

Research Article

Knowledge, and Practice on the Importance of Shoe Wearing to Prevent Podoconiosis and Its Associated Factors among Households in the Rural Community of Aneded District, North West Ethiopia, 2015

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Abstract

Introduction: Podoconiosis infection is one of the NTDs occurring among barefoot people in areas of extreme poverty. It promotes poverty through effects on education, economic productivity and disability. It is estimated up to one million cases exist in Ethiopia. Promotion of consistent shoe-wearing practices have advantages in controlling podoconiosis. Better understanding of the behaviors influencing use of footwear will lead to improved ability to measure shoe wearing practice and will be important for those implementing footwear programs. But, many practical and social barriers prevented the desire to wear shoes from being translated into practice.

Objective: The aim of this study is to assess knowledge and practice of Aneded district rural community on the importance of shoe wearing to prevent Podoconiosis and its associated factors North West Ethiopia.

Methodology: Community based cross-sectional study was conducted on 4 randomly selected rural kebeles, and 422 respondents were participated in Aneded District, East Gojjam Zone from February-March/2015 G.C using systematic sampling method with proportional allocation of number of samples. Data were collected using a structured and pre-tested questionnaire through face to face interview. Data were entered into epi-data ver.3.1 and exported to spas v.16 statistical software. Descriptive results were presented by narration, tables and graphs. Logistic regression model was used for binary and multivariate analysis of associated factors. Factors that were analyzed in binary logistic analysis and with p-value ≤ 0.25 were again entered into multivariate logistic analysis model. The cut off point for significantly associated factors in multivariate logistic analysis was 0.05. Accordingly, factors with p-value less than 0.05 and significantly associated were drawback of being bare foot.

Result: There were 422 respondents participated in this study. The response rate was 99%. Out of the total respondents, 236(56.5%) were males. Among all respondents 257(61.5%) knew the cause of podoconiosis and there were 279(66.7) barefoot respondents during the time of interview. Variables significantly associated with barefoot were marital status, knowing the drawback of barefoot, attending radio program and graduation in health extension packages with AOR of 4.6(1.6, 25), 0.3 (0.1, 0.4), 0.3 (0.2, 0.5) and 0.5 (0.3, 0.9) 95% CI respectively.

Conclusion and Recommendation: the knowledge of the respondents was good unlike their practice. So, strengthen and expand health education program on the importance of shoe wearing and the preventive strategy of podoconiosis is mandatory.

Keywords: Barefoot; Graduation; Knowledge; Marriage; Podoconiosis; Practice; Radio Program

Introduction

Background

Podoconiosis is one of the NTDs occurring among barefoot people in areas of extreme poverty, which promote poverty through effects on education, economic productivity and disability [1]. Podoconiosis is non-infectious elephantiasis disease affecting barefoot people with prolonged exposure to red clay soil. It is common in tropical Africa, Central America and northern India. Podoconiosis presents as bilateral below knee swelling and can be prevented and controlled by consistently washing feet, wearing shoes, and using antiseptics and emollients [2]. There are mainly two types of elephantiasis, lymphatic filariasis and non-filarial elephantiasis called Podoconiosis. Lymphatic filariasis is caused by parasitic worms, while Podoconiosis is a non-parasitic disease [3]. Even though the pathogenesis of the diseases has not yet been investigated in depth, it is believed to be caused by fine particles in the soil that penetrate the skin and induce an inflammatory reaction in the lymphatic system [4]. The chemicals come in contact with the bare skin under the feet and move upwards to the lymphatic vessels, blocking them and causing an infection. The resulting condition is known as podoconiosis [5,6].

Ecological and observational evidence suggests that consistent use of shoes prevents diseases by protection from soil exposure. Shoe distribution to children of treated patients has been accompanied by messages linking foot hygiene and shoe use to reduce risk of diseases. It is estimated that the total number of cases per country is highest in Ethiopia [7-10]. In Ethiopia, the basalt area covering more than 200,000 km² and the fertility of the soil attracts agricultural population. Eleven million Ethiopians (18% of the population) are at risk through exposure to the irritant soil, and estimate based on prevalence data from an endemic area in southern Ethiopia suggests that between 500,000 and 1 million people are affected [34].

