ADDIS ABABA UNIVERSITY
SCHOOL OF PUBLIC HEALTH

ASSESSMENT OF SELF-REPORTED HEALTH SYMPTOMS AND ITS DETERMINANT FACTORS AMONG HAIRDRESSERS IN NIFAS SILK LAFTO SUB CITY, ADDIS ABABA, ETHIOPIA.

Name of Investigator: SARA DULA BUYO (RN, BSN)
Name of Advisor**:** ABERA KUMIE (MSc, PhD)

A research thesis submitted to school of public health, graduate studies Addis Ababa University in partial fulfillment of the requirements for the Master degree in public Health (MPH).

December, 2015

Addis Ababa, Ethiopia

ABSTRACT

Back ground: Hairdressing is a worldwide job, with predominantly female staffs of the younger age group, who are exposed to different physical and chemical hazards present in their work environment , which affect their health seriously. However, there is no information regarding Ethiopian situation.

Objective: To assess self-reported work-related health symptoms and its determinant factors among hairdressers working in beauty salons of Nifas Silk Lafto Sub City, Addis Ababa.

Methods: Descriptive cross-sectional study was conducted using interviewer-administered, pre-tested, structured questionnaire prepared in English and translated to local language (Amharic), to assess 480 stratified, proportionately sampled hairdressers, from April 15 to June 15, 2015. Checklist was used to assess the work environment. Variables on socio-demographic characteristics, work-related symptoms, preventive methods employed, work duration and conditions, and risk factors for ill health were collected after ethical clearance was obtained from the school of Public Health College of Health Sciences. Information collected was processed and analyzed using SPSS-version 20, Chi-x^2 test and P value was used to compare the values. Multivariate analysis and logistic regression was done for the risk factors.

Results: Musculoskeletal symptom (at least one symptom) was reported by 372 (77.5%) hairdressers. Back (63%) and foot/leg (54.4%) pain/discomfort was reported by the majority. Uncomfortable body posture at work (AOR= 4.256 (95%CI = 2.544 – 7.119)), and non-use of ergonomic tools (AOR, 2.082 (1.148 –3.773)), were major factors associated with musculoskeletal symptom. Hand allergy/eczema was reported by 103 (21.5%) of hairdressers. Of whom 39(38%) of them were those who were engaged in hair washing activity and 61 (59.2%) of them were those who worked more than 8 hours a day. Prevalence of respiratory symptom (at least one symptom) was 207(43.1). Rhinitis (32%) and breathing difficulty at night (11%) were frequently reported symptoms. More than 22% of the hairdressers reported nasal symptom with hair spray and dye application/preparation. Reproductive health problems were reported by 44% (n=25) of hairdressers.

Conclusions: The study showed that the hairdressers suffer multiple health symptoms of multifaceted origin, which needs organized and coordinated intervention, yet the profession is neglected. Therefore, ensuring proper work organization and design, and safe work environment is recommended. Awareness Creation regarding musculoskeletal and respiratory symptom is emphasized. Hence, preparing guideline on Occupational Health and Safety of hairdressers' salon, and update of the training manual has paramount importance.

ACKNOWLEDGMENTS

Sincere appreciation and warmest thanks are extended to Dr. Abera Kumie, for his constant encouragement and invaluable advice.

I would also like to thank the Nifas Silk Lafto Sub city, trade licensing office, trade licensing office of the 12 districts in the sub city for their cooperation in provision of the necessary information, guidance and support to get relevant data.

I am grateful to the salon owners, and the hairdressers /participants, for their cooperation in providing the necessary information, without which completion of this research project was unsuccessful. I am also thankful for the data collectors and drivers who provided me transportation.

I would also like to express my gratitude to my friends and all those who participated in this project activity by sharing me invaluable ideas and opinions.

Moreover I would like to thank my family members, who stood by my side in all aspect, throughout this project work. Especially my brothers' Dame & Chera who helped me in registration of the salons.

Finally, I would like to acknowledge Addis Ababa University, college of Health science, School of Public Health for providing me this opportunity to undertake this research project, and also for making internet service accessible to get the necessary electronic material.

Table of contents

Contents page

List of Tables

LIST

LIST OF FIGURES Error! Bookmark not defined.

FIGURE **PAGES**

I. INRODUCTION

1.1 BACKGROUND

The hairdressing sector is typical small establishments, which is among the rapidly growing sector nowadays. Workers in hairdressing salon are exposed to different physical and several hundred chemicals contained in hairdressing products, of which, some have serious adverse health effects unless proper risk reduction measures were instituted (1).

1.2. Statement of the problem

Hairdressing is a worldwide job, with predominantly female staffs of the younger age group, who are exposed to serious occupational health risks and need improvement of working conditions as major priority (2). Hairdressers are involved in human hair care activities such as styling, coloring, shampooing, or application of permanent hair smoothening products and hair care products, (2) dyeing, and bleaching, which contain multitude of chemical components (3-7). Different studies have shown that, exposure to these chemicals, even if not all, can predispose hairdressers to serious occupational health problems such as respiratory (3, 6), skin problems (7), cancer risks (4), and adverse pregnancy outcomes (8). Moreover, standing for a prolonged period of time, constant and repetitive body movement causes discomfort and musculoskeletal problems (2).

Even if hairdressers were exposed to different health problems, there are factors that can reduce these risks. These include ensuring healthy and safe working condition, health surveillance (9), use of protective material like gloves (2, 9), use of ergonomic tools and adequate ventilation measures (2). Despite this occupational hygiene measures such as appropriate ventilation are often lacking (5). In our setting from practical observations the hairdressers do not usually use personal protective equipment's like glove/mask when dealing with chemicals or washing hair. This actually

increases risk of health problems.

With regard to occupational health policy in Ethiopia, there is a positive regulatory environment as stated in article 42/2 of the constitution regarding workers right for healthy and safe work environment and also in the health policy, it is stated as a priority issue (10, 11). However, it seems that the hairdressing sector is neglected, since there is no guideline addressing the health risk of the workers, and there is no regular inspection, though large numbers of workers were engaged in this activity as observed.

Even though, different studies show increased risk of health problems among hairdressers related to their work, there is limited information regarding the health status of hairdressers in our setting despite their increased risk of exposure. Moreover, most of the studies were conducted in developed countries (1, 3, 7) and the hair styling and hair care products used might not even be the same or similar with that of developing countries like Ethiopia. Therefore, it is important to assess self-reported health problems of hairdressers to identify the extent to which their health is affected by the nature of their work.

1.3. Significance of the study

Even if there were no studies undertaken in our setting, work-related health and safety problems in the hairdressing sector is broad. Maintaining good health of workers in hairdressing salon is important through health surveillance and cost –effective prevention practices. Therefore, the findings of this study will create awareness regarding the health problems of hairdressers and alerts the concerned bodies to draw their attention to this sector. Based on the outcome of the study, concerned authorities can develop practical tools and instructions on health for both employers and employees; develop preventive strategies, guidelines or policies that help to minimize occupational health problems in hairdressing sector. In addition it can also provide baseline information for further areas of research.

II: LITERATURE REVIEW

Hairdressers are involved in human hair care activities which involve use of different types of shampoos, conditioners, dyes/colorants, relaxer creams, permanent wave solutions, gel, mousse, hair sprays and others. Previously people use organic products but nowadays use of chemicals is very common. This affects both the health of workers and the health of the environment in all countries of the world. However, ensuring healthy and safe work places, by using all available prevention tools, including legislative, technical, research training education, information and economic instruments, minimizes occupational hazards (9).

Hairdressers were exposed to several chemical compounds present in their work environment, such as ammonia, hydrogen peroxide, persulphates, (3, 5, 6) p-phenylenediamine and its derivatives, (7) and carcinogens (4) contained in hairsprays, colorants, relaxer cream or in hair care products. Hairdressers might be exposed to a range of chemicals in their work environment, over a long period of time often without adequate ventilation, or the use of personal protective equipment (2). These chemicals are irritants to the skin and airway. Moreover, repetitive and awkward movements and position can predispose them to musculoskeletal problems.

2.1 ***RESPIRATORY PROBLEMS***

A nationwide cohort study conducted in Sweden from 1970 to 1995 on 3957 Hairdressers, showed an increased incidence of asthma among the hairdressers- 3.5/1000 person-years. Hairdressers, who were exposed to persulphates, and hair sprays were at an increased risk of asthma as reported in the study (3).

A cross sectional study conducted in Hebron city, on 170 female hairdressers revealed that, prevalence of self-reported asthma, based on

doctor confirmed diagnosis was found to be 6% (n=10). The proportion of other respiratory symptoms being 19% (n=32) for wheezing, 31% (n=53) for chest tightness, and 17% (n=29) for coughing. The study also indicated the low level of knowledge of participants about the chemicals they used and their potential harmful effects on health (6).

Another study conducted among hairdressers in Finland revealed an increased prevalence of upper and lower respiratory symptoms among hairdressers compared to saleswomen. These respiratory symptoms include rhinitis (0R=1.7), rhinitis with eye symptoms (OR=1.9), cough, dyspnea, and bronchitis (prevalence 6.8%) (12).
Another case control study conducted in UK, on 147 hairdressers, revealed the frequency of self-reported asthma to be similar in both groups (hairdressers 16%, controls 17%) as was chest tightness and wheeze. However, work-related cough was significantly more frequently reported in hairdressers (13.2%) than in controls (13).

A case-control study conducted in city of Mashhad northeast Iran on 50 female hairdressers with their 50 matched controls, revealed significantly higher respiratory symptoms among hairdressers, 50% of work-initiated respiratory symptoms, 33% cough, and 29% breathlessness after chemical exposure than control groups and the pulmonary function tests were also significantly lower. In this study bleaching powder and hair spray were identified as the most respiratory irritants (14).

In study conducted in Brazil, hairdressers reported respiratory problems including allergy experience, hay fever and sinusitis (71.7%). It also indicated that these airway irritants which promote allergy and sinusitis may also contribute to headaches (15).

2.2 ***SKIN PROBLEMS***

Wet working condition and exposure to chemicals increases risk of skin problem among hairdressers. Study conducted in Palestine reported hand dermatitis of 14% (n=23) (5), and another survey from Korea among 1,054 hairdressers, revealed 212(20.1%) of them have dermatologic symptom (16). Another Systematic Review on skin problems of hair dressers showed increased prevalence of contact dermatitis ranging from 16.4% cohort studies that included a clinical examination to 80% questionnaire- based studies, as compared to general population with prevalence of contact dermatitis, secondary to use of hair dye, of 5.3% and of allergy to paraphenylenediamine of 0.1% to 2.3% (17). Allergic skin reactions to p-phenylenediamine, found in hair dye are common (7).

2.3 ***RISK OF CANCER***

Studies show that there is an increased risk of cancer among hairdressers than the general population. The International Agency for Research on Cancer, in its overall evaluation, states that occupational exposures to chemicals as a hairdresser or barber are probably carcinogenic to humans (Group 2A) (4). A meta-analysis of cancer risk among hairdressers & related workers showed a higher risk of cancer among this group than the general population, with the pooled RR of occupational exposure as a hairdresser being 1.27 (95% CI 1.15–1.41) for lung cancer, 1.52 [95% confidence interval (CI) 1.11–2.08] for larynx cancer, 1.30 (95% CI 1.20–1.42) for bladder cancer and 1.62 (95% CI 1.22–2.14) for multiple myeloma. The analysis also pointed to the need for improved ventilation system and hygiene measures to reduce risk of exposure to potential carcinogens at work (18). This problem is not going to be addressed in this study.

2.4. ***ADVERSE REPRODUCTIVE HEALTH OUTCOME***

A birth cohort study conducted in Sweden from 1973 to 1994, reported that the hairdressers more often gave birth to infants that were small for gestational age (SGA) (3.6% versus 2.9%; OR 1.4, 95% CI 1.1 to 1.7), and with high incidence of major malformation (2.8% v 2.1%) as compared with the general population (8). Another reproductive outcome/fertility study among female hairdressers in Brazil showed that 7.7% (n=4) of hairdressers reported being unsuccessful in trying to get pregnant for a period greater than twelve months (15).

2.5. ***MUSCULOSKELETAL PROBLEMS***

Study conducted in UK, reported significantly higher levels of musculoskeletal problems, including work-related shoulder pain (OR 11.6, 95% CI 2.4–55.4), work-related wrist and hand pain (2.8, 1.1– 7.6), work-related upper back pain (3.8, 1.0–14.9), work-related lower back pain (4.9, 1.5–15.9) and leg/foot pain (6.4, 2.3–17.9) in hairdressers (13).

A cross-sectional epidemiological study of 220 hairdressers in Brazil showed 71% prevalence of work-related musculoskeletal disorder. The study also identified biomechanical, organizational, psychosocial occupational risk factors and working for more than 15 years in the industry (19).

A case-control follow up study conducted in southern Sweden over eight years period (baseline data 1989 & follow up survey in 1997), showed trend of increasing prevalence of musculoskeletal symptoms of the neck/ shoulders and/or arms, as well as decreasing general health status at workplace (20). Another study also stated that musculoskeletal problems of the neck/shoulders or upper limb area are the largest, and that it is related to repetitive injury (21).

