Respiratory infections treated by Bapedi traditional healers in the Limpopo Province, South Africa: Extent of treatments and diagnosis techniques

Sebua Silas Semenya a,b* & Alfred Maroyi b

a Technology Transfer Office, Research Administration and Development Department, University of Limpopo, Private Bag X1106, Sovenga 0727, South Africa;
b Medicinal Plants and Economic Development (MPED) Research Centre, Department of Botany, University of Fort Hare, Private Bag X1314, Alice 5700, South Africa

E-mails: sebuasemenya@gmail.com, sebua.semenya@ul.ac.za

Received 13 April 2018, revised 13 July 2018

Respiratory infections (RIs) contribute to high morbidity and mortality in developing countries, where modern healthcare facilities are limited or non-existence. The aim of this study was to investigate the type of RIs, extent of their treatment and document diagnosis approaches used by Bapedi traditional healer’s (THs) in the Limpopo Province, South Africa. A conveniently selected sample of 240 THs was questioned via a questionnaire comprising of semi-structured and open-ended questions. Six RIs namely asthma, pneumonia, rhinitis, sinusitis, sore throat and tuberculosis were treated by THs. Tuberculosis (84.1 %) and sore throat (65 %) were the most diagnosed RIs. Overall, identification of the aforesaid six RIs by all queried THs relied primarily on clinical symptoms and most of the symptomatic diagnosis procedures used are supported by scientific evidence. This study concludes that Bapedi THs have a fairly good general knowledge with respect to the identification of RIs and have potential to contribute towards their reduction or management.

Keywords: Bapedi, Diagnosis, Limpopo province, Traditional healers, Respiratory infections

IPC Int. Cl.: A61K 36/00, A01D 11/00, A61B

Annually, millions of people world-wide are burdened by respiratory infections (RIs) and sometimes die prematurely. Health impact of these diseases is direr in developing countries like Africa where there are also various risk factors such as excessive alcohol consumption, crowded living conditions, biomass fuel usage and dust. Furthermore, bacteria such as Haemophilus influenzae, Klebsiella pneumoniae, Mycobacterium tuberculosis and Staphylococcus aureus which cause such infections are also quite prevalent. Fortunately, most of the RIs common in Africa, particularly asthma, rhinitis, sinusitis, sore throat and tuberculosis (TB) are either manageable or curable if precisely identified. The ability to control and eliminate these RIs requires an integrated approach which relies on public health measures including increasing awareness, capacity and education. Research as part of management of RIs is also imperative as it improves understanding of disease processes, which then allows the development of better diagnosis treatment and prevention.

Different health societies including the World Health Organization and Institute for Clinical System Improvement strongly recommend and encourage the symptomatic approach as one of the useful criterion in addition to other diagnostic tools to accurately diagnose and subsequently treat RIs in Western healthcare settings. Symptomatic approach involves both enquiry and screening of patients for specific clinical signs in order to determine treatment or further diagnostic tests. In tropical Africa, over 50 % of rural inhabitants who do not have access to the modern healthcare facilities utilize both traditional medicines and traditional healers’ (TH) services to treat various diseases including RIs. This is highlighted by general ethnobotanical studies focusing on the traditional medicines used by THs. For instance, Cherif et al. found that THs in Algeria treat RIs and related symptoms such as asthma, fever and cough using herbal remedies. Similarly, Shona THs of Zimbabwe and Abawanga people of Kenya treat these ailments. Cough and chest problem are highly treated and managed by Venda THs practicing in the Limpopo Province, South Africa. Another
study conducted in this province also revealed that THs do heal tuberculosis and sore throat using traditional medicines\textsuperscript{14}. Interestingly, evidence exist that African THs (herbalists and diviners) rely on symptomatic approach to treat and identify diseases\textsuperscript{15}. To diagnose and treat diseases, THs especially herbalists, assess patients using their clinical judgement, asking them about certain signs and symptoms\textsuperscript{16}. In cases where THs practice divination, techniques and beliefs such as throwing of divination bones and interpretation of dreams are followed as diagnostic guidelines\textsuperscript{16}. Despite the existence of this traditional practice in tropical Africa and highlights that THs do treat RIs, there is dearth of information on how different types of RIs are treated by THs in South Africa and other countries in tropical Africa. Similarly, little is known about the specific approaches used by THs of diverse African cultures in diagnosing RIs. It therefore, remains uncertain as to whether most RIs claimed to be treated by THs were accurately identified or not. Data pertinent to the above highlighted knowledge gaps regarded as essential for planning and monitoring health services provided by THs as well as integrating these services into the formal healthcare services of the country. Therefore, the aim of this study was to explore Bapedi traditional healing practices pertinent to RIs in the Limpopo Province, South Africa. The specific objectives were (i) to investigate various RIs treated by THs and (ii) to document diagnostic techniques employed for RIs.

