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Treatment of sexually transmitted infections by Bapedi traditional health practitioners

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The knowledge of sexually transmitted infections (STIs) is limited in scope especially among traditional health practitioners (THPs) who are members of Bapedi tribe in South Africa. This study investigated the traditional knowledge of STIs from Bapedi THPs. Using a semi-structured questionnaire, 30 THPs were selected via a snowball sampling. Results revealed that THPs of the Waterberg District treat four STIs. STI treated were syphilis (*thosala*), genital warts (*tšhofela*), testicular swelling (*mokabe*) and *makgoma* (cultural taboo). A period for treatment of STIs was monthly (41%), followed by seasonal (34%), weekly (15.6%) and daily (9.4%). Syphilis (*thosala*) was the most frequently treated (45.5%), followed by *makgoma* (24.2%), genital warts (21.1%) and testicular swelling (9.0%). The diagnoses of STIs by THPs correspond to the western known syndromes such as male urethritis syndrome, genital ulcer syndrome and vaginal discharge syndrome. However, aetiological surveillance demonstrated that diagnoses used by THPs are not always accurate or consistent with diagnoses made using the methods and procedures of western scientific medicine. Of immediate concern is that THPs lack information on the etiological agents of genital ulcer and vaginal discharge. It is recommended that THPs be given elementary training on sexual and reproductive health, especially on etiological agents of STIs.

Keywords: Bapedi terms, Sexually transmitted infections (STIs), Traditional health practitioners (THPs)

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Sexually transmitted infections (STIs) continue to be a major health problem around the world¹. According to the World Health Organisation (WHO), STIs may cause morbidity but only rarely results in mortality (for example, through genital tract complications). STIs could result in ectopic pregnancy, infertility, premature birth, and stillbirth, as well as blindness when passed on during pregnancy².

Approximately 499 million cases of STIs occur annually, especially in adults aged 15-49 years. Over a quarter of STIs occurs in sub-Saharan Africa. The high prevalence of STIs in this region is due to young adults with high-risk sexual activities, socio-demographics and economics, as well as limited access to healthcare services³.

Due to the high prevalence of STIs in sub-Saharan Africa, Traditional Health Practitioners (THPs) play a significant role in combating this epidemic, especially in rural areas. Van Vuuren and Naidoo⁴, noted that many patients infected with STIs initially

seek treatment from THPs. South African *Traditional Health Practitioners Act* No. 22 of 2007 regulate traditional medicine. According to the Act, a person must register in one or more categories of THPs to be considered a lawful, legitimate officially recognized THP under this act. THPs practice includes; (a) the diagnosis, treatment or prevention of physical or mental illnesses; or (b) any curative or therapeutic measures, including the maintenance and restoration of physical or mental health or well-being in human beings⁵. Many healthcare seekers still consult THPs as they share the same cultural beliefs; live in proximity with THPs and modern medical scientific treatment is sometimes unavailable and/or unaffordable⁶.

STIs are diagnosed based on observing and assigning them to various categories of syndromes, where syndrome is defined as a group of symptoms, which consistently occur together^{7,8}. Dysuria, discharge and genital discomfort are symptoms of male urethritis⁸. Male urethritis Syndrome (MUS), vaginal discharge syndrome (VDS), and genital ulcer

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syndrome (GUS) are common STI syndromes. The definition of syndromic surveillance according to May⁹ is the use of pre-diagnostic clinical syndromes rather than confirmed cases of specific infection. The syndromic case reporting has always been vital in the traditional management of STIs¹⁰. Syndromic case reporting is used mostly in developing countries due to inadequate laboratory services. Over 30 pathogens are responsible for STIs. The most prevailing and curable etiological agents of STI are *Chlamydia trachomatis*, *Neisseria gonorrhoea*, *Treponema pallidum*, and *Trichomonas vaginalis*. These pathogens, among others, are confirmed by laboratory diagnostic tests to validate aetiological surveillance¹¹.

Based on the alleviating symptoms and behavioural traits, rather than the laboratory diagnostic tests, Bapedi THPs of South Africa, have developed their own nomenclature to classify STIs. STIs diagnosed by Bapedi THPs are gonorrhoea (drop; borrowed from the name “dropsy”), chlamydia (*khutlega*), syphilis (*thosola*), *Nta* (Bapedi terminology), including HIV/AIDS¹². This indicates that Bapedi THPs are familiar with STIs. Moreover, throughout history, indigenous people have tried and tested on how to treat STIs and many other ailments with medicinal plants^{12,13}. However, some of the STIs managed by Bapedi THPs remain undocumented. This paper expands on the knowledge and causes of

STIs according to Bapedi THPs. Documenting this information will promote a better understanding of the Bapedi traditional health practice, especially regarding their indigenous knowledge of diagnosing STIs.

