¹Drug Development Laboratory, African Center of Excellence for Training, Research, and Expertise in Pharmaceutical Sciences (CEA-CFOREM), Sciences and Health Doctoral School, Training and Research Unit in Health Sciences, Joseph Ki-Zerbo University, Ouagadougou, Burkina Faso

²Charles De Gaulle University Children's Hospital (CHUP-CDG), Ouagadougou, Burkina Faso

³Public Health Laboratory, Sciences and Health Doctoral School, Joseph Ki-Zerbo University, Ouagadougou, Burkina Faso

⁴Mother and Child Laboratory, Sciences and Health Doctoral School, Joseph Ki-Zerbo University, Ouagadougou, Burkina Faso
Email: *doridaniel@gmail.com

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Abstract

Introduction: Vaginal practices include washing, altering, cutting, cleaning, enhancing, drying, tightening, lubricating, or loosening of the vagina, labia, clitoris, or hymen. This study aimed to investigate the different vaginal practices of women using non-pharmaceutical products. **Methodology:** This was a cross-sectional study with descriptive and analytical purposes that took place from January 15 to April 23, 2023, in the four largest markets in the municipality of Ouagadougou. This was performed using the data collection sheet in the KoboCollect application. Epi info 7.2.5.0. software was used for data analysis. For the analysis of associated factors, a p-value < 5% was considered. **Results:** In total, 977 women were surveyed. Among them, 43.19% underwent vaginal procedures using non-pharmaceutical products. The female practitioners were 34.34 ± 7.44 years old. The products used included plants, mineral substances, ointments, tablets, and solutions. Among the practicing women, 40.99% were looking for vaginal tightening. The main purpose was to maintain their partners (45.97%). Three-point thirty-two percent (3.32%) of the women who underwent vaginal procedures had reported adverse events. **Conclusion:** Raising awareness of the consequences of vaginal practices and encouraging women to go to a health center for any gynecological problem could significantly reduce the prevalence of vaginal practices.

Keywords

Vaginal Practices, Women, Adverse Events, Products

1. Introduction

Broadly defined vaginal practices include any effort to wash, alter, cut, clean, enhance, dry, tighten, lubricate, or loosen the vagina, labia, clitoris, or hymen. This may include the use of a substance or material in application, ingestion, insertion, or fumigation [1]. The World Health Organization (WHO) classifies these practices into seven types: external washing, intravaginal cleaning, external application, intravaginal insertion, oral ingestion, vaginal flow, smoking, and anatomical modifications [2]. In 2010 according to WHO, vaginal practices are more common in Africa than in Asia. Indeed, in Zimbabwe in 2010, two-thirds of 2185 women, two-thirds reported at least one vaginal practice, including vaginal cleansing, drying, or tightening [3]. In 2014 in Tanzania and Uganda, out of 101 women in each country, 96.3% and 100% reported having performed at least one practice, respectively [4]. In Malawi, 95% of 200 women used at least one practice in 2016 [5]. Various products are used in these practices. In 2015, a study on vaginal practices and their possible effects on the colonization of vaginal lactobacilli flora among women in Accra showed that out of 141 women, the majority (82.3%) indicated that they used either water only or sometimes soap and water. Furthermore, other products, such as creams and herbs, have also been used in vaginal practice [6]. In 2019 in South Africa, the products used were alum stone (potassium aluminum sulfate), Vaseline cream, black tea, snuff, menthol, bluestone (copper sulfate powder), and newspapers [7]. In Tanzania and Uganda, pure or diluted lemon juice, cloth, onion puree, Vicks Vaporub[®], and white powder are used to purify water or plant sap. Herbal solutions, aerated drinks (e.g., Coca-Cola[®]), and salt have been reported to be used in vaginal practices [8] [9]. Motivations for vaginal practice are diverse. A study in Ghana showed that reasons for hygiene, sexual satisfaction, and healing of vaginal wounds motivated the vaginal practices of several women. Several studies have shown that partner satisfaction and maintenance of partner commitment are the main reasons for women's engagement in vaginal practices [3] [6] [7] [10] [11] [12] [13]. These practices do not have consequences on women's health. Vaginal drying agents may be effective for increasing the number of vaginal walls. However, when a woman stops using them, she can contract fungal and bacterial infections, some of which are sexually transmitted, including Human Immunodeficiency Virus (HIV), due to abrasions on the vaginal walls as well as the risk of rupture. condoms owing to insufficient lubrication [11]. Studies carried out in sub-Saharan Africa have shown an association between certain practices (e.g., intravaginal cleaning with soap or intravaginal use of cloth or paper) and HIV infection [14] [15]. In Congo, vaginal examinations performed by a doctor revealed that several substances cause inflammatory lesions in the vagina and cervix. In addition, certain products cause extreme dryness, which could promote epithelial trauma during coitus for both the woman and her partner [10]. In Accra, vaginal practices using herbs or commercial products are associated with colonization of vaginal flora by vaginal lactobacilli [6]. Women in Burkina Faso are not on the

