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This is to certify that the thesis prepared by Dr Misgana Baraki, in Entitled: Knowledge, attitude and practice of non-physician female health care professionals on sun screen usage at ALERT center in partial fulfillment of the requirements for the specialty certificate in dermatovenerology.

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TABLE OF CONTENTS

Acknowledgement i

List of tables v

List of figures vi

Acronyms vii

Abstract viii

1. Introduction 1

  1.1 Back ground of the study 1

  1.2 Statement of problem 2

  1.3 Significance of the study 2

2. Literature Review 3

3. Objective 4

  3.1 General objective 4

  3.2 Specific objective 4

4. Methods and Materials 4

  4.1 Study area and period 4

  4.2. Study Design 5

  4.3. Source Population 5

  4.4. Study population 5

  4.5. Study Subsets 5

  4.6. Eligibility 5

  4.7. Sampling method and sample size 5

  4.8 Data collection 6

  4.9. Data processing and analysis 6

  4.10. Data quality assurance 6

  4.11. Variables 6

4.11.1. Outcome variables 6
4.11.2 Independent variables 6
4.12. Operational definitions 6
4.13. Ethical consideration 7
4.14. Dissemination plan 7
5. Result 8
5.1 Socio-demographic characteristics 8
5.2. Knowledge of female non physician health care professionals about sun screens. 11
5.3. Attitude of Non-physician Female Health care Professionals towards Sun screen 16
Discussion 25
Limitation 27
Conclusion 27
Recommendation 27
References 28
Annexes 30

LIST OF TABLES

Table 1. Frequency of different occupational groups of respondents

Table 2. Level of education of respondents

Table 3. Monthely income of respondents

Table 4. Marital status of respondents

Table 5. Frequency of respondents who have heard and who have never heard about sun Screens

Table 6. Scoring method for assessing knowledge of respondents

Table 7. Frequency of respondents having good and poor knowledge about sun screens

Table 8. Knowledge of respondents about sun screen, in different occupation

Table 9 .knowledge of respondents based on the level of education

Table 10. Knowledge about sun screen in different age groups of respondents

Table 11. Knowledge score of respondents regarding their monthly income

Table 12. Bivariate and multivariate analysis of female health care professionals Knowledge score

Table 13. Attitude of Respondents towards Sun Screen

Table 14. Attitude of respondents towards sun screen in different occupation

Table 15. Attitude towards sun screen in different age groups of respondents

Table 16. Attitude of respondents regarding marital status

Table 17. Attitude of respondents regarding their level of education

Table 18. Frequency of sun screen usage among respondents

Table 19. Frequency of daily use of sun screen (among those who practices sun screen)

Table.20. Practice of sun screen among respondents of different occupations

Table 21. Practice of sun screen in in different age group of respondents

Table 22. practice of sun screen based on marital status of respondents

Table 23. Practice of sun screen among respondents with different level of education

Table 24. Sun screen use practice of respondents regarding their monthly income

Table 25. Frequency of sun screen use among respondents who practice sun screen.

LIST OF FIGURES

Figure 1. Age disturbution of respondents

Figure 2 .Level of education of respondents

Figure 3. Level of education in different occupations of respondents

Figure 4. Knowledge about sun screen regarding marital status of respondents

ACRONYMS

AAU= Addis Ababa University

ALERT= All Africa leprosy rehabilitation and training

SPF = Sun protection factor

UV= Ultra-violet

KAP= Knowledge, attitude and practice

HO = Health officer

SD= Standard deviation

OD= Odds ratio

CI= Confidence interval

ABSTRACT

Back ground

The earliest form of sunscreen was created by Franz Greiter in 1938 and then Benjamin Green in 1944 who used a mixture of cocoa butter and veterinary petrolatum to protect his skin from the sun.

Sun screen provides a barrier which prevents the UV rays from penetrating the skin.

Excessive ultraviolet light (UV) can cause premature skin aging and potentially skin cancer. Currently there seems to be lack of awareness among health care professionals and the public on sun screen usage for sun light protection.

Objective

To assess knowledge, attitude and practice of female non-physician health care professionals at ALERT center on sun screen usage.

Materials and methods

A cross sectional quantitative study was conducted among female non physician health professionals at ALERT center, in September 2021G.C. The data was collected by using self- administered questionnaire and analyzed by using SPSS version 25. First descriptive analysis was determined then association of independent variable and outcome variable was determined using logistic regression.

Results

A total of 135 participants filled the questionnaires. The participants consisted of 65 nurses (48.1%), 18 pharmacists (13.3%), 25 midwifes (18.5%), 11 health officers, 11 laboratory technicians (8.1%), and 5 (3.7%) were from other health care professions. 79.3 % of respondents has 1st and/or 2nd degree, 17% have diploma and the remaining 3.7 % have certificate. The age group of participants ranged between 24 and 48 years old. Among 135 respondents 128 heard about sun screen and 7 reported never heard of sun screen products.

44.5% of respondents had good knowledge about sun screen and the remaining 55.5 % has poor knowledge. The higher knowledge score was reported for pharmacists, which was 55.5% of pharmacists had good knowledge about sun screen products.

39.8% of respondents had negative attitude towards sun screen use and 60.2% had positive attitude.

Though 10.2% of respondents use sun screen, only 1 respondent (a nurse with a degree) uses the right way.

7 (53.8 %), from the 13 respondents who practice sun screen, was persuaded to use sun screen by their physician. The remaining was persuaded by friends and family.

The most common reason for not using sun screen which respondents mention was: 38(33%) said they had no skin problem, 15(13%) said they usually stay in door during the day, 8(6.9%) said sun screen gives them a look they are not comfortable with. Other reasons mentioned where: sun screen creams are expensive, I don't know which one to use, I did not get the one which fits my skin, I am allergic to sun screens and I uses an umbrella.

Conclusion

This study demonstrated a lack of knowledge and poor practice of sun screen among female non physician health care professionals. This finding supports medical education program on this topic to female non physician health professionals.

1. INTRODUCTION

1.1 BACK GROUND OF THE STUDY

Epidemiological studies strongly implicate ultraviolet (UV) radiation exposure from the sun as the principal environmental cause of skin cancer and premature aging. (2) Along with seeking shade, wearing protective clothing and hats, sun screen use has the potential to block and absorb UV radiation from the sun. (2)

The history of sun screen can be traced all the way back to 1930s when Swiss student Franz Greiter made it his mission to invent sun protection after being sunburnt on his ascent up mount Piz Buin (1, 7)

The earliest form of sunscreen was created by Franz Greiter in 1938 and then Benjamin Green in 1944 who used a mixture of cocoa butter and veterinary petrolatum to protect his skin from the sun (1, 7). Franz Greiter branded his formula piz buin while Mr. Green marketed it as copper tone suntan cream (1)

Franz Greiter then went on to produce sun protection factor rating that is still used today (1).