Statement of the problem

Podoconiosis is a chronic non-infectious disease resulting in below-knee swelling of the legs in bare-footed people living in red clay soil areas. It is an important and yet neglected problem in tropical Africa, central and south America, and north India [6]. It is considerable public health problem in more than ten African countries including Ethiopia [20]. It is not an infection, there is evidence to suggest that this reaction is determined by genetic factors and therefore not every person exposed to this type of soil will be affected. Contact with soil is made by walking barefoot and develops over a period of time [6,16]. Podoconiosis is a modern, silent public health disaster made up of hundreds of thousands of men, women and children suffering the sham of skin diseases, most with

no help and no voice [31]. It is estimated that Ethiopia has the highest total number of cases per country. The soil type thought to be associated with the diseases covers approximately one-fifth of the country and the fertility of the soil in such areas attracts an agricultural population of 20.5 million people. 11 million Ethiopians (18% of the population) are at risk through exposure to the irritant soil and it is estimated that at least 1 million people are affected. The world health organization estimated that Ethiopia loses 200 million United States Dollar (USD) every year because of the lost work hours of suffers [34]. NTDs is gaining increasing attention and better understanding of the knowledge that influence use of footwear will lead to improved ability to measure shoe use and will be important for those implementing footwear programs. Podoconiosis is relatively well described in southern Ethiopia, but remains neglected in other parts of the Ethiopian highlands [11] thus the study will assess knowledge and practice of foot wear and factors that influence shoe wearing behaviors among people living in rural community of Aneded District.

Literature Review

Podoconiosis and some soil-transmitted helminthes infections are Neglected Tropical Diseases (NTDs.) occurring among barefoot people in areas of extreme poverty, and both promote poverty through effects on education, economic productivity and disability [1]. Podoconiosis is a Neglected Tropical Disease (NTD) that is prevalent in red clay soil-covered highlands of tropical Africa, Central and South America, and northern India. It is estimated that up to one million cases exist in Ethiopia [2]. The prevalence of Podoconiosis in the population aged 15 years and above was found to be 3.3%. 87% of cases were in the economically active age group (15-64 years). On average, patients sought treatment five years after the start of the leg swelling [2].

Podoconiosis is non-infectious elephantiasis distinct from lymphatic filariasis that affects barefoot individuals exposed to red clay soil of volcanic origin. In particular, Podoconiosis is prevalent among barefoot subsistence farmers that live and work in these areas [3]. Even though the pathogenesis of the diseases has not yet been investigated in depth, it is believed to be caused by fine particles in the soil that penetrate the skin and induce an inflammatory reaction in the lymphatic system [4].

The disease results in bilateral progressive swelling of the lower legs, usually limited below the level of the knees. Based on the disease progression, Podoconiosis is classified into five stages where the first and second stages have swelling limited below ankle which is either reversible overnight (stage one) or not (stage two). The third stage of the disease has water bag like or nodular swelling above the level of the ankle. The fourth stage entails above knee swelling whereas the fifth stage involves joint fixation as a result of surrounding soft tissue overgrowth [11,12].

Non-filarial elephantiasis (Podoconiosis) is believed to be

caused by a long-term exposure to certain irritants, and alkali metals, like sodium and potassium found in the soils. These particles may enter the skin through the feet, and then get lodged in the lymphatic tissues, if someone walks barefoot on such high alkaline soils. The precise trigger of Podoconiosis - endemic non-filarial elephantiasis of the lower legs - is unknown. Epidemiological and ecological studies have linked the disease with barefoot exposure to red clay soils of volcanic origin. Histopathology investigations have demonstrated silicon, aluminum, magnesium and iron in the lower limb lymph node macrophages of both patients and non-patients living barefoot on these clays [6].

Lymphatic infection due to chemicals is another reason behind the disorder. The condition mainly affects peoples living in Africa and tropical regions, the chemicals come in contact with the bare skin under the feet and move upwards to the lymphatic vessels, blocking them and causing an infection. The resulting condition is known as Non-Filarial elephantitis [16]. In Podoconiosis, repeated exposure to the irritant soil causes recurrent or persistent lymphatics. Over time the lymphatics in the area are compromised and the swelling becomes hard and fibrotic. Elephantiasis is seen in the chronic form, which is preceded by acute episodes. The hardening and thickening of the skin combined with the gross swelling of the foot and legs as result of severe lymph edema gives rise to elephantiasis. The disease is almost always limited to the foot and leg and rarely extends above the knee [6].

A study done in Gullies Worde revealed that 90.3% of patients were in the 15–64 year age group. The majority of patients were farmers, uneducated, and poor. Two-third of patients developed the disease before the age of thirty; due to this reason 24 working days were lost annually. Shoe wearing was limited mainly due to financial problems [5]. The early symptoms associated with acute attacks mainly includes burning and itching of the foot and lower leg. The soles of the feet may be swollen and oozing. There may be additional symptoms such as pain in the leg, heat in the affected area and fever [16]. These symptoms may be persistent although the intensity can vary due to constant contact with the irritant soil. As the condition progresses, other changes develop which precede elephantiasis. The skin becomes thicker and coarser, the toes become rigid often making normal walking difficult and there may be outgrowths of the skin resembling massive warts, gradually the swelling changes from being soft to hard and rough [14,16].