Musculoskeletal symptoms are five times more common among hairdressers as stated in EU-OSHA (2). Some of the factors that increase the risk of musculoskeletal symptoms are: regular & repetitive movement of different body parts, bending or twisting of spine, holding elbows above shoulder constantly, working for longer period without rest (2, 22), awkward body postures and standing for prolonged period (2).

2.6. ***SELF- PROTECTION*** /**MEASURES TO REDUCE THE HEALTH RISKS**

Studies suggest that proper ventilation (2) and use of personal protective equipment's minimizes potential health problems that arise from wet work and handling large number of chemicals body in the work environment (1, 2, 9, 22). However, appropriate use of protective glove (6, 15), mask or goggle is low as indicated by different studies. Though, ventilation minimizes health risks, few/no salons had proper ventilation (5, 6)as stated.

Musculoskeletal symptoms can be reduced by improving working conditions by use of ergonomic tools (e.g. height adjustable chairs & washbasins, trolleys on wheel), by promoting proper rest breaks, alternating tasks to allow working in different body position, and promoting sufficient work space to allow movement of the body without strain (2, 22).

In one study, hairdressers reported reading of commonly used product labels 146 (92%), and use personal protective equipments like glove after receiving occupational health and safety training, indicating the need for awareness or comprehensive knowledge for self protection (13).

As seen in above literature review hairdressers were exposed to different health risks in their work environment and also their self-protection is low. However there is limited information in our setting to describe the level of health risk hairdressers were exposed to and the associated factors. Therefore, it is important to assess health problems experienced by the

hairdressers in Nifas Silk Lafto Sub city in order to create awareness regarding the prevailing risks in the working environment and to employ proper prevention strategies and guidelines to minimize the health hazards at work, as it is technically feasible and economically productive (9).

CONCEPTUAL FRAMEWORK

Conceptual framework is developed for the factors associated with the health problems of hairdressers after reviewing the literatures. Accordingly, three major factors, work environment, individual factors and tasks performed, which can contribute for the adverse health outcome of hairdressers, were identified. (Figure 1)

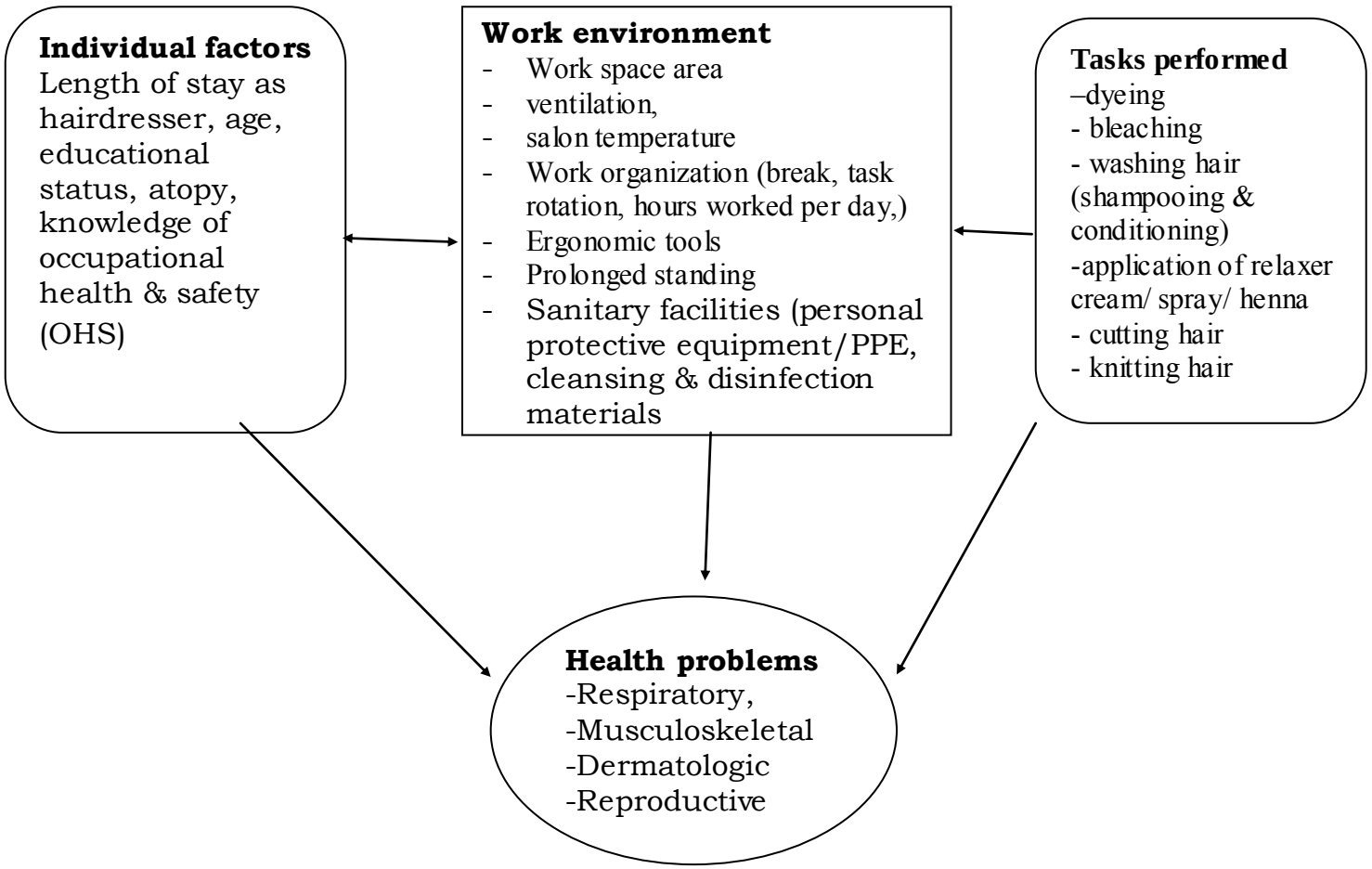


Figure 1. Conceptual framework that shows the health problems of hairdressers and the associated factors

II OBJECTIVE OF THE STUDY

3.1 General objective:

- To assess self-reported health problems and its contributory factors among hairdressers in Nifas Silk Lafto Sub City

3.2 Specific objective:

1. To determine the prevalence of self-reported health problems of hairdressers' especially respiratory symptoms, musculoskeletal, reproductive, and skin problems.
2. To identify factors associated with adverse health risks of hairdressers

IV. METHODS

4.1 Study design: descriptive analytical cross sectional survey was conducted.

4.2 Study area and period: the study was conducted in Nifas Silk Lafto Sub city (N/S/L/S/city) from October 1 2014 to August, 2015. Nifas Silk Lafto Sub city which is found at the south west part, is one of the ten sub cities in Addis Ababa, which is further subdivided into 12 'woredas' or district. Its borders are Akaki kalit at south east, Bole on North-east, Kolfe Karanio on west side, Kirkos and Lideta at north, and Oromia zone at south part. The total population is 343,956, of whom 182,297 are female and 161,659 are male, and covers 68.3 square kilometers. It is the third most populous sub city next to Karanio and Yeka sub cities.

The total numbers of hairdressing salons located in the sub-city are 496; however 11 of them make only hair knitting "traditional shuruba" and are excluded. Therefore, the total number of hairdressing salon were 485, with 1102 hairdressers of whom, 1004 are females and 98 are males. The hairdressing jobs is mostly small establishments with fewer workers or staff, on average two, and are on the vast majority run by self-employed hairdressers who often work on their own, either in their own salon set up in their home or at business buildings.

Moreover, the nature of the work shows fluctuation i.e, from Monday to Thursday there is less work because of less customer flow (especially for smaller salons) and on Friday and weekends there is an increased work load. During the time of holydays and weeding the load increases much more too.

4.3 STUDY POPULATION

Source population: one thousand four female hairdressers, who were currently working in hairdresser salons in Nifas Silk Lafto Sub city.

Study population: sampled hairdressers during the study period

Inclusion criteria: all female hairdressers between 15 to 49 years, who are currently working in a hairdressing salon in Nifas Silk Lafto Sub city and who worked in hairdressing salon/industry for at least three month.

Exclusion criteria: hairdressers who worked in hairdressing salon for less than three months.

In addition in order to get complete information regarding hairdressing salons and hairdressers, 4 trainers/teachers from three hairdressing training institutes, and three students who were about to complete their training (to graduate) were interviewed regarding the course content specifically on occupational health and safety issues. The manual they use is also observed with particular focus to health and safety issue. Information gained was personal protective equipment, especially use of glove with dye application and scalp observation for wound, lesion, and severe dandruff before washing hair is highly emphasized by all of them. However, chemical risk of airways, and musculoskeletal conditions were not mentioned. When asked about use of mask for nose/mouth cover, when dealing with chemicals like dye, they mentioned that it is good but they do not use since customers might be offended. Moreover, the training manual also focuses more on skin condition only.

(One important thing observed was that customer satisfaction and customer handling is given priority, as employers are more concerned with income i.e they speak more of the answers from customer point of view.)

Moreover, Nifas Silk Lafto Sub city, Food and Drug administration, trade licensing and control office regarding health related industries was visited (informal), to see if there is a guideline for hairdressing salons. There is no guideline found but to get or renew license, medical checkup, and the following materials were requested (no qualification set for the materials). These include chair, table, towel, shelf, 'kask' /blow-dryer, wastebasket, fire extinguisher, first aid kit, & sterilizer.

4.4 Sample size: The sample size for the first objective i.e. the prevalence of self-reported respiratory, skin and musculoskeletal symptoms is calculated using 33%, 21% and 71% proportion for each respectively, which was reported from different studies conducted in northeast Iran(14), Korea (16) and Brazil (19). These proportions show those who have the symptom/problem. A Precision level of 5% and 95% confidence level is considered.

$$n = \frac{(Z1-\alpha/2)^2 P(1-P)}{d^2} \quad \text{where,}$$

Where n= the minimum sample size required
P is an estimate of the proportion of self-reported health problems among hairdressing population
d is the margin of sampling error tolerated
$Z\alpha/_2$ the critical value at 95% level of confidence (1.96)

$$n_1 \text{ (for respiratory problem)} = \frac{(1.96)^2\ 0.33\ (1-0.33)}{(0.04)^2} = 531$$

Chart that shows sample size for first objectives (prevalence of self-reported health problems) & second objective

objective 1	A	Z at 95% CI	d	n
Respiratory problem p=33%	5%	1.96	0.04	531
Musculoskeletal problem p=71%	5%	1.96	0.05	316
Skin problem p= 21%	5%	1.96	0.03	708

The sample size for the skin problem is the largest, 708; however, it almost becomes population based study. Therefore, by taking into consideration time and financial constraint, and population size, 531 were taken as appropriate sample size for the first objective.

For the second objective on factors associated with the self-reported health problems, the following assumptions were made: musculoskeletal symptom among hairdressers with uncomfortable body posture being 80% and musculoskeletal symptom among hairdressers with comfortable body posture being 56% (19). A type I error of 5%, 80% power to detect the assumed difference and a 10% nonresponse rate, the sample size required for the study is calculated as follows.

$$n = \frac{[Z\alpha/_2 \sqrt{2pq} + Z_1\text{-}B \sqrt{P_1q_1 + p_2q_2}]^2}{(p_1 - p_2)^2}$$ where,

n= n1+n2 , n2 = n1,

Where n1=number of hairdressers with uncomfortable body posture

n2 = number of hairdressers with comfortable body posture

p1= proportion of musculoskeletal symptom among hairdressers with uncomfortable body posture (80%)(19).

p2=proportion of musculoskeletal symptom among hairdressers with comfortable body posture (56%)(19).

$p = \frac{P1 + P2}{2} = \frac{0.8 + 0.56}{2} = 0.68$ & $q=1-p = 0.32$

$Z\alpha/_2$ critical value at 95% level of significance

α is type I error with a value of 5%

Z_{1-B} standard normal distribution value corresponding to 80% power to detect the assumed difference = 0.84.

$$n1 = \frac{[1.96 \sqrt{2(0.68)(0.32)} + 0.84 \sqrt{(0.8)(0.2) + (0.56)(0.44)}]^2}{(0.80-0.56)^2}$$ where,

n1=58 (hairdressers with uncomfortable body posture)

n2= (hairdressers with comfortable body posture)

n1 =n2 so $n= n_1+n_2 = 116$

However, this sample size is small. Therefore, in order to get large sample size odds ratio of 2 is considered and sample size is calculated by epi-Info, 314. Considering 10% none response rate i.e. 31, then the sample size will be 345.

Objective 2 (factors associated with the health problems reported)	α	power	OR	Z at 95% CI	n
P_1 Musculoskeletal problem among exposed=80% P_2 Musculoskeletal problem among unexposed =56%	5%	80%	2	1.96	314

Since the sample size for the first objective is the largest, 531, it is taken as a final sample size for this study.

4.5 Sampling technique: List of the entire hairdressing salon in Nifas Silk Lafto sub city with their addresses and capital were obtained from Nifas Silk Lafto sub city trade licensing office, to select representative sample based on their capital structure. However, the documents provided were not up-to-date and also incomplete. Therefore, complete registration (census) of the hairdressing salons with their respective hairdressers' were made before the actual data collection begins. After having complete list of the hairdressers' and the salon, the salons were stratified according to their size in each 'woredas' or district.