Sun screen has evolved over the year starting out as a lotion with a SPF 2. Back then when sun screen was invented it was thick, sticky formula similar to petrolatum jelly and very different from the light weight, hydrating formulas we have today. (1, 8)

In 1990s sun screens evolved bringing with it various different formulas including gels and sprays. (1)

Excessive unprotected sun exposure has been shown to cause skin damage as well as many skin diseases. (5)

As a result of short term exposure to UV radiation, human skin could suffer from acute damage, including burning and tanning. Long term UV exposure may result in chronic skin disease, such as hyperpigmentation (solar lentigens, ephelides, and melasma), skin ageing, and skin cancer. (5.10)

Health care workers and hospital personnel have a broad exposure to patients and the involvement of this professional community in health promotion activities, such as sun protection awareness and recommendation, is crucial .(2)

There is limited data regarding sun screen knowledge, awareness and practice among health care workers, in Ethiopia as well as in Africa. The aim of this study is to determine the knowledge, attitude and practice of female non physician health care professionals at ALERT center, Addis Ababa, Ethiopia towards sun screen use.

1.2 STATEMENT OF PROBLEM

Cancer is the second leading cause of death worldwide, with skin cancers one of the most common. (3) Melanoma is the most clinically relevant skin cancer, either in frequency or mortality whose trend has increased over the years. (3, 7, 6)

According to the latest WHO data published in 2018 skin cancer deaths in Ethiopia reached 231 or 0.04% of the total deaths. The age adjusted Death rate is 0.5 per 100,000 of population ranks Ethiopia # 170 in the world.

Excessive unprotected sun exposure is a significant risk factor for skin damage and skin cancers. (1, 5) In recent decades, the incidence of skin cancer has increased dramatically worldwide, reaching epidemic proportions. (1)

Sun protection is a key primary preventive strategy against skin cancer and skin damage induced by sun exposure. (1, 10)

Even though Ethiopia is a country with most months of the year with sun shine, little is done on creating awareness about the harmful effect of excessive sunlight exposure to skin and encouraging to use sun screens to health care professionals as well has the community.

This study will provide information on knowledge, attitude and practice of sun screen use among female non physician health care professionals at ALERT center, so that the data will help in understanding the awareness and knowledge of health care professionals, who are expected to transfer the knowledge and awareness to the community.

1.3 SIGNIFICANCE OF THE STUDY

This specific research work is performed to assess the knowledge, attitude and practice of sun screen use among non-physician female health professionals, and provides data to work on awareness creation and improvement in practicing sun screen.

2. LITERATURE REVIEW

A cross-sectional study conducted among doctors and pharmacists in hospital Sultanah Nora Ismail, Batu Pahat, Johor, Malaysia.(2)A total of 384 participants completed the questionnaires. The participants consisted of 323 doctors (84.1%) and 61 pharmacists (15.9%). The age group of the participants ranged between 25 till 55 years old. Ninety doctors (27.9%) and thirty-one pharmacists (51.0%) reported used sunscreen daily ($p<0.001$). This finding showed that there was a deficit in the practice of sun protection. Pharmacists scored a higher knowledge score of median 12 (IQR=3.0) while the doctors scored 11 (IQR=2.0). This study demonstrated a lack of knowledge of sunscreen and skin cancer prevention among health care practitioners.

Another cross-sectional study conducted among final year medical and pharmacy undergraduates at the International Islamic University Malaysia (10) Validated questionnaires were distributed to 134 medical students and 100 pharmacy students. Descriptive and inferential statistics were used where appropriate. One hundred and sixty-one out of 234 participants completed the questionnaires. The participants comprised 101 medical students (75.4%) and sixty pharmacy students (60.0%). The majority of the respondents were females (102; 63.4%), and 59 (36.6%) were males. The median of the knowledge scores of the final year medical students was significantly lower than that of the final year pharmacy students ($P < 0.001$). The female students showed significantly higher knowledge scores than the male students ($P = 0.027$). This study reported that 24 (39.3%) pharmacy students were influenced by the media to use sunscreen, whereas 35 (34.7%) medical students were influenced the most by friends to use sunscreen. The final year pharmacy students had a better perception compared to the medical students, with the total perception score of the final year pharmacy students being significantly higher than that of the final year medical students ($P = 0.020$). Most of the participants were also aware of the harmful effects of UV radiation and had a positive reaction toward the usage of sunscreen to prevent those harmful effects.

According to this study the knowledge, perception and practice of final year pharmacy students were significantly higher than the knowledge and perception of final year medical students with regard to the usage of sunscreen.

From another study in female professionals in Saudi Arabia, 94% of respondents agreed sun exposure could cause sun burn, but only 78% were aware of the relationship between sun exposure and skin cancer. 23% of the respondents reported they were using sun screen products. The most common reason for not using sun screen products were, applying sun screen caused them feeling uncomfortable.(1)

3. Objective

3.1 General objective

To assess the knowledge, attitude and practice of non-physician female health care professionals on use of sun screen at ALERT center, Addis Ababa Ethiopia.

3.2 Specific objective

1.1. To assess the knowledge of non-physician female health professionals on sun screen regarding age, occupation, level of education and marital status.

1.2. To assess the attitude of non-physician female health professionals on sun screen regarding age, occupation, level of education and marital status.

1.3. To assess the practice of non-physician female health professionals on sun screen regarding age, occupation, level of education and marital status.

4. Methods and Materials

4.1 Study area and period

The study was conducted at ALERT center on September 2021. ALERT center is located in south west Addis Ababa, Ethiopia, which is the main dermatologic center in the country focusing on rehabilitation of leprosy patients , training program on leprosy for personnel from around the world and leprosy control.

ALERT center also gives specialized services in the field of Internal Medicine, orthopedics, physiotherapy, ophthalmology, reconstructive and plastic surgery.

4.2. STUDY DESIGN

A cross sectional quantitative study was performed to assess knowledge, attitude and practice of female non-physician health care professionals to wards sun screen use at ALERT center.