Footwear characteristics have been linked to falls in older adults and children, and the development of many musculoskeletal conditions [27]. Consistently wearing shoes may help in preventing onset or progression of a wide range of Neglected Tropical

Diseases (NTDs) [5]. Interest is growing in the use of footwear in the primary prevention of certain Neglected Tropical Diseases (NTDs). While evidence for a protective role of footwear against Podoconiosis [23,24,29]. While conducting work on the use of shoes in a rural Ethiopian community endemic for podoconiosis (a NTD triggered by exposure to irritant soils in the tropical highlands[25,26].we uncovered considerable information on behaviors and practices relating to shoe use which is relevant to a range of other NTDs [26].

The cornerstone of prevention and treatment of Podoconiosis is avoidance of exposure to irritant soils. Wearing shoe in the presence of irritant soil is the primary method of exposure reduction. In Rwanda, a country of high diseases prevalence, the government has banned walking barefoot in public in order to curtail Podoconiosis and soil-borne diseases [33]. The cornerstone of prevention and treatment of podoconiosis is avoidance of exposure to irritant soils. Wearing shoe in the presence of irritant soil is the primary method of exposure reduction. In Rwanda, a country of high diseases prevalence, the government has banned walking barefoot in public in order to curtail podoconiosis and soil-borne diseases [33].

Justification of the study

Eleven million Ethiopians (18% of the population) are at risk through exposure to the irritant soil and it is estimated that at least 1 million people are affected. The world health organization estimated that Ethiopia loses 200 million, United States Dollar (USD) every year because of the lost work hours of suffers. Podoconiosis is one of neglected diseases but the cornerstone of prevention and treatment of podoconiosis is avoidance of exposure to irritant soils. Wearing shoe in the presence of irritant soil is the primary method of exposure reduction.

Therefore, this study aim to assess knowledge and practice of the Aneded district rural community on the importance of shoe wearing to prevent podoconiosis and its associated factors, East Gojjam Zone, Amhara Regional State of Ethiopia.

Significance of the study

The result of this study will be used as baseline data for other researchers, and organizations. It also provides information on knowledge, and practice of importance of shoe wearing to prevent podoconiosis and its associated factors in the rural community of Aneded District.

That is why this study is done in the district as no study done before and used as base line data. (Figure 1)

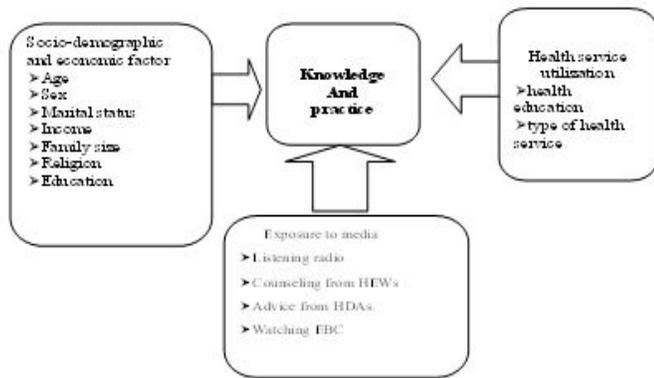


Figure 1: Conceptual frame work for Knowledge, and Practice on the importance of shoe wearing to prevent podoconiosis and its associated factors among households in the rural community of Aneded District, East Gojjam Zone, North West Ethiopia, 2015.

Objectives of the Study

General objective

To assess knowledge and practice of the rural community on the importance of shoe wearing to prevent Podoconiosis and its associated factors Aneded district East Gojjam Zone, North West Ethiopia, 2015.

Specific objectives

- To assess knowledge of the rural community in Aneded District towards preventing Podoconiosis.
- To determine level of practice in the rural community of Aneded District towards the importance of shoe wearing to prevent podoconiosis.
- To identify factors associated with shoe wearing practice in rural community on the importance of shoe wearing towards preventing podoconiosis.

Methodology

Study design

Community based cross sectional study design was applied.

Study area and period

This study was conducted in Aneded District rural community, East Gojjam Zone, Amhara region, North West Ethiopia from February-March, 2015. The district is one of the 18 Woredas and it covers area of 41346.975 Hectar bounded by Awabel in East; Gozamen in West, Basoliben in North and Debaytilat gin in South directions and the weather condition is Kola (15.6%), WeynaDega (81.1%) and Dega (3.3%)[35]. Currently the population of the area is estimated to be 102,707 [36]. The Woreda administration

is located at 280Kms from Addis Ababa, and 285Kms from the Amhara region capital city of Behar Dar and also 20Kms from the zonal town DebraMarcos. Administratively, AnededWorde is sub-divided in to 4 clusters with a total of 19 Rural and 1 Urban Kebeles. The number of organizations in the health sector is composed of 4 governmental health centers, 3 private clinics, and 20 governmental health posts.

