

Indigenous Knowledge on Health care among the Ovahimba Community of Oukongo Village in Kunene Region of Namibia

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ABSTRACT

The purpose of this study was to explore the indigenous knowledge of medicinal plants for treating common illnesses among the Ovahimba of Oukongo village in the Kunene region of Namibia. The co-evolutionary theory of sustainable development informed this study as it promotes the anti-hegemonic ecology of knowledge and

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synchronises traditional knowledge with the modern world. The interview data were analysed using the inductive approach and content analysis. The results show that the Ovahimba community of Oukongo village use plant-based remedies such as roots, leaves, bark, fruits and flowers for the treatment of ailments such as headaches and diarrhoea, high blood pressure, chest pain and syphilis. The remedy preparation follows the process of harvesting parts of a plant, cleaning and breaking it into small pieces or crushing it into powder and then mixing with water or some form of liquid. The process also includes chewing roots, leaves and burning flowers into ashes. The study recommends further research to document indigenous health care practices of the Ovahimba. It also recommends the adoption of the co-evolutionary theory of sustainable development as the basis for the synchronisation of indigenous knowledge with modern health care and thus promote future generations' access to the rich heritage of ancestral knowledge on health care.

Keywords: *Indigenous knowledge, indigenous health care, medicinal plants, herbal remedies, community*

Indigenous knowledge (IK) refers to the unique, traditional and local knowledge existing within and developed around the specific conditions of women and men indigenous to a particular geographic area (Greinier, 1998). It is the knowledge stored in people's memories and activities and is expressed in cultural values, beliefs, languages and plant species amongst others. In addition, IK is the knowledge that people in a given community developed over time

and continue to develop in order to make positive contributions to the wellbeing of those communities (International Institute of Rural Reconstruction, 1996; Sarkhel, 2016).

Many of the indigenous cultures, especially in Africa, are using various plant species as main therapeutic agents and as an alternative to Western medicine or in addition to visiting hospitals, clinics and health centres (Aboelsoud, 2010; Eyong, 2007; Reading, Perron, Marsden & Edgar, 2010). According to Kunwar and Bussman (2008), plants have been one of the most important sources of medicine since the dawn of human civilization and even today 80% of the world's population rely on medicinal plants for their primary healthcare needs. However, the use of IK in health care was first recognised by the World Health Assembly (WHA) in 1978 when it urged member states to utilise traditional medical practices in primary health care (Lama, 2000).

The Ovahimba in the Kunene region of Namibia is one of the indigenous communities who strongly believe in the use of indigenous plants and herbal remedies to diagnose and treat illnesses. The belief and practice of the Ovahimba cultural group is in line with the Constitution of the Republic of Namibia's proclamation that requires every person to be entitled to enjoy, practise, profess, maintain and promote any culture, language, tradition or religion subject to the terms of the Constitution (Ministry of Information and Broadcasting, 1991). In addition, the Namibia Vision 2030 values traditional and cultural ideas that promote Namibian's innovation, empowerment and confidence in making effective contribution to the development

processes in their respective families, communities and in the nation at large (Government Republic of Namibia, 2004).

Given this background, the aim of this paper is to report on the results of a study that set out to investigate the IK on health care of the Ovahimba Community of Oukongo Village in the Kunene Region of Namibia. This paper is structured as follows: The problem statement is presented followed by the research questions. Following this are the conceptual and theoretical frameworks, the research design, strategies and methods are described. Thereafter, the presentation and interpretation of results ensue, followed by the discussion of findings and recommendations.

STATEMENT OF THE PROBLEM

Indigenous knowledge on health care must be nurtured in Namibia to ensure its effective transmission and preservation (Chinsemu, 2016). More so, as the literature reveals that failure in improving health care among the indigenous communities are due to lack of understanding, valuing and documentation of health care knowledge and ways of living and knowing of indigenous communities (Ware, 2013). The Ovahimba people are known to have strong beliefs and trust in their traditional ways of dealing with health-related problems. It is this valuing of the cultural knowledge, traditions and practices that make the Ovahimba believe in IK and rely on traditional health practices (Niskala, 2015; Sherman, 2013).

Researchers who have investigated and documented IK among Namibian indigenous communities in the past have mainly

concentrated on the aesthetics part of indigenous communities' existence (Niskala, 2015; Sherman, 2013) and also on the indigenous remedies that could treat (and possibly cure) some diseases such as HIV/AIDS (Chinsembu, 2016); malaria (Du Preez, Nafuka, Mumbengegwi & Böck, 2016) and cancer (Dushimemaria, Mumbengegwi & Böck, 2016).

This reveals a deficiency in research data pertaining to the indigenous health care practices. Therefore, this study specifically fills this lacuna as it investigated how the Ovahimba Community of Oukongo Village in the Kunene Region of Namibia use IK to identify medicinal plants and prepare remedies to treat common illnesses and promote health care among their families and community.

RESEARCH QUESTIONS

The study investigated ways of maintaining healthy living through establishing the IK of medicinal plants for treating common diseases and illnesses among the Ovahimba of Oukongo village in the Kunene region.

The research questions that directed this study were:

- How do the Ovahimba community of Oukongo village use indigenous plants to prepare and administer remedies to treat common illnesses to promote healthy living among their families and community?

- What common illnesses were found among the Ovahimba community of Oukongo village for which herbal remedies are used for treatment?