4.3. SOURCE POPULATION

All health care professionals at ALERT center.

4.4. STUDY POPULATION

All non- physician female health care professionals at ALERT center.

4.5. STUDY SUBSETS

All non-physician female health care professionals at ALERT center who are available during the study period.

4.6. ELIGIBILITY

Inclusion Criteria

Female nurses, midwifes, health officers, anesthetists, radio technicians, Pharmacists, laboratory technicians at ALERT center.

4.7. SAMPLING METHOD AND SAMPLE SIZE

- Using single population proportion formula

$$N = \frac{Z^2 P(1-P)}{D^2}$$

Z= 1.96, standard score for the 95% confidence interval

P= 12%

D= 0.05, margin of error

The calculated sample size is 135

4.8 Data collection

A structured self-administered questionnaire was used to asses KAP. The data were collected in September 2021. All participants were informed of the demands of the study; those who agreed to participate were enrolled.

4.9. DATA PROCESSING AND ANALYSIS

The collected data was first entered in to Excel sheet and then transferred in to SPSS version 25.

Relevant statistical methods, including frequencies, proportions, means and standard deviation are used to summarize the variables.

4.10. DATA QUALITY ASSURANCE

The completeness and consistence of the research was supervised by the principal investigator during the data collection process.

4.11. VARIABLES

4.11.1. OUTCOME VARIABLES

Knowledge, attitude, and practice of the study population regarding

Sun screen.

4.11.2 INDEPENDENT VARIABLES

Age, level of education, occupation, marital status and monthly income.

4.12. OPERATIONAL DEFINITIONS

Knowledge is information stored in memory, which is assessed in terms of what the person knows about sun screen and weather this knowledge is true or false.

Attitude is the predisposition to respond in a positive or negative manner towards a target (sunscreen).

Practice is the overt behavior, habit, or customs of an individual.

Good knowledge is interpreted in this study as someone who has score above the median for knowledge score.

Poor knowledge is interpreted in this study as someone who has a score below the median of knowledge score.

Positive attitude is used in this study for score less than the mean (i.e. the questions for attitude assessment were negative statements)

Negative attitude is used in this study for score above the mean.

According to World Bank poverty and equity brief in sub- Saharan Africa, Ethiopia (April 2020). (12)

- **International poverty line** – US $ 1.9 per day per capita which is equivalent to ~ 2771.34 ETB per month (as of December 2021 commercial bank of Ethiopia's currency).
- **Lower middle income class** –US **$** 3.2 per day per capita which is equivalent to ~ 4667 ETB.(as of December 2021 commercial bank of Ethiopia's currency)
- **Upper middle income class** -US $ 5.50 per day per capita which is equivalent to ~ 7800 ETB (as of December 2021 commercial bank of Ethiopia's currency).

Taking the above definition in to consideration we classify our respondents as;

- International poverty line -those who have < 3000 ETB income per month.
- Lower middle income class - those who have above 3000 but less than 6000 ETB income per month.
- Upper middle income class- those who has above 6000 ETB income per month.

4.13. ETHICAL CONSIDERATION

The research proposal was submitted to department of dermatovenerology, school of medicine, college of health sciences Addis Ababa University, ethics committee for review, letter of support was obtained from the department and submitted to ALERT center for permission to collect the data from health care workers. Anonymity and confidentiality of the information was kept private.

4.14. DISSEMINATION PLAN

Results of this study will be submitted to department of dermatovenerology, school of medicine, college of health sciences, AAU, and ALERT center

5. RESULT

5.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS

A total of 135 female non physician health care professionals responded to questioners at the study site.

The number of nurse respondents (48.1%) was higher in comparison to other professionals, which are, 18.5% midwifes, 13.3% pharmacists 8.1% health officers, 8.1% laboratory professionals and 3.7% are others. (Table 1)

Majority (57.8%) of participants were in the age group 24-34 years. (Figure- 1). The maximum age was 48 and the minimum was 24 years.

79.3% of all the participants have first and/or second degree, and 23% have diploma, the remaining 5% have certificate. (Table 2, Figure 2)

Table 1. Frequency of different occupational groups of respondents.

	Frequency	Percent	Valid Percent
Nurse	65	48.1	48.1
Midwife	25	18.5	18.5
Health officer	11	8.1	8.1
Pharmacist	18	13.3	13.3
Lab technician/ Technologist	11	8.1	8.1
Others	5	3.7	3.7
Total	135	100.0	100.0

Figure 1. Age disturbution of respondents

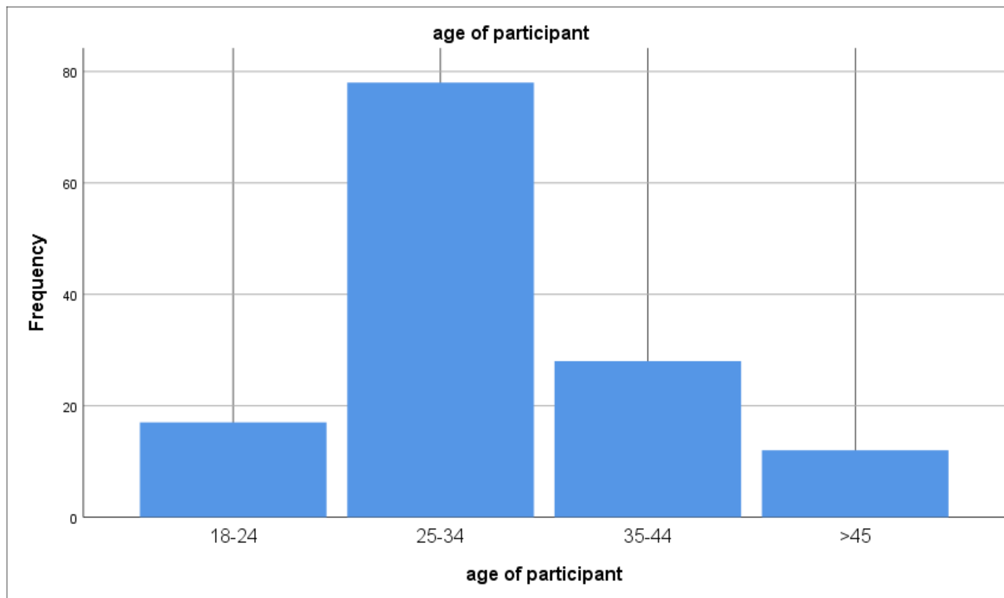


Table 2. level of education of participants.