Population

Source population

All people live in rural community of Aneded District, East Gojjam Zone were population to which the result of this study were generalized.

Study population

All people live in the four selected kebeles of Aneded District were study population.

Study Unit

Selected households in four kebeles (head of households (father /mother); if they were not available in the house by taking order ≥18yrs children available in the house).

Sampling size and sampling procedure

Sample Size

The sample size was determined by using the following formula for estimating single population proportion (p=0.5). For knowledge, attitude and practice because there is no other study done on this topic previously

The sample size for the study was calculated based on the following assumptions. The level of significance at 95 % confidence interval, (Z α/2=1.96), margin of error 5%,

$$n = \frac{(Z\alpha/2)^2 \cdot p(1-p)}{d^2} ; n = \frac{(1.96)^2 \cdot 0.5(1-0.5)}{0.05^2} = 384$$

Where:

P= 50%

d = the margin of error between the sample and the population 0.05

Zα/2 = critical value at 95% confidence level of certainty (1.96).

The calculated sample size=384.16

10% non-response rate=38.4

Based on these the required sample size was found to be 422.

Sampling procedure

There was lists of all rural kebeles in the district then there were random selection of four kebeles, considering 20% and plus of the total, then there was sampling frame from which the sample unit is head of households /father/mother, if they are not available by taking order and >=18yrs of the children available in the house to get the required number of sample size by using systematic sampling method

