

# Preserving traditional medical knowledge through modes of transmission: A post-positivist enquiry

**Authors:**

Janet Adekannbi<sup>1</sup>  
Wole M. Olatokun<sup>1</sup>  
Isola Ajiferuke<sup>2</sup>

**Affiliations:**

<sup>1</sup>Africa Regional Centre  
for Information Science,  
University of Ibadan Nigeria

<sup>2</sup>Faculty of Information and  
Media Studies, University of  
Western Ontario, Canada

**Correspondence to:**

Janet Adekannbi

**Email:**

janet.adekannbi@gmail.com

**Postal address:**

PO Box 9936, U.I. Post Office,  
Ibadan, Oyo State, Nigeria

**Dates:**

Received: 21 Oct. 2013

Accepted: 23 June 2014

Published: 17 Nov. 2014

**How to cite this article:**

Adekannbi, J., Olatokun,  
W.M. & Ajiferuke, I., 2014,  
'Preserving traditional  
medical knowledge through  
modes of transmission:  
A post-positivist enquiry',  
*SA Journal of Information  
Management* 16(1), Art.  
#598, 9 pages. [http://dx.doi.  
org/10.4102/sajim.v16i1.598](http://dx.doi.org/10.4102/sajim.v16i1.598)

**Copyright:**

© 2014. The Authors.  
Licensee: AOSIS  
OpenJournals. This work  
is licensed under the  
Creative Commons  
Attribution License.

**Read online:**

Scan this QR  
code with your  
smart phone or  
mobile device  
to read online.

**Background:** In Nigeria, most rural communities lack access to orthodox medical facilities despite an expansion of orthodox health care facilities and an increase in the number of orthodox health care providers. Over 90% of Nigerians in rural areas thus depend wholly or partly on traditional medicine. This situation has led to a call for the utilisation of Traditional medical practitioners in primary-healthcare delivery. Hence, the persistence of the knowledge of traditional medicine, especially in the rural communities where it is the only means of primary health care, has been a concern to information professionals.

**Objectives:** This study investigated the role which the mode of transmission plays in the preservation of traditional medical knowledge.

**Method:** A post-positivist methodology was adopted. A purposive sampling technique was used to select three communities from each of the six states in South-Western Nigeria. The snowball technique was used in selecting 228 traditional medical practitioners, whilst convenience sampling was adopted in selecting 529 apprentices and 120 children who were not learning the profession. A questionnaire with a five-point Likert scale, key-informant interviews and focus-group discussions were used to collect data. The quantitative data was analysed using descriptive statistics whilst qualitative data was analysed thematically.

**Results:** The dominant mode of knowledge transmission was found to be oblique (66.5%) whilst vertical transmission (29.3%) and horizontal transmission (4.2%) occurred much less.

**Conclusion:** Traditional medical knowledge is at risk of being lost in the study area because most of the apprentices were children from other parents, whereas most traditional medical practitioners preferred to transmit knowledge only to their children.

## Introduction

Traditional medical knowledge (TMK), an aspect of indigenous knowledge (IK), is mostly tacit in nature and is passed on from one person to another (Osemene, Elujoba & Ilori 2011). Elders are considered to be the legitimate custodians of this knowledge which was handed down to them by their ancestors, and they are in turn expected to pass it on to others (Owuor 2007). The persistence of IK is basically a function of its transmission. According to Cavalli-Sforza and Feldman (1981), this transmission can take three modes, namely vertical, horizontal and oblique. Vertical transmission takes place from parents to their children, horizontal transmission between individuals of the same generation and oblique transmission from individuals of one generation to unrelated individuals of the next generation (Hewlett & Cavalli-Sforza 1986).

Hewlett and Cavalli-Sforza (1986) examined transmission of bush skills and cultural knowledge amongst the Aka Pygmies of the tropical forest region of Central Africa. The study revealed that vertical transmission (parent to child) was by far the most important mechanism for IK transmission, accounting for 80% of the cases studied. A related study by Ohmagari and Berkes (1997) reported that parents were primarily responsible for their children's education although other members of extended families were readily available to take over these responsibilities whenever needed. Lozada, Ladio and Weigandt (2006) also analysed medicinal and edible plant utilisation in Cuyin Manzano, a small rural population located near the Andean forests of Argentina. Interviews were carried out in 16 families in order to examine the present use of wild plants. The study reported that the transmission of wild-plant knowledge was mostly vertical through family dissemination. Similar patterns of plant use were found in young and old people alike, and learning was as a result of family tradition. In a recent study, Demps *et al.* (2012) reported that, amongst the Jenu Kuruba, a tribal community in South India, children tend to acquire the local knowledge required for collecting wild honey from their parents.

However, studies on cultural transmission have reported that horizontal and oblique transmission are more important during adulthood than during childhood as individuals gain exposure to a greater variety of social models as they grow older (Aunger 2000; Demps *et al.* 2012; Hewlett & Cavalli-Sforza 1986). Hence, they have opportunities to update what they had learned from parents or to seek specialised knowledge (Henrich & Broesch 2011; Henrich & Henrich 2010).

For example, some studies have shown the dominance of the horizontal mode of transmission of IK (Aunger 2000; Eyssartier, Ladio & Lozada 2008), especially considering the fact that the amount of time children spend with parents decreases with age (Aunger 2000). Usually, children spend large portions of time with siblings and age peers which give them the opportunity to share knowledge. Reporting this pattern, Rogoff (1981) suggested that direct interaction of Kenyan children with adults declines significantly as they grow older as they engage more with other children in the same age and sex cohort. Moreover, later in life, young adults turn to age peers rather than to parents for information, most probably due to similarity in their social positions (Reyes-García *et al.* 2009). New information provided by age peers might allow a person to update the information previously acquired from parents (Aunger 2000).

Aunger (2000) reported that, in a community of horticulturalists and foragers in the Democratic Republic of Congo, the degree of non-parental transmission was insignificant in the belief system, at least during the early years of life when most knowledge about which food to avoid was acquired. The study however noted that, as individuals grew older and were influenced by people from outside of their close family, they continued to learn about their culture, obliterating to some degree the traces of knowledge acquired earlier from parents. This observation was also reported by Eyssartier *et al.* (2008) amongst the Pilcaniyeu and Cuyin Manzano communities in North-Western Patagonia, Argentina, where the transmission of traditional plant knowledge begins at an early age, as a family custom. However, horticultural learning continued into adulthood during which time locals interchange knowledge and practices, probably relearning and changing their previously acquired information. This knowledge may or may not agree with what they have learnt as a family tradition.