level of education	frequency	percent	valid percent
certificate	5	3.7	3.7
diploma	23	17.0	17.0
degree	107	79.3	79.3
total	135	100.0	100.0

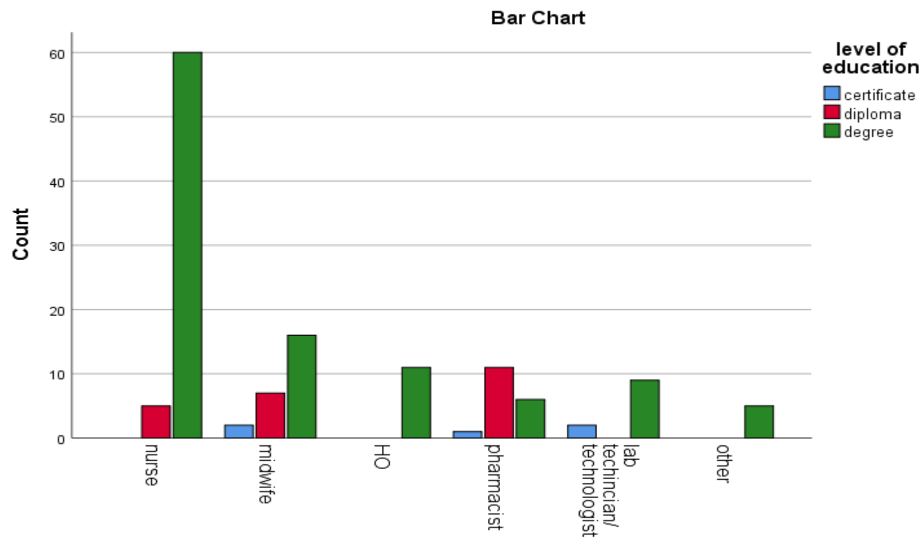
Table 3. Monthly income of respondents

income in ETB	frequency	Percent	Valid Percent
3000- 6000 (lower middle income class)	82	53.9	60.7
> 6000 (upper middle income class)	53	34.9	39.3
Total	135	88.8	100.0

Table 4. Marital status of respondents.

marital status	frequency	percent	valid percent
single	50	19.7	37.0
married	81	31.9	60.0
divorced	4	1.6	3.0
total	135	53.1	100.0

Figure 2. Level of education in different occupations of respondents.



5.2. Knowledge of female non physician health care professionals about sun screens.

Table 5. Frequency of respondents who have heard and who have never heard about sun screens?

	frequency	percent	valid percent
have heard	128	94.8	94.8
have not heard	7	5.2	5.2
total	135	100.0	100.0

The knowledge score ranges from 0 to 16 with (SD= 3.5) and median score of 8.

Taking the median as a cut of, the scoring is done as follow:

Table 6. Scoring method for assessing knowledge of respondents.

score	interpretation
0-8	poor knowledge
9- 16	good knowledge

Table 7. Frequency of respondents with good and poor knowledge about sun screens.

	frequency	valid percent
good knowledge	57	44.5
poor knowledge	71	55.5

Table 8. knowledge of respondents about sun screen, in different occupation.

		poor knowledge	good knowledge	total
occupation of participant	nurse	39(67.2%)	19(32.7%)	58
	midwifes	14(56%)	11(44%)	25
	health officer	7(63.6%)	4(36.4%)	11
	pharmacist	8(44.4%)	10(55.5%)	18
	lab technician	6(54.5%)	5(45.4%)	11
	other	5(100%)	0(0%)	5
total		79(61.8%)	49(38.2%)	128

Table. 9 knowledge of respondents based on the level of education.

score		0-8	9-16	total
level of education	certificate	3(60%)	2(40%)	5
	diploma	14(60.8 %)	9(39.1%)	23
	degree	55(55%)	45(45%)	100
total		79	49	128

Table 10. Knowledge about sun screen in different age groups of respondents.

score		0-8(poor)	9-16(good)	total
age of participant	18-24	9(53%)	8(47%)	17
	25-34	41(58%)	30(42.2%)	71
	35-44	14(50%)	14(50%)	28
	>45	7(59%)	5(41%)	12
total		79	49	128

Figure 3. Knowledge about sun screen regarding marital status of respondents.

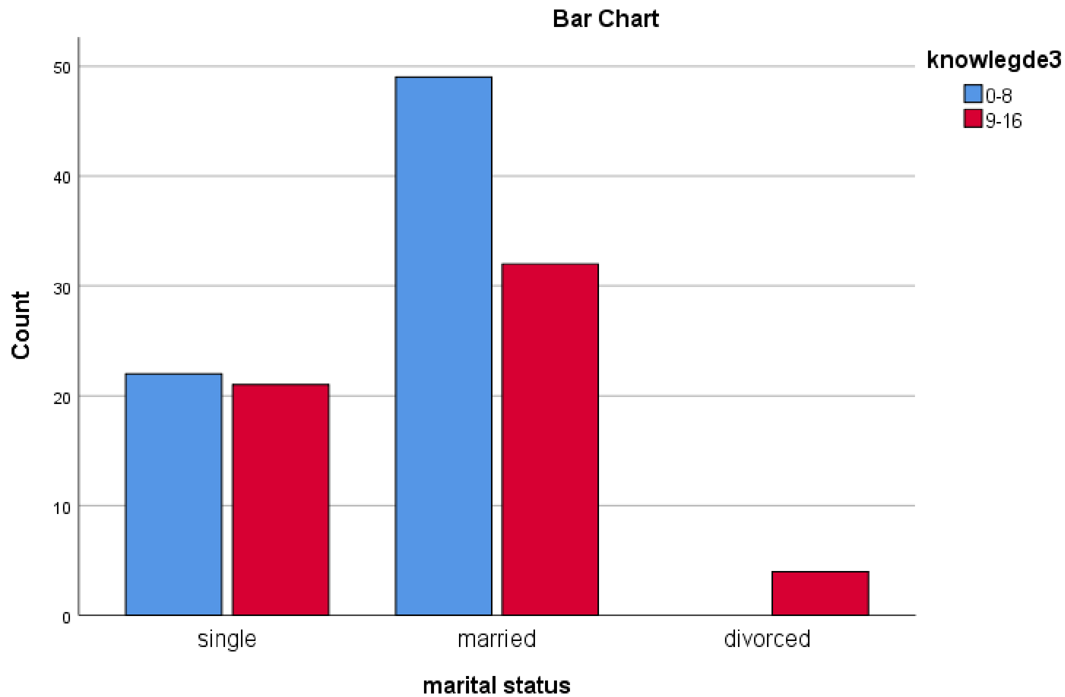


Table 11. Knowledge score of respondents regarding their monthly income

		poor knowledge	good knowledge	total
monthly income in ETB	3000-6000 (lower middle income class)	41(54.6%)	34 (45.3)	75
	>6000 (upper middle income class)	30 (56.6%)	23 (43.3)	53
total		71	57	128