CONCEPTUAL AND THEORETICAL FRAMEWORK

The literature review regarding the notion of IK reveals that the concept is sometimes referred to as traditional knowledge. This notion describes IK as a body of historically constituted knowledge that is instrumental in the long-term adaptation of human beings to their biophysical environments (Purcell, 1998; Sarkhel, 2016). The concept IK thus refers to the local knowledge which is unique to a given culture and place, acquired through the accumulation of experiences, experimentation, trial and error and intimate understanding of the environment of the given local community (Chikaire, Osuagwu, Ihenacho, Oguegbuchulam, Ejiogu-Okereke & Obi, 2012).

Indigenous knowledge is important to many societies globally. The publication by Subramanian and Pisupati (2010) attests that IK is essential for ensuring the livelihoods of millions of people, including their health and wellbeing. Thus, indigenous communities tend to rely on their own knowledge and expertise for health care purposes. Many indigenous experts and social science researchers continue to promote the importance of IK in catering for the livelihoods and health care needs of all peoples. Eighty percent (80%) of the world population is said to be dependent on indigenous health

care systems and the percentage may be higher in parts of the world where modern health care systems are still at rudimentary stages (Bodeker, 2010; Eyong, 2007; Kunwar & Bussman, 2008; Millar & Haverkort, 2006;). Nevertheless, in many parts of the world, Western medicine tends to marginalise the indigenous and local knowledge, thereby creating a hierarchy of health care knowledge that usually disadvantages local communities (Waldron, 2010).

The documentation of IK is thus seen as a way to prevent the marginalisation of and exploitation of the IK by people other than its true originators and at the same time increase its availability and utilisation (Sithole, 2007). Globally, Canada is probably one country where rich examples of IK on health documentation are readily available (Leneis, 2010; Reading, Perron, Marsden & Edgar, 2010; Rootman & Ronsom, 2005). Vinel and Pialoux (2005), Eyong (2007) and Aboelsoud (2010) have also assisted in the documentation of IK on health care in Africa. The present study seeks to contribute to the documentation of IK in Namibia by looking at the health care practices of the Ovahimba Community of Oukongo Village in the Kunene Region of Namibia

The theoretical framework that guided the study to investigate the IK on health care practices among the Ovahimba Community of Oukongo Village in the Kunene Region of Namibia is the co-evolutionary theory of sustainable development. The co-evolutionary view of sustainable development is an approach to analysing a transition to sustainable development that builds bridges between the traditional concerns of development and other

intellectual streams (Foxon, 2010). This approach is believed to provide rich and complementary insights on the development of indigenous health care practices among the Ovahimba by promoting the anti-hegemonic ecology of knowledge as well as synchronize traditional knowledge with the modern medicinal world.

The paper adopted a co-evolutionary approach to indigenous health care to ensure that the dynamics of the interactions with modern health care practice are uncovered. Moreover, the basis of the co-evolutionary theory in this paper is to support the documentation of indigenous health care knowledge that are imbedded in the culture of the Ovahimba community of Oukongo village as it may be required to maintain healthy living alongside the modern health care practices. Based on such the assumptions of the co-evolutionary theory of development, the purpose of this paper is to bring about increased understanding of the role of IK on health care among the Ovahimba Community of Oukongo Village in the Kunene Region of Namibia.

Research Design, Strategies and Methods

This study employed the phenomenological design of the qualitative paradigm to investigate and describe the Ovahimba community's IK of plants used for healing practices and maintaining healthy living. In deciding on the phenomenological design, the researchers believed that this community could construct meaning to their practices, based on their experiences of their environment (Cohen, Lawrence & Morrison, 2000).

Population and sampling

The population of the study was all the Ovahimba people living in the Kunene region of Namibia. According to the statistics provided by the International Working Group for Indigenous Affairs (IWGIA), there are about 25,000 Ovahimba people living in the Kunene region (Niskala, 2015; Vinding & Mikkelsen, 2016). A purposive non-probability sampling strategy was used to select participants among the Ovahimba community with IK and cultural beliefs expertise in resolving health care challenges in their communities (Anaya, 2013). The Snowball technique was also employed as participants were asked to identify other participants whom they regarded as experts on IK health care and those who possess local environmental expertise. Therefore, a total of eleven (11) participants were identified and formed the sample of this study.

Data Collection Process, Analysis and Limitations

Open-ended interview guides were developed to collect data about participants' experiences and knowledge of medicinal plants, identify common diseases they treat with plants and how they prepare herbal remedies to treat healthcare-related problems. The collection of graphic/visual data was also undertaken to document photographic specimens of plants that have been identified and used for health care purposes. Pictures of some participants, of course with their consent, were taken to provide evidence of their participation in discussions and demonstrations. Data collection was purposely embarked upon at intervals to develop a good relationship and camaraderie between the researchers and the study community. This

relationship with the study community that developed into trust and respect enabled the acceptance of the researchers by the community and led to the generation of unsolicited and authentic information regarding illnesses and relevant plant-based remedies.

One of the postgraduate students who was part of the research team, but was also conducting a related PhD study, was instrumental in organising the community to participate in the interviews. Two colleagues who spoke local languages were translators and one of them who was later hired as a research assistant is from the Kunene region of Namibia. Throughout the process of data collection, one of the researchers posed questions to lead the discussions, while the rest of the research team took notes. However, all members of the research team were free to probe for more information during the discussions. Researchers distributed the responsibility of compiling data per research questions among themselves. At the end of each discussion session, each researcher transcribed the notes and forwarded the data to the one researcher who was charged with the responsibility of compiling and integrating all data about a specific research question.