Methodology

Study site

The study was conducted in six Local Municipalities of the Waterberg District, Limpopo Province, South Africa. The district covers an area of 49 523 km², making it the largest district in the province (Fig. 1).

Sampling method

A two-step process was used prior in enrolling the THPs in the study: (i) obtain permission (from traditional councils) to conduct this study within the area of jurisdiction and (ii) to meet with the THPs to request their participation in the study.

Information was collected from February 2017 to September 2017. In this study, we used a snowball sampling technique to recruit five THPs from each of six local municipalities in the Waterberg district, resulting in a total of 30 THPs being interviewed. Data were collected by means face-to-face interviews using a semi-structured questionnaire⁶. The questionnaire of the study was explained in *Sepedi*, the mother tongue of the respondents. The

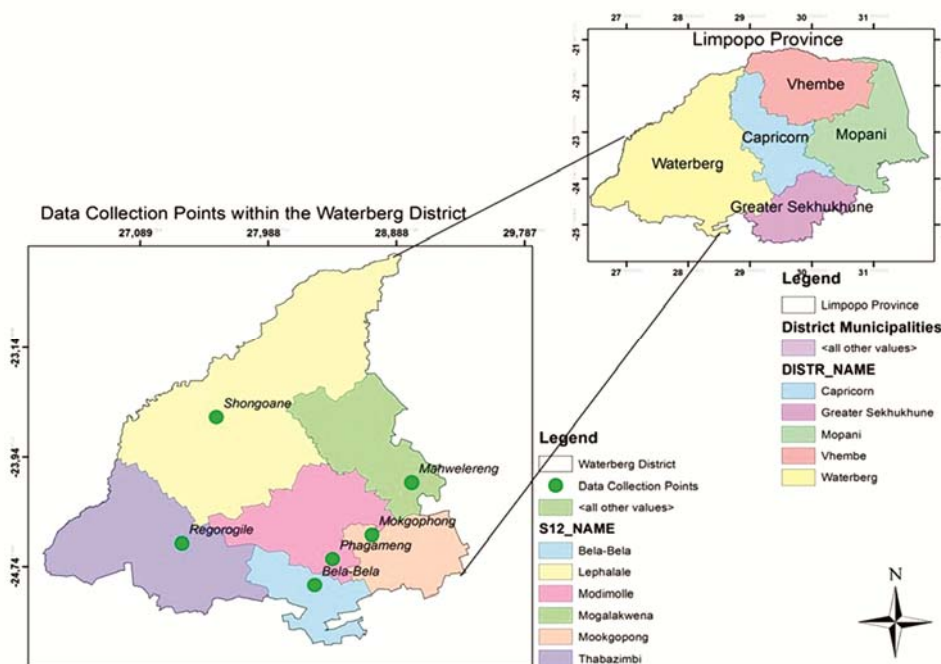


Fig. 1 — Geographical study area of Waterberg District, Limpopo Province, South Africa

questionnaire was divided into 5 sections, such as social characteristics, Bapedi terms for STIs, symptoms of STIs, perceived causes, and period of consultation. The inclusion of what the THP called STI was fundamental to this study. The diagnoses of STIs was based on symptoms description because of the traditional practice in the study area by THPs. The diagnostic criteria used by THPs were compared to those used by the aetiological surveillance systems of South Africa^{7,11}.

Ethical consideration

Each THP was requested to sign a consent form as approved by the University of Limpopo Research Ethics Council (REC). Ethical standards pertaining to the participants’ privacy, confidentiality and anonymity, were observed, adhered to and respected. Participants in this study were voluntary, participated freely and anonymously. The sources of primary and secondary data and information were acknowledged. The ethical guidelines of the Turfloop Research Ethics Committee were adhered to (TREC/290/2017: PG).

Data analysis

The collected data sets were captured in MS Excel 2013 and analysed using descriptive and inferential statistics. Descriptive statistics such as frequency of consultation was calculated by dividing the number of THPs who reported specific STI with the total number of THPs who reported all STIs then multiplied by 100. The chi-square test of fitness was used to analyse the socio-demographics and number of STIs diagnosed by THPs. All statistical analysis was performed with SPSS (ver. 24) statistical software. The descriptive statistics nonparametric tests were

used to find a significant difference, all set at 0.05 alpha level of significance.

Results

Sexually transmitted infections

Bapedi THPs treat 4 STIs. These include syphilis, genital warts, testicular swelling (*mokabe*) and *makgoma* (cultural taboo). THPs treat *thosola*, *tshofela*, *mokabe* and *makgoma* as vernacular names of STIs. Syphilis is called *thosola* in Sepedi language and genital wart is known as *tshofela* or cauliflower. *Makgoma* (cultural taboo) is a STI commonly perceived to be HIV/AIDS by THPs (47%), while large proportion (53%) consider it as a cultural taboo.