Table12. Bivariate and multivariate analysis of female health care professionals' knowledge score.

variables		knowledge score		p- value	crude OR (95%CI)	adjusted OR (95% CI)
		good	poor			
age	18-24	8	9	.929	1	1
	25-34	30	41	.840	0.86(0.348-1.001)	
	35-44	14	14	.827	1	1
	>45	5	7			
occupation	nurse	19	39	.999	1.09-2.00	1.98
	midwife	11	14	.999	1.09-2.00	
	pharmacist	10	8	.999	1	1
	health officer	4	7	.999		
	lab. technician	5	6	.999		
	other	0	5			
marital status	single	21	22	.999	1	1
	married	32	49	.999		
	divorced	4	0		0.985-1.087	1.87
level of education	certificate	2	3	.882		
	diploma	9	14	.973	0.87-2.0	
	degree	45	55			
monthly income in ETB	300-6000	75		.203	.245-1.01	.451
	>6000	53				

5.3. Attitude of Non-physician Female Health care Professionals towards Sun screen

Attitude score is done by adding the response, and the mean (19) is taken as cut off point to label respondents as having positive or negative attitude towards sun screen use.

Table 13. Attitude of Respondents towards Sun Screen

	frequency	valid percent
negative attitude	51	39.8
positive attitude	77	60.2
total	128	100.0

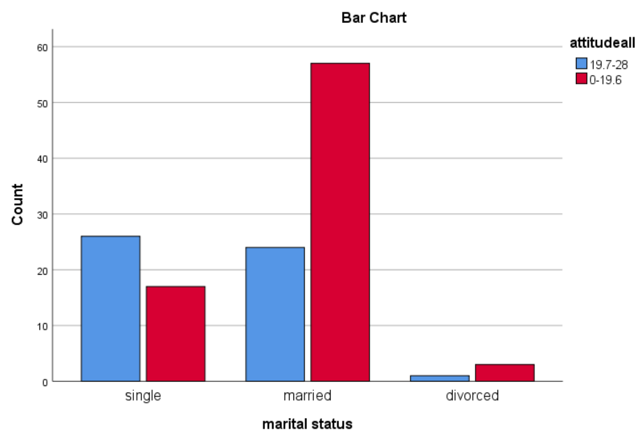
Table 14. attitude of respondents towards sun screen in different occupation

		attitude score		total
		negative	positive	
occupation of participant	nurse	26(44.9%)	32(55.1%)	58
	midwife	14(56%)	11(44%)	25
	health officer	5(45.5%)	6(54.5%)	11
	pharmacist	2(11.2%)	16(88.8%)	18
	lab technician/ technologist	1(9.1%)	10(90.9.%)	11
	other	3(60%)	2(40%)	5
total		51	83	128

Table 15. Attitude towards sun screen in different age groups of respondents.

		negative	Positive	
age of participant	18-24	6(35.3%)	11(64.7 %)	17
	25-34	38(53.6%)	33(46.4 %)	71
	35-44	4(14.3%)	24(85.7 %)	28
	>45	3(25%)	9(75%)	12
total		51	77	128

Figure.4 Attitude of respondents regarding marital status



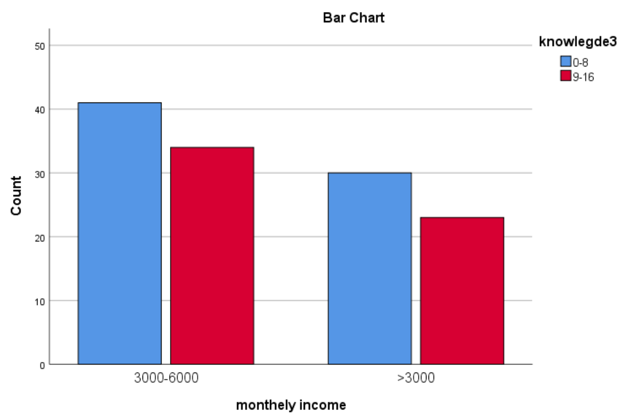
i.e. 19.7-28= negative attitude

0-17.6= positive attitude

Table 17. Attitude of respondents regarding their level of education

		negative attitude	positive attitude	total
level of education	certificate	5(100%)	0(0%)	5
	diploma	8(34.8%)	15(65.2%)	23
	degree	38(32%)	62(68%)	100
total		51	77	128

Figure 5. Attitude of respondents towards sun screens regarding their income.



Bivariate and multivariate analysis of attitude score

variables		attitude score		p- value	crude OR (95%CI)	adjusted OR (95% CI)
		positive	negative			
age	18-24	11	6	.021	.0321	.
	25-34	33	38	.126	0.86(0.348 -1.001)	
	35-44	24	4	.041	1	1
	>45	9	3			
occupation	nurse	32	26	.058	1.09-2.00	1.98
	midwife	11	14	.098	1.09-2.00	
	pharmacist	16	2	.076	.999-1.489	1
	health officer	6	5	.945		
	lab. technician	10	1	.078		
	other	2	3			
marital status	single	19	24	.999	1	1
	married	57	24	.999		
	divorced	1	3		0.985-1.087	1.87
level of education	certificate	0	5	.782		
	diploma	15	8	.973	0.87-2.0	
	degree	62	38			
monthly income in ETB	300-6000			.203	.245-1.098	.451
	>6000					

Practice of sun screen among female non- physician health professionals

Table 18. Frequency of sun screen usage among respondents.

	frequency	valid percent
uses sun screen	13	10.2
don't use sun screen	115	89.8
total	128	100.0

Table 19 .Frequency of daily use of sun screen (among those who practices sun screen)

practice	frequency	percent
applies once a day for 7 days in a week	8	57.1
3-4 times a day for 7 days in a week	1	7.1
other	4	35.7

Table.20. Practice of sun screen among respondents of different occupations.