The analysis of data started as soon as the first data were collected and the outcome informed subsequent data collection efforts. The main focus of the analysis was to construct in-depth and rich descriptions of how the Ovahimba people use their indigenous knowledge to identify medicinal plants and prepare remedies to diagnose and treat common diseases and health care challenges in their community. Researchers read the written responses per

interview question several times, coded and marked the underlying ideas in the data text. Ideas were then grouped in categories. The themes were then generated, labelled and structured in relation to the research questions. The researchers used the grounded theory approach and inductive mode of reasoning to explore meaningful aspects of healthcare-related IK and practices including specimen identification, details of preparation for use and preservation of remedies. The use of grounded theory made the researchers realize areas they still need to know more about and thus returned to the field at multiple intervals to verify the data and probe for more information, thus generating a deep understanding of the people's healthcare-related knowledge, practices and remedies to common diseases and illnesses, This process enabled the researchers to construct a theory about IK based on the data.

The study's design, instruments, collection and analysis of data followed the guidelines of the Council for International Organizations of Medical Sciences and World Health Organisation (2016) for using humans as research subjects as well as the University of Namibia research ethics guidelines (UNAM, 2013). Before commencing the study, regional and traditional leaders were consulted in writing to seek permission to conduct the study. Moreover, permission was also granted by participants for every activity, where information was solicited: be it interviewing and involving them in discussions, taking participants' photos and including these in academic publications. The expectation of the researchers is that members of the study community would benefit

from the study including being provided with a copy of the study report.

PRESENTATION AND INTERPRETATION OF RESULTS

The presentation of data reflects the demographic information of the participants; medicinal plants used to prepare remedies; common diseases conditions treated; preparation, administration and doses of remedies. The researchers found it logical to first ask questions exploring common diseases and or conditions of ill-health experienced by community members. After participants mentioned the disease then the questions about how they find, prepare and administer remedies followed. To get the discussion going, each group was requested to provide information on at least ten common diseases.

Demographic information of the participants

Figure 1 presents the demographic profiles of the participants. It shows that the participants in the study were composed of males and females. According to the researchers' observation, some participants were aged between 21 and 25 years.

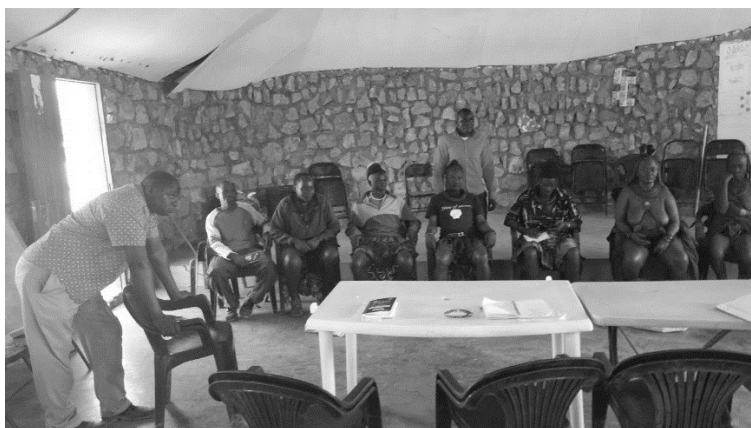


Figure1: Focus group discussion with male and female participants of the Ovahimba community at Oukongo village (Source: Picture taken in 2015 by Nekongo-Nielsen, a research team member).

Both male and female participants shared their knowledge of the indigenous medicinal plants used for health care among the Ovahimba of the Kunene region of Namibia. The study found that children are from a young age trained by adults to distinguish which plants are edible and which are good for medicinal purposes; first at the homestead and as they grow older by adults in the community. The researchers further discovered that lessons about health care are provided by the great grandfathers/mothers. The participants reported that children learn more from their mothers than from their fathers regardless of the child's gender. This is because mothers stay more at home while fathers are away from home more often. Also, the process of learning about indigenous knowledge is no different from learning about other daily chores around the house.



Figure 2: Excursion with participants to one of the medicinal plants in health care promotion (Source: Picture taken in 2016 by Nekongo-Nielsen, a research team member)

Participants were found to possess valuable traditional knowledge of medicinal plants. During the trips, the researchers observed how the Ovahimba people easily identified the plants. The findings of this study show that some plant-based remedies are threatened. For instance, if a plant species is scarce in one area, people tend to use any other available species, though it may be less effective. The Ovahimba cited the *Hiamakurunga* plant species. The participants said that *Hiamakurunga*, which is used to treat cancer and pain (menstrual and headaches) was becoming scarce but they would use the *Omutati* for pain and *Omulyandjima* for cancer as replacements though these were less effective. Participants expressed the need to protect medicinal plants by legislating protection measures to prevent their extinction.

Medicinal Plants Preparation and Administration among the Ovahimba Community of Oukongo Village

The participants were asked to explain the preparation and administration of the remedies used to deal with ailments. Table 1 presents the names of the plants, part of the plant used, mode of preparation and administration of remedies as well as disease conditions treated.

