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Prevalence and Determinants of Smoking in Gida Ayana Town, Eastern Wollega, Ethiopia: Cross-Sectional Study

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Abstract

Introduction: Tobacco use kills millions of people Worldwide. Causing immense suffering and also has enormous economical social costs

Objective: The aim of the study was to determine the prevalence of cigarette smoking in Gida Ayana town population from October 1-April 1, 2017.

Methods and materials: The assessment was conducted by using community-based cross- sectional study on sample population by using systematic sampling method. The information was collected by interview of respondent using structured questionnaire.

Result: From the 317 studied individuals 40 (12.7%) are currently smoking, out of which 11.98% were males and 0.72% were females. The main reason to start smoking was complement to khat chewing and to enjoy pleasure events 18 (45%) and 9 (22.5%) respectively. Regarding to their ethnicity majority of the smokers are Oromo 26 (65%) and Amhara 10 (25%) respectively.

Majority of the currently smoking individuals need to quit smoking but failed due to due to relieving distress when disappointed and the need to smoke while chewing khat. Most smokers are low in their socio-economic status. Majority of the people dislike smokers because of their smoking habit. For this, it is suggested that health education and counseling are important to help smokers make better decision.

Introduction

Tobacco use kills millions of people worldwide, causing immense suffering, and also has enormous economic and social costs. In developing world, tobacco poses a major challenge, not just to health, but also to social and economic development, and environmental sustainability [1]. Thus, it is useful to assist government and health officials alarmed by the health and economic consequences of tobacco use in their countries to develop effective legislation as part of campaign to reduce morbidity and mortality from tobacco related diseases [2].

Although people have used tobacco for centuries, cigarette did not appear in mass manufactured form until the 19th century since then, the practice of cigarette smoking has spread worldwide in a massive scale. Today about one in 3 adults or 1.1 billion people (which) become 1.2 billion aged 15 years and above according to world health organization (WHO) report, smoke these about 80% live in low and middle income courtiers [3].

Smoking is considered to be the single most important avoidable cause of premature morbidity and mortality in the world, WHO estimated that there are about 1100 million smokers worldwide (1/3 of global population aged our 15 years) of which 73% (700 million males and 100 million females are in developing countries) and 200 million males and 100 million females in developed countries. In more than 15 years population of developing countries 48% males and 7% females are smokers but in developed countries 42% males and 24% females are smokers [4]. Overall, the smoking epidemic is spreading from its original focus, among men in high income countries to women in high income countries and men in low income regions.

The issue of smoking and health in Africa is complicated by the fact that in many countries tobacco is grown for commercial purposes and relied up on to bring in foreign exchange though export or revenue for government if sold home market [5].

Statement of the problem

The epidemic of cigarette smoking is increasing in the developing countries while relatively reducing in the industrialized countries. Different countries are having different legislations concerning use of tobacco though some are too weak to be effective. Even though studies were done on the similar issue in the country on different places, there was no study done on similar category of study subjects and place. Base line information for decision making is very crucial. The fact that the health workers have been starved of information is one of the factors that makes hard to determine what information they really

need. The same is true for the community living in the same area sending indiscriminate information also may actually do harm [6].

So, study of prevalence and determinants of cigarette smoking on a small-town population are important. However, studies of prevalence and determinants of smoking on a small town are rare. This situation makes the necessity of further investigation on this research area. Therefore, this study is to determine the prevalence and determinants of cigarette smoking on residents of Gida Ayana town populations. Because of the perpetual shortage of health care resources in developing countries where infectious diseases are really making problems, the additive burden of treating smoking related disease may be intolerable [7].

So, the prevalence of cigarette smoking and its socio-economic impact on individuals which is contributing to family and society and the common health problems of smokers for its risk of increasing health expenditure deserve data based critical analysis, which is the main objective of this study.

Significance of the study

One of the consequences of the cigarette smoking is the major cause of illness and death of the people especially productive age in our country and worldwide. The study can be minimizing the magnitude of the cigarette smoking problems and it is important to suggest the increase of knowledge on the risk of cigarette smoking as well as reducing the number of people that smoke cigarette by aware the people on the risk of cigarette smoking.

By so doing it is possible to up bring the awareness of general population towards tobacco use and its impact enabling them to take best possible action depending on the result.