The influence of the horizontal mode of transmission is especially evident in the absence of a parental generation. This observation was made by Setalaphruk and Price (2007), noting the contribution of other social contacts and interaction channels. In a study carried out in a rural community in Northeast Thailand, it was observed that some children primarily acquired their knowledge of wild food resources through peers as their parents were away and as they have not engaged in gathering with their grandparents. Such children had an opportunity to learn the practical knowledge about wild food resources with friends during their play and interactions in the fields.

Oblique transmission takes place from individuals of one generation to unrelated individuals of the next generation (Hewlett & Cavalli-Sforza 1986). This can take the form of one-to-one, one-to-many (when one person, for example a teacher, transmits knowledge to many people of a younger generation) or many-to-one (when an individual learns from older adults other than the parents) (Cavalli-Sforza & Feldman 1981). Very few studies have reported on the oblique form of transmission. Hewlett and Cavalli-Sforza (1986) reported transmission by others, probably the whole social group (many-to-one), as important for sharing and dancing. This form of transmission was reported by Reyes-García *et al.* (2009) as important during adulthood in the transmission of ethno-botanical knowledge and skills amongst the Tsimane adults in the Bolivian Amazon. Henrich and Henrich (2010) found that about one third of Fijian women interviewed learned specific food taboos from older, knowledgeable women who were not their kin.

In Nigeria, there is no evidence of literature that extensively investigate modes of transmission amongst traditional medical practitioners (TMPs). Traditional medical practice was chosen as the form of IK to study because, in Nigeria, most rural communities lack access to orthodox medical facilities. There has been an expansion of orthodox health care facilities and an increase in the number of orthodox health care providers, but these are not accessible to the majority of people living in rural communities as over 90% of Nigerians in rural areas depend wholly or partly on traditional medicine (Oladele & Adewunmi 2008), a situation that will most probably not change in the near future. This situation has led to a call for the utilisation of TMPs in primary-healthcare delivery (Alves & Rosa 2007; Elujoba, Odeleye & Ogunyemi 2005; Olatokun 2010; World Health Organisation [WHO] 2001). Hence, the persistence of the knowledge of traditional medicine, especially in the rural communities where it is the only means of primary health care for the rural poor, has been a concern to information professionals, especially in developing countries.

This study was carried out to examine the modes of TMK transmission amongst TMPs in selected communities in South-Western Nigeria with the aim of answering the following questions:

1. What are the modes of traditional medical knowledge transmission evident amongst TMPs in South-Western Nigeria?
2. What are the reasons for the observed trend?
3. What does the observed trend portend for the preservation of TMK?

The remainder of this paper is organised as follows: The details of the study's research methodology are presented in the next section, followed by the findings and discussion. The article ends with conclusions from the study and suggestions for further study.

## Research methodology

The study adopted a post-positivist methodology using both quantitative and qualitative approaches. The quantitative

approach requires that the research is objective, whilst the qualitative approach recognises subjectivity in research, relying on opinions, feelings and emotions of respondents (Ratner 2002). The South-West geo-political zone of Nigeria was the study area. South-West was purposively selected because, according to previous studies (Ajaiyeoba *et al.* 2004; Akinyemi *et al.* 2005; Mafimisebi & Oguntade 2010; Ogbole, Gbolade & Ajaiyeoba 2010; Oladele & Adewunmi 2008; Olatokun 2010; Soewu & Adekanola 2011; Soewu & Ayodele 2009), there is a high proliferation of TMPs in the region, and the Yoruba people have a strong link with African traditional medicine. According to Soewu and Ayodele (2009), Yorubic medicine, a traditional medical system which is widely practised on the African continent, is based on the culture and mythological beliefs of the Yoruba people.

The people of South-Western Nigeria are mainly of the Yoruba ethnic group and distributed over six states, namely Oyo, Ogun, Ondo, Osun, Ekiti and Lagos. South-West is the second-most populous region in Nigeria with a population of over 27 million according to the 2006 census figures (Olagunju 2012). The natural vegetation is composed of coastal and swampy forest, high forest, rainforest and derived savannah towards the north. The people living in the rural areas make up about 70% of the total population, and their main occupations include farming, fishing, blacksmithing, pottery making and indigenous medical practices (Olagunju 2012).

The study population included TMPs, apprentices and children of TMPs who were neither learning nor practicing the occupation. The choice of the TMPs from amongst other major occupational groups was based on their relevance in primary-healthcare delivery in developing countries, including Nigeria, as reported in the literature. The technique of purposive sampling was used to select three communities from each of the six states in South-Western Nigeria. Each state was divided into three, based on senatorial districts. One local government was purposively selected from each senatorial district, and a community was selected from the local government. The choice of local government and rural communities was based on the recommendation of the head of traditional medical practitioners in each state, and this recommendation was based on the concentration of TMPs in the selected areas. The snowball technique was applied in selecting TMPs. Using the technique, each TMP introduced the researcher to other TMPs. Neis *et al.* (1999) reported using a snowball sampling technique to select local experts in a study conducted amongst fishermen living along the northeast coast of Newfoundland, Canada. Jesajas and Packham (2003) and Ngunyulu and Mulaudzi (2009) also adopted the technique in their studies. Convenience sampling was however used in selecting the apprentices and children of the TMPs who were not learning nor practicing the profession. In all, a total of 228 TMPs, 529 apprentices and 120 children of TMPs, who were not learning nor practicing the profession, participated in the study.

#### Data collection and analysis

Focus-group discussions (FGDs) and interviews were used in collecting qualitative data whilst questionnaires were adopted in collecting quantitative data.