sidelines of this phenomenon, given the significant presence of products used for vaginal practices in markets and exhibitions at certain cultural events in Burkina Faso [16]. The practices and products used to achieve these goals are becoming increasingly popular through social networks. In the context of mixing plants and various products with uncontrolled toxicological profiles, these practices can damage the female genital tract. This study aims to contribute to the promotion of public health and, more specifically, that of women through the diagnosis of the different practices of women in the commune of Ouagadougou. This study focuses on products other than water and prescribed pharmaceuticals. Anatomical modifications were excluded from the study. Its objectives were to study; in general, the different vaginal practices carried out by women in the commune of Ouagadougou; specifically, to determine the prevalence of vaginal practices, identify the main types of products used for vaginal practices, describe the motivations for vaginal practices, determine the consequences linked to vaginal practices, and determine the factors associated with vaginal practices.

2. Methodology

2.1. Study Framework

The study took place in the commune of Ouagadougou in the four largest markets, given their reception capacities, especially because the majority of products used for vaginal practices are marketed in these markets, with approximately hundred markets listed by the town hall. The four largest markets are Rood Woko, Nabi Yaar, Paag La Yiri and Baskuy Yaar. The reception capacities of these markets are Rood Woko 3161, Nabi Yaar 2689, Paag La Yiri 1825, and Baskuy Yaar 1699 [17].

2.2. Type and Period of Study

This was a cross-sectional study with both descriptive and analytical objectives. This study was conducted between January 15 and April 23, 2023.

2.3. Study Population

The study focused on women aged at least 18 years in the markets of Rood Woko, Nabi Yaar, Paag La yiri, and Baskuy yaar in the commune of Ouagadougou.

Women who marketed products for carrying out these practices were excluded from the present study because their activity was similar to an illicit activity; therefore, they were reluctant to provide certain information. Additionally, the use of water and pharmaceutical products for vaginal practices was not considered in this study.

- **Sample size**

The sample size was calculated using the Schwartz equation.

$$n = (z1 - \alpha/2)^2 \times p \times q / d^2$$

Z = coefficient that must be used for the desired degree of confidence.

$Z = 1.96$ for a confidence level of 95%.

$P =$ Proportion assumed to be 0.5 (P being unknown).

$Q = 1 - P$.

$d =$ Accuracy 5%.

$n = 384$ women.

Plus size 10% non-response rate, $n = 422$ women who performed vaginal practices.

The number of women per market was determined by applying a quota to each market based on its capacity. The total reception capacity is 9375 individuals. Depending on the size of each market, the subsamples were 142 women from the Rood Woko market, 121 from the Nabi Yaar market, 82 from the Paag La Yiri market, and 77 from the Baskuy Yaar market.

- **Sampling**

This was a non-probability or accidental sampling in markets. It consists of standing in a given place and choosing and approaching a woman by chance to speak with her. Eligible women met the following criteria: they must be at least 18 years old, must not be a trader of the products under study, and must use products other than water and pharmaceutical products for vaginal practices. Walking forward from the main entrance of each market was used during participant selection.

2.4. Data Collection

The data collection tool was a sheet created using the KoboCollect application.

The questionnaire used was first validated based on a pretest on 30 women from a medium-sized market. The collection technique consisted of individual, confidential interviews with women. This interview first aimed to explain clearly and as simply as possible the purpose of the study and to build confidence regarding the confidentiality of the data collected, as well as the preservation of anonymity. Informed consent for participation in the study was obtained from all participants. Finally, a questionnaire was completed during the interviews. We thank the participants at the end of the study.