		Yes	no	total
occupation of participant	nurse	4(6.8%)	54(93.2%)	58
	midwife	2(8%)	23(77%)	25
	health officer	2(18%)	9(82%)	11
	pharmacist	4(18)	14(82%)	18
	lab technician/ technologist	0	11(100%)	11
	other	1(20%)	4(80%)	5
total		13	115	128

Table 21. practice of sun screen based on marital status of respondents

		uses	don't use	total
marital status	single	4(9.3)	39(90.3%)	43
	married	9(11.1%)	72(88.9)	81
	divorced	0(0%)	4(100%)	4
total		13	115	128

Table 22.Practice of sun screen in in different age group of respondents.

		uses	don't use	total
age of participant	18-24	4(23.5)	13(76.5 %)	17
	25-34	7(9.8%)	64(90.2 %)	71
	35-44	1(3.5%)	27(96.5)	28
	>45	1(8.3%)	11(91.7)	12
total		13	115	128

Table 23.Practice of sun screen among respondents with different level of education.

		uses	don t use	total
level of education	certificate	0(0%)	5(100%)	5
	diploma	5(21%)	18(79%)	23
	degree	8(8%)	92(92%)	100
total		13	115	128

Table 24. Sun screen use practice of respondents regarding their monthly income.

		uses	don't use	total
monthly income	3000- 6000 (lower middle income class)	3(5.6%)	50(94.4%)	53
	>6000(upper middle income class)	10(13.3)	65(86.7%)	75
total		13	115	128

Table 25. Frequency of sun screen use among respondents who practice sun screen.

profession		level of education	frequency (practice) of sun screen usage
nurse	1	degree	Once a day for 7 days a week
	2	diploma	Once a day less 3-4 days a week
	3	diploma	Once a day for 5 days a week
	4	degree	3-4 times per day for 7 days a week
pharmacist	1	degree	Once a day for 7 days a week
	2	degree	Once a day for 7 days a week
	3	diploma	Once a day for 7 days a week
	4	diploma	Once a day for 5 days a week
midwife	1	degree	Once a day for 7 days a week
	2	diploma	Once a day for 7 days a week
health officer	1	degree	Once a day for 7 days a week
	2	degree	Once a day for 7 days a week
radio technician	1	diploma	Once a day for 7 days a week

- (53.8), from the 13 respondents who practice sun screen, was persuaded to use sun screen by their physician. The remaining was persuaded by friends and family.
- The most common reason for not using sun screen which respondents mention was: 38(33%) said they had no skin problem, 15(13%) said they usually stay in

door during the day, 8(6.9%) said sun screen gives them a look they are not comfortable with. Other reasons mentioned where: sun screen creams are expensive, I don't know which one to use, I did not get the one who fits my skin, I am allergic to sun screen and I uses an umbrella.

DISCUSSION

In comparison to other health care professionals pharmacists were found to have better knowledge score, which is also consistent with the Saudi Arabia's finding.

The better knowledge score of pharmacists may be because of the better chance they have to come in contact with different types of sun screens in their daily work, while selling sun screens for buyers.

The knowledge score for health officers and nurses fall in to having poor knowledge for majority of the respondents for both professions**,** this could be due to lack of exposure to sun screens because of the nature of their work.

In our study as the level of education increases, the knowledge scores of respondents also increases, which means, respondents who have degree (1st and/or 2nd) had better knowledge than those who had diploma and certificate, and diploma holders had also better knowledge score than those who had certificates. This finding is consistent with the study done in Malaysia among health professionals, better knowledge score is scored by those who has better level of education.

In our study age group 35 to 44 had better knowledge score followed by age group between 18- 24. The former had better score for knowledge may be due to their longer stay in health care provision and had chance to hear and know about sun screens. The Saudi Arabian study shows as the age increases the knowledge score for sun screens also increases.

Knowledge score did not have much difference between single and married respondents (48.8%and 39.5% respectively), but single respondents have better attitude towards sunscreen than the married and divorced respondents. Married respondents practice sun screen better than the rest, one reason could be married females have higher chance of having babies and pregnancy related dermatitis like melasma, and better chance to use sun screen for the skin problem they have as part of the management. Divorced

respondents had better knowledge score but negative attitude and none of them practices sunscreen. This could be due to the psychological, economic and social burden of divorce in majority of divorced females.

Attitude and practice of sun screen is directly proportional to the level of education in our study, those who had degree (1st and/ or 2nd) has positive attitude and better practices sun screen than those who had diploma, and the same is true for those who had diploma in comparison with those who had certificates. This shows knowledge score affects attitude and practice of respondents about sun screen. Our finding is consistent with study done in Malaysia which shows higher knowledge score in those who has positive attitude and better practices sun screen.

Pharmacists had better knowledge score, positive attitude and practices sun screen than the rest professionals. As mentioned above this could be due to the better exposure to sun screen they have in comparison to other health care professionals.

Lab technologist/ technicians had better knowledge score (45.4% had good knowledge) next to pharmacists (55.5%) and had even better attitude (90.9% had positive attitude) than the pharmacists (88.8% has positive attitude), but none of them practices sun screen. This finding does not go with the above mentioned fact, which is those who have better knowledge about sun screen have positive attitude and practices sun screen than those who have poor knowledge. Which may lead us suggest, not all respondents with better knowledge have positive attitude and practices sun screen than those who doesn't.

Compared to others, health officers had not better score for knowledge and only half of them had positive attitude towards sun screen, but they had relatively better practice of sun screen (18% of HOs practice sun screen), this also supports the above mentioned idea, not all who practices sun screen have good knowledge and positive attitude towards sun screen, some may use because its prescribed by their physician for certain skin problems.

Respondents between 35-44 ages had better knowledge and attitude towards sun screen compared to those are between 18-24, but the later practices sun screen better than the formers. The reason could be the younger respondents have the tendency to apply cosmetics, including sun screen because they are concerned about their look more than

their elders. This finding is not consistent to the study done in Saudi Arabia which is, as the age increase, the practice of sun screen also increases. (1)

Difference in respondent's income has not significant influence to their knowledge score and attitude towards sun screen, but those who had better income had better practice of sun screen. This could be because all of the respondents are under middle income class category, even though some are in the upper middle class.

LIMITATION

-The study was done in short period of time.

-The study may not be conclusive to all health professionals, since the majority of respondents were nurses.

- there is no prior study done in Ethiopia, as well as in Africa, on the same topic and similar target population, which can be taken as reference in our study

CONCLUSION

Knowledge, attitude and practice of female non physician health professionals regarding the harmful effect of UV light and sun screen usage at ALERT center is very poor**.**

Pharmacists have better knowledge, attitude and practice than the other professionals participated in this study.