Materials and methods

Study area and population

This study was carried out in 16 municipalities of Capricorn, Sekhukhune and Waterberg districts situated in the Limpopo Province, South Africa (Fig. 1). Five rural settlements from each of these municipalities were designated as study sites, on the basis that they are mainly inhabited by the Bapedi ethnic group. In terms of the infrastructure, the studied areas are poorly developed, characterised by poor road-networks and healthcare facilities, amongst other services. Like in most rural communities of the Limpopo Province, most of the selected villages in this survey do not have even a single clinic, and where there is a clinic, it serves several communities. Consequently, it cannot adequately meet the therapeutic needs of the local people. In addition to the poor healthcare services, various factors such as biomass utilisation\textsuperscript{17} and unpaved roads, trigger the spread of various RIs. Due to these issues and other socio-economic as well as cultural factors, most rural villagers rely on services offered by THs.

The research population included in the sampling frame is 240 Bapedi THs, of Basotho descent. Bapedi form the largest single ethnic group in the Limpopo Province, accounting for over 52.94 % of the entire population\textsuperscript{18}. Linguistically, the research population speaks Sepedi dialect. With regards to their gender, majority of THs were females (56.7 %) compared to males (43.3 %), practicing as herbalists (58.7 %), diviners, both herbalists and diviners (40.5 %), and exclusively diviners (0.4 %).

Social survey and data collection

Before data collection, permission to conduct an investigation within each village was sought from the local traditional leadership and subsequently 240 THs were conveniently sampled, i.e., whereby the sample of THs was expanded through referrals by fellow THs. Traditional healers who agreed to voluntary share their practice information were requested to sign a consent form. Healers who could not read or write were asked to make a thumb print on the informed consent form. The content of, and reason for both the consent form and objectives of the study were explained to THs using Sepedi language. Healers were assured that their identities will remain anonymous in the presentation and publishing of the data.

Data was collected from May 2017 to October 2017 using a questionnaire comprising of semi-structured and open-ended questions. The information
generated by face-to-face interviews was supplemented by observations during TH-patient consultations wherever possible. For instance, with permission and arrangements with an individual TH, the investigators observed the symptomatic presentation of some of the patients, and procedures followed by THs when diagnosing the patients. Overall, the questionnaires primarily elicited information on the types of RIs diagnosed by THs and the methods they employed to diagnose these infections, amongst the other data. Traditional healers were requested to name using their local dialect of Sepedi, various respiratory infections they treat including the descriptions of such infections and allied symptom/s they use to diagnose them. Generally, THs were interviewed individually in their consultation rooms, to ensure privacy and confidentiality of one’s practice.

Data analysis

The computer programs, Statistical Package for the Social Sciences (SPSS) version 14.0, and Microsoft Excel 2000 were used to analyse the data. Simple descriptive statistics such as frequency, and cross tabulations were used during analysis.