Then sampling frame was prepared for the hairdressers registered in each 'woreda' based on the stratified salon size. This is helpful in order to include hairdressers from all types of hairdressing salons (large, medium or small) as exposure status may differ based on the work load. Thereafter, 531 eligible hairdressers were selected from each stratum in the 12 districts by using simple random sampling technique proportionate to the number of hairdressers in each 'woreda'.

None response rate was 46 (8.7%) and 5 questionnaires were excluded from analysis since very important information was not filled out.
Finally, 480 hairdressers (248 from small, 162 from medium, and 70 from big) from 257 salons (165 small, 74 medium, and 18 big salons) were interviewed. (The sampling unit is hairdresser and not the salon)

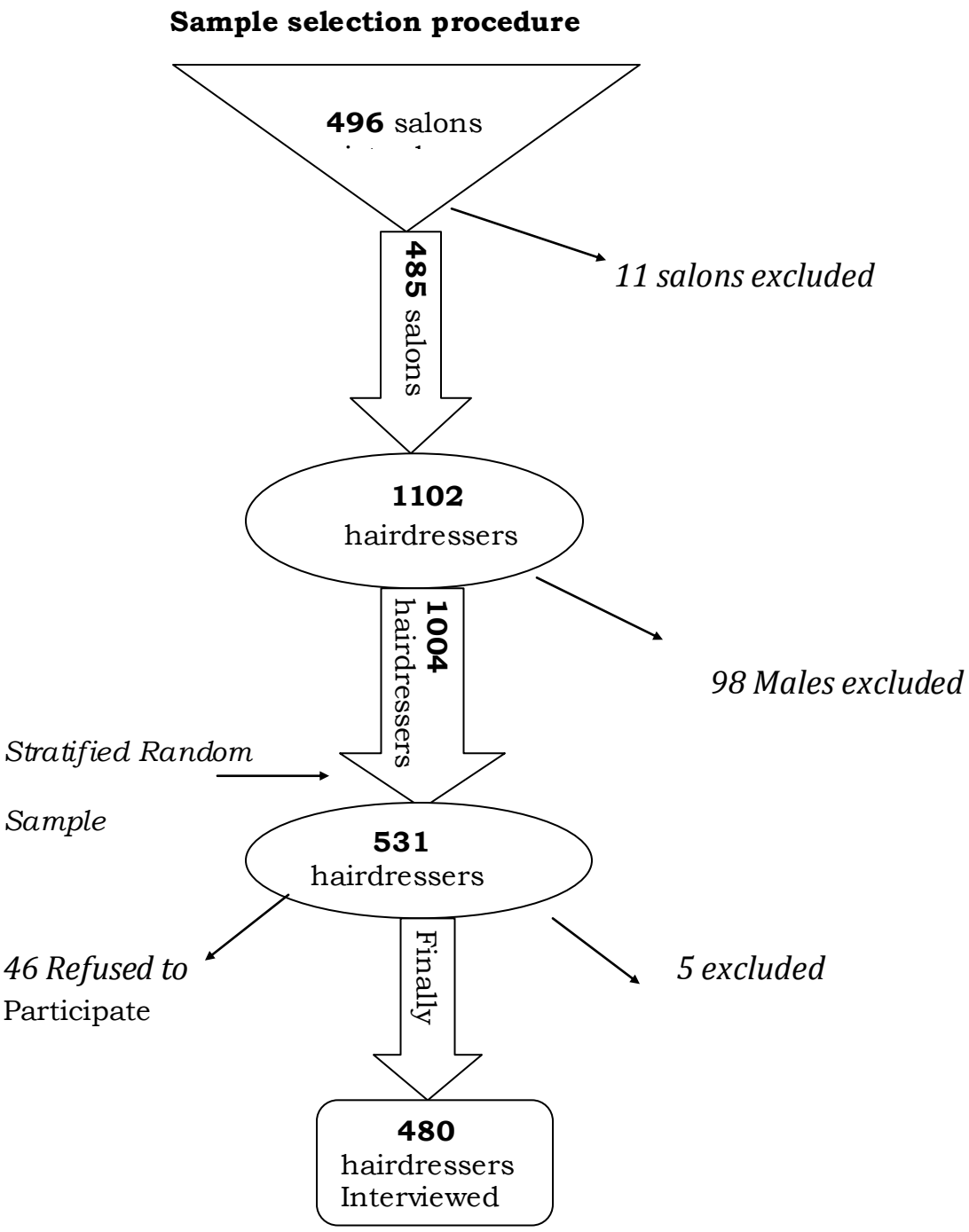


Figure 2 Sample selection procedures of hairdressing salon and hairdressers

4.6. DATA COLLECTION METHODS (INSTRUMENT, PERSONNEL, DATA QUALITY CONTROL)

4.6.1 Instruments of data collection: A pre-tested interviewer administered questionnaire was used to collect data. Even if access to standard internationally accepted questionnaire was difficult, after thorough literature review, specific and precise questions that provide the information needed for each variable was developed in a structured way in English and translated into Amharic for feasibility. In addition, in order to identify the determinant factors /exposure variable for ill health, observational checklist was developed by reviewing occupational health and safety guideline for hairdressers in other countries (2, 22-24), to assess the work environment and the exposure such as the type of chemicals, personal protective devices, sterilizations, washing facilities.

4.6.2 Data collection: after preparation of the necessary material and training of data collectors– 2 diploma nurse and 2 Bsc nurse students, were trained on how to fill the questionnaire, started the field work with supervision of the principal investigator. Since the field work requested repeated visit to the salons as the hairdressers were occupied by tasks, at the time of visit, these data collectors were fed up and quit the work after collecting 33% of the data and the rest was collected by the principal investigator over a given period of time. At the beginning self-administered questionnaire was intended but it was not feasible and the participants were interviewed at their work place, after clear explanation was given regarding the objectives of the study and permission was secured by the participants. Then the door of the salons of hairdressers who completed the questionnaire was marked to avoid repetition.

The checklist was filled in by the data collectors regarding situation in each salon, including, ventilation, Personal protective equipment and its

type, presence of ergonomic tool, work space area, salon size both in terms of measurement in meter and number of workers. In addition, some hair products (shampoo, conditioner, dye, sprays, relaxer cream, and mousse) that are used in the salons were checked and their chemical ingredients were recorded. Products not in the salon during the time of data collection, but, frequently brought by customers were also recorded by asking the hairdresser. Other products such as hair oils or treatments, nail polish and removers, other cosmetic products etc were not recorded since it was very difficult to do so, as the products are diverse. Salon activity was not limited to hairdressing activity only but also manicure and pedicure activities were carried out.

4.7 variables:

Dependent variables: health problems of hairdressers related to skin, respiratory, musculoskeletal, and reproductive health.

Independent variables: the socio-demographic variables (age, marital status, religion, ethnicity, educational level, residence) work history (hours worked a day, days worked per week, duration in the industry and number of customers), work tasks and products used, knowledge about the chemicals use and potential health effects, personal use of dye, use of different protective methods (ergonomic tools, glove, mask, goggle), number of workers, work environment (work space, salon size, ventilation status, salon temperature) and cleansing and disinfectant solutions.

4.8 OPERATIONAL DEFINITIONS ACCORDING TO THIS STUDY

Hairdressers: are female individuals who work in beauty salon either as an owner or as an employee and carryout hair care activities such as hair coloring, shampooing, cutting, styling, etc.

Hairdressing/beauty salon: a place where female customers get hair care services, such as shampooing, coloring, cutting, styling, apply hair care products and permanent waves. In addition nail polish application or pedicure and manicure activities are carried out in most places.

Salon size: refers to the overall length and width of the salon in meter square. Since the size of the salon in m^2 doesn't match with the extent of activities in the salon, numbers of workers in the salons were considered to categorize the salons as small, medium or large.

Small salon – one which has 1 to 2 employees
Medium salon – one which has 3 to 4 employees
Large salon – one which has five /more employees

Work space area: refers to amount of working space around the washbasin and client seat, to allow free movement without causing strain and discomfort on the body.
Styling hair: shaping or designing hair with instruments by using electricity or other heat sources like ethanol. This activity involves smoke pollution if temperature is not adjusted or if hair oil is used during styling, or if unclean/dirty hair is styled.

Knitting: refers to interweaving hair or what is locally called "shuruba". This may include use of wig or sewing by using needle and thread.
Nail lacquer application: - in this study it can be either limited to application of nail polish and remover only or may involve complete pedicure and manicure activities.
Hours worked per day: refers to the number of hours spent on hair care activities, otherwise the hairdressers were at work place from early morning 8:00 am to 6:00 pm, on Sundays and Saturdays it is much more beyond than these hours.
Self-reported work related health problems: symptoms/health problems initiated/aggravated by work and may improve when off work.
Musculoskeletal symptoms: refers to pain or discomfort, in the past one month, in any of the following body parts: back (lower/upper), shoulder, neck, arm/wrist or leg/foot reported by hairdressers.

Dermatologic symptoms: includes hand eczema/ cracking /Allergy reported by hairdressers.

Respiratory symptoms: refers to symptoms from the nose (sneezing, runny nose, congestion) without having cold, wheezing in the chest, cough first thing in the morning and at night, phlegm/sputum from chest first thing in the morning, attack of shortness of breath/breathing difficulty at night and during the day without strenuous activity, reported by hairdressers in the past 12 months.

Respiratory symptoms related to specific task exposure: refers to symptoms reported immediately after exposure to hair dye, spray or smoke pollution from hair styling. These symptoms include tightness in the chest, breathing difficulty, cough, and symptom from the nose. In addition eye symptom was included.

Eye symptom: refers to eye irritation/burning/watering after exposure to chemicals contained in hair care products/ smoke from styling hair.

Symptom from the nose: refers to presence of sneezing/runny nose/stuff/congested nose, which has not been caused by common cold.

Prevention measures: any action taken to protect oneself from occupational disease or injury, such as ventilating the salon, use of gloves, masks, goggles, reading labels of hair care products used, use of ergonomic tools, maintaining good body posture at work.

Task rotation/alternation: refers to performing different activities that requires involvement of different body posture.

Ventilation: refers to allowing circulation of adequate fresh air in the salon

Regular break: refers to having tea break and lunch break between activities, especially when there is continuous customer flow.

Uncomfortable body posture: refers to elevation of elbow above the shoulder and bending or twisting at the back during work in most of the times.

Ergonomic tool presence or absence - In this study to determine presence

of ergonomic tool observations to 5 salon equipments (height adjustable chair, height adjustable wash basin, stool on a wheel, trolleys with a wheel and scissor with finger support) were made. But from observation made during data collection hair cutting task was minimal, and the trolleys are by their side at work whether it has wheel or not, causing less strain on them. Therefore, presence of ergonomic tool was determined based on the availability of the two most important and frequently used equipments, - height adjustable chair and height adjustable wash basin. If these two materials are not available, then it's taken as no ergonomic tool in the salon.

NB: since there was a chance in which more than one hairdresser was included in the study from a single salon, these hairdressers do share the tools or equipments found in that salon.

4.9 Data processing and analysis: before and during data processing the information was checked for completeness then data was given a code and entered into computer using SPSS version 20 program. The results were presented by using tables and charts. Chi-square test and P value was checked to see if there is any statistically significant association between the outcome variables (health problems reported) and the independent variables. Univariate analysis was used to calculate odds ratios (OR) and 95% confidence intervals to estimate the effect of independent variables on the outcome variables especially musculoskeletal problems. It was not possible to do one regression analysis for all the health symptoms together, as they have different risk factors. However, adjusted regression analysis was done only for musculoskeletal symptom since its prevalence was very large. It was performed to assess if there was an increased level of reported symptoms in the hairdressers exposed to the risk factors, after having adjusted for the other variables. Finally interpretation, discussion, conclusion and recommendations were made based on the objectives and findings.

4.10 Data quality management: pre-test of data collection tool was done before the actual data collection period and the appropriateness, reliability and time needed to fill the questionnaire was determined. Some questions were rephrased to make it clearer. The collected data was checked thoroughly for their completeness and appropriateness after completion of interview and also checked by supervisor at the end of each day during the data collection period to ensure good quality data. Before and during data processing the information was checked for completeness and internal consistency. In addition informed and surprised supervisions were made during field work.

4.11 Ethical consideration*:* appropriate referencing procedures were used in this research project and Consent was secured from all concerned bodies before the data collection, i.e. from Addis Ababa University, school of public health, after the approval of institutional review board (IRB) committee, from Nifas Silik Lato Sub city (N/S/L/S/city) trade licensing office and from the owners of the hairdressing salon and from the hairdressers on which the project was conducted, after clear explanation of the purpose of the study, the procedures and confidentiality of the information was given. Moreover, the final copy of this project will be given to Nifas Silik Lato Sub city trade licensing office. This study contributed to the identification of the prevalence of hairdresser's health problem and for initiation of appropriate preventive interventions to reduce work related health problems. The participants will be informed on risk reduction methods after completion of the study.