Table 1

Plants, parts used, mode of preparation, dosage instructions and diseases-related conditions treated by the Ovahimba community

Traditional/ English and scientific name of the plant	Part used	Mode of preparation	Dosage instructions	Disease conditions treated
Ondombe (Wild Senna; Eland's pea) / <i>Senna italica</i>	Roots	Roots are crushed, boiled in water and allowed to cool down before it is drunk.	Drink now and then. This root is mostly used to reduce pain. Ondombe cannot be used by pregnant women.	Opehuri / stomach ache (that may include diarrhoea)
Omuhamati (Mallow-leaved cross berry) / <i>Grewia villosa</i>	Roots	Crush roots (fresh or dry) and mix with goat milk, porridge or soup	Drink now and then. It is very effective if used with goat milk	
Ondao(in Otjihehero) Eenyondo(in Oludhimba)/ <i>Isoetess</i> English common name unknown	Tuber	The tuber is crushed and put in water	Drink now and then or as necessary. It is very hard for small children to take due to its bitterness. Hence mothers chew the tuber, put it in the mouth of the child and breastfeed	

			immediately to aid swallowing. Cattle herders just chew the tuber and swallow.	
Omuṭati (Mopane tree)/ <i>Colophospermum mopane</i>	Roots; inner part of the bark; leaves	Roots are cleaned and boiled in water. Water should be allowed to cool down. Take the reddish part of the bark, boil in water and let the water cool down. Chew the leaves and swallow the liquid.	The patient drinks 3x a day, or now and then as it can be taken more than 3x a day. Warning: Doses for small children should be half of what adults take.	
Omutangaruru (Sjambokpod; Long-tail cassia)/ <i>Cassia abbreviate</i>	Bark	Clean by scraping the outer parts off, crush into fine powder, put into water or milk (cold or warm).	Drink now and then	
Omumbuti English and scientific names unknown	Roots; leaves	Clean roots, crush them and put into boiled water (or milk for children). Note: it is only found to work on diarrhoea caused by meat than other food). Chew leaves and swallow the liquid. Warning: pregnant women and children should use with milk only.	Three time a day, but can be more than 3x	Diarrhoea and stomach pain caused by eating bad meat only
Otjivetjombandje (Wool bush) / <i>Leucosphaera bainesii</i>	Roots (tuber-like)	Clean the root, cut in pieces, boil in fat extracted from milk or water (only when there is no milk), allow it to cool down. Warning: cow milk is highly recommended as goat milk is considered to be strong and can reduce the effectiveness of the medication. One can just chew the fresh	Take as necessary	Diarrhoea without stomach cramps

		root and swallow the liquid		
Onyati (bitter Mellon/gourd) / <i>Momordica balsamina</i>	Tuber	The tuber is cut into small pieces, crushed and mixed with water. The thickness of the mixture should be like light porridge. Bitter taste indicates readiness.	Take as necessary	
Otjivetjombandje (Wool bush) / <i>Leucosphaera bainesii</i>	Roots	Burn the roots into ashes. Wait for the ashes to cool down.	Apply the ash on the wound now and then	Open wound
Okaputinangolo (English common and scientific names unknown)	Flowers	The flowers are slightly burned, crushed into fine powder. Warning: Only the powder of slightly-burned flowers are medicinal and effective. Dried and crushed flowers are not effective at all.	Apply the ashes on the wound 2x a day (morning and evening) until the wound is healed.	Circumcisi-on wounds
Otjihangatene/Otjiryata (Devil's claw; Kamangu; grapple plant ; wood spider / <i>Harpagophytum procumbens</i>	Tuber	Tuber is sliced into flakes, dried and crushed into a powder. The powder is dissolved in boiled water. Alternatively, the powder can be boiled in water and left for some time for more concentration. One can also just chew the tuber and swallow the liquid	Drink the concentrated water as much as it is necessary. Warning: women on menstruation should not consume this mixture.	Otjikamuha/ <i>Syphilis</i>
Ongambiyondjou/ <i>Helinus integrifolius</i> English common name unknown	Roots	Roots are crushed, put in cold fresh water. The mixture is stirred until foam appears. One can also shake the mixture until it foams. If the mixture does not foam, it means it is not good and cannot be consumed.	Drink as much as necessary until you feel well.	

Ongumbati (Herero Sesame Bos)/ <i>Sesamothemnus guericchi</i>	Roots	Clean fresh roots are crushed and boiled in water.	Drink as much as necessary until you feel well.	
Orukanunambura (Wild asparagus)/ <i>Asparagus nelsii</i> (very scarce nowadays)	Roots	Roots are crushed, mixed in cold water, and stirred until the mixture foams. This mixture treats otjikamuaha and abdominal pain in females only.	Drink as much as necessary	
Orueti (Snake-egg climber)/ <i>Maerua juncea</i>	Branches	Branches (preferably fresh) are crushed into small pieces, put in cold water. Warning: do not use warm or hot water.	Apply a droplet into the affected ear three times (3x) a day.	Ear infection
Hijamakurunga (English common and scientific names unknown)	Roots	The roots are properly cleaned for chewing. Hijamakurunga is a multi-purpose and safe to use by all people of all ages and sexes, even pregnant women. Highly recommended due to its effectiveness in the treatment of most diseases.	Chew the root and swallow the liquid. Do this as many times as necessary until the pain stops.	General pain, (including headache, ear infection, menstrual pain and stress)
Otjindombo/Okandomb o (Otjiherero) Endombo (Oludhimba) / Aloe plant, <i>Aloe hereroensis varlueta</i>	Leaves	A fresh leaf is crushed, put into cold water.	Drink the concoction 3x a day before meals	Ombinḁu/ High blood pressure
Omukaru (Buffalo thorn tree) / <i>Ziziphus mucronata</i>	Roots	Roots are cleaned and boiled in water.	Measure water in 1litre container. Drink as necessary. Finish the course.	
	Leaves	Leaves are chewed	Swallow the liquid and repeat as much as necessary	Stomach ache