Eighteen in-depth interviews were held with key informants who were leaders of the associations of TMPs in each locality. This interview preceded the FGDs. The interview provided additional information on knowledge transmission amongst the TMPs, especially information that could not be revealed during FGDs. This information proved useful as additional guide in data collection when carrying out the FGDs. Interviews were also held with the TMP's children, aged 21–47, who were not in the occupation. Interviews were conducted with them in order to understand why they are not engaged in the occupation. Two FGDs were held in each state with seven to nine participants in each group. The groups were heterogeneously based on the demographic characteristics of respondents. The FGD provided information on the group's opinions, beliefs and attitude towards knowledge transmission. A five-point Likert questionnaire was used to collect quantitative data from the TMPs and apprentices after the FGDs were conducted with the TMPs. A total of 757 copies of questionnaire (Ekiti – TMPs 37, apprentices 101; Lagos – TMPs 39, apprentices 90; Ogun – TMPs 40, apprentices 85; Ondo – TMPs 39, apprentices 83; Osun – TMPs 35, apprentices 91; Oyo – TMPs 38, apprentices 79) were administered, and a 100% return rate was achieved because they were researcher-administered. Data collection took place over a period of six months.

Both the FGD guide and the interview schedule included questions on the TMPs' view of transmission of their knowledge to their children and others. The questionnaire was divided into two sections. Section-A contained questions on demographic attributes of the TMPs and other pieces of information that were required for the study, including age, sex, marital status, educational level, religion, number of children and number of children in their occupation. Section-B, which was completed by the apprentices, contained questions on demographic attributes and other information such as the amount of knowledge acquired. For data collected with the questionnaire, frequency distribution was used for analysis. Data collected through the FGD and in-depth interview was analysed thematically. The data was transcribed into text, and the transcribed text was searched to identify recurrent themes conveying similar meanings. Such recurrent themes were illustrated with some quotations from the original text in order better to communicate their meanings.

## Findings and discussion

This section presents the findings from the study. Findings from quantitative and qualitative data are presented separately. These findings are also discussed.

### Findings from quantitative data

#### Demographic characteristics of TMPs

Of the 228 TMPs, 138 (60.5%) were men. The percentage of male TMPs varied from 54% to 68% in the six states. The mean age of the respondents was 54 years. The respondents' ages

ranged from 31 to 80 years. About 40% of the respondents were between the ages of 41 and 50, and this group was followed by those between the ages of 51 and 60 (31.1%). Respondents between the ages of 71 and 80 constituted only 8.3% of the sample. An overall examination of the age category showed that the sample had more middle-aged respondents. However, a deviation from the general trend was observed in the Ekiti and Lagos States where respondents between the ages of 51 and 60 made up the largest proportion of respondents (Table 1).

The frequency distribution of the TMPs' religion showed that 101 (44.3%) were Muslims, 92 (40.4%) belonged to traditional religion and 35 (15.4%) were Christians. Generally, Muslims were dominant amongst the respondents. However, this was only the case for the Ekiti, Osun and Oyo States whilst respondents who belonged to traditional religion were dominant in Lagos, Ogun and Ondo. The highest level of education amongst members of TMPs was secondary education (43.4%). In the same group, 38.2% had only primary education whilst 18.4% had no formal education. A breakdown of this category showed that, whilst most of the respondents in Ogun, Ondo and Osun attained secondary education, a large proportion of respondents in Ekiti, Lagos and Oyo concluded their education at the primary level. It was interesting to observe that all the respondents in Ondo had either primary or secondary education; none were without formal education.

Only 29.4% of the TMPs transmitted all their knowledge of traditional medicine. Whilst 68.9% transmitted just more than half of their knowledge, less than two per cent transmitted only half of their knowledge. The study observed that, generally, TMPs have a positive attitude towards the transmission of their knowledge.

### Demographic characteristics of apprentices

Results revealed that 292 (55.2%) apprentices that participated in the study were men whilst 237 (44.8%) were women. Male apprentices that participated in the study were more than the females in all the states with the exception of Lagos

where 54.4% of the apprentices who participated in the study were women (Table 2). The mean age of the respondents was 27 years. The minimum age of the respondents was 16 years whilst the maximum was 45 years. About 70% of the respondents were between the ages of 21 and 30. This general trend was observed in each state except in Ogun where 57.6% of respondents were aged between 26 and 35 years.

Overall, 58.6% of apprentices were Muslims, and 25.5% belonged to a traditional religion whilst 15.9% were Christians. A similar trend was noted in all six states as between 50% and 65% of apprentices in each state were Muslims. The highest level of education attained by apprentices was the secondary level (85.1%) with only 1.3% having received no formal education. A similar pattern was observed in all the states. Ondo had the highest proportion of apprentices (96.4%) with secondary education whereas Ekiti had the lowest (76.2%). In Lagos and Ogun, the apprentices were educated at least at the primary level.

More than 90% of the apprentices had spent one to five years learning the occupation. The expected length of training was one to five years for 73.7% of the apprentices, with six to 10 years the expected length of training for about 25% of the apprentices. Only 7.2% had spent six to 10 years acquiring the knowledge of traditional medicine. Of the 1074 children of the TMPs, only 291 (27.1%) were either learning or practicing the occupation. In addition, only 29.3% of apprentices who participated in the study acquired their knowledge through the vertical mode whereas 67% obtained knowledge through the oblique mode of acquisition. About 60% of the apprentices acquired more than half of their knowledge of traditional medicine from their TMPs. Only 9.1% acquired all the knowledge they possess from the TMPs whereas 23.4% acquired half of their knowledge from TMPs.

### Demographic characteristics of children (non-TMPs)

A total of 120 respondents, who were children of TMPs, but not learning nor practising as TMPs, participated in the study. The average age of the respondents was 31 years. Of

**TABLE 1:** Demographic distribution of TMP's by state.

Measure	Sub-measure	States (%)					
		Ekiti	Lagos	Ogun	Ondo	Osun	Oyo
Sex	Male	59.5	59	67.5	64.1	54.3	57.9
	Female	40.5	41	32.5	35.9	45.7	42.1
Age	31-40	16.2	12.8	5	7.7	5.8	7.9
	41-50	18.9	23.1	45	59	51.4	39.5
	51-60	35.1	25.6	25	33.3	17.1	31.6
	61-70	16.2	23.1	12.5	0	20	18.4
	71-80	13.6	15.4	12.5	0	5.7	2.6
Religion	Christianity	13.5	23.1	15	12.8	11.4	15.8
	Islam	54.1	33.3	40	41	51.4	47.4
	Traditional	32.4	43.6	45	46.2	37.2	36.8
Educational Level	None	21.6	23.1	20	0	22.9	23.7
	Primary	51.4	41	35	23.1	31.4	47.4
	Secondary	27	35.9	45	76.9	45.7	28.9