Methods

Community based cross-sectional study design was conducted from October 1 to April 1, 2017, in Gida Ayana woreda is one of the 17th woreda in the Eastern wollega. It is found in the Oromia region towards west direction. The woreda is bounded by: Gute Wayu Woreda in the south direction, Amhara region in the north, Limu woreda in the west and kiramu & Abe dongoroworedas in the east direction. The total catchment area of the woreda is about 183,063m2 and its climate condition is 48% wayinadega, 2% Dega and 50% Kola. It is located at (90 52'N,) and (420 37'E) at a distance of 440 km far from Addis Ababa, the capital city of Ethiopia. The total population of the woreda is estimated to be 135,980, from which, 69,350 are females and 66,630 are males with Gida Ayana town population of 10686 and 2226 total Household. The main compositions of the population are: Oromo, Amahara and Tigre: 83% of the population compositions are Oromo. There are 7 urban kebeles currently, the governmental health institutions are: 1 district Hospital, 4 health centers, 7 urban health posts and 22 rural health Posts found in the Woreda.

All individuals of age 18 years and above reside in Gida town were considered as source population. Adult ages 18 years and above who were available during the study period were the study population. Individuals of age 18 years and above in the household permanently reside in the selected kebeles for six month and above. All individuals who are unable to communicate were excluded.

Sample size

The total population of the town is 10686 with 2226 total Household, from this; the sample size is calculated by the

$$n = \frac{Z^2 p\,(1-p)}{d^2}$$

Were n=the desired sample size

Z=Standard normal value at 95% interval=1.96%

P=Prevalence of cigarette smoking 25% (According to some studies made in Ethiopia, the prevalence of cigarette smoking among Gonder Medical and Paramedical students was 25% (for regular smokers) [8].

d= degree of accuracy desired at 5% =0.05%.

$$no = \frac{(1.96)^2(0.25)(0.75)}{(0.05)^2} = 288$$

We will use population correction formula if $\frac{no}{N} > 0.05$ Were no=Sample size calculated

N=Total number of town population

$\frac{no}{N} = \frac{288}{10686} = 0.03$ which is < 0.05

Therefore, there is no need of correction formula. After adding 10% for non-respondents, the total sample size is 317 of total town population.

Sampling technique

Multistage sampling technique was used. At stage one from the total seven kebeles of the town, five kebeles were selected randomly. Then individual households in the selected Keble were selected using a systematic sampling technique after identifying an initial starting household by use of a random number. The sample size was distributed to each kebeles proportional to the household size of the kebele. From selected kebeles; every 7th household was visited.

Adults in the selected household was further selected and interviewed. In case of more than one eligible adult in the household, lottery method was used to select one. For eligible participant, which was not be found at home, the interviewers had revisited the household at different intervals and when interviewers failed to get eligible participant, the household was registered as non-respondent rate.

Data collection

Data collection was accomplished by using structured questionnaires by trained interviewers who was recent grade twelve students. Discussion was held with the data collectors to have a common understanding concerning the objectives of the study and sampling techniques. The questionnaire was filled by going house to house and through face to face interview method.

Data collection instrument

Data collection tool was questionnaire, pen pencil, binder, data completion form, bags, ruler, paper, eraser and sharpener.

Data analysis and interpretation

Data analysis: After checking the completeness and accuracy of the collected data, each collected data was filled on master sheet by using code. The collected data should be clean, edited and analysis using Spss for windows version 20.0.

Data interpretation: After collected data was analyzed and by using scientific calculator, the analyzed data was presented by table, graph, etc.

Ethical consideration

Before starting the implementation phase of the research, I asked a support letter from woreda health office and the woreda health office write the consent letter for Kebele administration. Verbal consent was also taken from all participating households. The participation was completely voluntary. Their right to refuse to participate in the study (if they wished so) was respected. After permission to proceed, data collection was conducted by considering the morality and willingness of the sample population.

Operational definition

Smoking: An individual practice in which a substance is burned, and the resulting smoke breathed in to tasted and absorbed.

Ever smoker: A person who had ever tried smoking cigarettes in the past (once or twice puff).

Current smoker: A person who started smoking since last 30 days and smoking now.

Regular smoker: A person who can't quit smoking ever for 1 day.

Limitation of the Study

Cause and effect relationship were difficult to establish by cross sectional studies. The study was carried out in a poor rural town where smoking and Khat use are particularly common and may not reflect the situation in other towns or at the national level.