4.11 Dissemination of study findings: the results of this study will be primarily communicated to the respected health authorities, who will utilize the findings especially occupational health and safety authority. If possible abstract of this study will be distributed to other health related and development sectors by mail. The researcher will try to get the result published in local or international journals.

V RESULTS

5.1. SOCIODEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS

Four hundred eighty sampled female hairdressers were participated in this study giving a response rate of 91.3%. The mean age of hairdressers was 25.6 ± 4.9 years. Majority of the respondents 324 (67.5%), were unmarried, 389 (81%) were orthodox by religion, 207 (43.1%) were Amhara by ethnicity and 321 (67%) have completed secondary school.

Table 1 Frequency distribution of hairdressers in Nifas Sik Lafto Sub city by their socio-demographic characteristics, Addis Ababa; April 15 –June 15 2015

Variables	**Number**	**%**
Age group		
- 15-19	41	8.5
- 20-24	187	39
- 25-29	153	31.9
- 30-34	65	13.5
- 35-48	34	7.1
- Total	480	100
Marital status		
- Unmarried*	324	67.5
- Married	156	32.5
- Total	480	100
Educational status		
- post-secondary	79	16.5
- secondary	321	66.9
- primary	80	16.7
- **total**	480	100
Religion		
- orthodox	389	81
- prothestant	77	16
- musilim	10	2.1
- others	4	0.8
- total	480	100
Nationality		
- oromo	84	17.5
- amhara	207	43.1
- tigre	123	25.6
- SSNN	60	12.5
- Others	6	1.3
- Total	480	100

- Unmarried* includes never married (66%) divorced and widowed

5.2. NATURE OF THE WORK ENVIRONMENT

Two hundred fifty seven hairdressing salons located in Nifas Silk Lafto Sub city were visited during the study period. The median size of the salons was 16m^2 (SD 17.6) ranging from 4m^2 to 110m^2. The median number of hairdressers was 2 (SD 2.8) with the range of 1 to 28. Hundred ninety five (75.8%) of the salons have doors as a means of ventilation mechanism, which is only partially opened in most salons. Windows are not opened in almost all of these salons and even, some do not have windows. Sixty two (24.2%) of the salons have no means of ventilation. Regarding availability of personal protective equipment, 182 salons (70.8%) have glove of which 91 (50%) salons have plastic type of glove and 50% latex glove. Only 15 (8.2%) of the salons have mask. Overall ergonomic tool was found in 56 (21.7%) salons. Of the 257 salons, 117 (45.5%) salons have height adjustable chair, 133 (51.8%) salons have height adjustable washbasin and only 6 (2.3%) salons have stool on a wheel (Figure 3). Most of the salons reported use of normal detergent and bleach solution for cleaning salon equipment's. The overall hygiene statuses of the salons were poor, as seen with observation of rollers, combs towels and the floor.

Figure 3 The work environment of the salons

5.3. WORK CONDITION /CHARACTERISTICS

5.3.1 Intensity of work

Majority of the respondents, 263 (55%) have been in the industry for less or equal to 3 years with median number of years of 3. Regarding hours worked per day, 206 (42.9%) of them works 8-12 hrs/day with the median of 6hrs and 223 (46.5) have 3-15 number of customers per week with the median number of 20 customers. More than 95% of them work 6 days per week.

Table 1. *Frequency distribution of hairdressers in Nifas Silk Lafto Sub city by their nature of work; April 15 –June 2015; Addis Ababa*

Variables	NO	%	Median	SD*
1. Duration in hairdressing sector				3.67
- ≤ 3 years			3	
- 3.1 -10 years	263	54.8		
- > 10	192	40		
	25	5.2		
2. Hours worked per day			6	2.11
- 2-5 hrs	170	35.4		
- 6 -7hrs	104	21.7		
- 8-12hrs	206	42.9		
3. Number of customer per week			20	15.4
- 3 – 15	223	46.5		
- 16 – 30	168	35		
- 31 – 85	89	18.5		

SD* standard deviation

5.3.2 Tasks more frequently performed by the hairdressers

Hundred fifty two (31.7%) hairdressers are more frequently engaged in washing task, 124 (25.8%) in washing and styling task followed by, 95(20%) styling task and 65 (13.5%) in nail lacquer and washing tasks (Figure 4).

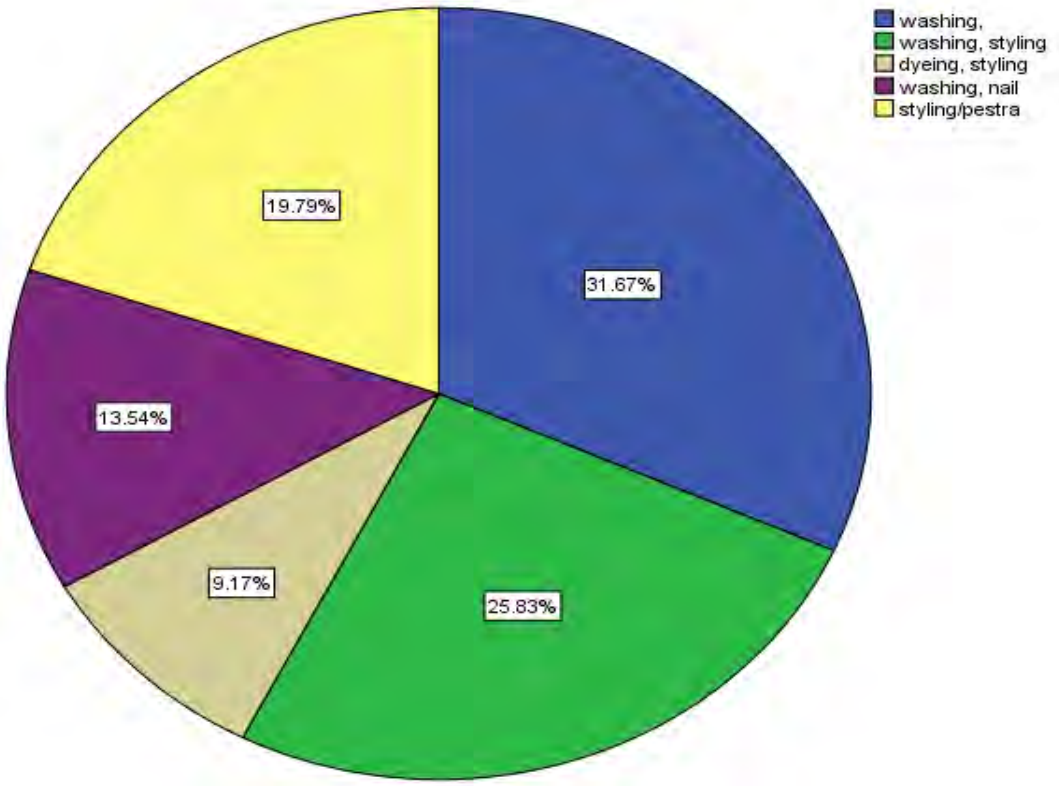


Figure 4 Frequent tasks of hairdressers in Nifas Silk Lafto Sub city, April 15- June 15 2015; Addis Ababa.

Regarding tasks that involve chemicals exposure, 11.6 mean times of styling per week with the range of 0 to 82, 2.5 mean times of nail lacquer application per week with the range of 0 to 40, and 0.7 mean times of dyeing with the range of 0 to 10, was reported by the hairdressers.

5.3.3 Most frequent professional use of products by the hairdressers

Products frequently used by the hairdressers are related with their more frequent tasks performed. Shampoo and conditioner were most frequently used by 151(31.5%) of hair dressers, followed by 125 (26%) and 95 (19.8%) of hairdressers more frequently using shampoo and spray, and spray only respectively. About 64 (13.3%) more frequently used nail polish or remover and shampoo, and 45 (9.4%) of them more frequently used dye and spray.

5.4. Use of personal protective equipment

Regarding personal protective equipment 407 (98.5%) (n=413) of them reported use of gloves during application of dye and 6 (1.5%) don't use glove during this procedures except for some form of applicator brush. Plastic glove is most frequently used as reported and reuse of glove was also observed. However, 15 (3.1%) (n=480) reported use of glove always while washing hair, the rest 465 (97%) do not always use glove for washing hair. Use of mask is extremely limited, and goggle was never used as reported by participants. The reasons for non-use were not to offend or disappoint the customer, and non-provision by the employers, as stated by participants through informal talk during interview.

Figure 5 **Hairdresser applying dye to wig without glove. (picture taken during salon registration)**

5.5. Chemicals used in the salon

Ingredients of the products used in the salons were described in Table 3.

Table 3 List of chemicals in hairdressing products used in the salons with a potential adverse effect on health.

Products	**Ingredients**
Hairspray	- alcohol - Butane - Propane - Lanoline -Dimethylaminoethylmethacrylate Copolymer in mousse
Shampoo	Glycol Distearate Sodium Laureth Sulfate Methyl parabens Sodium Chloride Ammonium chloride Cocoamido Propylbetaine
Conditioner	Cocoamido Propylbetaine Cetrimonium Chloride Cetearyl alcohol
Hair dye (oxidative/ permanent colorant) & developer solution	Cetearyl alcohol Sodium Hydrosulfite Ammonium Hydroxide *p-phenylenediamine Cetyl Alcohol Ammonium Thioglycolicate Cetrimonium Chloride Hydrogen Peroxide Cetyl Alcohol Phosphoric Acid Resorcinol
Straightening cream /relaxer (rarely used)	Ammonium Thioglycolicate Sodium Hydroxide Sodium Sulfate

5.6 KNOWLEDGE OF HAIRDRESSERS' REGARDING PRODUCTS IN THE SALON AND THEIR ADVERSE HEALTH EFFECTS

Regarding knowledge of products they used in the salon, the participants were asked if they had read labels and instructions written on the products, and if the products have any potential health hazards. Two hundred ninety eight (62.1%) reported that they read the labels and instructions written on the product of whom, 251 (84.2%) reported following the instructions as stated. When they stated about reading the labels of the product none of them spoke about the chemical ingredients, but only about expiry date, name of the product and instructions for use only, as observed during the interview. Regarding potential health hazard of the chemicals/products used in the salon 361 (75%) reported that the products are risky for health, while 119 (25%) reported that it has no effect on health. Of those who reported that it has potential health effect, they explain it mostly in terms of its harm to customers' hair or skin. (Informal communication)

The hairdressers were also asked if they attended any professional training on hairdressing and if they received any course regarding occupational health risk assessment and preventive measures. About 383 (79.8%) reported taking formal training on hairdressing of whom 323 (84.3%) reported taking course on occupational risk assessment and preventive measures such as observation of scalp and hair for any lesion, wound, dandruff and parasitic infestation, and use of glove while dealing with chemicals (Table 4).

Table 4 Distribution *of hairdressers' in Nifas Silk Lafto Sub city, by their Knowledge of products used in the salon and their adverse health effects, Addis Ababa; April 15-June 15, 2015;*

Knowledge Variables	**Number (%)**
1. Read the labels of the product & instructions before use	
- Yes	
- No	298 (62.1)
- Total	182 (37.9)
	480(100)
2. Follow instructions read as stated	**n=298**
- Yes	251(84.2)
- No	47(15.8)
- Total	298 (100)
3. Have knowledge of potential hazardous effects of chemicals on health	
- Yes	361(75.2)
- No	119(24.8)
- Total	480(100)
4. Received formal training regarding hairdressing	
- Yes	383(79.8)
- No	97(20.2)
- Total	480 (100)
5. Received course on occupational health risk assessment and prevention measures	**n=383**
- Yes	323 (84.3)
- No	60(15.7)
- Total	383 (100)

5.7. SELF-REPORTED MUSCULOSKELETAL SYMPTOMS AND ITS DETERMINANT FACTORS

As shown in Table 6 regarding musculoskeletal (MSK) symptoms, majority of the hairdressers reported back pan/discomfort 302(62.9%), and foot/leg pain or discomfort 261 (54.4%), followed by shoulder pain/discomfort 32.9% and 31.3% of arm or wrist pain. Symptoms in more than one body part were commonly reported by the hairdressers. Majority 172 (46%) of them reported to have symptoms in three or more body parts, followed by 108(29%) of hairdressers reported to have symptoms in two body parts. The rest 25% have symptom in only one part of the body parts stated (Figure 6). Over all musculoskeletal symptom (at least one symptom) was reported by 372 (77.5%) hairdressers.