It's not always true that, all those who has better knowledge and attitude towards sun screen uses sun screens and not all those who uses sun screen has good knowledge and attitude towards sun screens.

RECOMMENDATION

It needs much effort to aware health professionals about the harmful effect of UV light to skin and encouraging to use sun screen creams on their daily life.

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ANNEXES

Summary of question items about knowledge of sun screen and respondents response.

Question item	Number of Correct answer from respondents	Number of wrong answers from respondents
How many types of sun screen are there	44	84
	34.4%	65.6%
Mention types of sun screen	7	121
	5.5%	94.5%
SPF stands for	74	54
	57.8%	42.2%
Short term effect of excessive sun light exposure to skin	74	54
	57.8%	42.2%
Long term effect of excessive sun light exposure to skin	31	97
	24.2%	75.8%
Mention possible side effects of sun screen	42	86
	32.8%	67.2%
What should be the minimum SPF you look for ,when choosing sun screen	51	77
	39.8%	60.2%
Which time of the day sunlight should someone avoid mainly based on its harm full effect on skin	49	79
	38.3%	61.7%
How frequent should someone apply sun screen during the day time(most sun screen)	79	49
	61.7%	38.3%

Attitude of respondents towards sun screen was assessed using 7 questioners.

Question items		using sun screen is just an extra cost	I believe no sun screen is compatible to my skim	using sun screen has side effects on skin	i have no better feeling when using sun screen	sun screens efficacy has not been approved by medical studies	buying sunscreen is beneficiary only for cosmetic purpose	sun screen disadvantage is more than the advantage
Response	Strongly agree	17	12	6	28	10	0	21
	agree	23	39	82	26	8	30	16
	disagree	76	70	32	66	85	72	65
	Strongly disagree	12	7	8	7	25	26	25
	total	128	128	128	128	128	128	128

Consent form

Topic - knowledge, practice and attitude of sun screen among female non physician health professionals at ALERT center

After the purpose and nature of this study is explained to me by the investigator who is Dr. Misgana Baraki:

I understand that-

1) I am participating voluntarily
2) The study is on knowledge, practice and attitude of sun screen among female non physician health professionals at ALERT center
3) I am going to fill a questionnaire that assesses my knowledge, attitude and practice of sun screen use.
4) I have freely consented to participate in this study.

Signature …………………………………..

Date………………………………………….

Part 1. Demographic information

1.1 Age (እድሜ) ……..

1.2. Level of education (የትምህርት ደረጃ)

Certificate Degree

Diploma PhD and above

1.4. Religion (ሃይማኖት)

Orthodox Protestant

Catholic Muslim

Other

1.5**.** Marital status (የ ጋብቻ ሁኔታ)

Single (ያላገባች) Divorced (የፈታች)

Married (ያገባች) Widowed (የሞተባት)

1.6. Occupation

Nurse (ነርስ) Pharmacist (ፋርማሲስት)

Midwife (አዋላጅ ነርስ) Laboratory technologist/ technician

HO (ጤና መኮንን) (ላቦላቶሪ ተክንሽያን)

Other (ሌላ)

1.7. Monthly income (ወርሃዊ ገቢ) (ETB)

‹3000 3000-6000 ›6000

Part 2 assessing knowledge of sun screen

2.1 How many types of sun screen are there?

ስንት አይነት የጸሃይ መከላከያ አለ?

One ☐ Two ☐ Three ☐ Four ☐

2.2. Mention types (አይነቶቹን ጻፍ) ……………………………………………

2.3. SPF Stands for (SPF የሚለው አህጽሮተ ቃል ምን ይወክላል)

Skin protection factor (ቆዳ የመከላከል አቅም) ☐

Sun protection factor (ጸሃይ የመከላከል አቅም) ☐

Specific protection factor (የተለየ የመከላከል አቅም) ☐

2.4 What is the acute (short term) and the chronic (long term) effect of sun light Exposure to skin? (የጸሃይ ጨረር ቆዳ ላይ የሚያመጣዉን የአጭር ግዜ እና የረጅም ግዜ ጉዳት ጥቀስ)

Short term (የአጭር ግዜ) ……………………………

long term (የረጅም ግዜ) ………………………………

2.5. Mention side effect of sun screen.

(የጸሃይ መከላከያ ቅባቶች የጎንዮሽ ጉዳት ዘርዝር)

2.6. Sun screen is indicated only for certain skin types.

የጸሃይ መከላከያ ቅባቶች የሚያስፈልገዉ ለተወሰኑ የቆዳ አይነት ብቻ ነዉ::

Yes (አዎ) ☐ No (አይደለም) ☐

2.7. Only those who have skin disease which is aggravated by sun exposure has to apply sun screen. (የጸሃይ መከላከያ ቅባቶት መቀባት ያለባቸዉ በ ጸሃይ የሚባባስ የቆዳ ችግር ያለባቸዉ ብቻ ናቸዉ::)

Yes (አዎ) ☐ No (አይደለም) ☐

2.8. What should be advised for a person who has skin disease which is aggravated by Sun exposure after improvement of the skin condition?

በጸሃይ የሚባባስ የቆዳ ችግር ያለበት/ያለባት እና የጸሃይ መከላከያ በመጠቀም ላይ ያለ/የለች ሰው ምን አይነት ምክር መስጠት ያስፈልጋል?

Have to stop the sun screen immediately after the disease is gone ☐

(የነበረዉ የቆዳ ችግር ከዳነ በሁዋላ የጸሃይ መከላከያ ቅባት መጠቀም መቆም አለበት)

Have to continue even after improvement of the disease ☐

(የነበረዉ የቆዳ ችግር ከዳነ በሁዋላ የጸሃይ መከላከያ ቅባት መጠቀም መቀጠል አለበት)

2.9. It is always safe to simply pick any type of sun screen and apply .

ማንኛዉም ሰዉ ማንኛዉን አይነት የጸሃይ መከላከያ ቅባት ቢጠቀም ምንም አይነት

ጉዳት አያመጣም ::

Yes (አዎ) ☐ No (አይደለም) ☐

2.10. The amount of sun screen you apply at a time doesn't have difference in its

effeceiveness**.**

ለ አንድ ጊዜ የምንጠቀመዉ የጸሃይ መከላከያ ቅባት መጠን ዉጤታማነቱ ላይ

የሚያመጣዉ ለዉጥ የለም::

Yes (አዎ) ☐ No (አይደለም) ☐

2.11 What is the minimum SPF you look when choosing your sun screen?

የ ጸሃይ መከላከያ ቅባት ስትገዢ ዝቅተኛዉ የ SPF መጠን ስንት መሆን አለበት

SPF 2 ☐ SPF10 ☐ SPF 30 ☐

2.12. Sun screen should be applied only during outdoor activities.

የጸሃይ መከላከያ ቅባት መጠቀም ያለብን ከ ቤት ስንወጣ ብቻ ነዉ

Yes (አዎ) ☐ No (አይደለም) ☐

If your answer is no, why…………………………………..