**TABLE 2:** Demographic distribution of apprentices by state.

Measure	Sub-measure	States (%)					
		Ekiti	Lagos	Ogun	Ondo	Osun	Oyo
Sex	Male	51.5	45.6	55.3	69.9	51.6	59.5
	Female	48.5	54.4	44.7	30.1	48.4	40.5
Age	16-20	9.9	2.2	3.5	15.7	9.9	16.5
	21-25	25.7	30	23.5	42.2	33	36.7
	26-30	36.7	40	29.4	34.9	37.4	36.7
	31-35	20.8	23.3	28.2	7.2	18.6	10.1
	36-40	6.9	4.4	14.1	0	1.1	0
	41-45	0	0	1.3	0	0	0
Religion	Christianity	20.8	18.9	15.3	4.8	12.1	22.8
	Islam	60.4	53.3	64.7	50.6	63.7	58.2
	Traditional	18.8	27.8	20	44.6	24.2	19
Educational Level	None	3	0	0	1.2	1.1	2.5
	Primary	20.8	10	15.3	2.4	14.3	17.8
	Secondary	76.2	90	84.7	96.4	84.6	79.7

**TABLE 3:** Profile of respondents - children (non-TMPs ( $n = 120$ )).

Measure	Item	<i>f</i>	%
Sex	Male	63	52.5
	Female	57	47.5
Age	21-25	13	10.8
	26-30	41	34.3
	31-35	51	42.5
	36-40	13	10.8
	41-45	1	0.8
	46-50	1	0.8
Religion	Christianity	54	45
	Islam	54	45
	Traditional	12	10
Education level	Secondary	111	92.5
	Tertiary	9	7.5
Education aspiration	None	5	4.2
	NCE	8	6.7
	OND/Technical college	2	1.7
	HND	30	25
	Bachelor degree	68	56.6
	Masters	7	5.8

*f*, frequency; NCE, National College of Education; OND, Ordinary National Diploma; HND, Higher National Diploma.

all the children, 52.5% were men whilst 47.5% were women. Muslim and Christian respondents were equally represented at 45% each whilst respondents that belonged to a traditional religion were only 10%. All the respondents had some formal education with the minimum being secondary school (92.5%) whilst 7.5% of respondents had attained a tertiary level of education. About 82% of the respondents aspired to have either a Higher National Diploma (HND) or a bachelor's degree, and about 6% of respondents looked forward to having their master's degree (Table 3).

### Modes of knowledge transmission amongst TMPs in South-Western Nigeria

The three modes of transmission, namely vertical, horizontal and oblique, were observed in all the communities. The oblique mode of transmission was the most common. About 70% of the apprentices were not children of the TMPs but rather children of other people. Only about 30% of the apprentices were children of the TMPs. This result is in sharp

contrast with what was observed regarding the mode of knowledge acquisition by the TMPs (Figure 1). This is not surprising as further results showed that, of the 1074 children of the 228 TMPs, only 291 (27.1%) were either learning to become or had already become TMPs. This was the trend in all six states. Overall, about 67% of the apprentices were not children of the TMPs.

### Findings from qualitative data

The findings from FGDs and in-depth interviews showed that TMPs are very interested in transmitting their knowledge to their children as shown in some of their responses.

'You see, whether traditional medical practitioners or Imams or Christians, a person who fails to transmit his knowledge to his child, that 'my child come and learn this thing', when he dies, he dies in vain'. (Camp Community)

'We inherited it, we must also leave it for some people ... If I want to cut a leaf, I will take my child there, 'I am going to cut so-and-so leaf, let us go'. When I cut the leaf, he will see it and next time when I say 'go and cut so-and-so leaf' he will recognize it since I had cut it in his presence earlier'. (Olode Community)

Responses by some of the participants however showed that vertical transmission was not automatic but depended on the attitude of the child:

When we were young, our fathers will study the attitude of their children. A child who is cool-headed and not a trouble maker, our fathers will ponder: 'If I transmit my knowledge to this child, I hope he will not bring my name or the family name to disrepute, I hope he will follow it and use it as specified.' If they realized that the child is a trouble maker who will bring the family name into disrepute, they will rather die with their knowledge'. (Igbonla Community)

Many of the participants also expressed their views on transmitting their knowledge of traditional medicine to others who were not their children: 'Anybody is my child. Whoever wants to acquire this knowledge is my child' (Eporo Community); 'Whoever wants to learn this work from me, I'll teach willingly because I don't want this work to perish' (Butubutu Community); 'It is compulsory we give it to another person's child as long as it is not a very powerful medicinal knowledge' (Kajola Community).

Further:

'Not just your child alone. There are others who are not your children but when you are comfortable with their attitude you might transmit your knowledge and that child will praise you forever just as I always praise the *baba* who taught me'. (Igbonla Community)

'About what we know, we must teach our children ... another person's child too who comes to us we teach, because what we also know is not only what our fathers taught us. Other fathers also taught us, that is why we must also teach children of other parents'. (Olode Community)

Participants expressed their minds on the limitations of the oblique mode of knowledge transmission specifically in relation to incomplete transmission of knowledge and lack of trust in apprentices: 'My master did not teach me everything. My master did not transmit all his wisdom to me because you don't have everything. You can't take everything from your master' (Labaile Community).