Table 5 Frequency distribution of musculoskeletal symptoms among hairdressers in Nifas Silk Lafto Sub city, Addis Ababa; April 15–June 15, 2015

Variables	**Nº**	**(%)**
1. Back pain/discomfort at least once a month		
- Yes	302	62.9
- No	178	37.1
Total	480	100
2. shoulder pain/discomfort at least once a month		
- Yes	158	32.9
- No	322	67.1
Total	480	100
3. Arm/wrist pain/discomfort at least once a month		
-Yes	150	31.3
- No	330	68.8
Total	480	100
4. Neck pain/discomfort at least once a month		
- Yes	80	16.7
- No	400	83.3
Total	480	100
5. leg/foot pain/discomfort at least once a month		
- Yes	261	54.4
- No	219	45.6
Total	480	100

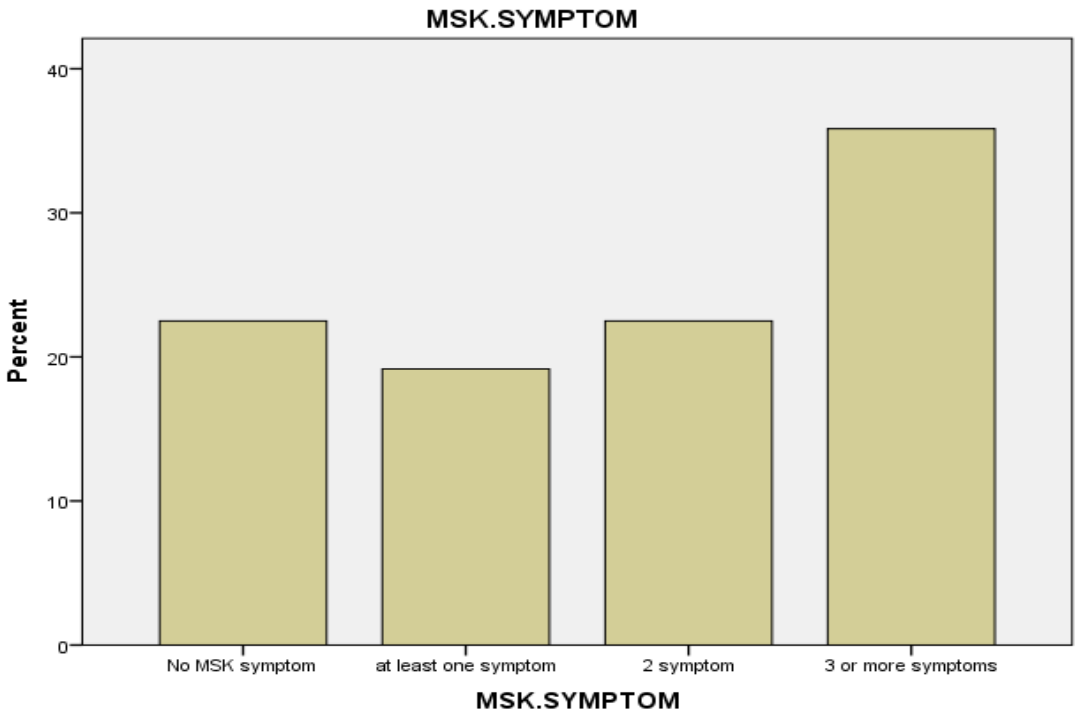


Figure 1 *Percentage distribution of musculoskeletal (MSK) symptoms among hairdressers in Nifas Silk Lafto Sub City, Addis Ababa; April 15 - June 15 2015*

The factors significantly associated with increased musculoskeletal symptoms were found to be, hairdressers working in uncomfortable body posture reported significantly more MSK symptoms than those who worked at comfortable body posture (AOR= 4.256 (95%CI = 2.544 – 7.119)). Similarly, hairdressers who lack sufficient work mix/rotation, that allows them working in different posture, (AOR 1.686 (95%CI 1.010 -2.814)), who lack regular break time daily (AOR 1.721 (95%CI 1.016 -2.915)), who do not use ergonomic tools (AOR, 2.082 (1.148 –3.773)), and who work in big salons (AOR=2.674(95%CI =1.060 -6.743)) reported significantly more MSK symptom than those hairdressers who have task rotation, have regular break time daily, use ergonomic tools, and who work in small salons respectively. On the other side, even if significant associations were observed with chi-square test, duration in the hairdressing sector, AOR=1.416 (0.305 -6.570), and heavy time pressure, AOR= 1.611 (0.857 - 3.028) did not show significant association when adjusted for the other variables. Age 20-29 years seems to have significant association but it is

only because the vast majority of the respondents fall in this age category (Table 6). Educational status, marital status, receiving hairdressers' training and occupational health and safety course did not show any significant associations, P > 0.05.

Table 6 Risk factors for musculoskeletal symptoms among hairdressers in Nifas Silk Lafto Sub city, Addis Ababa, April 15 – June 15, 2015

Variables	Self-reported Musculoskeletal symptoms		Crude OR (95% CI)	Adjusted OR (95 % CI)
	Yes	No		
Work in comfortable posture				
- Yes*	119	75	1.0	1.0
- No	253	33	4.83 (3.04 -7.68)	4.26 (2.54- 7.12)
Sufficient work variation allowing different postures				
-Yes*	136	63	1.0	1.0
- No	236	45	2.43 (1.57 – 3.76)	1.69 (1.01 -2.81)
Having regular break time daily				
Yes*	104	54	1.0	1.0
No	268	54	2.58 (1.66 -4.00)	1.72 (1.02 -2.92)
Occurrence of heavy time pressure				
Yes	321	80	2.20 (1.31 -3.71)	1.61 (0.86 -3.03)
No*	51	28	1.0	
Presence of ergonomic tool				
Yes*	82	35	1.0	1.0
No	290	73	1.70 (1.06 – 2.72)	2.08 (1.15 –3.77)
Salon size				
1-2 workers*	175	73	1.0	1.0
3-4 workers	135	27	2.09 (1.27-3.42)	2.25(1.26-4.01)
≥ 5 workers	62	8	3.23 (1.47 -7.09)	2.67(1.06 -6.74)
Age group				
15-19*	25	16	1.0	1.0
20-24	147	40	2.35(1.15 -4.82)	2.52(1.08 -5.89)
25-29	125	28	2.86(1.35 -6.05)	2.60(1.05 -6.43)
30-34	47	18	1.67(0.73 -3.83)	1.51(0.54 -4.26)
35-48	28	6	2.99(1.01 -8.81)	3.23(0.85 -12.25)
Duration in the sector as hairdresser				
≤ 3years*	191	72	1.0	1.0
3.1 -10 years	160	32	1.89(1.18 -3.01)	1.65(0.78 -3.46)
≥ 10 years	21	4	1.98(0.66 -5.96)	1.42(0.31 -6.57)

*reference group or less exposed group

5.8. SELF-REPORTED HAND ALLERGY/DERMATITIS/ECZEMAS

Regarding hand eczema/dermatitis 103 (21.5%) (n=480) of the hairdressers reported to have cracking of the skin, redness or swelling, of which 99 (96.1%) of them reported that it is related to their wet work. Of the total 103 hairdressers with hand eczema/dermatitis, about half, 49 (47.6%) of them were 20-24 years by age, 73 (71%) of them are those who have knowledge of the potential health hazard of hairdressing chemicals, 39(38%) of them were those who were engaged in hair washing activity (use shampoo and conditioner frequently) in terms of frequently performed task and 61 (59.2%) of them were those who worked more than 8 hours a day, in terms of hours worked per day.

5.9. SELF REPORTED RESPIRATORY SYMPTOMS

Regarding respiratory symptoms 153 (31.9%) reported to have rhinitis or symptom from the nose without having cold. However, worsening of symptom at work is reported only by 105(21.9%) of them. Fifty three hairdressers (11%), reported being awaken from sleep by an attack of cough, 35(7.3%) & 32 (6.7%) reported shortness of breath during the day time without strenuous activity and attack of shortness of breath during night respectively (Table 7). In general, at least one respiratory symptom, is reported by 207(43.1%) of the hairdressers. (Figure 7)

Table 7 Percentage distribution of respiratory symptoms among hairdressers' in Nifas Silk Lafto Sub city, Addis Ababa; April 15 –June 15, 2015.

Variables	Nº	(%)
1. Rhinitis, in the past 12 months	153	31.9
2. wheezing in the chest, in the past 12 months	20	4.2
3. Shortness of breath during the day without doing anything strenuous activity, in the past 12 months	35	7.3
4. woken at night by an attack of shortness of breath in the last 12 months	32	6.7
5. Woken at night by an attack of cough, in the last 12 months	53	11
6. Usually cough first thing in the morning	20	4.2
7. Usually bring up phlegm from your chest first thing in the morning	15	3.1

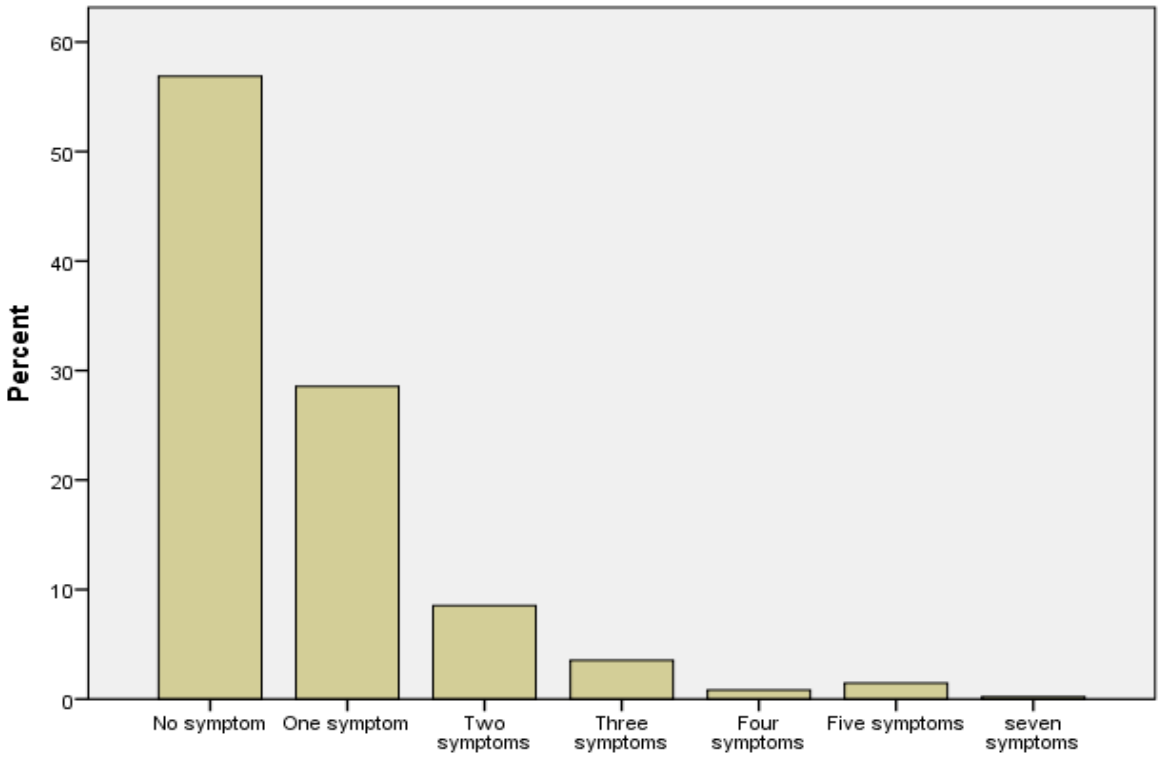


Figure 2 overall work-related respiratory symptoms among hairdressers in Nlifas Silk Lafto Sub city, Addis Ababa, in the past 12 months

Respondents were also asked occurrence of respiratory symptoms during specific task exposure. During application of hair spray (n=364), Symptom from the nose was reported by most of the hairdressers 107(22.3%) followed by shortness of breath (9%). Eye symptom 237(57%) was frequently reported with dye preparation or application, followed by symptoms from the nose 27.3%, and 17.9% shortness of breath. During exposure to smoke from styling of hair 137 (33.5%), 104 (25.4%) and 12.5% of hairdressers reported symptom from the nose, shortness of breath and cough /throat irritation respectively (Table 8). And studies also report that exposure to hairdressing chemicals is irritant to the airway.

Table 8 Respiratory and eye symptoms during specific tasks among hairdressers of Nifas Silk Lfto Sub city Addis Ababa, April 15-June 15, 2015.

Respiratory/eye symptoms	Application Spray n=464		Dye preparation/ application n=416		Styling hair n=409	
	№	%	№	%	№	%
Shortness of breath						
- Yes	42	9	86	20.7	104	25.4
- No	422	91	331	79.3	305	74.6
Cough						
- Yes	15	3.2	22	5.3	60	14.7
- No	449	96.8	394	94.7	349	85.3
Tightness in the chest						
- Yes	5	1	9	2.2	11	2.7
- No	459	99	407	97.8	398	97.3
Eye symptom						
- Yes	28	6	237	57	28	6.8
- No	436	94	179	43	381	93.2
Symptom from the nose						
- Yes	107	23	131	31.5	137	33.5
- No	357	77	285	68.5	272	66.5

5.10. REPRODUCTIVE HEALTH ISSUES

In this study married respondents (n=156), were asked if they have had a plan to get pregnant/to have a baby in the past 12 months prior to this study. Twenty five (16%) of respondents reported to have a plan to get pregnant, of whom 17(68%) of them were successful in getting pregnant but 3 (17.6%) of them reported to have abortions. The rest 8 (32%) were unsuccessful /fail to get pregnant at all. Factors related were not assessed in this study.