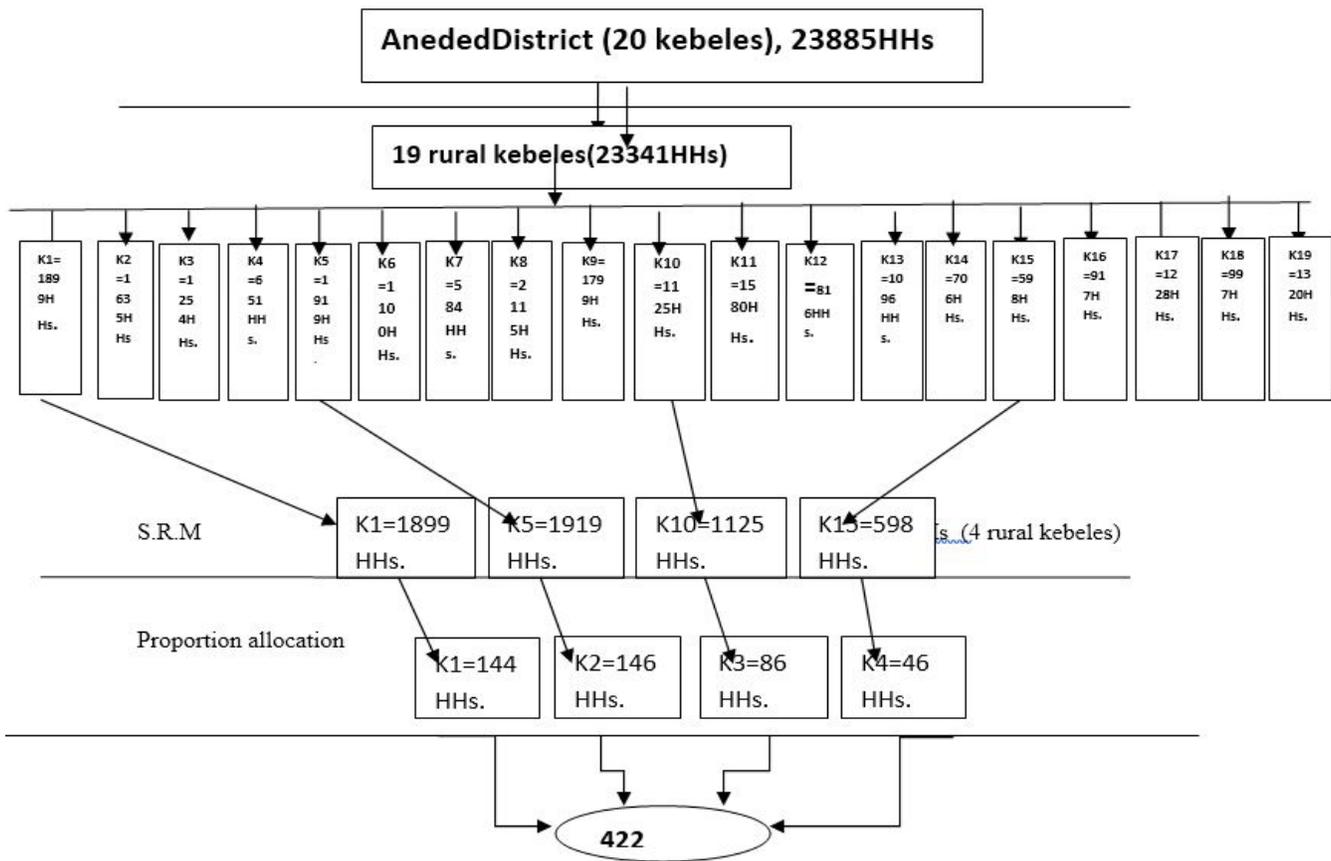


Figure 2: Schematic presentation of sampling procedures for Knowledge, and practice on the importance of shoe wearing to prevent podoconiosis and its associated factors among households in the rural community of Aneded District, North West Ethiopia, 2015.

Key			
K1 = Yewobe	K6 = Enaskay	K11 = Malgash	K16 =Sendeba
K2=Gudalema	K7 = Daget	K12 = T/Adibir	K17=M/Awash
K3=A/Zuriya	K8 = Jamma	K13 = Zengoba	K18 = Genetua
K4 = Yewush	K9 = T/Amba	K14 = Chendefo	K19 =Zinkir
K5 = Nifasam	K10 = Adisgie	K15 = Shin-burma	
Inclusion and Exclusion Criteria.			

Inclusion criteria

All head of households and age greater than or equal to 18 years live six month and above in the rural community of Aneded District were included in the study.

Exclusion criteria

Those People who haven't both legs were excluded from the study. (Those people who lost their legs due to different health problems and accidents and cannot walk).

Variables of the study

Dependent (outcome) variables

Knowledge and practice

Independent variables

Socio-demographic and economic factors - age, sex, religion, marital status, income or household wealth (expenditure), family size, religion, educational status Health service utilization - type of health facility, distance of health facility (accessibility), health education. Exposure to media - listening radio, counseling from HEWs (health extension workers) and advice from HDAs (Health development armies), watching EBC Knowledge

Operational definition

Knowledge: respondent's ability and understanding about importance of shoe wearing practice regarding on prevention of Podoconiosis and also how the cause of Podoconiosis and its strategies to prevent the diseases. Good Knowledge: If respondent's knowledge score is above the mean. Poor knowledge: If respondent's knowledge score is below the mean. Appropriate shoe wearing practice- those people who wear a pair of shoe (full cover shoe) regularly but it does not include those people who wear 'Berebaso' and sandals.(Practice-is the way in which they demonstrate their knowledge and attitude through their action). Good practice: if respondents practice is above the mean score. Bad practice: if respondents practice is below the mean score.

Data collection methods and instruments

Semi-structured questionnaire was prepared and translated in the local language of the community which is Amharic. The questionnaire was pre-tested in another neighbor Worde; Awabel District and adjusted to meet the study objective.

Trained nurse data collectors were used to collect the data by interviewing the respondents. Three days training was given to the data collectors and supervisors before the actual data collection regarding the aim of the study, data collection tool and procedures going through the questionnaires question by question. In addition, the training also focused on the art of interviewing and clarifying questions that are unclear to the respondents.

Data quality assurance

The data collection tool or the questionnaire was pre-tested on nearby Worde from randomly selected kebeles which was not be included in the study before the actual data collection. Findings and experiences from the pre-test was utilized in modifying the

data collection tool. Three days training will be given for clinical nurses how to interview and collect the data, and supervisor were follow data collectors and the necessary correction was made at the post. Facilitators were checked the collected data for correctness, completeness and consistency at the closing of each day data collection session. Data check and cleaning was performed during data processing to ensure optimal data quality.

Data processing and analysis

Data entry and cleaning was done using epi. Data v.3.1 and analyzed using SPSS version 16. Frequencies and Proportions were computed for description of the study population in relation to socio-demographic and other relevant variables. Significance was determined using crude and adjusted odds ratios with 95% confidence intervals. First all variables were entered to binary logistic regression model and then those variables with the p-value of up to 0.5 will be again entered to the multivariate logistic regression model. Finally variables with p-value of less than 0.05 with the dependent variable were considered as significantly associated.

Ethical Consideration

Medical Health Science College, Ethical review Committee was provided ethical clearance to Aneded District Health office, and the health office also write a letter to Administrative office and kebele leaders, and the necessary permission to undertake the study was obtained from the local administrative bodies. All participants were informed about the purpose of the study; verbal informed consent was taken from the study population to keep their privacy, culture and confidentiality of the study subject.