Further:

'Another person's child is difficult to teach. You might teach him and thereafter he will use the power against you. One must be careful with teaching a child who was not born into traditional medicine'. (Fakale Community)

'If a person says he wants to learn it, we can teach him, but only our children inherit all our knowledge, it is our children, they inherit our knowledge. So that when it becomes obvious that we are dying, we will call our child who knows how to read and write and instruct the child to write everything. We will not hide anything from him. He will write everything completely'. (Olode Community)

'You see this knowledge you are talking about, transmitting it to another person's child is difficult, it is difficult, this is the reason, o [long emphasis]; you see the work of traditional medicine is powerful you see, when I wanted to learn this work from baba, the baba was not my father, he was not my father's brother, he was not my mother's brother ... when I got to him, he first watched me for about 4 years, he used that period to study me, whether he will reveal the knowledge to me or not. But when he realised that I had an open mind to what I came for, he then revealed the knowledge to me ... so I will study the person first just as baba studied me ... because somebody might be sent to spy out your power ... It is more important to transmit the knowledge to one's child ... one's child is different from an outsider'. (Labaile Community)

Whilst vertical transmission was without cost, horizontal and oblique modes were not free. Many of the TMPs reported that they received money before transmitting their knowledge:

'When an outsider comes and says, 'Please I heard about something you have, please give me', we will say, 'Well then, go and bring so and so amount'. Once he brings it, we will teach him well and he will know it'. (Olode Community)

The TMPs were asked why they receive money from children of other parents and generally their responses are reflected in those of two TMPs as the following:

'We cannot give it free because when we wanted to receive it from our fathers in those days, you might have to work in his farm for five days. Then, you will keep going to his house every day, and they will tell you that baba has gone to the farm. You will go to him at his farm, and you will work for him so much

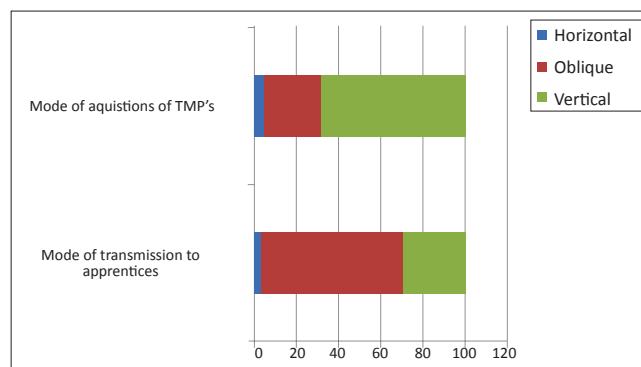


FIGURE 1: A stacked bar graph showing modes of acquisition by TMPs and modes of transmission to apprentices.

until he is satisfied and he sees that 'yes, this child is in fact a good child, I will give him this knowledge', and he will give him'. (Ago-Ayo Community)

'We suffered before we learnt this work o [long emphasis]. You make a living with your secular education. We suffered. We carried loads, we cleared bushes, we cut trees, we washed clothes before they gave us knowledge of traditional medicine'. (Camp Community)

## Reasons for the observed modes of transmission

The TMPs reported that most of their children were not interested in acquiring TMK. Reasons for this lack of interest included a preference for formal education even by their parents, laziness, lack of patience and interest in quick money-making businesses. Others who showed some interest did so for wrong reasons as reflected in some of their responses:

'It is not that they can't teach others but who will want his child to learn traditional medicine. Even you sitting down, you cannot allow your child to do so, you will rather send him to school. If your child lives with me, can I tell him to go to the bush and cut some leaves for me? It is not possible'. (Oke-Ojumo Community)

'No youth can acquire traditional medical knowledge because most of them are interested in quick wealth'. (Labaile Community)

'They prefer to be 419s (fraudsters), they are not interested in practising traditional medicine. Once they have some knowledge of traditional medicine, they become 419s, defrauding people everywhere, and this can lead to their death'. (Eporo Community)

They are rather interested in daily work that will bring quick money such as breaking gravel and loading sand, that is most common among them. (Fakale Community)

A lack of interest by children of TMPs as reported by their parents was corroborated by the children who were not in the profession. Few of them were comfortable with their parents' occupation, as indicated by the following quotes: 'It is God's gift for those who have the knowledge. It is a good job'; 'They should just continue with their work of healing as long as they are happy with it'; 'As long as he is happy, what is my problem about how he gets his source of livelihood?'

However, some children expressed negative feelings about their parents' profession – traditional medicine –

when they were asked about their views on their parents' occupation. Some of them were not supportive of their parents' occupation because they believed that traditional medicine as a job is dirty: 'It is a very stressful and dirty work'; 'It is dirty, orthodox medicine is more prestigious'.

Some believed that traditional medicine is shrouded in secrecy: 'My parent's work is good but I don't have interest because it has some secret power'; 'It is an ungodly work which I do not have interest in. It is about being in the secret cult'.

Strong religious sentiments were the basis for the negative views of some of the children. Some specific responses along this line were: 'God does not support such work. You will worship idols'; 'Islam does not support idols. I have chosen Islam'; 'I pray she changes and know Jesus as I do now. The work will not take her anywhere'; 'I would not be happy to see my father perish in hell but what can I do?'; 'It is an ungodly work. I do not support bowing down or relying on idols for power'.

The reason for the observed lack of interest of children of TMPs can be viewed from two perspectives. The first is related to their educational aspirations. Most of them aspired to acquire degrees in tertiary institutions and did not perceive TMK as valuable for their future needs. Tsuji (1996) and Grenier (1998) identified educational systems as one of the means by which IK is being lost. Subsequent studies have shown that educational systems caused bias in the attitude of the younger generation towards IK (Akullo *et al.* 2007; Dube & Musi 2002).

Another source of bias is associated with the religious beliefs of children of TMPs. Many of them believed that traditional medicine should exclusively be practiced by the adherents of traditional religion whilst the adherents of Christianity and Islam should not be involved in traditional medicine. In view of this, they condemned and resisted their parents' efforts to impart the knowledge to them. Such religious bias has been traced to the days of African colonial rule when traditional medicine was perceived to be a threat to the spread of colonial power and Western religious belief systems. African traditional medicine was labelled as 'witchcraft', and this has continued to influence modern perceptions of African traditional medicine (King *et al.* 2009).

Findings from this study concerning a lack of interest by youths in acquiring TMK agree with reports from other studies (Ragupathy *et al.* 2008; Sriithi *et al.* 2009; Voeks 2007; Voeks & Nyawa 2001). A lack of interest in traditional values amongst the younger generation has been worsened by exposure to modern education (Giday *et al.* 2003). Sriithi *et al.* (2009) studied the transfer of TMK amongst the Mien in Northern Thailand and reported that some elderly Miens who were custodians of this knowledge complained that 'it is difficult to find younger people with an interest in learning skills concerning local healthcare'. Amongst the Chepang

communities of the Mahabharat hills of the central part of Nepal, Rijal (2008) listed Western education as one of the factors responsible for the limited knowledge of plant that the younger generation has. In a similar study by Voeks (2007) amongst communities in the Eastern Bahia State, North-East Brazil, there was little interest on the part of the young ones in the communities to sustain the medicinal knowledge of their communities. For example, young boys between the ages of 13 and 17 clearly stated that 'they knew very little about the medicinal properties of the plants and that they were distinctly uninterested in learning them' (Voeks 2007:13).