Diagnoses and causes

Bapedi THPs use various physical symptoms to diagnose STIs. The symptoms used to diagnose STIs were urethral discharge, vaginal discharge, genital ulcers, and swollen testis among others (Table 1). Sexual intercourse with an infected person was perceived as the cause of *thosola* (syphilis) and *tshofela* (genital warts). *Makgoma* and *mokabe* were culture-bound diseases, conveying a traditional concept for taboo (Table 1). At least 13% of the THPs had heard of pathogens for STIs, but it was difficult for THPs to name STI pathogens. According to THPs, *makgoma* (cultural taboo), syphilis (*thosola*) and genital warts (*tshofela*) were STIs affecting both men and women.

Period and frequency of treatment

With regards to the period of constultation of STIs, it differed from day, week, month and season. Traditional Health Practitioners treat STIs cases

Table 1 — Sexually transmitted infections by Bapedi traditional health practitioners and clinical causes.

STIs treated	Traditional causes	Prevailing symptoms	Possible clinical causes of the reported STIs
Genital warts(<i>Tshofela</i> or Cauliflower)	Sexual intercourse with infected person	Painful genital ulcers or painless genital ulcer, and itching sores (Genital ulcer syndrome-GUS)	Herpes simplex virus (HSV), <i>T. pallidum</i> , Human papilloma virus (HPV) and <i>Haemophilus ducreyi</i>
Syphilis(<i>Thosola</i>)	Sexual intercourse with infected person	Abnormal urethral and vaginal discharge, foul smell, painful genital ulcer (MUS, GUS & VDS)	<i>Neisseria gonorrhoea</i> , <i>C. trachomatis</i> , <i>T. vaginalis</i> , <i>Bacterial vaginosis</i> , <i>Candida</i> species and GUS pathogens
Testicular swelling(<i>Mokabe</i>)	Sexual intercourse with woman who has given birth less than 3 months ago (postpartum confinement)	Swollen testis	Epididymo-orchitis and Chlamydia/gonorrhoea
Cultural taboo(<i>Makgoma</i>)	Sexual intercourse with un-ritualized widow (6 months confinement)	Swollen body (face and legs) and excessive cough	Clinical investigation needed

Clinical causes: [2, 11,13]

Table 2 — Period of consultation and frequency of sexually transmitted infections in each Local Municipality of Waterberg District.

Infections diagnosed	Syphilis (<i>Thosola</i>) (MUS, VDS & GUS)		Genital warts (<i>Tshofela</i>) (GUS)		<i>Makgoma</i> (Cultural taboo)		Swollen testis (<i>Mokabe</i>)	
	Period of consultation	frequency	Period of consultation	frequency	Period of consultation	Frequency	Period of consultation	frequency
Local Municipality								
Mogalakwena	0	0.0	2M, 1W	9.1	1M	3.0	1S, 1M	6.1
Mookgophong	1S 2R	9.1	1S	3.0	1W	3.0	0.0	0.0
Modimolle	1S, 2D, 1W, 1M	15.2	1M	3.0	0	0.0	1D	3.0
Bela-Bela	3M, 1S	12.1	1M	3.0	0	0.0	2 M, 2 S	12.1
Thabazimbi	1 W, 1S	6.1	1W	3.0	1S	3.0	0.0	0.0
Lephalale	1S	3.0	0	0.0	0	0.0	1 M	3.0
Total	15	45.5%	7	21.1%	3	9.0%	8	24.2%
P-value	0.021*							

Abbreviations: 0= no report, D=daily, W=Weekly, M=Monthly, and S=seasonally. * Significantly different.

monthly (47%), followed by 34.4% who treat STIs seasonally, 15.6% treat STIs on a weekly basis, 9.4% treated STIs daily.

Chi square analysis indicated that THPs differ significantly in period of consultation for STIs ($X^2=9.750$, $df=3$, $p=0.021$) (Table 2). Syphilis (*thosola*) is the most frequently treated (45.5%), followed by *makgoma* (cultural taboo) (24.2%), genital warts (*tshofela*) (21.1%) and testicular swelling (*mokabe*) (9.0%) (Table 2).

Social characteristics

Gender

The majority of THPs were females (67%) in the study area than their male counterparts (33%). With respect to treatment of STIs, only females THPs treated Testicular swelling (*mokabe*). Furthermore, large proportion of THPs who treated syphilis (*thosola*) (71%) and *makgoma* (cultural taboo) (75%) are females. Equal proportions of male and female treated genital warts (*tshofela*).

Age and Level of experience

Regarding the level of age of THPs, the number of years ranged from 31-40 to >70, while there were no significant differences in terms of the numbers of THPs with different levels of age categories ($X^2=5.667$, $df=4$, $p=0.225$) (Table 3). Thirteen percent of the THPs were older than 70 years of age, 33% were between 61-70 years, 27% were between 51-60 years, and 17% between 41-50 years and 10% were in the 31-40 years range (Table 3). It was found that 43% of THPs who reported syphilis (*thosola*) were in the age group of 51-60 years.