Results and discussion

Respiratory infections treated

To the best of our knowledge this is the first study to investigate the RIs as a group of ailment treated by THs in South Africa, Africa at large and elsewhere. Very few studies conducted in Africa focused mainly on TB. The results obtained from our study provide a baseline data regarding the types of RIs commonly treated in traditional healing sectors, and contributes towards a better understanding of their extent of treatments. A total of six RIs namely asthma (bolwetsibjamohemo), pneumonia (bolwetsibjamaswago), rhinitis (mphikelawa go hlohlonya), sinusitis (disaenase), sore throat (bolwetsibjamogolo) and tuberculosis (Sekguba se segolo) were treated by 240 Bapedi THs practicing as herbalists (58.7 %, n = 141), diviners, both herbalists and diviners (40.5 %, n = 98), and exclusively diviners (0.4 %, n = 1). None of these afflictions were treated by all THs (Fig. 2), probably due to lack of knowledge by some of them regarding their management or diagnosis.

As expected the majority of Bapedi THs (84.1 %, n = 202) treated TB. This RI were also diagnosed by most THs practicing in Ghana and Zambia, as well as Eastern Cape Province of South Africa. In the present study, higher proportion of THs were anticipated to treat TB because Limpopo Province is one of the South African provinces with a high TB rate. Factors influencing both the infection and progression of this illness, such as few observed treatment short course centres or associated supporter as opposed to larger TB infected population are prevailing. Therefore, most of the infected people resort to the locally available THs for the treatment and management of TB. Barker et al. found that 74 % of patients with TB in Limpopo Province visited THs before consulting Western doctors. Generally, the greater percentage of Bapedi THs who treat this ailment might be a reflection that THs in the studied areas are also playing a leading role in the management of RIs. Importantly, these THs as those responsible for diagnosing and treating TB patients, they have unique insight into the trajectory of the epidemic, and thus their views regarding the management of this infection should be taken into consideration when drafting or updating provincial TB management policies. We agree with Van Dyk who wrote that no TB prevention programme can succeed without the input of THs, particularly in the poor rural settings such as the Limpopo Province.

Sore throat was the second most (65 %, n = 156) treated RI in this study. The extent of treatment of this condition amongst THs of other African cultures residing in various countries including South Africa is presently unknown. However, the degree of its treatment amongst these THs can at least be viewed or determined in light with the growing body of evidence highlighting medicinal plants they use to cure the ailment. Furthermore, the ailment is normally the first sign of an array of sicknesses including other respiratory complaints or it can be a side effect of a number of medical complications such as voice disorders. Thus most of the patients in this study might recurrently consult Bapedi THs for its treatment prior to the manifestation of the actual ailment/s.
Asthmatic condition was also treated by a sizeable proportion (58.3 %, n = 140) of Bapedi THs. Studies reporting on the extent of treatment of asthma in South Africa are virtually unavailable. Literature search revealed that only two studies were conducted amongst the Vhavenda\textsuperscript{25} and Batswana\textsuperscript{26} THs. The outcome of these studies showed that 6.1% and 20.0 % of Vhavenda and Batswana THs, respectively treated asthma. These proportions are therefore, extremely lower compared to those noted in the present study. This variation can partially be attributed to a larger sample size of THs included in the current study as opposed to the above two mentioned studies. However, evidence exist indicating that THs of other cultures in South Africa might be playing an important role in the management of this condition, and this may be expressed by the fact that many of South Africans consult THs for asthma treatments\textsuperscript{27}. Nevertheless, since this condition is presently not curable, the quality of life of sufferers can be greatly improved by holistic management that include emotional, physical, psychological, social and spiritual aspects. Traditional healing methods used by the Bapedi THs tend to have a holistic approach to the treatment of diseases that incorporate all these aspects\textsuperscript{16}. Thus Bapedi THs who treat asthma could be used strategically to address some of the important aspect of asthma management that cannot be treated or provided by the biomedical professionals.