A woman was randomly approached individually and we explained our study and its objectives to her in French in Moore or Dioula, depending on the language spoken by the woman. We then asked her to consent to participate in the study if she agreed that we had begun the interview at a place where there was less possible disturbance, and we filled out the questionnaire gradually. The participants were thanked at the end of the interview, preceded by raising their awareness if necessary.

2.5. Study Variables

The study variables included the sociodemographic characteristics of the respondents (age, sex, level of education, nationality, marital status, residence, and number of sexual partners), variables linked to vaginal practices (nature of va-

ginal practices and motivations for vaginal practices), variables linked to the products used (nature of the products, routes of administration, sources of information on the products, sources of supply of products, and desired effects), and variables linked to consequences (consequences experienced, products suspected, treatments followed, and complications suffered).

2.6. Ethical and Deontological Considerations

Prior to conducting this study, authorization was obtained from the mayor of the municipality of Ouagadougou (N°2022-3034/CO/M/SG/DGSA/DAGCA/SAA on November 10, 2022. Informed consent was obtained from each respondent before administering the questionnaire. The physical, psychological, and social integrity of the women throughout the study was preserved, as well as the confidentiality of the information collected. This confidentiality was materialized by the anonymous nature of the collection tool.

2.7. Data Processing and Analysis

The data were entered into the KoboCollect application and then extracted and analyzed using Excel 2016 and Epi info software version 7.2.5.0. For the analysis of associated factors, we performed a chi-square test, and a p-value < 5% was considered.

2.8. Operational Definitions

Vaginal practice: This is any practice that consists of washing, cleaning, improving, drying, tightening, and lubricating the vagina with the aim of treating infections and improving one's intimate hygiene or sexual life, or that of one's partner(s). This includes the use of substances in application, ingestion, insertion, or fumigation.

Married status: Any woman in a relationship with a man, *i.e.* legally married or cohabiting.

3. Results

A total of 977 women were interviewed, of whom 422 had vaginal practice.

3.1. Sociodemographic Characteristics of Female Practitioners

The average age of the women who performed the vaginal procedures was 34.34 ± 7.44 years with a range of 19 to 60 years. The age group of 26 - 35 years was the most represented (44.79%). Among the 422 women who performed vaginal practice, 88.39% had a single sexual partner, 95.50% were in Burkina Faso, and 75.12% were married (Table 1).

3.2. Vaginal Practices of the Women Surveyed

Among the 977 women surveyed in markets and yaars, 422 performed vaginal practices, representing a prevalence of 43.19%. Oral ingestion represented 41.70%

Table 1. Sociodemographic characteristics of the 422 women users of non-pharmaceutical products.

Characteristics	Effective	Proportion (%)
Age	[19 - 25]	11.6
	[26 - 35]	44.8
	[36 - 45]	37.2
	[46 - 55]	6.2
	[56 - 60]	0.2
Level of study	Out of school	17.1
	Primary	42.7
	Secondary	30.3
	University	10.0
Marital status	Single	19.9
	Married	80.1
Nationality	Burkinabe	95.5
	Malian	1.2
	Ivorian	2.6
	Nigerien	0.7
Number of sex partners	Zero	0.9
	One	88.4
	Two	10.2
	More than two	0.5

of the practices. **Figure 1** shows the frequency of the different vaginal practices.

Among the 422 women who performed vaginal practices, 154 (36.49%) had received information on social networks, 138 (32.70%) from the promoters of products used for vaginal practices, and 130 (30.81%), respectively, with their loved ones.

3.3. Products Used for Carrying out Vaginal Practices

The products used were mainly plants, mineral substances, ointments, tablets, and solutions of unknown compositions. The number of plants per user varied from one to more than three plants. Among 422 women who underwent vaginal practice, 390 (92.42%) used plants (**Table 2**).

The plants were used either individually or in combination. *Chrysopogon nigritanus* (Benth.) was the most commonly used plant alone or in combination (39.57%), followed by *Syzygium aromaticum* L. (clove) (31.28%) (**Table 3, Figure 2**).

Among the women who practiced vaginal practice, 350 (82.7%) obtained their products from the market.