Results

After the data has been collected from 317 sampled households making with response rate of 100 the following results were obtained. Out of the 317 studied individuals 214 (67.6%) were males and 103 (32.4%) were females. Most of them 70 (22%) were between the age of 35-39 years old. Majority are protestants 120 (37.9%) followed by orthodox 103 (32.5%), Muslim 90 (28.4%) and others 4 (1.2%) respectively. Regarding to their ethnicity majority 254(80.1%) were Oromo, followed by Amhara 47 (14.9%), Tigre 11 (3.5%) and others 5 (1.5%). Among 317 respondents interviewed regarding to their occupational status majority were government employees 123 (38.9%) followed by merchants 114 (35.9%) laborer 48 (15.1%) and self-employees are 32 (10.1%) respectively.

S/No	Socio-demographic characteristics	No	%
	Age groups		
	20-24	32	10
	25-29	59	18.7
1	30-34	51	16
	35-39	70	22
	40-44	29	9.1
	45-49	27	8.6
	50-54	23	7.2
	55-59	16	5.3
	>60	10	3.1
	Total	317	100
	Sex groups		
	Male	214	67.6
2	Female	103	32.4
	Total	317	100
	Religion		
	Protestant	120	37.9
	Orthodox	103	32.9
	Muslim	90	28.4
	Others	4	1.2
3	Total	317	100
	Ethnicity		
	Oromo	254	80.1
	Amhara	47	14.9
	Tigre	11	3.5
	Others	5	1.5
4	Total	317	100
	Occupational status		
	Laborer	48	15.1
	Merchant	114	35.9
	Government employees	123	38.9
	Self-employers	32	10.1
5	Total	317	100
	Educational status		
	No able to read and write	12	3.8
6	1-8 grade	62	19.6
	12-Sep	89	28
	12+	154	48.6
	Total	317	100

Table 1: Socio-demographic characteristics of Gida Ayana town from October-April 2017.

As indicated in Table 2, life time, regular and current cigarette smoking rates were 31.5%, 1.5% and 0.6% respectively. Among life time smokers 96 (30.28%) were males and 4 (1.26%) were females.

The dominating religion was Muslim followed by Orthodox.

Characteristics	Whoever smoke	Those who smoke until time of data collection			Past smoker	
	Lifetime smokers 1	Annual smokers 2	Current smokers 3	Regular smokers 4	Experimental smokers 5	Former smokers 6
Religion						
Orthodox	30	17	-	1	7	8
Muslim	45	19	2	4	8	12
Protestant	24	2	-	-	4	2
Others	1	-	-	-	-	1
Total	100	58	2	5	19	23
Ethnicity						
Oromo	94	30	1	3	12	12
Amhara	3	6	1	1	5	8
Tigre	1	2	-	-	2	2
Others	-	-	-	1	-	1
Total	100	58	2	5	19	23
Income/months						
<700 birr	30	20	2	4	7	10
700-1400 birr	42	10	-	1	8	6
>1400 birr	28	8	-	-	4	7
Total	100	58	2	5	19	23

1: Whoever smoked and may or may not smoke now; **2:** Who started smoking since last 12 months or more and smoking now; **3:** who started smoking since last 30 days and smoking now; **4:** Who can't quit smoking ever for 1 day; **5:** who smoked less than 100 cigarettes or for very few days but not smoking now; **6:** Who smoked >100 cigarettes or for years but not smoking now.

Table 2: Distribution of religion, Ethnicity and income of smokers with pattern of smoking of Gida Ayana town from October-April 2017.

Prevalence	No	%
Did the smoking affect your relationship with your family?		
Yes	25	62.5
No	15	37.5
Total	40	100
Reason for not quitting		
To relieve Distress	14	35
Khat (as complementary)	11	27.5
Dependence	4	10
Stress at home	8	20

Not sure how to quit	1	2.5
People around me smoke	2	5
No of cigarettes to smoke		
1-10	32	80
11-20	8	20
Total	40	100

Table 3: Prevalence of currently smoking individuals of Gida Ayana town population, from October-April 2017.

As shown in Table 3, among currently smoking individuals 25 (62.5%) were rejected by none smokers because of their smoking habits. Majority of the smokers 34 (85%) need to quit smoking but failed to do due to relieving distress when disappointed 14 (35%) followed by complementary to chat chewing 11 (27.5%) and stress at home 8 (20%) respectively. The higher number 32 (80%) were light smokers while 8 (20%) were heavy smokers.