መልሶ አይደለም ከሆነ ለምን………………….

2.13. Which time of the day sun light should be avoided mainly based on its harmful

Effect on the skin

ቆዳ ላይ በሚያመጣዉ ጉዳት መሰረት በዋናነት ማስወገድ ያለብን ጸሃይ የትኛዉን

ሰአት ነዉ

8am-10am ☐ ከጥዋቱ 2 ሰአት - ጥዋት 4 ሰአት ☐

10am-4pm ☐ ከ ጥዋቱ 4 ሰአት- 10 ሰአት ☐

12am-6 pm ☐ ከ ቀኑ 6 ሰአት - ማታ 12 ሰአት ☐

2.13. How frequent should be sun screen applied (most sun screen)

የጸሃይ መከላከያ ቅባት በ አንድ ቀን ዉስጥ ስንት ጊዜ መቀባት አለብን

Once daily ☐ በ ቀን አንድ ጊዜ ☐

Ten times daily ☐ በ ቀን አስር ጊዜ ☐

Every 3-4 hrs during the day ☐ በየ 3-4 ስአት ልዩነት ☐

Part 3 assessing attitude towards sun screen

3.1 using sun screens is just an extra cost.

የጸሃይ መከላከያ ቅባት መጠቀም አላስፈላጊ ወጪ ነዉ

Totally Agree (በጣም እስማማለዉ) ☐ Disagree (አልስማማም) ☐

Agree (እስማማለዉ) ☐ Totally disagree (በጣም አልስማማም) ☐

3.2 buying sun screens is beneficiary only for cosmetic purpose

የጸሃይ መከላከያ ቅባት መጠቀም የሚያስፈልገዉ ዉበትን ለመጠበቅ ብቻ ነዉ

Totally Agree (በጣም እስማማለዉ) ☐ Disagree (አልስማማም) ☐

Agree (እስማማለዉ) ☐ Totally disagree (በጣም አልስማማም) ☐

3.3 I believe no sun screen is compatible to my skin

ምንም አይነት የ ጸሃይ መከላከያ ቅባት ለ ቆዳዬ አይስማማኝም ብዬ አስባለዉ

3.4. Using sun screen has side effects on skin

የጸሃይ መከላከያ ቅባት መጠቀም የጎንዮሽ ጉዳት አለዉ

Totally Agree (በጣም እስማማለዉ) ☐ Disagree (አልስማማም) ☐

Agree (እስማማለዉ) ☐ Totally disagree (በጣም አልስማማም) ☐

3.5. Sun screen efficacy has not been proved by medical studies

የጸሃይ መከላከያ ቅባቶች ብቃት በሳይንስ የተረጋገጠ አይደለም

Totally Agree (በጣም እስማማለዉ) ☐ Disagree (አልስማማም) ☐

Agree (እስማማለዉ) ☐ Totally disagree (በጣም አልስማማም) ☐

3.6. Sun screens disadvantage is more than its advantage

የጸሃይ መከላከያ ቅባት ጉዳት ከ ጥቅሙ ያመዝናል

Totally Agree (በጣም እስማማለዉ) ☐ Disagree (አልስማማም) ☐

Agree (እስማማለዉ) ☐ Totally disagree (በጣም አልስማማም) ☐

3.7. Sun screen decrease skin discoloration caused by some conditions (sun burn, mild melasma)

የጸሃይ መከላከያ መጠም በ አንዳንድ ምክንያቶች(የጸሃይ ቃጠሎ፣ ቀለል ያለ ማድያት) የሚመጣን የቆዳ ጥቁረትን ይቀንሳል

Totally Agree (በጣም እስማማለዉ) ☐ Disagree (አልስማማም) ☐

Agree (እስማማለዉ) ☐ Totally disagree (በጣም አልስማማም) ☐

Part 4 assessing practice of sun screen

4.1. Do you use sun screen in your daily life?

የጸሃይ መከላከያ ቅባት በየቀኑ ትጠቀሚያለሽ?

Yes (አዎ) ☐ No (አልጠቀምም) ☐

4.1.1 If yes, who persuaded to use

ለ ተራ ቁጥር 4.1 ጥያቄ መልስዋ አዋ ከሆነ ማን እንድትጠቀሚ አሳመነሽ?

Family (ቤተሰብ) ☐ Physician (ሃኪም) ☐

Friend (ጓደኛ) ☐ Mass media (መገናኛ ብዙሃን) ☐

4.1.2 If no, why?...

ለ ተራ ቁጥር 4.1 ጥያቄ መልስዎ አልጠቀምም ከሆነ ለምን?

4.2 How much sun screen do you use at a time for your face?

(Taking tip of your index Finger as a measure)

ምን ያህል የጸሃይ መሀላከያ (የጠቋሚ ጣትን ጫፍ እንደመለኪያ በመጠቀም)

በ አንድ ጊዜ ትጠቀሚያለሽ

Full of your tip (ሙሉ የ ጠቋሚ ጣት ጫፍ) ☐ 1/3rd (ሲሶ የጠቋሚ ጣት ጫፍ) ☐

Half of your tip (ግማሽ የጠቋሚ ጣት ጫፍ) ☐ 1/4th (ሩብ የጠቋሚ ጣት ጫፍ) ☐

4.3 Which type of sun screen do you use?

4.3. How frequent do u apply sun screen?

Once daily for 7 days a week ☐

Every 3-4 hrs during the day 7 days a week ☐

Other…………….

4.4 ምን አይነት የጸሃይ መከላከያ ቅባት ነዉ የምትጠቀሚዉ?

Physical (zink oxide) (ዚንክ ኦክሳይድ) ☐

Chemical (ኬሚካል) ☐

Doesn’t matter (አልመርጥም) ☐