In South-Western Nigeria, Oladele, Alade and Omobuwajo (2011) reported that the younger generations are not active in the practice of traditional medicine. In their study on the conservation and cultivation of medicinal plants by TMPs in the Aiyedaade Local Government area of Osun State, the authors noted that more than half of the practitioners had no apprentices at the time of the study. This was attributed to the decision of the younger ones to prefer formal education and other activities, leaving them no time to acquire TMK. A similar observation was made in a more recent study by Salako and Sholeye (2012) where all the traditional healers who participated in their study were middle aged and elderly.

### Implication for the preservation of TMK

The discussion on the implications of the findings from this study can begin with the age of the apprentices. The study observed that apprentices of TMK were mostly between the ages of 21 and 30 years. Fewer than 10% of apprentices were between the ages of 16 and 20, and the youngest apprentice was 16 years. This tends to suggest that most young ones in the region begin to show interest in acquiring TMK only after their secondary school education. Very young children were not seen as active apprentices of TMK in the region. It can be inferred that the young ones in this region perhaps decide to learn traditional medicine because they have nothing else to do. Thus, given any other opportunity, they would likely abandon acquisition of TMK.

Concerning the mode of transmission, findings show that most of the apprentices were not children of the TMPs. However, most apprentices that have a vertical relationship with the TMPs are in the group of apprentices who have acquired at least more than half of the knowledge of traditional medicine whereas, for apprentices in the oblique mode, they are mostly in the group of apprentices that have acquired at most half of their TMPs knowledge. An explanation for this is that children of TMPs spend more time with their parents compared to those who have a horizontal or oblique form of relationship with the TMP. Apprentices in the latter categories return to their homes each day and do not have the opportunity to learn at informal settings. However, the situation of the group with horizontal relationships is reminiscent of the teaching approach encouraged in ancient

Israel where parents could take advantage of walking with their children on the road, eating with them at home, lying with them in bed and being in other informal settings to teach them. Hence, apprentices with vertical relationships have opportunities to learn more than those with other forms of relationships. Added to this is the observation by Akintilo (2000:250) that traditional medical practice in South-Western Nigeria is shrouded in secrecy because most of the TMPs make covenants with their ancestors not to disclose 'the secrets of the practice to strangers'.

Another explanation for the finding in the previous paragraph can be deduced from some of the responses from focus-group discussions and in-depth interviews held with TMPs. Whilst all TMPs are comfortable transmitting their knowledge to apprentices irrespective of their relationship, children of TMPs who are learning about traditional medicine tend to be at an advantage compared to apprentices who have horizontal or oblique relationships with the TMPs. According to the participants, they are more comfortable transmitting all their knowledge to their children. Other apprentices will also benefit from receiving this knowledge from the TMPs but the acquisition of everything they know about traditional medicine is believed to be the exclusive right of their children.

The findings of this study contradict the opinion that the transmission of TMK is mainly through family inheritance (Christian 2009). From the discussions held with TMPs, they are very comfortable transmitting their knowledge irrespective of their relationship with the learner, but most would not transmit all their knowledge to those who are not their children. Most of the TMPs do not see anything wrong with this. It was inferred that TMPs who acquired their knowledge through others who are not their parents are aware that they themselves did not acquire all the required knowledge of traditional medicine. The implication of this is that, in this situation where we have more apprentices in oblique relationship with the practitioners, TMK risks being incompletely transmitted, and eventually, vital aspects of the knowledge might be lost. No matter how good the attitude of an apprentice is and no matter how long he or she stays with the TMP, as long as he or she is not related to the custodian, that particular knowledge might not be transmitted.

## Conclusion

The place of TMK in the nation's healthcare, especially at the rural level, justifies the need to show more than passive interest in the transmission of the knowledge. The study has shown that, whilst the oblique mode is the dominant way of acquiring the knowledge, the vertical mode has shown to be the best way of ensuring complete transmission and acquisition of TMK. Generally, TMPs freely transmitted their knowledge irrespective of their relationship with apprentices, but due to issues of trust, they are more comfortable transmitting all their knowledge to their children. Hence, TMK in this region risks being lost because of the preference of most TMPs to

transmit all their knowledge only to their children. Future studies could be carried out in other regions of Nigeria in order to provide a comparison as well as a complete picture of modes of knowledge transmission amongst TMPs in the country.

## Acknowledgements

### Competing interests

The authors declare that they have no financial or personal relationship(s) that may have inappropriately influenced them when they wrote this article.

### Authors' contributions

J.A. (University of Ibadan) was the lead researcher; W.M.O. (University of Ibadan) and I.A. (University of Western Ontario) supervised the project and made vital contributions to the research design and analysis.