The proportion of Bapedi THs who treated sinusitis were 55 % (n = 132). Also, to the best of our knowledge the current study is the first to report on the extent of treatment of this chronic RI by THs in South Africa and Africa as a continent, thus suggesting that more studies focusing on the magnitudes of THs who treat sinusitis are needed. This will comprehensively help us understand the potential role of THs in managing this disorder. Sinusitis is generally considered as a significant and increasing health problem resulting in a larger financial burden in South Africa and to the society in general\textsuperscript{28}. In the Limpopo Province there is currently no published data reporting on sinusitis incidences. However, its treatment by over 50 % of Bapedi THs is as an indication that this illness is quite common in the province.

Bapedi THs who treated pneumonia were 53.3 % (n = 128) of the total sample. Literature relating to treatment of this disease by THs of other South African cultures is almost non-existent. Only one study\textsuperscript{29} carried out amongst Vhavenda THs practicing in the far northern part of the Limpopo Province was found. In this study, it was found that all THs (n = 24) questioned treated pneumonia. This proportion is extremely lower than 128 observed in the current study. The same can be said with regards to the outcomes of a study conducted in Uganda, where all interviewed THs (n = 8) treated pneumonia\textsuperscript{30}. Nevertheless, one possible explanation for higher number of Bapedi THs who treat this ailment would be their knowledge, understanding and experience with regards to its nature as well as successful treatment cases.

Rhinitis was treated by 43.7 % (n = 105) of THs, thus being the least diagnosed RI in this study. To the best of our knowledge nothing is documented about the extent of treatment of this disease by THs of other African cultures including South Africans. However, one would have expected more Bapedi THs to treat rhinitis due to the presence of various aetiological triggers in the studied area such as forests with various trees and grass species producing pollen, house structures made-up of mud and roofed with grass. Lower number of Bapedi THs who treated this condition is perhaps due to the fact that most of them do not know how to diagnose the condition, or they previously attempted to treat it but with minimal success.

Gender based treatment of the six types RIs recorded in this study showed that they are mostly diagnosed by females THs compared to their males. Overall, TB was treated by the largest proportion of both gender, followed by sore throat, asthma, sinusitis, pneumonia and rhinitis (Fig. 2). No published work was identified that reported treatment of RIs by THs according gender. Rationale behind the above observed high female to male ratio in the treatment of all six documented RIs in our study is presently unknown. However, it might be due to the difference in the size of the samples and geographical distribution, all which favoured females compared to males. The knowledge regarding the RIs management and treatment amongst these genders may have also accounted for the observed high female to male ratio treating RIs in the present study. Regardless of all these speculations, females THs are currently the main role players in the treatment and management of six RIs in Bapedi traditional healing sectors.

Treatment of the afore-referred RIs by Bapedi THs within their respective districts and municipalities did not in most cases reflect a pronounced gender variation noted earlier (Table 1). However, in most
cases more females treated these illnesses. This outcomes further emphasis female THs as principal contributors in the treatment and management of the six investigated RIs in Limpopo Province. On the other hand, such findings also indicate that the females compared to male THs are the more potential healthcare providers that can offer important insights with respect to the issues related to these RIs within the various surveyed districts and allied municipalities. Some of these sickness particularly TB, pneumonia and sore throat are communicable in their nature and as a result, their epidemiology, impact and treatments are more likely to differ across the geographical areas, as well as infected patients within a particular area. Subsequently, it is critically important that information regarding these be taken in consideration as might have significant implications for effective management. Importantly, since Bapedi female THs who treat such RIs are more comprehensively and highly spread across most of the studied area compared to males, they might hold a large amount of such data including the challenges that
persists, all of which in many ways will provide a unique overview of the situation in their respective localities.