Results

Socio-demographic characteristics

A total of 422 individuals were invited to participate in the study and the response rate was, 99%. The mean age of respondents was 36 years (+1.2 SD). Out of the total of 418 respondents, 236(56.5%) were males. On the otherhand,415(99.3%) of them were orthodox religion followers. Among the total participants 340(81.3%) respondents were married while197(47.1%) were unable to read and write in educational level.

Out of respondents, 244(58.4%) households had a mean family size of 4(1.7+S.D). The mean monthly income of the respondents was 1297(+ 609 SD), and out of the respondents, majority of the respondents, had monthly income of 260 (62.2%) were 651-1400 Ethiopian birr. (Table 1)

Variables	Frequency	Percent
Sex		
Male	236	56.5%
Female	182	43.5%
Age of respondents		
18-24	67	16.1%
25-34	140	33.5%
35-44	112	26.8%
45-54	61	14.6%
>=55	38	9%
Marital status of HHs		
Married	340	81.3%
Single	78	18.7%
Educational status of head of HHs		
unable to read and write	197	47.1%
able to read and write	221	52.9%
Family size of households		
1-4	244	58.4%
>=5	174	41.6%
Responsibility of respondents		
husband	204	48.8%
house wives	150	35.9%
children= >18yrs	64	15.3%
Occupation of respondents		
farmer	351	83.9%
Student	67	16.1%
Monthly income of household		
< 250	8	1.9%
251-650	74	17.7%
651-1400	260	62.2%
1401-2500	70	16.7%
2501-10,000	6	1.4%

Table 1: Distribution of respondents by socio-demographic characteristics on importance of shoe wearing to prevent podoconiosis in the rural community of Aneded District, 2015.

Knowledge of respondents

Over all the knowledge of the respondents on importance of shoe wearing to prevent Podoconiosis was good. Because from the total of 13 knowledge questions respondents of 265 respondents, 151(56.9%) score above 7. From total of four hundred eighteen respondents, 269(64.4%) knew the drawback of bare foot. Among these 269 respondents, only 60(22.3%) respondents responded that being bare foot aggravates podoconiosis but nearly half of the total respondents, 125(46.4%) were respond rheumatism. Among all re-

spondents, more than half of respondents, 257(61.5%) knew cause of Podoconiosis. Out of 257 respondents, 97(32.2%) respondents agreed that the cause of Podoconiosis is bare foot while 5(1.9%) respondents agreed it is given from God and insect bite (see table2). Regarding on the preventing strategy of Podoconiosis, 85(20.3%) respondents agreed on regular shoe wearing whereas 24(5.7%) respondents agreed on clinical treatment (Table 2)

Variables	Frequency	Percent
Importance of shoe wearing-yes	375	89.7%
no	43	10.3%
Advantage of shoe wearing(n=375) - prevent from cold & dust	58	15.5%
prevent from injured by sharp material	137	36.5%
prevent from insect bite	17	4.5%
for cleanliness	30	8%
prevent from cold, dust, and injured by sharp material	133	35.5%
Source of information on Podoconiosis (n=375)- mass media	45	10.8%
health extension workers(HEWs)	134	32.1%
health workers(HWs)	64	15.3%
health development armies(HDAs)	24	5.7%
Neighbors	108	25.8%
Knowledge on Side effect of bare foot-yes	269	64.4%
No	149	35.6%
Knowledge on Kind of diseases (n=269)-Podoconiosis	60	22.3%
Hookworm	38	14.1%
Rheumatism	125	46.4%
Podoconiosis & hookworm	46	17.1%
Cause of Podoconiosis-yes	257	61.5%
No	161	38.5%
Type of cause of Podoconiosis(n=257) - barefoot	97	37.7%
devil sprit	93	36.2%
given from Gods	49	19%
insect bite	13	5%
given by God and insect bite	5	1.9%
Preventing strategy of Podoconiosis (n=257) - wearing shoe	85	33%
cleanliness	34	13.2%
traditional medicine	51	19.4%
clinical treatment	24	9.3%

wearing shoe and cleanliness	63	24.5%
Podoconiosis curability- cur-able	231	55.2%
not curable	187	44.8%
Mechanisms for curability of Podo. (n=231)- traditional medicine	13	5.6%
holy water	46	20%
wearing shoe	77	33.5%
clinical treatment	95	41.3%
Reason for not curability of Podo. (n=187)- hereditary	143	76.5%
no medication	44	23.5%
Podoconiosis transmit ability- transmittable	294	70.3%
not transmittable	124	29.7%
Mode of Transmission of Podoconiosis (n=294)- contact	118	40.2%
heredity	176	59.8%

Table 2: Knowledge of respondents on importance of shoe wearing to prevent Podoconiosis in the rural community of Aneded District, 2015.