Omuntjete (English common and scientific names unknown)	Roots	Roots are crushed, mixed with lukewarm water (boiled before)	Drink the mixture now and then	
Omungondo Oruzu/ <i>Acacia nilotica</i> (English common name unknown)	Roots	Roots are clean and crushed then boiled in water. Water should cool down before it is given to the patient to drink.	Drink a bit (use table spoon or cup) 3x a day. However, can be drunk now and then. It does not matter what time of the day. The amount of medicine depends on the severity of the pain.	Otjari tji tja pama /congested chest pain
Ondyanga/ <i>Hybanthus densifolius</i> English common name unknown	Roots	Crush the roots, put in boiled water or fresh milk.	The patient drinks it now and then	
Omungondo/ <i>Thorny Acacia</i> (English common name unknown)	Fresh fruit	Squeeze a drop from the fresh fruit	Squeeze a drop of fresh fruit into the affected eye. In the olden day people used to administer now and then. Nowadays they imitate modern treatment instructions of 3x a day.	Itchy eyes
Omungwinḁi (Otjinautoni)/ <i>Boscia foetida</i> (English common name unknown)	Fresh inner part of the Bark and fresh leaves	The inner part of the bark or leaves are finely crushed, put in a little water and droplets of the mixture are put in the eyes.	Apply 3x a day or now and then	
Omongorwa (Omimbo)/ <i>Vigna vexillata</i> (English common name unknown)	Tuber or fresh leaves	Tuber or fresh leaves are crushed and mixed with water. Droplets of the mixture are put in eyes. Tuber is mostly used by hunters and cattle herders when they get injured while in the bush. Can also be chewed	Drink now and then.	

		and pain eases immediately.		
Omukuyu/ <i>Fig tree/Ficus</i>	Leaves	A fresh leaf is used to softly scratch on the pimple.	Scratch on once. If the pimple does not disappear, continue to use the same leaf until it disappears. Blood would come out from scratching. Little salty water should be administered on the eye for cleaning/disinfecting purposes	Itchy pimple in the eye (<i>Onganjaura</i>)
Otjindombo/Okandomb o (Otjiherero) Endombo (Oludhimba) / Aloe plant, <i>Aloe hereroensis varlueta</i>	Leaves	A fresh leaf is cut open and squeezed little droplets (juice) are put into the affected eye.	Once or twice per day, usually at night before going to bed. Aloe juice is strong and therefore should be used with care.	Red eyes

The study discovered 24 medicinal plants that the Ovahimba community use to treat various but common ailments. More than one medicinal plant could be used to treat a specific disease/condition. The root and leaves are the main parts of the plants that are frequently used. Many-a-time, the harvested plant or part of it is cleaned, broken into small pieces and/or crushed into powder form. Either the powder or small pieces would then be mixed with water or milk and consumed. Also, the burning of flowers into ashes is another method of preparing remedies, especially for wounds. In most instances, fresh parts of plants are recommended than dried ones. Cattle herders usually chew the harvested plant parts while on duty.

Participants explained that patients were advised to take remedies “now and then” and “as much as needed” or “when

necessary”. When taking remedies, the strong concentration (colour), taste and foam were important indicators of the concoctions’ readiness to be administered and taken. The colours of most remedies when they are ready for consumption should be brownish, reddish, greenish and yellowish depending on the type of plant. The participants emphasised that most of the remedies are taken at any time of the day and as many times as necessary after meals. However, some specific remedies such as Aloe leaf is taken before eating meat to prevent and or control High Blood Pressure. The *Hijamakurunga*, was used as both a general painkiller and healing medicinal plant. The instruments used to measure remedies before they are administered were utensils that are readily available such as cups and tablespoons. Figure 2 (below) shows a mother giving an *Omundjete* remedy to her baby using a cup as an instrument.



Figure 3: A Himba mother in Kunene region of Namibia administering a remedy to her baby. (Source: Picture taken in 2016 by Nekongo-Nielsen).

The participants could not indicate how long it takes in the case of each remedy before they expect the patient to heal. However, it appears that patients were advised to take one remedy at a time. If the ailment persists, a patient was advised to take another remedy that may treat a similar disease condition. A patient would then be allowed to keep on with the treatment until the ailment is healed or until they find another cure. The participants showed belief in the effectiveness and efficacy of the remedy on the listed disease conditions. One of the male participants said that

government should know that we continue to teach our children at home about indigenous medicine for two reasons; first, we do not really trust Western medicine and second, we would like to keep the practice of our ancestors. We do not want it to die.

In general, the participants also stressed that no death had occurred as a result of taking the indigenous medications.