**Diagnostic criteria used for respiratory infections**

The identification of asthma, pneumonia, rhinitis, sinusitis, sore throat and TB by all interviewed males and females THs across the three districts relied primarily on the patients’ presentation of certain clinical symptoms. Diagnoses by THs who practice both herbalism and divination (40.5 %, n = 98) comprised of a combination of three approaches where; (i) the patient’s clinical symptoms are observed, (ii) patient are questioned about various symptoms, and (iii) casting of bones. However, those practicing herbalism only (58.7 %, n = 141) utilised the first and second approaches. Diviners (0.4 %, n = 1) relied exclusively on casting of bones as diagnostic guide lines. It is important to highlight that most THs disclosed that they normally accommodate patients for one or two nights at their homes as part of diagnosis procedure to observe and note down some of respiratory symptoms that might occur at night while patients are asleep. Overall, the use of clinical symptoms to diagnose RIs by Bapedi THs was hardly surprising firstly, because it is cultural practice inherited via observation and word of mouth from mentors and secondly due to the fact that THs do not have access to the scientific equipment which assist them to make diagnosis. However, even if they do have access to them their low level of education and lack of experience in the scientific fraternity might have also hindered them from operating such equipments. White\(^1\) wrote that the use of diagnostic tools for RIs in general require education and experience for effective management which includes correct interpretation of the results and diagnose.

Generally, there was no marked significant difference on signs employed by both genders for the diagnosis of the recorded RIs, and more than one symptom was used to identify a single ailment (Table 1). This was also mainly observed in the studied districts and municipalities. Furthermore, there was a broad overlap between the clinical signs used to diagnose most of the RIs. For instance, diagnostic criteria employed for a specific RI was also utilised for other ailments. Altogether, specificity of symptoms followed when identifying a particular RI as indicated in Table 1 was extremely low. Nevertheless, Bapedi THs diagnosis approach based on clinical symptoms alone can sometimes be misleading or not be appropriate for some of the ailments, since some RIs share symptoms. Therefore, THs need to collaboration with western doctors for effective treatment.

There is currently no study focusing on how the THs diagnose or identify asthma. This is despite the growing body of literature reporting on the medicinal plant treatment of the condition by African THs belonging to other ethnic groups. To diagnose asthma in the current study, a patient regularly presenting with a combination of fatigue, laboured breathing, nose itchiness, short of breath and wheezing were considered by all (n = 140) THs who treat the condition as being a victim. It is critical to accentuate that asthma severity is generally classified into four categories namely intermittent, mild, moderate and severe, of which diagnoses is done accordingly\(^2\). Contrary to this, Bapedi THs treat and identify all these stages as entity. However, this creates questions regarding exactitude of the prescription, mainly due to the fact that asthma severity often changes over time, and obviously requires treatment adjustments. Regardless of this notion, most of the combination of symptoms utilised by all Bapedi THs who treat asthma to identify the condition particularly breathlessness, laboured breathing and wheezing are recognised by WHO\(^3\), as key signs of the condition that is sufficient to diagnose the disease. The use of nose itchiness and fatigue as part of cardinal diagnostic criteria to identify this chronic condition are also relevant. Nose itchiness might be consequences of allergies involving the nose, and fatigue may be a synergetic effect of all the above-mentioned symptoms. Moreover, additional clinical signs such as tight chest and nasal congestion\(^4\) used by some of Bapedi THs to confirm asthma have also been previously proven to be associated with the condition.

The diagnosis approach used by THs of diverse African culture for pneumonia is presently unknown. The principal diagnosis keys used by Bapedi THs (n = 28) to detect pneumonia were fatigue, fever and laboured breathing. We acknowledge that all these symptoms might occur in patients suffering from pneumonia and that some of them specifically the latter one are recognise by WHO as one of key danger signs of the infection. However, a combination of fatigue, fever and laboured breathing as cardinal to identify pneumonia and subsequently treat it as mentioned by Bapedi THs is unacceptable and might be misleading especially since these symptoms closely mimics those of other afflictions including...
Result from various factors and other conditions. Although not precisely from a chronic cougher as stated by Bapedi, but sputum characterised by greenish colour-like, is considered and proved to be the most consistent presenting symptom of bacterial pneumonia specifically *Streptococcus pneumoniae*. Even though the use of excessive sweating, tight chest, lack of appetite as well as wheezing by Bapedi THs is singly unreliable and non-specific symptoms of pneumonia, they are strong predictors for this illness when combined, especially with all the above-mentioned symptoms. Overall, although a great relationship between the symptoms used by Bapedi THs and pneumonia exists, this cannot solely be used to confirm the suspicion of this RI or to base the decision on for or against treatments. Taking in to consideration the fact that pneumonia is caused by a combination of a variety of factors, including pathogens and the environment, no single intervention can effectively prevent, treat, or control the illness. Thus, a confluence of key interventions for its control would obviously be of great assistance, and the positive aspects of the contributions of Bapedi THs in endeavouring to diagnose the condition need to be harnessed and encouraged.