With respect to the level of experience of the THPs, the number of years of experience ranged from 5-10 to 31-40, while there were no significant

Table 3 — Chi square analysis for social characteristics of traditional healthcare practitioners

	Number	Percentage	P-value
Age category (years)			
31-40	3	10	0.225
41-50	5	16.7	
51-60	8	26.7	
61-70	10	33.3	
>70	4	13.3	
Level of experience (years)			
5-10	6	20	0.202
11-20	10	33.3	
21-30	7	23.3	
31-40	7	23.3	
Education background			
No formal education	7	23.3	0.043*
Primary	8	26.7	
Secondary	13	43.3	
Tertiary	2	6.7	

* Significantly different

differences in terms of the numbers of THPs with different levels of experience ($X^2=3.200$, $df=2$, $p=0.202$). However, 20% have 5-10 years' experience and 33% have 11-20 years of experience in the traditional medicine profession. Twenty-three percent of THPs have 21-30 years of experience, which is similar to the THPs with 31-40 years of experience in traditional medicine (Table 3).

Educational background

There is a significant difference among THPs with respect to educational background ($X^2=11.668$, $df=3$, $p=0.043$) (Table 2). Only 43.3% of THPs attended a secondary education, 26.7% have primary education, and 23.3% have no education and 6.7% having a tertiary education. Up to 50% of THPs who have a secondary education reported syphilis (*thosola*), followed by 21.43% each for those who have primary

education and those who have no education (Figure 2). Traditional Health Practitioners who have tertiary education contributed the least (7.1%) in reporting syphilis (*thosola*) (Fig. 2).

Discussion

Sexually transmitted infections, diagnoses, and causes

Diagnoses of syphilis (*thosola*) and genital warts (*tshofela*) correspond to the western known syndromes such as Male Urethritis Syndrome (MUS), Vaginal Discharge Syndrome (VDS) and Genital Ulcer Syndrome (GUS). However, linkage of *thosola* and *tshofela* to syphilis and genital warts respectively is not always accurate or consistent with western scientific diagnoses¹¹. A previous ethnobotanical survey reported gonorrhoea (*drop*), chlamydia (*khutlega*), *nta* (Bapedi term), syphilis (*thosola*), including HIV/AIDS from Bapedi THPs¹². Although THPs in the Sekhukhune district treated syphilis (*thosola*), it had previously gone undocumented from THPs in the Waterberg district. Therefore, this study focus on 4 STIs previously gone undocumented under Bapedi traditional medicine, especially in Waterberg district, Limpopo province. This study documents syphilis (*thosola*), genital warts (*tshofela*), *mokabe* (testicular swelling) and *makgoma* (cultural taboo).

Syphilis (*Thosola*)

Bapedi THPs ascribe *thosola* (MUS, VDS & GUS) as syphilis. However, in the medical perspective, abnormal urethral and vaginal discharge, as well as painful genital ulcers are not 100% caused by *T. pallidum* (syphilis)^{7,11}. Bapedi THPs have knowledge for identification of gonorrhoea with abnormal urethral discharge^{12,14}. In the rural and urban areas of South Africa, the leading etiological agent in MUS is *N. gonorrhoea* (72.6%), followed by *C. trachomatis* (20.2%), whereas *T. vaginalis* accounts for only 4.6% in MUS and 15.8% in VDS¹¹. The prevailing

etiological agents in VDS are bacterial vaginosis (50.6%) and *Candida* species (17.6%)¹¹.

Both syphilis (*thosola*) and genital warts (*tshofela*) present genital ulcers. The diagnosis of syphilis (*thosola*) according to THPs encompasses three syndromes (MUS, VDS and GUS). The possible explanation is that syphilis (*thosola*) may result from co-infection of pathogens that cause MUS or VDS with pathogens of GUS. Aetiological surveillance indicates a high proportion of co-infection of STI pathogens with bacterial vaginosis (44.2%) and *Candida* species (25.7%)¹¹. Kularatne *et al.*¹¹ reported the seroprevalence (using blood serum) for syphilis and HSV-type 2 with the use of rapid plasma reagin. *Treponema pallidum* (syphilis) is implicated for co-infection, accounting for 7.6% in GUS, 2.8% in MUS and 1.2% in VDS¹¹. Furthermore, herpes simplex virus (HSV) accounted for 43.5% in MUS and 78.4% in the GUS¹¹. Because *T. pallidum* and HSV are found in different syndromes (MUS and GUS), syphilis and genital herpes are co-infectious. This could explain why THPs diagnose syphilis (*thosola*) with MUS, VDS and GUS. Other researchers reported co-infection of pathogens that account for GUS and MUS^{7,11}. It should be noted that the infection with multiple STIs could facilitate the transmission of HIV². Despite the modern treatment of STIs with conventional drugs, medicinal plant have been used by various cultures around the world to treat syndromes of venereal infection^{12,15}.