DISCUSSION

The co-evolutionary theory of sustainable development was used as the lens to understand the IK on health care practices among the Ovahimba Community of Oukongo Village in Kunene Region of Namibia. The findings of this study show that herbal medicine from traditional medicinal plant species play a significant role in meeting the primary health care needs of Ovahimba community of Oukongo village. Twenty-four (24) medical plant species that were used to treat

ailments in the community were documented. All these plants were observed in their wild habitat.

These findings agree with other researchers' discoveries in other communities that the use of plants as remedies for a variety of illnesses and diseases is fundamental to indigenous peoples' health systems and healing practices (Chinsembu, 2016; Stephens, Nettleton & Willis, 2006; Subramanian & Pisupati, 2010). These findings further concur with Amsalu, Bezie, Fentahun, Alemayehu and Amsalu (2018) that plant medicines is the most important means of treating many common human ailments such as wounds, stomach ache, diarrhoea and eye disease and the most commonly used parts of the medicinal plants were roots, leaves, barks and flowers in East Gojjam Zone of Amhara Region in Kenya. The studies by Amsalu et al., (2018) and Regassa, (2013) reported that leaves were the most frequently utilized parts of plant materials. However, the results of this study indicate that the roots was the most popular and frequently utilized part of plant materials among the Ovahimba of Oukongo village in Kunene region.

The popular method of preparation of remedies used by the Ovahimba of Oukongo village is crushing and/or pounding. Some remedies were prepared in the form of chewing and a few in the form of burning. This finding is in line with Amsalu et al. (2018) and Yirga (2010) who also reported that the most popular method of preparing remedies from medicinal plants by indigenous people is crushing. Moreover, Mesfin, Demissew and Teklehaymanot's (2009) study done

on indigenous people reported powdering as a dominant method of preparation of remedies.

This study found that most remedies were prepared from fresh and dry plant materials. These findings concur with the study by Regassa's (2013), which indicated that the indigenous people of Hawassa city in southern Ethiopia used medicinal plant parts in fresh and dried forms. However, the preparation of fresh medicinal plant parts were emphasised and preferred among the Ovahimba community of Oukongo village. The preference of fresh than dry plant materials was based on people's belief and experience of fresh plants' effectiveness in the treatment of diseases.

The most common route of administration mentioned by the Ovahimba of Oukongo village were oral and dermal. Yirga (2010) argues that oral and dermal routes permit rapid physiological reaction of the prepared medicines with the pathogens and increase its curative power. However, the administration of many medicinal remedies was more oral than dermal. This finding supports Amsalu et al. (2018) and Regassa (2013) who also recorded oral as the main route of administration.

The popular utensils used for measuring remedies by the Ovahimba people of Oukongo village were cups and spoons. The measurement to determine the dosage depends on the age of the patient. Generally, there is lack of precision on when and how often the remedies should be applied. This might be one of the main drawbacks in the recognition of the traditional health care system. Nevertheless, the participants' belief in the safety of indigenous plant

remedies is supported by Abbiw (in Yirga, 2010) who argues that traditional medicines are safe and have little or no side effects.

RECOMMENDATIONS

There is need to assist the development of the indigenous health care knowledge among the Ovahimba Community of Oukongo Village in the Kunene Region of Namibia. The authors of this paper recommend that the co-evolutionary theory of sustainable development should be followed and applied in the development of the indigenous health care knowledge. This is due to the belief that indigenous projects tend to succeed when executed in partnership with local experts in scientific knowledge (Briggs, 2005; UNESCO, 2016a; 2016b). Therefore, the authors of this paper call upon scientists in the field of health care to appreciate the indigenous health care knowledge of Ovahimba.

The co-evolutionary theory of sustainable development could be enacted among the Ovahimba community of Oukongo Village in the Kunene Region by following a cycle of simple steps. The first step is to give the indigenous health care knowledge among the Ovahimba some national recognition. That is not to say that the indigenous health care knowledge of the Ovahimba of Oukongo Village is not recognised but what the authors emphasise is the national recognition that elevates indigenous health care knowledge to a status equal to modern health care knowledge. The basis of the co-evolutionary theory of sustainable development is to ensure

change and renewal processes that embrace both indigenous health care and modern health care knowledge.

Second, there is a need to recruit indigenous health care scholars among the Ovahimba Community of Oukongo Village of the Kunene Region to maintain interaction with modern scholars and promote social and cultural inclusion of these approaches into the health care practice among the community.

Thirdly, there is a need to constantly document the indigenous health care knowledge by involving established cadre of traditional scholars. The International Council for Science (2002) suggests that a closer link between scientific knowledge and other forms of knowledge systems is very important in the promotion of sustainable development goals. Thus, the co-evolutionary theory of sustainable development rests on the promotion of scientific research in health care to work in cooperation and partnership with the traditional possessors of IK towards the development of medicinal products.

Fourthly, there is need to protect the intellectual property rights of indigenous health care knowledge among the Ovahimba community of Oukongo village of Namibia.

CONCLUSION

This paper has outlined the IK on health care among the Ovahimba Community of Oukongo Village in Kunene Region of

Namibia. The co-evolutionary theory of sustainable development was adopted because it can be used to understand the dynamics of the interaction between indigenous health care and modern health care practice. It is clear that the Ovahimba people of Oukongo village possess rich and valuable traditional knowledge about medicinal plants. They know the types and locations of medicinal plants and most useful plant parts to be used for a specific disease as well as the methods of preparation and how to administer the remedies. There is need to synchronise the IK with modern health care through the co-evolutionary theory which can be enacted by giving the indigenous health care knowledge among the Ovahimba some national recognition and recruiting a cadre of indigenous health care scholars from the Ovahimba Community of Oukongo Village of Kunene Region of Namibia. This process would make possible a situation where the cadres of indigenous health care practitioners from the Kunene region become researchers that do not only provide or support the documentation of the indigenous health care knowledge but also participate in ensuring that intellectual property rights of knowledge possessors is respected and protected.