Key symptomatic identifications of rhinitis common amongst all Bapedi THs (n = 105) who treated the condition included excessive sneezing, fatigue, headache, nasal congestion, nose itchiness and painful eyes. All these symptoms are indeed singly or in any combination associated with rhinitis. Their presences in diagnosed patients are usually consistent with both allergic and infectious rhinitis, and are similar to those prevailing in sinusitis patients. Excessive sneezing, fatigue, headache and nose itchiness in patients suffering from rhinitis are in most cases natural responses to irritation triggered by allergic (e.g. smoke and chemical) or infectious (e.g. bacteria and virus) reactions. Nasal congestion as part of key diagnosis features used by Bapedi THs for this RI also has merits and is prevalent in both infectious and allergic rhinitis subjects. Enquiry about painful eyes by these THs as one of the golden identification pieces for rhinitis should be included with caution because it might not be reliable as it can result from various factors and other conditions. However, this symptom as valued by Bapedi THs during rhinitis diagnosis might add value if it is a pre-symptom of watery eyes or is due to facial pain which is normally felt in any part of the face including eyes; both which are very common in patients diagnosed with rhinitis. Additionally, to the above-mentioned medical signs, some of THs also mentioned that they look for the manifestation of nasal discharge (21.9 %), laboured breathing (3.8 %) and runny nose (1.9 %). The enquiries of most of these symptoms by THs came as no surprise especially since rhinitis its self is chiefly characterized by an inflammation of the nasal mucosa which produces mucous. These extra symptoms have value as part of the identification process of rhinitis, especially when used in fusion with those considered key indicator by all THs.

Sinusitis was also diagnosed based on the spectrum of clinical symptoms, with the presentations of excessive sneezing, fatigue and nose itchiness in patients, considered as an important part of an identification protocol by all THs (n = 132). Indeed, patients diagnosed with sinusitis often present with all these symptoms. Furthermore, it has also been scientifically established that the combinations of such symptoms are in most cases due the inhalation of allergens, and their presence usually signifies allergic rhinitis. Therefore, the avoidance of these triggering factors should form part of the THs’ management strategies for rhinitis. Although amalgamations of the afore-said symptoms are common in sinusitis suffers, they cannot be solely used as specific indicators of the condition as suggested by some of the interviewed THs, especially since they also occur as the results of other diseases such as common cold. Subsequently, exclusive reliance of such signs to identify rhinitis by these healers will increase likelihoods of diagnosis error which leads to incorrect treatment. On the other hand, additional clinical presentations such as nasal discharge (77.2 %), nasal congestion (46.9 %), and fever (7.5 %) auxiliary to the earlier mentioned ones as used by some THs to further diagnose sinusitis are acceptable and listed amongst those considered a classic presentation of the condition in both children and adults.