## References

- Ajaiyeoba, E.O., Falade, C.O., Fawole, O.I., Akinboye, D.O., Gbotosho, G.O. & Bolaji, O.M., 2004, 'Efficacy of herbal remedies used by herbalists in Oyo State Nigeria for treatment of plasmodium falciparum infections: A survey and an observation', *African Journal of Medicine and Medical Sciences* 33(2), 115–119.
- Akintilo, A.A.A., 2000, 'Information and communication patterns in traditional medical practice in South-Western Nigeria and interface with National Health Information System', PhD thesis, Africa Regional Centre for Information Science, University of Ibadan.
- Akinyemi, K.O., Oladapo, O., Okwara, C.E., Ibe, C.C. & Fasura, K.A., 2005, 'Screening of crude extracts of six medicinal plants used in South-West Nigerian unorthodox medicine for anti-methicillin resistant *Staphylococcus aureus* activity', *BioMed Central Complementary and Alternative Medicine* 5(6).
- Akullo, D., Kanzikwera, R., Birungi, P., Alum, W., Aliguma, L. & Barwozeza, M., 2007, 'Indigenous knowledge in agriculture: A case study of the challenges in sharing knowledge of past generations in a globalized context in Uganda', paper presented at the World Library and Information Congress: 73rd International Federation and Library Associations and Institutions General Conference and Council, Durban, South Africa, 19–23rd August.
- Alves, R.R.N. & Rosa, I.M.L., 2007, 'Biodiversity, traditional medicine and public health: Where do they meet?', *Journal of Ethnobiology and Ethnomedicine* 3(1), 14. <http://dx.doi.org/10.1186/1746-4269-3-14>
- Aunger, R., 2000, 'The life history of culture learning in a face-to-face society', *Ethos* 28(3), 445–481. <http://dx.doi.org/10.1525/eth.2000.28.3.445>
- Cavalli-Sforza, L.L. & Feldman, M.W., 1981, *Cultural transmission and evolution: A quantitative approach*, Princeton University Press, N.J., Princeton.
- Christian, G.E., 2009, 'Digitization, intellectual property rights and access to traditional medicine knowledge in developing countries: The Nigerian experience', paper prepared for the International Development Research Centre, viewed 18 February 2011, from <http://idl-bnc.idrc.ca/dspace/bitstream/10625/41341/1/129184.pdf>
- Demps, K., Zorondo-Rodríguez, F., García, C. & Reyes-García, V., 2012, 'Social learning across the life cycle: Cultural knowledge acquisition for honey collection among the Jenu Kuruba, India', *Evolution and Human Behavior*, 33, 460–470. <http://dx.doi.org/10.1016/j.evolhumbehav.2011.12.008>
- Dube, M.A. & Musi, P.J., 2002, 'Analysis of indigenous knowledge in Swaziland: Implications for sustainable agricultural development', *African Technology Policy Studies Working Paper Series, no. 34*, viewed 11 February 2011, from <http://www.atpsnet.org/content/files/documents/working%20paper%20series%2034.pdf>
- Elujoba, A.A., Odeleye, O.M. & Ogunyemi, C.M., 2005, 'Traditional medicine development for medical and dental primary health care delivery system in Africa', *African Journal of Traditional, Complementary and Alternative Medicines* 2(1), 46–61.
- Eyssartier, C., Ladio, A.H. & Lozada, M., 2008, 'Cultural transmission of traditional knowledge in two populations of North-Western Patagonia', *Journal of Ethnobiology and Ethnomedicine* 4(25), 1, viewed 10 July 2012, from <http://www.ethnobiomed.com/content/pdf/1746-4269-4-25.pdf>
- Giday, M., Asfaw, Z., Elmqvist, T. & Woldu, Z., 2003, 'An ethnobotanical study of medicinal plants used by the Zay people in Ethiopia', *Journal of Ethnopharmacology* 85, 43–52. [http://dx.doi.org/10.1016/S0378-8741\(02\)00359-8](http://dx.doi.org/10.1016/S0378-8741(02)00359-8)
- Grenier, L., 1998, 'Working with indigenous knowledge: A guide for researchers', paper prepared for the International Development Research Centre, viewed 17 May 2012, from <http://www.idrc.ca/openbooks/847-3/>