THPs do not know the actual cause of syphilis (*thosola*) (MUS & VDS GUS). They consider sexual intercourse with an infected person as the main causative agent, which is true at the behavioural level. The identification and diagnoses of syphilis (*thosola*) is similar to other ethnic groups like Vhavenda and Zulu in South Africa^{16,17}. The pathogenic microorganism *T. pallidum* causes syphilis¹. In the current study, only 13% of THPs heard of pathogens that cause STIs and that was at workshops organized by the Limpopo Department of Health. Intensification of such workshops could be helpful to the THPs to understand the causes of STIs.

Genital warts (*Tshofela*)

Tshofela (GUS) resembles genital warts; also called cauliflower by Bapedi THPs. De Wet *et al.*¹⁸ also linked *tshofela* with genital warts. The syndrome (GUS) described for *tshofela* could also be ulcers caused by either *T. pallidum* (syphilis), HSV (genital herpes) or *Haemophilus ducreyi* (chancroid). The

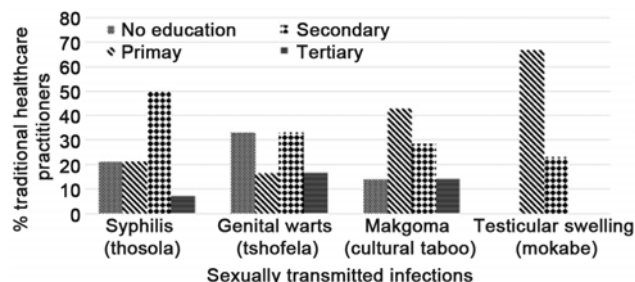


Fig. 2 — Educational background of traditional health practitioners and reported sexually transmitted infections.

diagnosis of genital warts (*tshofela*) centres on painful or painless genital ulcers and itching sores. Symptoms such as painless or painful genital ulcer and itching sores makes the diagnosis more complicated. This is because the symptoms of HSV are painful when compared to the painless genital warts caused by HPV^{1,19}. The WHO formulated a syndromic management guideline of STIs in settings where diagnostic tools are limited. Syndromic management is important in monitoring the incidence and prevalence of STIs¹⁹.

Similar to syphilis (*thosola*), THPs do not know the actual cause of genital warts (*tshofela*). A diagnostic syndrome of genital warts (*tshofela*) by Bapedi THPs is somewhat unspecific. Therefore, several microorganisms could be responsible for the *tshofela* (GUS) infection. In recent years, HSV is increasingly becoming responsible for male genital ulcer diseases, followed by *T. pallidum*⁷. *Haemophilus ducreyi* was seldom isolated from GUS patients attending Primary Health Care Facilities in South Africa¹¹. It is important to emphasize that the HSV causes genital herpes. HPV causes genital warts, recognised by fleshy lesions (*Condylomata acuminata*) that lead to a shallow ulceration that crusts^{1,2}.

Testicular swelling (Mokabe)

The literature supports the documentation of testicular swelling (*mokabe*) as a sexual disease diagnosed by THPs in South Africa¹⁷. In Maseru District of Lesotho, THPs diagnosed testicular swelling and the condition is treated with medicinal plant²⁰. According to the Bapedi THPs, having sexual intercourse with a woman who gave birth less than three months ago will cause testicular swelling (*mokabe*). In other cultures, especially in East Asia and India, postpartum confinement last up-to 30 days²¹. It is also prohibited to have sex this time.

From a western scientific medical perspective, testicular swelling may arise from different causes such as epididymitis, orchitis, hydrocele and spermatocele²². Furthermore, many types of bacteria and viruses could cause testicular swelling. According to the WHO¹⁹, *C. trachomatis* and *N. gonorrhoea* infections are the most likely organisms to cause epididymitis and orchitis (testicular swelling). Postpartum vaginal discharge (lochia) contains blood, mucus, and uterine tissue. From a medical point of view, lochia is not an important cause of STIs. This is much more of a traditional taboo concept. Wheeler *et al.*²³ noted that women who were diagnosed with STI

during pregnancy were three fold more likely to contract an STI postpartum compared to women who did not have an STI during pregnancy. The risk factors of postpartum STI include short-term relationships and having less than a high school education. However, in the meantime, the documentation of *mokabe* adds more knowledge and understanding of the Bapedi traditional medical practice, especially regarding the diagnoses and causes of STIs.