Practice of respondents

From observation, out of the total of four hundred eighteen respondents, 279(66.7%) were barefoot respondents during the time of interview. The mean age of starting shoe wearing was 14 years (SD +9.5). Among 189 respondents who did not wear shoe, nearly fifty percent of respondents, 91(48.1%) did not wear shoe due to costly price of shoe whereas 13(6.8%) respondents did not wear shoe because of shortage of money (see Table 3). In general in terms of shoe wearing practice respondents had bad practice, because from the total of 5 practice questions, among 229 respondents, 133(58.1%) score blow 3 and 96(41.9%) score above (Figure 3)

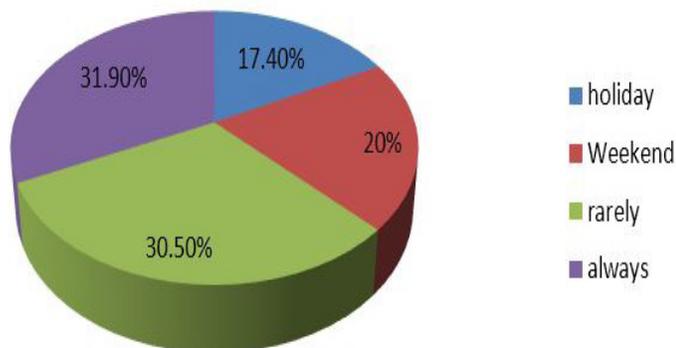


Figure 3: Respondents shoe wearing Knowledge, and Practice on the importance of shoe wearing to prevent podoconiosis and its associated factors among households in the rural community of Aneded District, North West Ethiopia.

Variables	Frequency	Percent
Wearing shoe		
Yes	229	54.8%
No	189	45.2%
Time of wearing shoe (n=229)		
Holy days	40	17.4%
Weekend	46	20%
Rarely	70	30.5%
Always	73	31.9%
Age of wearing shoe (n=229)		
<20	118	51.5%
21-30	75	32.7%
31-40	29	12.6%
41-50	7	3%
Substitution time of old shoe (n=229)		
being old	73	31.8%
before old	67	29.3%
as needed	89	38.8%
Reason for not shoe wearing (n=189)		
Shortage of money	13	6.8%
Costly	91	48.1%
not mandatory	85	44.9%

Table 3: Practice of the respondents on importance of shoe wearing to prevent podoconiosis in the rural community of Aneded District, April 2015

Exposure to media and health service utilization

Among the total respondents, 172(44.1%) respondents attended a radio program me but more than fifty percent of respondents, 246(58.9) did not attend a radio. Out of 172 respondents, 74(43.5%) were attending radio program every day, 20(11.7%) respondents were attending as needed (see Table 4).and from the total respondents, 263(62.9%) respondents were graduated with health extension program while 155(37.1%) were not graduated. (Table 4)

Variables	Frequency	Percentage
Attending radio		
Yes	172	44.1%
No	246	58.9%
Time of attending radio (n=172)		
some times	56	32.5%
Weekly	22	12.8%

every day	74	43%
as needed	20	11.6%
Graduation with HEPs/packages		
Graduated	263	62.9%
not graduated	155	37.1%
Health service taken		
Yes	275	65.8%
No	143	34.2%
Participated in health education		
Yes	49	11.7%
No	369	88.3%

Table 4: Exposure to media and health service utilization of the respondents on importance of shoe wearing to prevent podoconiosis in the rural community of Aneded district, April 2015

Bi-variant Analysis

On bi-variant logistic regression analysis all independent variables were entered to the model. variables with p-value less than 0.25 were knowledge on importance of shoe wearing, advantage of shoe wearing, side effect of bare foot, causes of Podoconiosis, types of causes, preventing strategy, transmit ability, graduation with HEPs, participation in health education, income, attending radio program me, educational status, marital status, occupation, and responsibility.

Independent variable		Shoe wearing		P-value	COR 95% CI	P-value	AOR 95% CI
		Yes	no				
Drawback of bare foot	Don't know	35	114	0.001	0.12(0.07-0.19)	0.001	0.3(0.1-0.4)
	Knows	194	75		1		1
Attending radio	Listen irregularly	96	150	0.001	0.18(0.1-0.3)	0.001	0.3(0.2-0.5)
	Listen regularly	133	39		1		1
Graduation HEPs	Not graduated	72	83	0.009	0.6(0.4-0.9)	0.02	0.5(0.3-0.9)
	Graduated	157	106		1		1
Marital status	Single	71	7	0.001	11.7(5-26)	0.008	4.6(1.6-25)
	Married	158	182		1		1

Table 5: Multi-variant logistic regression analysis for the respondents on importance of shoe wearing to prevent Podoconiosis in the rural community of Aneded District, April 2015.