5.11 psychosocial hazards

In this study even if psychosocial problems were not directly raised, some factors (existence of regular daily break, reward, ability to control work schedule, comfortable work environment/temperature) that indicate the possibility of this problem were asked. As can be seen from the table, except for the appreciation /reward, more than 65% of the responses given suggest the high prevalence of this problem (Table 9). Even some of them feel that, they were dissociated from the existing social system, since it was not possible for them to attend different cultural ceremonies especially holydays, wedding ceremonies etc, as this ceremonies highly demand hairdresser's tasks. Moreover, none of them are allowed to take their weekly break on Saturday and Sundays as reported. Only one salon, with 8hours shift work was identified in this study. In addition 22.5% of them reported doctor diagnosed gastritis of which most of them related it with meal irregularity during working hours. (I.e. if there are customers they do not interrupt the job, as stated).

Table 9 Factors that indicate possibility of psychosocial hazards among hairdressers in Nifas Silk Lato Sub City, Addis Ababa, April 15 –June 15, 2015

Psychosocial variables	**№**	**(%)**
1. Take regular beaks		
- Yes	158	32.9
- No	322	67.1
2. Heavy time pressures often		
- Yes	401	83.5
- No	79	16.5
3. Get sufficient appreciation from the employer, or colleagues for your work		
- Yes	435	90.6
- No	35	9.4
4. Control your own daily work schedule, i.e when you perform tasks and when to take break		
- Yes	87	18.1
- No	393	81.9
5. Comfortable salon temperature for work		
- Yes	243	50.6
- No	237	49.4

VI. DISCUSSIONS

Hairdressers are exposed to various chemicals contained in hair care products, which are potentially hazardous for health as revealed by different studies (3). This study also aimed to identify prevalence of different health problems in general with due emphasis on musculoskeletal symptoms, respiratory symptoms, skin problems, and its determinants factors. And prevalence of other symptoms reported by hairdressers were also reported. As this study is the first of its kind in our setting, it can give an insight about health problems of hairdressers and can pave a way for further detail investigations.

In this study majority (80%) of the hairdressers were young (<30yrs) with the mean age of 25.6 years and unmarried (66%). This must be an issue of concern as they are females and in reproductive age group, and also studies suggest that hair care products have an effect on fertility (8) and reproductive outcome (15).

The work environment is highly varied in terms of size (work area), ranging from $4m^2$ to $110m^2$; and there is no set standard as to the size of the salon. Ventilation mechanism in the salon was primarily door (75.8%), which is mostly partially opened and doesn't ensure adequate ventilation as seen during data collection period, and the uncomfortable room temperature (50%) reported in the study. The finding is consistent with other studies (5) in which poor ventilation of the salons were reported.

Regarding the work nature of hairdressers, majority of them work greater or equal to 8hours a day and more than 95% of them work six days per week. Leaving them no time for family, or social life, and can predispose them to psychosocial problems. In addition, they were exposed to the hair care products in the salon. Some of these products contain chemical compounds

such as, ammonium thioglycolate, hydrogen peroxide, (3, 5) p-phenylenediamine (7), as observed during the study and are known to irritate the airways, and skin.

Majority (75%) of the hairdressers reported having knowledge of potential health hazards of hair care products and reported taking formal professional (hairdresser) training (80%), including occupational health and safety issues. Reading of product label was also reported by more than sixty percent. However, this is in contrary, to the actual practice, where minimal use of glove during hair washing (3.1%), and cleaning of equipment (13.5%) was reported. Reuse of glove was also observed. This actually doesn't ensure good protection from chemicals as absorption of chemicals in to the body occurs even if the concentration is less during rinsing. So, there might be no difference among glove users and non-users in terms of risk of chemical exposure and health outcomes. But, studies show that, proper use of glove effectively prevents permeation of the chemical ingredients in hair dye products (25). Moreover use of mask is extremely low, as reported in other studies (6) too. The reason for the discrepancy between knowledge and practice may be related to lack of comprehensiveness of knowledge gained, or customer satisfaction was given priority at expense of their own health, or employers might not supply the necessary material on time.

Hairdressers suffer musculoskeletal- problems more than the other office workers (13), because of the nature of their work, but can be minimized by taking appropriate measures (9).

In this study the overall prevalence of musculoskeletal symptom (at least one symptom reported) was 377 (77.5%), and 25.5% of them reported none of the symptoms (pain or discomfort on the back, shoulder, neck, leg/foot, wrist/hand) asked in this study. Even though high prevalence of musculoskeletal symptom was reported, only 5.6% of them reported being

diagnosed by a doctor, indicating their acceptance of the problem as part of the work nature and low level of seeking medical treatment. Multiple symptoms experience is not uncommon. Forty six percent of them reported more than three symptoms, and 29% reported two symptoms.

The most frequent symptoms reported were back pain/discomfort 63% and foot/leg pain by 54.4% in this study, and the finding is different from study conducted in Brazil (19) in which shoulder pain (49%) and neck pain is reported by 47% of hairdressers followed by back pain in 39% of them. However, this finding is consistent with other studies in terms of overall prevalence (71%) of work related musculoskeletal symptom stated in Brazilian study. Another study conducted in UK (13), also reported increased musculoskeletal prevalence but when compared to this study finding, relatively low experience of some symptoms leg/foot pain, 35%, lower back pain 42%, were reported . This difference might be attributed to subjective differences among the study subjects in terms of reporting discomfort, or the unavailability of ergonomic tool identified in this study can explain it.

Moreover the determinant factor for increased prevalence of musculoskeletal symptoms found in this study are uncomfortable body posture during work (AOR= 4.256 (95%CI = 2.544 – 7.119), lack of sufficient work mix/rotation, that allows them working in different posture, (AOR 1.686 (95%CI 1.010 -2.814)), lack of regular break time daily (AOR 1.721 (95%CI 1.016 -2.915)), unavailability/non-use of ergonomic tools (AOR, 2.082 (1.148 –3.773)), working in big salons (AOR=2.674(95%CI =1.060 -6.743). This finding is also consistent with other studies (19) that identified factors such as psychosocial factors, and working condition/uncomfortable body posture.

However, duration of year as hairdresser (>15years) was not identified as determinant factor in this study, though other studies reported it, rather, unavailability of ergonomic tools was identified as one of the determinant factors. This can be explained in terms of the economic status of the country, that the salons can easily be furnished with ergonomically designed tools, and this might not be a problem in their setting. But in our setting this can be a serious factor. In this study, in terms of length of stay in the profession, only few 5.8% participants reported more than 10 yrs of duration in the sector, indicating that hairdressers leave the profession earlier, and this can contribute to the difference observed.

Even though, age is one of the expected independent determinant factors for increased musculoskeletal symptom, it is found to be insignificant because the large proportion of hairdressers studied were younger than 30 years of age with mean age of 25.6years.

Regarding dermatologic symptoms, wet work and repeated exposure to hair care product especially P-phenylenediamine (7) or cleansing agent used in the salon can affect the skin as reported in different studies (23).
In this study the prevalence of self-reported work-related skin symptom was found to be 21.5%, showing consistency with the dermatologic study conducted in Korea (16) that showed 20.1% symptom prevalence. However it is found to be a bit higher than the study conducted in Palestine (6) that reported 14% symptom prevalence. This may be because of the smaller sample size used in Palestinian study (n=170) or shampoo and conditioner were not frequently used products (5.8%)by the hairdressers in Palestinian study as reported, when compared to this study in which more than 30% of the hairdressers reported use of shampoo and conditioner frequently. This also entails the extent of wet work associated with skin symptoms, and contributes to alteration of the natural skin PH and damage.

More over the products used in the salon contains ingredients such as P-phenlyenediamine, which is contained in oxidative hair dyes, and is strong sensitizer. In addition, some of the hairdressers said that customer may be offended with use of glove or mask, and priority concern is for customer satisfaction, as they stated during informal communication. This shows that information received regarding health and safety, during their hairdresser's training course is not applied and this is quite in contrary to the experience of hairdressers in UK, who reported to implement the knowledge gained from their hairdresser training course (13).

Respiratory symptoms were one of the common problems hairdressers suffer from, as most of the chemicals contained in hair care products are irritants to respiratory system. In this study, the prevalence of respiratory symptom (at least one symptom), is 207(43.1%). Rhinitis was reported by most of the hairdressers (32%) with 10.2% reporting diagnosis by doctor, wheezing 4.2%, attack of shortness of breath at night 53(11%) & during the day 6.7% and attack of cough during sleep was 7.3%, which are found to be less than seen in other studies, in which prevalence of wheezing in 19% (6) cough in 13% (13), & 17%(6), rhinitis in 71.7% (15). This difference can be related with frequency of exposure to the hairdressing chemicals, as seen in the study conducted in Palestine, in which the frequency of dyeing or bleaching hair reaches up to 70 times per week when compared to this study in which bleaching activities is uncommon and dyeing ranges only up to 10 times per week in the salon. Subjectivity of the symptom can also influence reporting of the symptom, unless objective measures were employed. This low prevalence of respiratory symptom does not guarantee less respiratory problem as it is not supported by objective measurements such as pulmonary function test.

Concerning symptoms related to specific chemical (dye/spray)/task exposure, eye symptom 237(57%) was more frequently reported with dye preparation or application, followed by symptoms from the nose 27.3%. During application of hair spray 22.3% (n=364), of hairdressers reported Symptom from the nose. This finding is different from the study conducted in Iran (14) in which more frequently reported symptoms were cough (33%) and breathlessness (29%) after exposure to chemicals (spray/dye). This may be related to the type of products used, in which bleaching powder was also reported as the most irritant chemical that provoked their respiratory symptoms. During exposure to smoke from styling of hair, symptom from the nose137 (33.5%), and shortness of breath 104 (25.4%) were frequently reported by hairdressers. No study report on smoke pollution to compare.

Regarding reproductive health issues, of the 25 respondents who tried to get pregnant, 3(17.6%) reported occurrence of abortion and the rest 8(32%) fail to get pregnant at all in the past 12 months (some mentioned long time duration than this). Though working as hairdresser carries reproductive health problem as reported in other studies (8, 15), this finding is quiet high and it's difficult to draw conclusion from this study as determinant factors were not investigated. However, it gives clue/ alerts for the need of further investigation to draw conclusions.

Strengths and limitations

Strengths

1. Appropriate sampling procedure was followed to include hairdressers from various salons to get representative sample and to avoid selection bias.
2. This study can provide an excellent insight about hairdressers health concern in our setting

Limitations

1. One of the problems with cross-sectional survey investigation is recall bias; specifically, respondents tend to remember recent events than remote events.
2. The hairdressers were mobile /can easily shift their work place from one salon to another, and the tasks frequently performed can also be changed. Since health has cumulative effect it is difficult to draw concrete conclusion from current work intensity only, unless supported by objective measurement.
3. Since some of the questions asked on number of customers or frequency of job performance per week, has relationship with the income of the salon, it might not be responded honestly.
4. Getting local literature to compare with the present study result was difficult.
5. Non-response rate is more than 8%, and conclusion was made within this deficiency.

Opportunities: The investigator has a chance to observe various corners of Nifas Silk Lafto Sub city at the expense of this project, which at any time might not be thought of.

- Since it was challenging activity it made me to learn more and stay firm in difficult conditions.

VII CONCLUSIONS

This study shows very high prevalence of musculoskeletal symptom among hairdressers, 77.5%, with major determinant factors being uncomfortable body posture, non-use of ergonomic tools and lack of sufficient work rotation. Respiratory symptoms are relatively low but this doesn't guarantee low respiratory problem as it was measured subjectively. Moreover immediate exposure to chemicals (dye/spray) and smoke pollution from hair styling was found to be related with increased prevalence of eye and nasal symptom among hairdressers. In addition prolonged work in wet environment and repeated exposure to chemicals in hair care products have high risk for skin damage as the prevalence of dermatologic symptom reported was 22%. However, reproductive health problems need further investigation to draw a conclusion.

Regarding the salon environment, poor ventilation, low use of personal protective equipments, and hair care products that contain potentially hazardous ingredients for health (E.g. paraphenylenediamine, ammonium hydroxide, hydrogen peroxide, persulfate salts, ammonium thioglycolate and others) were observed.

In general, hairdressers suffer from multiple health symptoms of multifaceted origin, and seek organized & proper attention/intervention.

VIII Recommendations

Based on the findings, the following recommendations were given to:

I. primarily Ministry of Labor and Social Affairs (MOLSA), Department of Occupational Health and Safety, and also to Federal Ministry of Health:

- **Prepare occupational health and Safety guideline** for hairdresser's salon, which can be enforceable by the law, in order to reduce the health risks in the female population. Because: 1. the professionals are mostly young females, who are naturally vulnerable to disease, and can be exposed to this chemicals for extended period of time with its cumulative effect, 2. these workers can do any activity regardless of their harmful effect on their health, as they are from low socioeconomic status and striving for survival, 3. their health is directly related to the health of the family since they are care providers in the family.
- **Ensure safe work environment**. (sufficient ventilation of the salons, use of mask and glove during application of hair dye/relaxer cream and the rinsing process always)
- **Promote proper work designing/organization**, that allows working in different and comfortable body posture and thereby reduce musculoskeletal symptoms.
- **Conduct further study/research** including reproductive health issues by using this document as baseline.

II. **Addis Ababa technical vocational & educational training agency** should update the training manual and provide in- service training for the current hairdressers regarding OHS.

III. **Employers** should provide the necessary personal protective equipments and ergonomic tools, to promote safe work environment.