The diagnosis of sore throat as RI by Bapedi THs was also very complex and relied on multiple symptoms, with aphonia, chronic persistence cough, difficulties in swallowing (both foods and liquids), fatigue, throat irritation and lack of appetite being common indicators used by all THs (65 %) who treated the sickness. These symptoms are more likely
to be associated with strep sore; a sore throat that is caused by a bacterium known as group *Astreptococcus*. Discomfort or difficulties in swallowing (both foods and liquids) as used by Bapedi THs is one of the key symptoms amongst the infected patients and is normally the result of irritated or scratchy throat caused by this bacterium. It is critical to state that other factors such as overuse of voice have the potential to cause both difficulties in swallowing and throat irritation. However, whether Bapedi THs take this in to consideration or not during the diagnosis is currently unknown. Similarly, their enquiry of aphony as one of the suggestive signs of sore throat to some extent has merits, but it can only be acceptable if it results from laryngitis due viral or bacterial inflammatory. Chronic persistence cough as considered by the interviewed THs during sore throat diagnosis might be due to viral infection which turns to be prolonged. Generally, the fact that Bapedi THs who treat this condition establish its diagnosis using an amalgamation of all the above-mentioned symptoms will obviously increase their chances of correct diagnose. This is especially true since most of them also consider other relevant clinical manifestations such as swollen glands, fever, dry throat and headache to identify the ailment.

As anticipated, TB was generally diagnosed by THs with a wide spectrum of clinical symptoms compared to other RIs recorded in the present study. All THs (n = 202) who treated this RI used a symptomatic combination of chest pain, chronic persistence cough, fatigue, prolonged fever, headache, lack of appetite, sore throat, sputum tinted with blood-like (coughing blood) and tight chest for the diagnosis. Sputum tinted with traces of blood were a golden key used by Bapedi THs exclusively to detect TB subjects and which might be ascribed to the culturally given name for this infection “Sekguba se segolo”, which according to THs refer to cough with sputum. Nevertheless, some of the afore-listed clinical symptoms considered by Bapedi as part of diagnosis procedure for TB are also comparable to those used amongst healers of other South African such as Zulu. It is of note that, with the exclusion of fatigue, headache, and sore throat the remaining symptoms used by all Bapedi THs who treated TB are outlined by WHO as major symptoms suggestive of the infection and also recommended as part of diagnosis procedures, suggesting that Bapedi THs have a fairly good level of knowledge with regards the identification of this infection. Uses of symptoms such as aphony, painful eyes, dry throat, angina pain, frequent runny nose, catarrh and nasal discharge in addition to the aforesaid ones to diagnose TB by THs were actually expected mainly to due to the opportunistic nature of the illness.

**Conclusion**

To the best of our knowledge the current study is the first of its kind in South Africa, Africa as continent and elsewhere, to specifically investigate (i) the extent of six RIs documented particularly asthma, pneumonia, rhinitis, sinusitis and sore throat treated by THs in the traditional primary health sectors and (ii) diagnosis techniques they employ for their identification of these RIs. The symptomatic diagnosis procedures employed by most interviewed THs for identifying the six RIs especially in combination correlate with those scientifically established as allied to these illnesses. Thus, Bapedi THs have a fairly good general knowledge with respect to the identification of investigated RIs. This also implies that Bapedi THs have the potential to contribute towards the reduction and management of this RIs. However, they should be further capacitated with more pertinent information. Studies focusing on the documentation and scientific validation of remedies used by the Bapedi THs to treat and manage the above-listed RIs are recommended. These studies will provide a robust comprehensive picture necessary to further evaluate the potential of Bapedi THs as alternative healthcare providers as far as RIs are concerned.

**Acknowledgment**

This study was funded by the National Research Foundation, South Africa and Govan Mbeki Research and Development Centre (GMRDC, grant number C169) University of Fort Hare. Traditional healers who participated in this study are greatly acknowledged for sharing their herbal knowledge on exotic plants used as medicines to heal and manage respiratory infections and related symptoms.

**References**

3. Öberg M, Woodward A, Jaakkola MS, Peruga A & Prüss-Ustün A, Worldwide burden of disease from exposure to


15 Abbo C, Profiles and outcome of traditional healing practices for severe mental illnesses in two districts of Eastern Uganda. Glob Health Action, 4, 7117 DOI: 10.3402/gha.v4i0.7117, 2011.