Cultural taboo (makgoma)

Several authors explain *makgoma* as a culture-bound disease.²⁴⁻²⁷ Chauke *et al.*²⁶ elaborate that *makgoma* is a ritual impurity of an individual because of immoral sexual practice. Immoral sexual practice by Bapedi THPs is sexual intercourse with a non-ritualised widow. The widow must wait for 6 to 12 months to have sexual intercourse with new partner. The ritual impurity could lead to the death of one's partner. Symptoms of *makgoma* were confirmed by Shirindi and Makofane.²⁷ These authors further added additional symptoms such as head twitching, headaches and energy loss and consequently body weakness as symptoms of *makgoma*. These symptoms make THPs perceive *makgome* and HIV/AIDs as a similar type of infection. However, Shirindi and Makofane²⁷ clarified that *makgoma* is traditionally curable, while HIV/AIDS is not.

None of the THPs knew the microorganisms that cause STIs. It is still not clear why there is such a lack of comprehensive STI knowledge, as there is a collaboration between the provincial department of Health and associations of THPs. The low level of education of THPs might be the limiting factor. According to South African *Traditional Health Practitioners Act* No.22 of 2007⁵, it is mandatory that THPs obtain Adult Basic Education and Training (ABET) before registering under the act. This should provide THPs with a basic understanding of sexual and reproductive healthcare.

Period and frequency of treatment

As indicated by the WHO (2007)¹⁹, STI syndromes may serve as a useful indicator of prevalence. Based on the period of consultations, chi-square indicated that THPs differ significantly in treating STIs ($X^2=9.750$, $df=3$, $p=0.021$). The educational differences among THPs might be the contributing factor.

Contemporary medicine identified chlamydia, gonorrhoea and syphilis as the major causes of

morbidity and mortality despite being curable². Thus, it comes as no surprise that syphilis (*thosola*) indicated highest frequency of treatment (45.5%). Though STI like testicular swelling (*mokabe*) was treated for males, THPs noted that some of STIs prevail equally in both men and women (e.g. syphilis and genital warts). This is because different pathogens (i.e., *N. gonorrhoea*, *T. pallidum*, and herpes simplex virus) cause multiple infections in men and women¹¹. Moreover, reporting by syndrome (rather than a specific diagnosis of a particular disease or infection) provides poor assessment of the disease burden and for trends in woman, when compared to men². The documented STIs are treated with invasive plant species²⁸. The most frequently treated STI does not mean it is the most prevalent in the study area. Several factors such as availability of medicinal plants and knowledge of STIs could influence the perception of THPs. Clinical samples provide a reliable prevalence estimate^{7,8,11}. Thus, microbiological surveillances are performed periodically to assess the aetiology of the leading pathogens in STI syndromes.

Social characteristics

Gender

Traditional medicine research is highly influenced by the division of labour between men and women, space, natural forests, and humanised landscapes²⁹. The high proportion of female THPs (67%) in this study is not an isolated phenomenon as several ethnomedicinal surveys also found that females contributed most in the traditional health practice in certain areas of South Africa^{7,30,31}. Surprisingly, an STI such as testicular swelling (*mokabe*) is a male-based infection and only treated by female THPs in the study area. The effect of stigma such as guilt about infidelity, or embarrassment for examination by same-gender practitioner, could be responsible for the opposite gender examination. Thus, female THPs play an important role in the treatment of testicular swelling (*mokabe*). Consequently, it should be noted that the occurrence of testicular swelling might be under-represented due to the factors mentioned above.

Age and Level of experience

Syphilis (*thosola*) is well known among the young adults and elders, especially in rural communities. One possible explanation for THPs to assign *thosola* to syphilis is that, several surveys have shown that THPs have immense knowledge and experience in diagnosing common STIs like gonorrhoea and

syphilis^{12,16,17}. Previous surveys have reported that elders are the mainstay of ethnomedicinal knowledge in Mogalakwena, a local municipality in the Waterberg District³⁰. Thus, it appears that the elders do not have current knowledge on the modes of transmission of genital ulcers, and therefore, they would be a poor source of information and knowledge about the cause of genital ulcers. However, it must be reiterated that syphilis is no longer the leading STI for genital ulcer syndrome because HSV is currently the leading pathogen.

Two STIs *mokabe* (testicular swelling) and *makgoma* (cultural taboo) were mostly treated by older and experienced THPs. Possible reasons for this could be that young THPs lack knowledge about traditional diseases like *makgoma* and *mokabe*, including their diagnosis, causes, and management. The availability of modern health care facilities could also result in them not being as dedicated to the profession as older THPs. However, it is crucial for young THPs to gain new additional skills to handle a wide range of ailments, as they would be the custodians of knowledge soon.

Education background

Traditional Health Practitioners of the Waterberg District still show a low level of education. There is a significant education difference ($X^2=11.668$, $df=3$, $p=0.043$) among THPs. This difference could explain the significant differences in consultations of STI across the THPs in this study. The majority of elders (39%) in South Africa have incomplete matric³². It comes as no surprise that THPs do not know pathogens that causes STIs, possibly due to lack of education. Despite low level of education among THPs in the study area, THPs have immense knowledge on the diagnoses and management of other STIs¹².