IV. **Employees** should make use of proper personal protective equipments and update themselves regarding health risk reduction methods.

v. **Trade and industry licensing office** can assist in establishing hairdresser's association/working in a group, which can help the hairdressers to furnish the salon with the necessary ergonomic tools, as it can be expensive & not affordable by the small scale business owners.

IX: REFERENCES

1. Labrche F, Forest J, Trottier M, Lalonde M, Simard R. Chracterization of chemical exposures in hairdressing salons. Appl Occup Environ Hyg. 2003;18(12):1014-21. Epub December.
2. Eeckelaert L, Dontas S, Georgiadou E, Koukoulaki T. European Agency for Safety and Health at Work - EU-OSHA Luxembourg: Publications Office of the European Union 2014 Contract No.: ISSN: 1831-9343
3. Albin M, Rylander L, Mikoczy Z, Lillienberg L, Dahlman Höglund A, Brisman J, et al. Incidence of asthma in female Swedish hairdressers. Occup Environ Med 2002;59 (2):119-23.
4. World Health Organization and International Agency for Research on Cancer. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Some aromatic amines, organic dyes, and related exposures. Lyon: International Agency for Research on Cancer; 2010. p. 646.
5. Mounier-Geyssant E, OuryV, Mouchot L, Paris C, Zmirou-Navier D. Exposure of hairdressing apprentices to airborne hazardous substances. . Environ Health 2006;5(23).
6. Nemer M, Kristensen P, Nijem K, Bjertness E, Skogstad M. Respiratory function and chemical exposures among female hairdressers in Palestine. Occup Med 2013;63(1): 73-6.
7. Orton D, Basketter D. Hair dye sensitivity testing: a critical commentary. Contact Dermatitis 2012;66(6):312-6.
8. Rylander L, Axmon A., Toren K, Albin M. Reproductive outcome among female hairdressers. Occup Environ Med. 2002;59 (8):517-22.
9. WHO. Declaration on Occupational Health for All. Beijing, china October 1994.
10. Federal Democratic Republic of Ethiopia HoF. Ethiopian Health Policy 1993.
11. Federal Democratic Republic of Ethiopia HoF. Conistitution of Ethiopia 1995.
12. Leino T., Tammilehto L, Luukkonen R., Nordman H. Self-reported respiratory symptoms and diseases among hairdressers. Occupational and Environmental Medicine. 1997;54 452-5.
13. Bradshaw L, Harris-Roberts J, Bowen J, Rahman S, Fishwick D. Self-reported work-related symptoms in hairdressers. . Occup Med. 2011;61(5):328-34.
14. Hashemi N, Boskabady MH, Nazari A. Occupational exposures and obstructive lung disease: a case-control study in hairdressers. Resp Care. 2010;55(7):895-900.
15. Ferreira AP. Occupational health hazards of female hairdressers in Jacarepaguá, Rio de Janeiro, Brazil. J Environ Occup Sci 2013; 2(1):27-32.

16. Jung P.K., Lee J.H., Baek J.H., Hwang J., Won J.U., Kim I., et al. The effects of work characteristics on dermatologic symptoms in hairdressers. Annals of occupational and Environmental Medicine. 2014;26(13).
17. Khumalo NP, Jessop S, Ehrlich R. Prevalence of cutaneous adverse effects of hairdressing: a systematic review. . Arch Dermatol. 2006;142: 377-83.
18. Takkouche B, Mendez CR, Martınez AM. Risk of cancer among hairdressers and related workers: a meta-analysis. Internat J Epidemiol 2009;38:1512-31.
19. Mussi G, Gouveia N. Prevalence of work-related musculoskeletal disorders in Brazilian hairdressers. Occupational Medicine. 2008;58:367-9. Epub May 7.
20. Nordlund A., Ekberg K. Self- reported musculoskeletal symptoms in the neck/shoulders and/or arms and general health (SF-36): eight year follow up of a case-control study. . Occup Environ Med. 2004;61(E11).
21. Cherry NM, Meyer JD, Chen Y, et al. The reported incidence of work-related musculoskeletal disease in the UK: MOSS1997-2000. Occup Med 2001;51:450-5.
22. Simmers and Associates Limited. Health and Safety in Hairdressing. An Evaluation of health and safety management practices in the hairdressing industry. In: Labour Do, editor. Wellington New Zealand: Department of Labour; 2007.
23. South Australia Dept. of Health. Guidelines on the Public Health standards of practice for hairdressing. South Australia: National Library of Australia 2006 Contract No.: ISBN 0 7308 9552

24. WorkCover, New South Wales. HEALTH AND SAFETY GUIDELINES FOR HAIRDRESSERS. WorkCover Publications Hotline 1300 799 003; 2003
25. Lind ML, Johnsson S, Meding B, Boman A (2007). Permeability of hair dye compounds pphenylenediamine, toluene-2, 5-diaminesulfate and resorcinol through protective gloves in hairdressing. *Ann Occup Hyg*, 51:479–485. doi:10.1093/annhyg/mem028 PMID: 17595170

ANNEX I: INFORMATION SHEET AND INFORMED CONSENT FORM

English version information sheet and consent form for the questionnaire developed for "Assessment of self-reported health problems of hairdressers in Nifas Silk Lafto Sub City", Addis Ababa, Ethiopia.

A. Information sheet

IDENTIFICATION
Name of the salon _____

Address of the salon _____

Dear participant,

My name is _____ I am data collector on behalf of a Masters Student in AAU, college of health sciences, school of public health, who want to conduct this survey.

The objective of the study: to assess self-reported health problems of hairdressers in N/S/L/S/City, Addis Ababa. Your cooperation and willingness for filling/answering the question is very helpful to identify the prevalence of hairdresser's health problem and its determinant factors, in order to institute appropriate preventive interventions.

Your name will not be written in the form and I assure you that all information that you give will be kept strictly confidential. Your participation is voluntary and you are not obliged to answer any question you do not wish to answer. There is no harm if you do not answer the questions and no special benefit you get if you answer the question. Filling the questioner will take about 30 minutes. You will be asked to answer few questions related to your job and health conditions by filling a questionnaire under my supervision and also to allow me to record all the names of the products that you use in your salon and their chemical ingredients and the other equipment that are used in the salon. We would be thankful if you spend some time answering the questions related to the

stated issue above.

1. If yes, Name of interviewer_____ Signature_____
2. If not, skip to the other participant

For more information and question, if any, here is the contact address of investigator.

Sara Dula
Telephone: 0911411437
E-mail: sarabuyo99@gmail.com

B: Consent form

I_____ am informed on study to be conducted by Masters Student in AAU, college of health sciences school of public health on "Assessment of health problems of hairdressers in N/S/L/S/City Addis Ababa, Ethiopia"

I have been informed the objective of the study and that participation to this study is voluntary, no obligation to answer any questioner, there is no harm by not answering the questions and no special benefit by answering the questions, the information collected is kept confidential, I am randomly selected to participate and that answering the questioner will take about 30 minutes. I heard all the information mentioned above and willing to participate in the interview.

1. Name of interviewer_____ Signature_____

(Signature of interviewer certifying that respondent has given informed consent verbally)

Thank you

ANNEX II: QUESTIONNAIRE

Addis Ababa University School of Public Health

Questionnaire to collect information

This questionnaire is prepared to assess self-reported health problems of hairdressers in N/S/L/S/City. Addis Ababa, Ethiopia.

Instruction: Please circle all the response from the given alternatives for the close ended questions and fill on the blank spaces all the response for the open ended questions.

Part I: socio-demographic characteristics

Serial Nº	Questions	Response option	skip
01	Age in years	_____	
02	Religion	a. protestant b. Muslim c. orthodox d. others: _____	
03	Ethnicity	a. Oromo b. Tigre c. SNN d. Amara e. others: _____	
04	Marital status	a. single b. married c. separated d. divorced e. others specify_____	
05	Educational level	a. illiterate b. read and write c. primary school d. secondary school e. postsecondary	

Part II: Occupational history regarding hairdressing

Serial №	Questions	Response option	Skip
06	How long have you been working in hairdressing sector? If less than a year state in months.		
07	How many years have you been working in this salon?		
08	How many hours do you work per day?		
9	How many days do you work per week?		
10	Do you work in any other job?	1. Yes 2. No	If no skip to № 12
11	If "yes" specify		
12	What types of tasks are usually done in this salon?	A. hair coloring/dying B. relaxer cream application C. hair shampooing & conditioning D. styling/straightening E. knitting F. hair spraying G. henna application H. cutting j. others specify: _____	
13	Which of them are you doing most frequently? (select the alphabets from question 13 & fill in the box in front)		
14	Per week, how often do you	Frequency	

	perform the following tasks? 1 dyeing 2.washing hair 3. styling/straightening 4.sweing wig 5.relaxer cream application	1 _____ 2. _____ 3. _____ 4. _____ 5. _____	
15	What are the products that you frequently use in the salon?	A. Conditioner: b. Shampoo: c. Hairspray: d. relaxer cream e. Hair dye f. fashioning gel g. others specify :_____	
16	How many clients a week is it?		

Part III Knowledge variables

Serial Nº	Question	Response option	skip
17	Do you read the chemical ingredients & instruction of use on the products when you apply it?	Yes No	
18.	Do you comply with manufacturers' safety instruction?	Yes No	
19.	Do you use applicators to apply the chemical products?	Yes No	
20	Do you use protective gloves routinely for: a. washing hair, b. chemical tasks, c. cleaning tasks	 a. yes No b. yes No c. yes No	
21	Do you know that these chemicals have potential hazardous effect on health?	Yes No	

22	Did you receive any formal training regarding hairdressing?	Yes No	If no skip to № 25
23	If "yes" above did you receive any course on occupational health risk assessment and prevention measures?	Yes No	
24	If "yes" for 23 above what are they? Please list them…		

Part IV question on health status

№	Question	Response option	skip
25	Have you ever been treated for any of the following diseases by doctor/health professional? (*Circle all that apply)* 1. pneumonia 2. asthma 3. eye irritation/allergy 4. rhinitis 5. bronchitis 6. Hand dermatitis 7. cardiovascular disease 8. musculoskeletal problem (back/ neck/ shoulder/wrist, leg problems) 9. varicose vein 10. gastritis		
26	Have you had rhinitis, at any time in the past 12 months? (Sneezing/runny nose/stuff nose) which has not been caused by common cold?	Yes No	If No skip to № 28
27	If yes how does the symptom change during working hours?	A. same/no change b.relieved c. aggravated	
28	Have you at any time in the past 12 months had wheezing in the chest?	Yes No	If no skip to № 30
29	If yes how does the symptom change during working hours?	A. same/no change b.relieved	

		c. aggravated	
30	Have you at any time in the past 12 months had shortness of breath that came on during the day at work, when you were not doing anything strenuous?	Yes No	
31	Have you at any time in the last 12 months been woken at night by an attack of shortness of breath?	Yes No	
32	Have you at any time in the last 12 months been woken at night by an attack of cough?	Yes No	
33	Do you usually cough first thing in the morning?	Yes No	If no skip to no 35
34	How does the symptom change during working hours?	A. same/no change b.relieved c. aggravated	
35	Do you usually bring up phlegm from your chest first thing in the morning?	Yes No	
	Respiratory symptoms at specific work		
36	Do you feel any of the following directly after exposure to hair spray? 1. Breathe shortness 2. Cough 3. Tightness in the chest 4. Symptoms from the eye (burning/watering) 5. Symptoms from the nose (sneezing, runny or blocked)	1. Yes No 2. Yes No 3. Yes No 4. Yes No 5. Yes No	
37	Do you feel any of the following during preparation/application of dye? 1. Breathe shortness 2. Cough 3. Tightness in the chest 4. Symptoms from the eyes (running)	1. Yes No 2. Yes No 3. Yes No 4. Yes No	

	5. Symptoms from the nose (sneezing, runny or blocked)	5. Yes No	
38	Do you feel any of the following during styling or straightening of hair by hot iron? 1. Breathe shortness 2. Cough 3. Tightness in the chest 4. Symptoms from the eyes (running) 5. Symptoms from the nose (sneezing, runny or blocked)	 1. Yes No 2. Yes No 3. Yes No 4. Yes No 5. Yes No	
39	Has any in your family (father, mother, children, brother/sister) ever had asthma?	Yes No	
	Skin condition		
40	Do you have the following symptoms or diseases currently? Hand eczema/ cracking /Allergy	Yes No	If no skip to № 43
41	If any, when did it started the first time? (Specify year)		
42	Is it related to your work nature, including wet hands tasks or handling of chemical products?	Yes No	
43	Have you experienced irritation/redness & swelling/itching	Yes No	If no skip to № 45
44	If "yes" Have you experienced any of these symptoms for more than three weeks?		
	Musculoskeletal		
45	Do you have work related pain/discomfort in any of these body parts at least once a month?	If yes, how frequent is the symptom in the past six months	
	Back (upper/lower)	Yes ( ) No	
	Shoulder	Yes ( ) No	
	Arm/wrist	Yes ( ) No	
	Neck	Yes ( ) No	