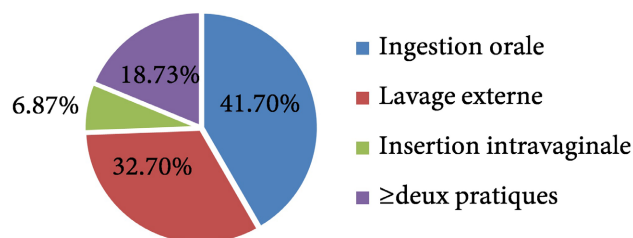


Figure 1. Distribution of different types of practices.



(1) Thorns of *Alternanthera pungens* Kunt



(2) Pods of *Acacia nilotica* (L.) Willd



(3) Roots of *Chrysopogon nigritanus* (Benth.)



(4) Leaves of *Alchornea cordifolia* (Thonn et schumach)

Figure 2. Illustrative images (1, 2, 3 and 4) of the products used by the women surveyed.

Table 2. Distribution of female practitioners according to the type of products used for vaginal practice.

Products used	Effective	Proportion (%)
Plant only	390	92.42
Mint plants and crystals	1	0.24
Others	32	7.58
Total	422	100

Table 3. Distribution of the ten plants most commonly used by women.

Plants used alone or in combination	Effective	Proportion (%)
<i>Chrysopogon nigritanus</i> (Benth.) (vetiver)	167	39.57
<i>Syzygium aromaticum</i> L. (clove)	132	31.28
<i>Acacia nilotica</i> (L.) Willd. ex Dedile	121	28.67
<i>Cinnamomum verum</i> J. Presl (cinnamon)	63	14.93

Continued

<i>Alternanthera pungens</i> (paste tighten)	44	10.43
<i>Cyperus rotundus</i> (Guéni)	35	8.29
<i>Alchornea cordifolia</i> (Thonn and Schumach) Mull. Arg. (djeka)	32	7.58
<i>yirifarani</i>	20	4.74
<i>Mangifera indica</i> L.	11	2.61
<i>Citrus limon</i> (L.) Burm. f.	9	2.13

The cost of the products used by the participants to carry out vaginal practice was up to 7000 FCFA (10.67 euros). The average cost was 622.39 ± 806.26 FCFA (0.95 ± 1.23 euros).

3.4. Motivations for Carrying out and Desired Effects of Vaginal Practices

Among the 422 women who performed vaginal practices, 41.0% sought vaginal tightening while 28.4% wanted vaginal lubrication (**Table 4**).

The main motivations were mainly to retain their partners (39.6%) or to multiply the pleasure (30.6%). Sexual health (12.6%), intimate hygiene (12.1%) or remaining faithful to her partner (5.2%) were also motivating factors.

3.5. Consequences

Among the 422 women who underwent vaginal procedures, 14 (3.32%) reported experiencing adverse events. Among them, nine (64.29%) and five (35.71%) showed irritation and vaginal infections, respectively. The incriminated products were undetermined in 50% of cases (**Table 5**).

3.6. Factors Associated with Vaginal Practices

The factors retained at the end of the analysis were level of study, marital status, and number of sexual partners. Level of schooling, marital status and number of sexual partners significantly influence respondents' vaginal practices ($p < 0.05$). Harmful vaginal practices were less frequent in educated women than in uneducated women (OR = 0.67). Among married women (OR = 2.03), as well as those with a sexual partner (OR = 12.87), harmful vaginal practices were more frequent. **Table 6** shows the results of the association between these factors and vaginal practice.

4. Discussion

4.1. Sociodemographic Data

The average age of the women who performed the vaginal procedures was 34.34 ± 7.44 years. The age group of 26 - 35 years was the most represented (44.79%). This result is close to those found by Hull *et al.* in 2011 in Mozambique who reported an average age of 31.6 years and the most represented age group was 24

Table 4. Distribution of 422 practicing women according to the main effect sought and the motivations for carrying out vaginal practices.

Desired effect	Motivations	Headcount	Total	Percentage (%)
Tighten the vagina	Keep his man	110	173	41.0
	Increase pleasure tenfold	41		
	Remain faithful	22		
Lubricate the vagina	Keep his man	32	120	28.4
	Increase pleasure tenfold	88		
Hygiene	Keep his man	25	76	18.0
	Hygiene	51		
Treat infections	Sexual health	53	53	12.6
Total		422	422	100.0

Table 5. Distribution of women who experienced adverse events according to the product in question.