Currently cigarette smoking individuals by occupational status in Gida Ayana town from October-April 2017. From the currently cigarette smoking individuals 18 (45%) were use cigarette smoking from laborer, 10 (25%) are use cigarette smoking from self-employers, 8 (20%) were from government employers and 4 (10%) were smoking cigarette from merchants when studied by their occupational status.

As shown in Table 4, currently smoking individuals 10 (25%) were in the age groups of 35-39. The dominating ethnicity was Oromo 26 (65%) followed by Amhara 10 (25%), Tigre 3 (7.5%) and others 1 (2.5%) respectively.

	Smoker					
Characteristics	**Male**		**Female**		**Total**	
Age groups	No	%	No	%	No	%
20-24	5	13.15	1	50	6	15
25-29	7	18.4	-	-	7	17.5
30-34	7	18.4	1	50	8	20
35-39	10	26.3	-	-	10	75
40-44	4	10.5	-	-	4	10
45-49	3	7.9	-	-	3	7.5
50-54	1	2.7	-	-	1	2.5
55-59	1	2.7	-	-	-	2.5
>60	-	-	-	-	-	-
Total	58	100	2	100	40	100
Ethnicity						
Oromo	24	63.1	2	100	26	65
Amhara	10	26.3	-	-	10	25
Tigre	3	7.9	-	-	3	7.5
Others	1	2.7	-	-	1	2.5
Total	58	100	2	100	40	100
Income/months						
< 700 Birr	21	55.2	1	50	22	55
700-1400 Birr	13	34.2	1	50	14	35
>1400 Birr	4	10.6	-	-	4	10
Total	58	100	2	100	40	100

Table 4: Characteristics of currently smoking individuals of Gida Ayana town from October-April 2017.

As shown in Table 5 (item1) the smoker asked to respond the age started smoking 19 (47.5%) were started smoking at the age of 20-24 years, 13 (32.5%) at 15-19 years, 6 (15%) at 25-29 years and 2 (5%) at 10-14 years of age. This indicates most of the smoker started smoking at the age of 20-24 years. In the same table the respondent also asked to respond about the reason to start smoking and the main reason to start smoking was complementary to chat chewing 18 (45%) to enjoy pleasurable events 9 (22.5%) and to relief anger 6 (15%) respectively.

Pattern	**No**	**%**
Age at started smoking		
10-14	2	5
15-19	3	32.5
20-24	19	47.5
25-29	6	15
>30	-	-
Total	40	100
No of cigarettes smoked per day		
10-Jan	32	80
20-Nov	8	20
Total	40	100
Reason to start smoking		
Complement to chat	18	45
For enjoyment	9	22.5

Relax	3	7.5
Relief anger	6	15
Concentrate on work	3	7.5
Socialization	1	2.5
Total	40	100
Daily cost (Birr)		
1-2	10	25
3-4	20	50
5-10	10	25
Total	40	100

Table 5: Frequency and distribution of pattern of currently smoking individuals of Gida Ayana town from October-April 2017.

As indicated in Table 6, (item 1) below the length of year of smoking of the smoker income were 12 (60%) <700birr, 6 (30%) were between 700-1400 birr and 2 (10%) were >1400 birr was smoking between 1-10 years and the rest are above 10 years. From this table the mean age of smoking for those smokers who develop disease symptoms of different disease and those smokers are low in their socio-economic status and expend more money to buy cigarettes.

	Length of the years of smoking					
	1-10 years		11-20 years		Above 20 years	
	No	%	No	%	No	%
Income/ months						
<700 birr	12	60	8	57.1	4	66.6
700-1400 birr	6	30	5	35.8	1	16.7
>1400 birr	2	10	1	7.1	1	16.7
Total	20	100	14	100	6	100
Symptoms						
Cough	10	50	6	42.9	2	33.3
Gi complain	3	15	4	28.6	1	16.7
Palpation	2	10	1	7.1	1	16.7
None	5	25	3	21.4	2	33.3
Total	20	100	14	100	6	100

Table 6: Attitude of the respondents who's none of their household member is smoking toward smoker of Gida Ayana town 01 and 02 population, from October-April 2017.

As it can be seen from Table 7, Item 1 the respondents were asked about treatment sought within the last 12 months for currently smoking individual. As it shown in Table 7 (95%) of them said yes and 1(5%) said No. In item 2 of the same table the smoker was asked about medical expends fee in birr 9 (47.3%) expends 1-20 birr per month, 6

(31.6%) expends 21-500 birr per month and 4 (21.1%) expends 501-1000 birr per month. This implies the medical expenditure of smoker were high.