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REFERENCES

- Aboelsoud, N.H. (2010). Herbal medicine in ancient Egypt. *Journal of Medicinal Plants Research*, 4(2), 82-86. Retrieved from http://www.academicjournals.org/article/article1380374686_Aboelsoud.pdf. . doi: 10.5897/JMPRO9.013.
- Amsalu, N., Bezie, Y., Fentahun, M., Alemayehu, A., & Amsalu, G. (2018). *Use and conservation of medicinal plants by indigenous people of Gozamin Wereda, East Gojjam Zone of Amhara Region, Ethiopia: An ethnobotanical approach*. 2973513, 1-23. doi: <http://doi.org/10.1155/2018/2973513>.
- Anaya, J. (2013). *Report of the Special Rapporteur of the rights of indigenous peoples: The situation of indigenous peoples in Namibia*. Retrieved from <http://www.osisa.org/indigenous-peoples/namibia/namibia-still-failing-indigenous-peoples.pdf>.
- Bodeker, G. (2010). Traditional knowledge and health. In S. M. Subramanian & B. Pisupati, (Eds). *Traditional knowledge in policy and practice: Approaches to development and human wellbeing* (pp. 181- 192). Tokyo, Japan: United Nations University Press.
- Briggs, J. (2005). The use of indigenous knowledge in development: Problems and challenges. *Progress in Development Studies* 5(2), 99-114.
- Chikaire, J., Osuagwu, C.O., Ihenacho, R.A., Oguegbuchulam, M.N., Ejiogu-Okereke, N., & Obi, K.U. (2012). Indigenous knowledge system: The need for reform and the way forward. *Global*

Advanced Research Journal of Agricultural Science, 1(8), 201-209.

Chisembu, K. C. (2016). Bioprospecting for 'green diamonds': Medicinal plants used in the management of HIV/AIDS-related conditions. In K. C. Chinsebu, A. Cheikhyoussef, D. Mumbengegwi, M. Kandawa-Shultz, C. D. Kasanda & L. Kazembe (Eds.). *Indigenous knowledge of Namibia*, (pp. 9-40). Windhoek, Namibia: UNAM Press.

Cohen, L., Lawrence, M., & Morrison, K. (2000). *Research methods in education (5th ed.)*. New York, NY: RoutledgeFalmer.

Council for International Organizations of Medical Sciences and the World Health Organisations (2016). *International ethical guidelines for health-related research involving humans*. Geneva, Switzerland: Council for International Organizations of Medical Sciences.

Du Preez, I., Nafuka, S., Mumbengegwi, D.R., & Böck, R. (2016). Indigenous use of plants to treat malaria and associated symptoms. In K. C. Chinsebu, A. Cheikhyoussef, D. Mumbengegwi, M. Kandawa-Shultz, C. D. Kasanda & L. Kazembe (Eds.), *Indigenous knowledge of Namibia* (pp. 41-62). Windhoek, Namibia: UNAM Press.

Dushimemaria, F. Mumbengegwi, D.R. & Böck, R. (2016). Indigenous knowledge of medicinal plants used for the treatment of cancer. In K. C. Chinsebu, A. Cheikhyoussef, D. Mumbengegwi, M. Kandawa-Shultz, C. D. Kasanda & L. Kazembe (Eds.), *Indigenous knowledge of Namibia* (pp. 41-62). Windhoek, Namibia: UNAM Press.

- Eyong, C.T. (2007). Indigenous knowledge and sustainable development in Africa: Case study on Central Africa. In E.K. Boon & L. Hens (Eds.), *Indigenous knowledge systems and sustainable development; Relevance for Africa. Tribes and Tribals, Special 1*, 121-139.
- Foxon, T.J. (2010). A co-evolutionary framework for analysing a transition to a sustainable low carbon economy. Retrieved from http://www.see.leeds.ac.uk/fileadmin/Documents/research/sri/workingpapers/SRIPs-22_01.pdf.
- Government of Republic of Namibia (2004). *Namibia Vision 2030. Policy Framework for Long-Term National Development. Summary Document*. Windhoek, Namibia: Office of the President.
- Grenier, L. (1998). *Working with indigenous knowledge. A guide for researchers*. Ottawa, Canada: International Development Research Centre.
- Inter-agency Support Group on Indigenous Peoples' Issues (2014, June). *The health of indigenous peoples: A thematic paper towards the preparation of the 2014 World Conference on Indigenous Peoples*. New York, NY: Secretariat of the Permanent Forum United Nations.
- International Council for Science (2002). Science, traditional knowledge and sustainable development. *ICSU Series on Science for Sustainable Development, No. 4 UNESCO Local and Indigenous Knowledge Systems (LINKS)*. Paris, France: Author.