Multi-Variant Logistic Regressions

Those factors significantly associated in bi-variant analysis with p-value less than 0.25 were entered into multi-variant logistic regression to identify the factors contributing to the knowledge, attitude and practice of the rural community importance of shoe wearing with relation to podoconiosis. Coefficients were expressed as crude and adjusted OR relative to the referent category and a number of risk factors were emerged as a significant predictors for shoe wearing. The extent of shoe wearing remained significantly associated with marital status, knowing side effect of bare foot, attending radio program and graduated with health extension program.

Among respondents who are single in marriage were 4.6 times more likely to wear shoe than those married respondents [AOR; 6.4, CI (1.6, 25)]. Those respondents knows the drawback of bare foot were 3.3 times more likely wearing shoe than who did not know the side effect of bare foot both in and after controlling other factors [AOR; 0.3, CI (0.1, 0.4)]. On the other hand those respondents attending radio program were 3.3 times more likely

Wearing shoe than who did not attend radio program [AOR; 0.3, CI (0.2, 0.5)]. Those respondents graduated by health extension program were 2 times more likely wearing shoe than not graduated by health extension program. [AOR; 0.5, CI (0.3, 0.9)] (Table 5)

Discussion

Over all the findings of this study revealed that the knowledge of the respondents was good but their practice. The findings of this study revealed that respondents who were bare foot during the time of interview were 66.7% which is higher than the result of a study done in D/Yelias and Denbecha District (23.6%) [2]. The difference might be on the selection of respondents that is: in D/Yelias and Denbecha the respondents were only podoconiosis infected. This study also showed that respondents who were graduated in health extension packages were 2-fold to wear shoe than respondents who were not graduated. The reason might be respondents graduated in health extension packages are also learnt about personal hygiene, role modeling in different health extension packages including clothing and the prevention strategy of communicable diseases. In addition respondents who developed one behavior are more likely to develop another adjacent behavior. Findings from ten years of podoconiosis research in Ethiopia in 2013, Ethiopian Federal Ministry of health agreed to prioritize podoconiosis control (December 2010) by including in the National Master-plan University for the upgrading of Ethiopian Health Extension Workers program me [31].

The study done on Wolaita Zone also strengthens expanded health extension programs to improve the awareness of the unaffected community on the prevention of podoconiosis [32]. The findings of this study revealed that respondents who knew the drawback of bare foot were 3.3 times more likely to wear shoe than who did not know the drawback of bare foot. This might be due to the fact that people having information on the importance of shoe wearing might wear shoe to prevent podoconiosis. Similarly the study done on Wolaita Zone also agreed that people affected by podoconiosis were more stressed than non-affected people so that they were informed on prevention of podoconiosis by wearing shoe [37]. Respondents who were attending radio program regularly were 3.3 times more likely to wear shoe than respondents who didn't attend radio program regularly. This might be due to the reason that respondents can accept, adopt and utilize a sort of behaviors by attending mass media, radio for different information especially about model households, and best practices.

The extent of marital status was also significantly associated with shoe wearing for preventing Podoconiosis. Because this research confirms that respondents who were single in marriage were 4.6 times more likely to wear shoe than married respondents [38]. The reason might be due to single respondent's the majority of them are students. Because students got health education on personal hygiene/ health information from their teachers

Limitation of The Study

As being cross-sectional study, it might have drawbacks on the actual situation of the respondent's difference on importance of shoe wearing to prevent Podoconiosis. Recall bias by the respon-

dents during interview on age of shoe wearing.

Conclusion and Recommendation

Conclusion

From this research, the level of knowledge and practice were good and bad respectively. Variables significantly associated with importance of shoe wearing for preventing Podoconiosis in this research were marital status, knowing drawback of barefoot, attending radio program regularly, and graduating with health extension program.

This study revealed that respondents, who were graduated with health extension program, were higher to wear shoe than not graduated with health extension program.

This is an encouraging finding that health extension program are playing an important role for dissemination of information to the community on the importance of shoe wearing to prevent podoconiosis.

Recommendation

Health extension workers

- As health extension workers have a better proximity for the rural community, District health office should create better opportunity to empower them through in- service training on the importance of shoe wearing to prevent Podoconiosis.
- Strengthen and expand health education program on the importance of shoe wearing and about the preventing strategy of Podoconiosis.
- To district communication office
- Woreda communication office strengthens integrated service by announcing through media in a regular program.
- To District Health Office
- Monitor and evaluate the program by including shoe wearing packages with other health extension packages in regular ISS program.

To non-governmental and government organizations

- Generally, protecting the community from Podoconiosis is to big job for any sector, so governmental health facilities and non- governmental organizations should integrate the importance of shoe wearing to prevention and control of Podoconiosis with existing primary health care program in the Distr

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