	Frequencies	
	No	%
Treatment sought		
Yes	19	95
No	1	5
Total	20	100
Medical expenditure (Birr)		
20-Jan	9	47.3
21-500	6	31.6
501-1000	4	21.1
Total	19	100
Working days lost (month)		
1	8	40
2-3	9	45
4-6	3	15
Total	20	100

Table 7: Treatment seeking pattern, medical expenditure and working days lost by currently smoking individual who have been sick within the last 12 months in the population of Gida Ayana town from October-April 2017.

Discussion

This study has attempted to assess the prevalence of cigarette smoking and its determinants in Gida Ayana town. Currently, the struggle against the spread of cigarette smoking is going through a period of transition. Awareness of the harmful health effects of smoking has increased all over the world, both in developed and developing countries and substantial reduction in the prevalence of smoking have occurred in some countries like Australia, USA, etc [9-11]. The prevalence of cigarette smoking in the studied population at the time of interview in this study was 12.7%, out of which 11.98% was males and 0.72% was females. This study is found to be similar when compared to the study of young people aged 15 to 25 years in Addis Ababa by males and higher than this study by females; the study of young people aged 15 to 25 years in Addis Ababa demonstrated that current smoking prevalence of 11.8% in males and 1.1.% in females [12].

In this study, life time prevalence rate of smoking is (31.5%). Among this regular smoker accounted for 1.5% since there are only few surveys done in our country, national comparison of the study results are limited. But according to the institutional studiers done at some parts of the country, Gonder medical College, life time prevalence was 24.8% and 25% of them were regular smokers which is lower than this study by life time prevalence rate but higher than this study by regular smokers [13-16]. Similarly, the study on Gonder high school students

showed that life time prevalence (12.6%) which is lower and regular prevalence rate (12.2%) which is higher than this study [17]. Among the studied populations, 40 (12.7%) were currently smoking, out of which 38 (95%) were males and 2 (5%) were females. This indicates more males smoke than females.

According to literatures majority of smokers start smoking before age 25, often in childhood and adolescence [18-21]. This matches with the findings in this study where 34 (85%) started smoking before 25 years of age. The study among Jimma teacher's training school students revealed that Muslims are at high risk of smoking than Christian, which is also true in this study. As the currently smoking individual responded regarding to the reason to start smoking the main reason was complemented to chat chewing. This implies that chat chewing can be affect the working time of the people and expose to smoking habits.

Studies in early 1980s showed smoking prevalence among 18-20 years estimates of death attributes to smoking and quitting smoking or to continue smoking made great difference smoking has enormous direct and in direct costs. In this study maximum amount of medical expenditure was between 501-1000 birr over the last 12 months with maximum 2-3 working days lost. Although it is difficult to identify the exact illness related to cigarette smoking, most of the currently smoking individuals developed disease symptoms including cough, gastro intestinal complains, and palpitation. This may be because of heavy smoking. In addition, other factors may be involved and need further investigation [22-24]. Therefore, the problem should not be still undermined due to the various hazards related to cigarette smoking.

Conclusion

Based on the analysis and findings of the study the following major conclusions were low. Most of the currently smoking individuals are found between the age groups of 35-39 years. The study also showed that most of the currently smoking individual earns less than 700 birr per month and expend 501-1000 birr for medical expenditure. This implies that their incomes less than medical expenditure and they live in economic low. The finding also revealed that the main reason for quitting smoking by past smokers was their recognition of harmful effects of tobacco use followed by its cost for which they just stopped. Chat chewing is found to be the main reason to start smoking. Majority of the people dislike smokers because of their smoking habit (odour) while coughing, G1 Complains and Palpitation were their complaint.

Recommendations

In general, the following recommendations are forwarded based on the findings of the study.

- Developing the awareness of the community regarding to the bad effects of tobacco use on health.
- Giving appropriate explanations and counselling for those who are smoking about the bad effect of tobacco use on their health and their economy.
- As indicated in the finding and conclusion chat chewing is the main reason to start smoking and the concerning body like government and family should have create job and prevent people from wasting time without work.
- Conducting further comprehensive research on social, economic and health effects of tobacco use is necessary.

- Applicable and effective legislations against tobacco use are also suggested.

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