Products in question	Effective	Percentage (%)
Undetermined product	7	50
Compressed	2	14
Soap	2	14
Lemon juice and <i>Acacia nilotica</i> pods	1	7
<i>Acacia nilotica</i> pods	1	7
Alum stone	1	7
Total	14	100

Table 6. Distribution of women surveyed according to associated factors.

Associated factors	Practitioners	Non-practicing	OR [95% CI]	p value
Level of study				
Schooled	350	488	0.67 [0.47 - 0.96]	0.027
Out of school	72	67		
Marital status				
Married	338	332	2.03 [1.53 - 2.7]	0.0001
Single	84	223		
Number of partners				
≥1	418	494	12.87 [4.64 - 35.69]	0.0001
Zero	4	61		

to 41 years [12]. The age group most commonly represented in this study was the relatively young. This result can be explained by the high level of sexual activity in this age group [18].

Among the women who performed vaginal practices, 75.12% were married.

This result could be explained by the fact that women want to maintain their partners' commitment and fear of divorce. In fact, in 2022, 1590 divorce cases were pronounced by the Ouagadougou High Court [19].

4.2. Vaginal Practices of the Women Surveyed

The prevalence of vaginal practices was 43.19%. This high prevalence could be explained by accessibility, the relatively low cost (622.39 ± 806.26 FCFA) of the different products used, and the popularization of information on the various social networks that represented the main source of information for women who carried out vaginal practices (36.49%). These results differ from those of Smit *et al.* and Esber *et al.*, who found prevalence rates of 90.2% and 95%, respectively, in 2011 in South Africa and Malawi in 2016 [5] [20]. This difference could be due to the fact that these two studies did not exclude women who used water and pharmaceutical products for carrying out the practices.

Forty-one-point seventy percent (41.70%) performed oral ingestion, 32.70% performed external washing, and 6.87% performed intravaginal insertion.

Regarding oral ingestion, our results were similar to those of a study conducted by the WHO Department of Reproductive Health in 2011 in Indonesia, with 48% of women practicing oral ingestion. This was the most successful practice. This result could be explained by the fact that the oral route is the main route of administration of these products. For external washing, our results were similar to those reported in Indonesia and Thailand (38% and 35%, respectively). Our results were similar to those reported in Tanzania in 2013 by Francis *et al.* who had found 9.8% of women underwent intravaginal insertion. However, in 2011, the WHO Department of Reproductive Health found that 54% of women in Mozambique and 32% of women in Thailand inserted substances [2]. Francis *et al.* (2013) also found in Uganda that 49.5% of women inserted substances into Uganda [9]. This difference could be explained by the fact that, nowadays, communications about cervical cancer and the high number of this type of cancer call women to account for the risks they run with the insertion of substances into the genital tract.

4.3. Products Used for Carrying out Vaginal Practices

The products used were plants, mineral substances, ointments, tablets, and solutions. In the present study, 390 women (92.42 %) used plants only. The number of plants per user varied from one to more than three plants.

Hilber *et al.* (2010) in Indonesia, Mozambique, South Africa, and Thailand found in all study sites that women used both traditional and modern preparations. Products range from traditional preparations of herbs, leaves, bark, fruits, pits, and edibles to industrially manufactured substances, such as douching solutions, tonics, infusions, soaps, and creams. Vaginal [1]. In addition to the products found during our study by Hilton *et al.* in 2019 in South Africa, another newspaper found that women inserted into the vagina to absorb moisture [7].

Francis *et al.* (2013) found that other products, such as tissue, onion puree, Vicks Vaporub[®], a white powder used to purify drinking water, salt, and carbonated drinks (e.g., Coca-Cola[®]) and salt have been reported in the achievement of vaginal practices [9]. This difference in the types of products used could be explained by sociocultural contexts that differ from one country to another, which could be explained by the fact that plants are considered natural and harmless. In fact, the presence of secondary metabolites could partly justify the use of certain species of medicinal plants by African women for intimate hygiene [21].