- International Institute of Rural Reconstruction (1996). *Recording and using indigenous knowledge*. Silang: Cavite, Phillipines: Author.
- Kunwar, R.M., & Bussmann, R. W. (2008). Ethnobotany in Nepal Himalaya. *Journal of Ethnobiology and Ethnomedicine*, 4(24), 1-8. doi:10.1186/1746-4269-4-24.
- Lama, A. (2000). *Peru: Traditional knowledge enhances modern medicine*. Retrieved from <http://www.townside.org.sg/title/enhance.htm>.
- Leneis, C. (2010). *An introduction to knowledge translation*. A paper presented at the CCPH Pre-conference workshop. Retrieved from <https://ccph.memberclicks.net/assets/Documents/Presentations/Conference2010/preconf-ktfinal.pdf>.
- Malan, J.S., & Owen-Smith, G.L. (1974). The ethnobotany of Kaokoland in Cimbebasia: SWA. *Navorsing – SWA – Research – SWA – Forschung. Ser. B – 2* (5), 131-177.
- Mesfin, F., Demissew, S., & Teklehaymanot, T. (2009). An ethnobotanical study of medicinal plants in Wonago Woreda, SNNPR, Ethiopia, *Journal of Ethnobiology and Ethnomedicine*, 5 (28), 1-18.
- Millar, D., & Haverkort, B. (2006). African knowledges and sciences: Exploring the ways of knowing of Sub-Saharan Africa. In D. Millar, S. B. Kendie, A. A. Apusigah & B. Haverkort (Eds.). *African knowledges and sciences: Understanding and supporting the ways of knowing in Sub-Saharan Africa* (pp 11-37). Barneveld, Netherlands: BDU.

- Ministry of Information and Broadcasting (1991). *The Constitution of the Republic of Namibia*. Windhoek: Author.
- Niskala, M. (2015). Encountering the other: The Ovahimba culture and people in Namibia tourism promotion. *Nordic Journal of African Studies*, 24 (3&4), 259-278.
- Purcell, T. (1998). Indigenous knowledge and applied anthropology: Questions of definition and direction. *Human Organization*, 57(3), 258-272.
- Reading, J., Perron, D., Marsden, N., & Edgar, R. (2010). *Global indigenous health: An opportunity for Canadian leadership*. Victoria: Canada: Centre for Aboriginal Health Research, University of Victoria.
- Rootman, I., & Ronsom, B. (2005). Literacy and health research in Canada: Where have we been and where should we go? *Canadian Journal of Public Health*, 96(2), 62-77.
- Regassa, R. (2013). *Assessment of indigenous knowledge of medicinal plant practice and mode of service delivery in Hawassa city, Southern Ethiopia*. Retrieved from <http://www.academicjournals.org/JMPR>.
- Sarkhel, J. K. (2016). Strategies of indigenous knowledge management in libraries. *Qualitative and Quantitative Methods in Libraries*, 5, 427-439.
- Sherman, R. (2013). *The Himba Years: A multiple media ethnographic study and cultural heritage preservation programme*. Retrieved from <http://www.der.org/resources/study-guides/ovahimba-years-multiple-media.pdf>.

- Sithole, M. (2007). Indigenous physics and the academy. In G. Emeagwali & E. Shizha (Eds). *African indigenous knowledge and the sciences: Journeys into the past and present* (pp. 93-106) Rotterdam, Netherlands: Sense Publishers.
- Stephens, C., P., J., Nettleton, C., & Willis, R. (2006). Indigenous health 4– Disappearing, displaced and undervalued: A call to action for indigenous health worldwide. *Lancet* 367, 2019-2028.
- Subramanian, S. M. & Pisupati, B. (2010). *Traditional knowledge in policy and practice: Approaches to development and human wellbeing*. Tokyo, Japan: United Nations University Press.
- University of Namibia. (2013). *Research Ethics Policy*. Windhoek, Namibia: Author.
- UNESCO (2016a). *EFA global monitoring report – Education for sustainable people and planet: Creating sustainable futures for all*. Paris, France: Author.
- UNESCO (2016b). *Indigenous and local knowledge(s) and science(s) for sustainable development: Policy brief by the Scientific Advisory Board of the UN Secretary-General*. Paris, France: Author.
- Vinel, A., & Pialoux, J. (2005, October 31). *Ancient Egyptian medicine and traditional Chinese medicine*. A paper presented at the R.E.F.S. Congress held in Aix-en-Provence, France. Retrieved from http://www.cornelius-celsus.org/documents/medegypt_english.pdf.
- Vinding, D., & Mikkelsen, C. (2016). *The indigenous world 2016. Copenhagen: International Work Group for Indigenous Affairs*. Retrieved from

http://www.iwgia.org/iwgia_files_publications_files/0740_THE_INDIGENOUS_WORLD_2016_final_eb.pdf.

Waldron, I. (2010). The marginalization of African indigenous healing traditions within Western medicine: Reconciling ideological tensions and contradictions along the epistemological terrain. *Women's Health and Urban Life*, 9(1), 50-71.

Ware, V. (2013). *Improving the accessibility of health services in urban and regional settings for indigenous people*. Resource sheet no. 27 produced for Closing the Gap Clearinghouse, and agency of the Australian Government. Retrieved from <http://www.aihw.gov.au/uploadedFiles/ClosingTheGap/Content/Publications/2013/ctgc-rs27.pdf>.

Yirga, G. (2010). *Use of traditional medicinal plants by indigenous people in Mekele Town, capital city of Tigray regional state of Ethiopia*. Retrieved from <http://www.academicjournals.org/JMPR>.