Treatment of two STIs (*makgoma* and testicular swelling) is independent of the education background of the THPs (Fig. 2). This indicates that knowledge of these STIs may be attributed to the experience of the THPs. However, the low level of education presents a big challenge to the THPs. The lack of formal education, especially among female THPs who make up the large majority of practitioners in this profession, has significant implications. It presents numerous challenges to the fundamental understanding of sexual and reproductive health and rights. Semenya and Potgieter⁶ noted that nowadays, educational skills are vital to THPs to empower them

with competencies such as reading that might be important for counselling. This clearly indicates that THPs need special curricula that address sexual and reproductive health. This could be part of the Adult Basic Educational training (ABET) as contemplated in the *Traditional Health Practitioners Act No.22 of 2007*⁵. It was specified by de Lange³³ that student practitioners may only register in the *Traditional Health Practitioners Act No.22 of 2007* if he or she is in possession of ABET certificate.

Conclusion

This study investigated the knowledge of THPs on the diagnoses of STIs in the Waterberg District of Limpopo province. The study documented syphilis (*thosola*), genital warts (*tshofela*), testicular swelling (*mokabe*) and *makgoma* (cultural taboo). The diagnoses of STIs by Bapedi THPs correspond to the western known syndromes such as MUS, VDS, and GUS. However, from western scientific medical perspective, diagnoses of genital ulcer and vaginal discharge syndromes by Bapedi THPs are not always an accurate indicator. *Treponema pallidum* (syphilis) is the second leading pathogen after HSV in the genital ulcer syndrome (GUS), while the leading pathogen in MUS is *N. gonorrhoea* and *C. trachomatis*. For VDS, bacterial vaginosis are the leading pathogens, followed by *Candida* species. Traditional health practitioners lack this aetiological information. Lack of educational background on STIs is the major limiting factor for THPs. Curricula of STIs could be part of ABET because it is the required level of entry to register as THP according to *Traditional Health Practitioners Act No. 22 of 2007*.

Conflict of interest

None to declare

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References

- Gewirtzman A & Bobrick L, Conner K, Epidemiology of sexually transmitted infections, edited by Gross G & Tying SK, Sex Transm Infect, Springer-Verlag, Berlin, Heidelberg, 2011, 13–34.
- World Health Organisation, Report on Global Sexually Transmitted Infection Surveillance, World Health Organization, Geneva. WHO; 2013.
- Lewis DA, HIV/sexually transmitted infection epidemiology, management and control in the IUSTI Africa region: Focus on sub-Saharan Africa, Sex Transm Infect, 87 (2) 2011 ii10–ii13.
- Van Vuuren SF & Naidoo D, An antimicrobial investigation of plants used traditionally in southern Africa to treat sexually transmitted infections, J Ethnopharmacol, 130 (3) (2010) 552–558.
- The Traditional Health Practitioners Act 22 of 2007, Government Gazette, 2007; (30660):2–48.
- Semenya SS & Potgieter MJ, Bapedi traditional healers in the Limpopo Province, South Africa: A socio-cultural profile and their traditional healing practice, J Ethnobiol Ethnomed, 10(1) (2014) 4–23.
- Radebe F, de Gita G, Ndlovu M, Vezi A, Kekana V, Maseko V & Takuva S, Microbiological Surveillance of Sexually Transmitted Infections I.I in Johannesburg, Gauteng Province, Communicable Diseases Surveillance Bulletin, 12(4) (2013-2014) 108–11.
- Jordan SJ, Aaron KJ, Schwebke JR., Van Der Pol BJ & Hook III EW, Defining the Urethritis Syndrome in Men Using Patient Reported Symptoms, Sex Transm. Dis, 45(7) (2018) e40-e42.
- May L, Chretien JP & Pavlin JA, Beyond traditional surveillance: Applying syndromic surveillance to developing settings—opportunities and challenges, BMC Public Health, 9(1) 2009 1–11.
- Weaver MR, Pillay E, Jed SL, De Kadt J, Galagan S, Gilvydis J, Marumo E, Mawandia S, Naidoo E, Owens T & Prongay V, Three methods of delivering clinic-based training on syndromic management of sexually transmitted diseases in South Africa: A pilot study, Sex Transm Infect, (2015) 10.1136/sextrans-2015-052107.
- Kularatne R, Radebe F, Kufa-Chakezha T, Mbulawa Z & Lewis D, Sentinel Surveillance of Sexually Transmitted Infection Syndrome aetiologies and HPV genotypes among patients attending Primary Health Care Facilities in South Africa, April 2014–September 2015, Communicable Diseases Surveillance Bulletin, 2014/2015 (2017) 1–51.
- Semenya SS & Potgieter MJ, Sexually transmitted infections and their diagnoses: Bapedi experience, Afr Health Sci, 13(4) (2013) 1047–1053.
- Manju P, Vedpriya A, Sanjay Y, Sunil K, Yadav JP, Indigenous knowledge of medicinal plants used by Saperas community of Khetawas, Jhajjar District, Haryana, India, J Ethnobiol Ethnomed, 6(4) (2010) 1–11.
- Erasmus LJC, Potgieter MJ, Semanya SS & Lennox SJ, Phytomedicine versus gonorrhoea: The Bapedi experience, Afr J Tradit Complem, 9(4) (2012) 591–598.
- Yadav JP, Kumar S & Siwach P, Folk medicine used in gynecological and other related problems by rural population of Haryana, Indian J Tradit Knowle, 5(3) (2006) 323-326.
- Mulaudzi FM & Makhubela-Nkondo ON. Indigenous healers' beliefs and practices concerning sexually transmitted diseases. *Curationis*, 29(1) (2006) 46–53.
- Mngqundaniso N & Peltzer K, Traditional healers and nurses: A qualitative study on their role on sexually transmitted infections including HIV and AIDS In