4.4. Motivations for Carrying out Vaginal Practices

Among the 422 women who performed vaginal practices, 173 women or 40.99% performed vaginal practices to tighten the vagina, and 167 women or 39.6% of women performed practices to maintain their partners. In the present study, we identified motivations that were linked to sexuality for the satisfaction of the couple or partner to maintain it, personal hygiene, and genital health. Maintaining a partner was the most cited motivation. Hilber *et al.* (2010) found the same motivations in Indonesia, Mozambique, South Africa, and Thailand [1], and Hilton *et al.* (2019) found the same motivations that were essentially linked to maintaining the partner [7]. Despite different sociocultural contexts, their motivations remain the same.

4.5. Consequences

Among female practitioners, 3.32% reported experiencing adverse events. Our results differ from those of Smit *et al.*, who found that 12.6% of the women experienced adverse effects. Adverse effects are more common with the use of substances [20]. The low proportion of adverse events (3.32%) in the present study could be explained by the low proportion of intravaginal insertions, which represented 6.87% of practices.

Among women who reported adverse events, 64.29% and 35.71% experienced vaginal irritation and infection, respectively. Smith *et al.* reported genital irritation, vaginal bleeding, sores, or itching [20].

The product was undetermined in 50% of the women reporting adverse events. This result could be explained by the fact that the women combined several products to carry out the practice (the number of plants per user varied from one to more than three plants), making it difficult to incriminate a product.

4.6. Factors Associated with Vaginal Practices

Vaginal practices were significantly associated with variables such as number of sexual partners, educational level, and marital status.

The risk of resorting to vaginal practices was increased by 12.87 among women with one or more sexual partners compared to those who had no partners (OR: 12.87; CI: [4.64 - 35.69]). This association was statistically significant

($p < 0.05$ (0.0001)). This association could be explained by the fact that women with at least one sexual partner were sexually active. Smith *et al.* had found that these practices were almost twice as common in sexually active women (95% CI = 1.05 - 3.56) [20].

The risk of resorting to vaginal practices increased by 2.03 among married women compared to those who were not married (OR: 2.03; CI: [1.53 - 2.68]). This association was statistically significant ($p < 0.05$ (0.0001)).

The risk of resorting to vaginal practices was reduced by 66.7% among educated women compared to non-educated women (OR: 0.667; CI: [0.466 - 0.956]). This association was statistically significant ($p < 0.05$ (0.027)). The low prevalence of vaginal practices among women who have completed higher education could be explained by the fact that they would have acquired more in-depth knowledge about the female genital system and by the fact that they would be more capable of researching good information before carrying out vaginal practices. Smith *et al.* found the prevalence of these practices was lower among women who had higher education than those without primary education (AOR = 0.26, 95% CI = 0.08 - 0.85) [20]. Hull *et al.* found that women who had completed secondary school or higher were about half as likely as women who had never completed primary school to report intravaginal cleaning (adjusted odds ratio 0.43, 95% CI 0.18 - 1.04, $p = 0.06$) [12].

5. Conclusion

At the end of our study, which aimed to describe the different vaginal practices carried out by women in the commune of Ouagadougou, it appeared that the purpose of carrying out vaginal practices was to achieve the desired vaginal state related to personal hygiene, sexual enhancement of women themselves or their sexual partners, health, and well-being. Forty-point ninety-nine percent (40.99%) of women performed vaginal practices to tighten the vagina, and 45.97% to keep their men. Three-point thirty-two percent (3.32%) of the women who performed vaginal practices reported adverse events, and 23.22% reported being dependent on these practices. Women used plants as well as other products, such as solutions, soaps of unknown composition, and mineral substances, to carry out vaginal practices. The performance of vaginal practices had a statistically significant relationship with level of education, number of sexual partners, and marital status. Raising awareness of the consequences of vaginal practices and encouraging women to go to a health center for any gynecological problem could significantly reduce the prevalence of vaginal practices, which could serve as a guiding framework for future studies. The ideal would be to conduct a study that concerns the sellers of the products used for carrying out vaginal practices, and it would be interesting to verify the impact of these practices on women's fertility.

Authors' Contributions

DD and RP contributed to the study design and questionnaire. HZ, NM, and RS

contributed to content creation, data acquisition, and interpretation, and all the authors contributed to the drafting of the manuscript and/or substantial revisions. All authors have read and approved the final manuscript.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this article.

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