- Henrich, J. & Broesch, J., 2011, 'On the nature of cultural transmission networks: Evidence from Fijian villages for adaptive learning biases', *Philosophical Transactions of the Royal Society B* 366, 1139–1148. <http://dx.doi.org/10.1098/rstb.2010.0323>
- Henrich, J. & Henrich, N., 2010, 'The evolution of cultural adaptations: Fijian food taboos protect against dangerous marine toxins', *Proceedings of the Royal Society B* 277, 3715–3724. <http://dx.doi.org/10.1098/rspb.2010.1191>
- Hewlett, B.S. & Cavalli-Sforza, L.L., 1986, 'Cultural transmission among Aka pygmies', *American Anthropologist* 88(4), 922–934. <http://dx.doi.org/10.1525/aa.1986.88.4.02a00100>
- Jesajas, H. & Packham, R., 2003, 'Combining indigenous knowledge and agricultural science knowledge: A case study from Kisar Island, Indonesia', in A. Cristovao & L.O. Zorini (eds.), *Farming and rural systems research and extension: Local identities and globalization*, 5th European International Farming System Association Symposium proceedings, Florence, Italy, April 8–11, 2002, pp. 777–786, viewed 22 January 2012, from [http://ifsa.boku.ac.at/cms/fileadmin/Proceeding2002/2002\\_WS05\\_28\\_Jesajas.pdf](http://ifsa.boku.ac.at/cms/fileadmin/Proceeding2002/2002_WS05_28_Jesajas.pdf)
- King, R., Balaba, D., Kaboru, B., Kabatesi, D., Pharris, A. & Homsy, J., 2009, 'The role of traditional healers in comprehensive HIV/AIDS prevention and care in Africa: Untapped opportunities', in R.G. Marlink & S.T. Teitelman (eds.), *From the ground up: Building comprehensive HIV/AIDS care programs in resource-limited settings*, viewed 24 June 2012, from <http://ftguonline.org/ftgu-232/index.php/ftgu/article/view/2047/4090>
- Lozada, M., Ladio, A.H. & Weigandt, M., 2006, 'Cultural transmission of ethnobotanical knowledge in a rural community of NorthWestern Patagonia, Argentina', *Economic Botany* 60(4), 374–385. [http://dx.doi.org/10.1663/0013-0001\(2006\)60\[374:CTOE K\]2.0.CO;2](http://dx.doi.org/10.1663/0013-0001(2006)60[374:CTOE K]2.0.CO;2)
- Mafimisebi, T.E. & Oguntade, A.E., 2010, 'Preparation and use of plant medicines for farmers' health in Southwest Nigeria: Sociocultural, magico-religious and economic aspects', *Journal of Ethnobiology and Ethnomedicine* 6(1), 1. <http://dx.doi.org/10.1186/1746-4269-6-1>
- Neis, B., Felt, L.F., Haedrich, R.L. & Schneider, D.C., 1999, 'An interdisciplinary method for collecting and integrating fishers' ecological knowledge into resource management', in D. Newell & R.E. Ommer (eds.), *Fishing places, fishing people: Traditions and issues in Canadian small-scale fisheries*, pp. 217–238, University of Toronto Press, Toronto.
- Ngunyulu, R.N. & Mulaudzi, F.M., 2009, 'Indigenous practices regarding postnatal care at Sikhunyani village in the Limpopo province of South Africa', *Africa Journal of Nursing and Midwifery* 11(1), 48–64.
- Ogbole, O.O., Gbolade, A.A. & Ajaiyeoba, E.O., 2010, 'Ethnobotanical survey of plants used in treatment of inflammatory diseases in Ogun State of Nigeria', *European Journal of Scientific Research* 43(2), 183–191.
- Ohmagari, K. & Berkes, F., 1997, 'Transmission of indigenous knowledge and bush skills among the Western James Bay Cree women of Subarctic Canada', *Human Ecology* 25(2), 197–222. <http://dx.doi.org/10.1023/A:1021922105740>
- Oladele, A.T. & Adewunmi, C.O., 2008, 'Medicinal plants used in the management of malaria among the traditional medicine practitioners (TMPs) in South-Western Nigeria', *African Journal of Infectious Diseases* 2(1), 51–59.
- Oladele, A.T., Alade, G.O. & Omobuwajo, O.R., 2011, 'Medicinal plants conservation and cultivation by traditional medicine practitioners (TMPs) in Aiyedaade Local Government Area of Osun State, Nigeria', *Agriculture and Biology Journal of North America* 2(3), 476–487. <http://dx.doi.org/10.5251/abjna.2011.2.3.476.487>
- Olagunju, O.S., 2012, 'The traditional healing systems among the Yoruba', *Archaeological Science Journal* 1(2), 6–14.
- Olatokun, W.M., 2010, 'Indigenous knowledge of traditional medical practitioners in the treatment of sickle cell anaemia', *Indian Journal of Traditional Knowledge* 9(1), 119–125.
- Osemene, K.P., Elujoba, A.A. & Ilori, M.O., 2011, 'An overview of herbal medicine research and development in Nigeria', *Research Journal of Medical Sciences* 5(4), 228–232. <http://dx.doi.org/10.3923/rjmsci.2011.228.232>
- Owuor, J.A., 2007, 'Integrating African indigenous knowledge in Kenya's formal education system: The potential for sustainable development', *Journal of Contemporary Issues in Education* 2(2), 21–37.
- Ragupathy, S., Steven, N.G., Maruthakkutti, M., Velusamy, B. & Ul-Huda, M.M., 2008, 'Consensus of the "Malasars" traditional aboriginal knowledge of medicinal plants in the Velliangiri holy hills, India', *Journal of Ethnobiology and Ethnomedicine* 4(1), 8. <http://dx.doi.org/10.1186/1746-4269-4-8>
- Ratner, C., 2002, 'Subjectivity and objectivity in qualitative methodology', *Forum Qualitative Sozialforschung /Forum: Qualitative Social Research*, 3(3), Art. 16, viewed 18 January 2013, from <http://nbn-resolving.de/urn:nbn:de:0114-fqs0203160>
- Reyes-García, V., Broesch, J., Calvet-Mir, L., Fuentes-Peláez, N., McDade, T. & Parsa, S., 2009, 'Cultural transmission of ethnobotanical knowledge and skills: An empirical analysis from an Amerindian society', *Evolution and Human Behavior* 30(4), 274–285. <http://dx.doi.org/10.1016/j.evolhumbehav.2009.02.001>
- Rijal, A., 2008, 'A quantitative assessment of indigenous plant uses among two Chepang communities in the central Mid-Hills of Nepal', *Ethnobotanical Research and Application* 6, 395–404.
- Rogoff, B., 1981, 'Adults and peers as agents of socialization: A highland Guatemalan profile', *Ethos* 9, 18–36. <http://dx.doi.org/10.1525/eth.1981.9.1.02a00030>
- Salako, A.A. & Sholeye, O.O., 2012, 'The perception and beliefs on tuberculosis among traditional healers in Remo North Local Government Area, Ogun State, SouthWestern Nigeria', *Journal of Public Health and Epidemiology* 4(6), 184–188.
- Setalaphruk, C. & Price, L.L., 2007, 'Children's traditional ecological knowledge of wild food resources: A case study in a rural village, Northeast of Thailand', *Journal of Ethnobiology and Ethnomedicine* 3, 33. <http://dx.doi.org/10.1186/1746-4269-3-33>
- Soewu, D.A. & Adekanola, T.A., 2011, 'Traditional medical knowledge and perception of Pangolins (Manis sps) among the Awori people, SouthWestern Nigeria', *Journal of Ethnobiology and Ethnomedicine* 7(1), 1–11. <http://dx.doi.org/10.1186/1746-4269-7-25>
- Soewu, D.A. & Ayodele, I.A., 2009, 'Utilisation of Pangolin (Manis sps) in traditional Yorubic medicine in Ijebu province, Ogun State, Nigeria', *Journal of Ethnobiology and Ethnomedicine* 5, 39. <http://dx.doi.org/10.1186/1746-4269-5-39>
- Srithi, K., Balslev, H., Wangpakapattanawong, P., Srisanga, P. & Trisonthi, C., 2009, 'Medicinal plant knowledge and its erosion among the Mien (Yao) in Northern Thailand', *Journal of Ethnopharmacology* 123(2), 335–342. <http://dx.doi.org/10.1016/j.jep.2009.02.035>
- Tsuji J.S.L., 1996, 'Loss of traditional ecological knowledge in the Western James Bay region of Northern Ontario, Canada: A case study of the sharp-tailed grouse, *Tympanuchus phasianellus phasianellus*', *The Canadian Journal of Native Studies* 16(2), 283–292.
- Voeks, R.A., 2007, 'Are women reservoirs of traditional plant knowledge?: Gender, ethnobotany and globalization in Northeast Brazil', *Singapore Journal of Tropical Geography* 28, 7–20. <http://dx.doi.org/10.1111/j.1467-9493.2006.00273>
- Voeks, R.A. & Nyawa, S., 2001, 'Healing flora of the Brunei Dusun', *Borneo Research Bulletin* 32, 178–195.
- World Health Organisation, 2001, *Legal status of traditional medicine and complementary/alternative medicine: A worldwide review*, viewed 20 October 2011, from <http://apps.who.int/medicinedocs/pdf/h2943e/h2943e.pdf>