- Kwazulunatal, South Africa, *Afr J Tradit Complem*, 5(4) (2008) 380-386.
- 18 De Wet H, Nzama VN & Van Vuuren SF. Medicinal plants used for the treatment of sexually transmitted infections by lay people in northern Maputaland, KwaZulu-Natal Province, South Africa. *S Afr J Bot*, 78 (2012) 12–20.
 - 19 World Health Organization., 2007 Global strategy for the prevention and control of sexually transmitted infections, World Health Organization, Geneva. 2006–2015,
 - 20 Kose LS, Moteetee A & Van Vuuren S, Ethnobotanical survey of medicinal plants used in the Maseru district of Lesotho, *J Ethnopharmacol*, 170: (2015) 184-200.
 - 21 Marshall J & Dasa JTC, "Guide to ritual impurity - What to do at the junctions of birth and death". 2012. Accessed on 2018-09-02.
 - 22 Trojian TH, Lishnak TS & Heiman D, Epididymitis and orchitis: An overview, *Am Fam Physician*, 79(7) (2009) 583–587.
 - 23 Wheeler R, Earnshaw VA., Kershaw T & Ickovics, JR, Postpartum sexually transmitted disease refining our understanding of the population at risk, *Sex Transm Dis*, 39 (2012) 509–513.
 - 24 Shai-Mahoko SN, The role of indigenous healers in disease prevention and health promotion among Black South Africans: A case study of the North West Province. PhD Thesis. University of South Africa. Pretoria.
 - 25 Poonam B, *Medicine and colonialism: Historical perspective in India and South Africa*, edited by Phatlaane S, *Sexually transmitted infection in retrospect and HIV/AIDs in prospect*, Taylor and Francis, New York; 2014, 30–33.
 - 26 Chauke MA, Shai LJ, Mogale MA, Tshisikhawe MP & Mokgotho MP, Medicinal plant use of villagers in the Mopani district, Limpopo province, South Africa, *Afr j Tradit Complem*, 12(3) (2015) 9–26.
 - 27 Shirindi ML & Makofane MDM, Ritual impurities: perspectives of women living with HIV and AIDS, *Afr. J. Phys. Health Educ Recreat. Dance*, 21 (3.2) (2015) 941–952.
 - 28 Maema LP, Potgieter MJ, Samie A, Ethnobotanical survey of invasive alien plant species used in the treatment of sexually transmitted infections in Waterberg district, South Africa, *S, Afr, J. Bot.*; 122 (2019) 391-400.
 - 29 Voeks RA, Are women reservoirs of traditional plant knowledge? Gender, ethnobotany and globalization in northeast Brazil, *Singap. J. Trop. Geogr*, 28(1) (2007) 7-20.
 - 30 Maema LP, Potgieter MJ & Mahlo SM, Invasive alien plant species used for the treatment of various diseases in Limpopo Province, South Africa, *Afr j Tradit Complem*, 13(4) (2016) 223-231.
 - 31 Mathibela MK, Egan BA, Du Plessis HJ & Potgieter MJ, Socio-cultural profile of Bapedi traditional healers as indigenous knowledge custodians and conservation partners in the Blouberg area, Limpopo Province, South Africa. *J Ethnobiol Ethnomed*, 11(1) (2015) 49.
 - 32 Statistics South Africa. Education in South Africa: Selected findings from census'96. Pretoria.1996. [http://www.statssa.gov.za/publications/Education In SA/Education In SA 1996.pdf](http://www.statssa.gov.za/publications/Education%20In%20SA/Education%20In%20SA%201996.pdf) Accessed 23 March 2018.
 - 33 De Lange RW, Allopathic and traditional health practitioners: A reply to Nemutandani, Hendricks and Mulaudzi. *Afr. J. Prim. Health Care Fam*, 9 (2017) 1–4.