	Leg/foot	Yes ( ) No	
46	Is there sufficient variation in the work enabling you to work in different postures?	Yes No	
47	Do you take regular beaks	Yes No	
48	Do you usually perform your tasks being in comfortable posture during work? E.g. -Shoulder/elbow at lower level - back upright	Yes No	
49	Is there often heavy time pressures?	Yes No	
50	Is there sufficient appreciation for your work from the employer, or colleagues?	Yes No	
51	Do you control your own daily work schedule, i.e which tasks you perform when and when to take break?	Yes No	
52	Is temperature of the salon comfortable for work?	Yes No	
53	Have you ever tried to get pregnant in the past 12 months?	Yes No	If no skip to No 56
54	If yes in Q 53, were you successful?	Yes No	
55	If no in Q 53, have you encountered abortion in the past 12 months?	Yes No	
56	Do you use hair products such as dye?	Yes No	
57	In the last 12 months have you ever received supervision regarding your health and safety while on work?	Yes No	

PART IV CHECKLIST IN EACH SALON

Salon Address _____

Salon code _____

I. Regarding working conditions

No	List	Observations
1	Size of the salon in meter square	
2	Number of workers	
3	Presence of any type of ventilation and its status during work	Yes No If yes, a. open b. closed
4	Presence of PPE	Yes No
5	Type of PPE present	If yes: Glove (latex, rubber), mask, goggle, apron, applicator
6	Type of Ergonomic tools present -height adjustable chair -height adjustable stool on wheels -height adjustable washbasin -trolleys -sharp scissor with finger support	 Yes No if, yes Nº ____ Yes No if, yes Nº ____ Yes No if yes, Nº ____ Yes No if yes, Nº ____ Yes No if yes, Nº ____
7	Does the amount of working space- around the washbasin & client seat- cause uncomfortable working posture?	Yes No
8	Is the floor surface clean & dry?	Yes No
9	Presence of Hand washing facility	Yes No
10	Do you wash your hand after each customer handling?	Yes No
11	How often do you clean: a. Rollers? _____ b. Brushes/combs? _____ c. Towels? _____	 1.After each use, 2.at the end of the day, 3.every 3days, 4.every week, 5.more than a week time

12	With what do you clean the rollers, & combs/brushes?	Normal detergent, other chemicals, or disinfectants
13	Do you use the salon for some other purpose?	Eating, cooking, living room,
14	Did you experience any injury?	Needle prick, fall accident,
15	Is there first aid kit?	Yes No

16 Is there sterilizer? Yes No

II. Chemicals used in the salon

	Hairdressing product	Chemicals present in it
1	Hairspray	
2	Bleaching powder	
3	Hair dyes	
4	Relaxer creams	
5	Gels	
6	shampoos	
7	Conditioner	
	Others	

Thank you

ANNX III Information sheet in Amharic

<u>አባሪ ነ</u>

የመረጃ ቅፅ እና ለመሳተፍ የሥምምነት መስጫ ቅጽ

ሀ. የመረጃ ቅጽ

መለያ

- የፀጉር ቤቱ ስም _____
- የፀጉር ቤቱ አድራሻ: ወረዳ _____ የቤት.ቁ _____ ስ. ቁ _____

ውድ ተሳታፊ

እኔ ስሜ _____::

በአአዩ የጤና ሳይንስ ኮሌጅ የማህበረሰብ ጤና ት/ቤት የማስተርስ ተማሪ በሆኑት ለሚካሄደው የዳሰሳ ጥናት መረጃ ሰብሳቢ ነኝ::

የጥናቱ ርዕስ" :- "በን/ስ/ላ/ክ/ከተማ አ.አ ኢትዮጲያ በሴቶች የውበት ሳሎን ውስጥ የሚሰሩ የፀጉር ሙያተኞችን/ሠራተኞችን የጤና ሁኔታ/ችግር ለማወቅ የሚደረግ የዳሰሳ ጥናት"

የጥናቱ አላማ:- በን/ስ/ላ/ክ/ከተማ አ.አ ኢትዮጲያ በሴቶች የውበት ሳሎን ውስጥ የሚሠሩ የፀጉር ሙያተኞች/ሠራተኞችን የጤና ችግር ለማወቅ የሚደረግ ጥናት ሲሆን ለመጠይቁ ምላሽ በመስጠት ረገድ እርሶ የሚያደርጉልን ትብብርና ፈቃደኝነት የፀጉር ሙያተኞችን የጤና ችግር እና መንስኤዎቻቸውን ለማላየት ትልቅ እገዛ ያደርጋል:: እርስዎ የሚሰጡት መረጃም በሚስጥራዊነት እንደሚያዝ እና ስምዎ በመጠይቁ ላይ እንደማይጠቀስ፣ ላረጋግጥልዎት እወዳለሁ:: በዝህ መጠይቅ ላይ የሚያደርጉት ተሳትፎ በፈቃደኝነት ላይ የተመሰረተ እና ፣ ምላሽ መስጠት የማይፈልጉትን መጠይቅ መተው ይቻላሉ::

ጥያቄውን ባለመመለስዎ ምንም የሚደርስብዎት ጉዳት የለም፣ በመሳተፍዎም የተለየ የሚያገኙት ጥቅም አይኖርም:: ይህንን መጠይቅ ለማጠናቀቅ 30 ደቂቃዎችን ይወስዳል:: የሥራዎትን ሁኔታና ጤናዎትን በተመለከተ ለጥቅት መጠይቆች ምላሽ ይሰጣሉ:: በተጨማሪም በፀጉር ቤቱ ውስጥ ስለምትጠቀሙበት ምርትና አንዳንድ ዕቃዎች የተወሰነ መረጃ እናሰባስባለን:: ለመጠይቁ ምላሽ ለመስጠት መስዋዕት ለሚያደርጉት ጊዜም ከልብ እናመሰግናለን::

ለመሳተፍ ይስማማሉ?

አዎ_____ የመረጃ ሰብሳቢው ስም_____ ፊርማ_____

አልሳተፍም ካሉ ወደ ሚቀጥለው ተሳታፊ ማለፍ

ማንኛውንም ጥያቄ ማቅረብ ከፈለጉ የሚከተለውን የጥናቱ ተጠሪ አድራሻ ይጠቀሙ

ሳራ ዱላ

ስልክ: 0911411437 ኢሜል sarabuyo99@gmail.com

ለ. ለመሳተፍ የሥምምነት መስጫ ቅጽ

እኔ_____ “በን/ላ/ክ/ከተማ አ.አ የፀጉር ሙያተኞች/ሠራተኞችን የጤና ሁኔታ/ችግር ዳሰሳ በሚል ርዕስ” በአ.አዩ የጤና ሳይንስ ኮሌጅ የማህበረሰብ ጤና ት/ቤት የማስተርስ ተማሪ በሆኑት የሚካሄደውን ጥናት አስመልክቶ የሚከተሉት መረጃዎች ተነግረውኛል፡፡

ይኸውም የጥናቱ ዓላማ ፣በዚህ ጥናት ላይ መሳተፍ ሙሉ በሙሉ በፈቃደኝነት ላይ የተመሰረተ መሆኑ ፣ እንዲሁም መጠይቁን ከጀመርኩ በኋላ በማናቸውም ጊዜ መቋረጥ እንደሚችል፣የእኔ አልሳተፍም ማለት ምንም ጉዳት እንደማይኖረው፣ በመሳተፍም የተለየ ጥቅም እንደማላገኝ፣ ከእኔ የሚሰበሰብ መረጃ በሚስጢራዊነት እንደሚያዝ፣ በዚህ ጥናት ለመሳተፍ “በዘፈቀድ ” የተመረጥኩ መሆኔን እና መጠየቁ 30 ደቂቃዎች እንደሚወስድ ተነግሮኛል፡፡ ስለሆነም በሚካሄደው ጥናት ላይ ለመሳተፍ ፍቃደኛ መሆኔን እገልፃለሁ፡፡

የመረጃ ሰብሳቢው ስም_____ ፊርማ_____

(የመረጃ ሰብሳቢው ፊርማ ተሳታፊው ፈቃደኝነቱን በቃል መግለፁን ያረጋግጣል)

ANNEX IV QUESTIONNAIRE IN AMHARIC

አባሪ ፲፩ ቃለ መጠይቅ

አአዩ የማህበረሰብ ጤና ት/ቤት መረጃ ለመሰብሰብ የተዘጋጀ መጠይቅ

ይህ ቃለ መጠይቅ በን/ስ/ላ//ክ/ክተማ አ.አ -ኢትዮጵ በውበት ሳሎን ውስጥ የሚሰሩትን የፀጉር ሙያተኞች የጤና ሁኔታ/ችግር ለማወቅ/ ለመደሰስ የተዘጋጀ ነው፡፡

መመሪያ: በምርጫ መልክ ለተሰጡት ጥያቄዎች ሁሉንም መልስ የክበቡ ፡፡ ክፍት ለተተውት ጥያቄዎች ደግሞ ትክክለኛውን መልስ ይፃፉ፡፡

ክፍል ፣ የማህበራዊ-ህዝባዊ ጠባያትና አጠቃላይ መረጃ

ተ.ቁ	ጥያቄዎች	የመልስ አማራጮች	ይዝለሉ
01	ዕድሜ በዓመት		
02	ሐይማኖት	ሀ. ፕሮቴስታንት ለ. ሙስሊም ሐ. አርቶዶክስ መ. ሌሎች ይገለፁ……	
03	ብሔር/ብሔረሰብ	ሀ. ኦሮሞ ለ. ትግሬ ሐ. ደ/ብ/ብ/ሕ መ. አማራ ሠ. ሌሎች ይገለፁ……	
04	የጋብቻ ሁኔታ	ሀ. የለገባች ለ. የገባች ሐ. የተለያየች መ.በህግ የተፈታች ሠ. ሌሎች ይገለፁ……	
05	የትምህርት ደረጃ	ሀ. ማንበብና መፃፍ የሚትችል ለ. ማንበብና መፃፍ ብቻ የሚትችል ሐ. አንደና ደረጃ ት/ቤት መ. ሁለተኛ ደረጃ ሠ. ድህረ ሁለተኛ ደረጃ ት/ቤት	

ክፍል 2 የፀጉር ሙያን በሚመለከት የሥራ ታርክ

ተ.ቁ	ጥፈያቄዎች	የመልስ አማራጮች	ይዝለሉ
06	በፀጉር ሙያ ዘርፍ ውስጥ ለምን ያህል ዓመት ጊዜ ሠርተዋል? ከአንድ ዓመት በታች ከሆነ በወራት ይግለፁ	.....	
07	በዝህ ሳሎን ውስጥ ለምን ያህል ጊዜ ሠርተዋል?	.....	
08	በቀን ስንት ሰዓት ይሠራሉ?	.....	
09	በሳምንት ውስጥ ስንት ቀን ይሠራሉ?		
10	ከፀጉር ሥራ ውጭ ሌላ ሥራ ተቀጥረው ይሠራሉ?	ሀ. አዎ ለ. አይደለም	መልሱ አይደለም ከሆነ ወደ ተ.ቁ 12 ይለፉ
11	ለተ.ቁ. 10 መልሱ አዎ ከሆነ የሥራውን ዓይነት ይግለፁ		
12	በዝህ ሳሎን ውስጥ በአብዛኛው ምን ዓይነት ሥራ ይሠራሉ?	ሀ. ፀጉር ቀለም መቀባት ለ.ፐርም መቀባት ሐ.ፀጉር ሻምፖ ና ኮንድሽነር መጠብ መ.ፀጉር በካውያ መሥራት ሠ. ሹሩባ መሥራት ረ. የፀጉ ስፕሬይ ማድረግ ሸ. ፀጉር መጀጠቅለል ቀ. ሂና መቀባት ተ. ፀጉር መቁረጥ / መስተካከል በ. ሌሎት ካሉ ይገለፁ	
13	በተ.ቁ.12 ላይ ከተገለፁት ሥራዎች ውስጥ እርሶዎ ባአብዛኛው የትኛውን ሥራ ይሠራሉ? (ፍደሎቹን ብቻ መረጠው ይፃፉ)		
14	እርሶዎ የሚከተሉትን ሥራዎች በሳምንት ምንህል ጊዜ ይሠራሉ? ሀ. ቀለም መቀባት ለ. ፀጉር ሻምፖ ና ኮንድሽነር መጠብ ሐ. ፀጉር በካውያ ወይም ፔስትራ መሥራት መ.ዊግ መሥፋት ሠ. ፐርም መቀባት	ሀ. ..... ለ. ..... ሐ. ..... መ. ..... ሠ.	
15	በአብዛናው በሳሎኑ ውስጥ የምትጠቀምባቸው ምርቶች ምንድን ናቸው?	ሀ. ኮንድሽሽንር ለ. ሻምፖ መ.ፐርም ሠ. የፀጉር ቀለም	

		ረ.ጄል ሸ. ሌሎች ካሉ ይግለፁ.....	
16	በሳምንት በአማካኝ ስንት ደንበኞት ያስተናግዳሉ? ሀ. በአጠቀላይ የሳሎኑ ደንበኞች ለ. በግል (በአንች) የምስተናገዱት	 ሀ. ..... ለ.	

ክፍል 3 የአጠቀላይ እውቀት ጥያቄዎች

ተ.ቁ	ጥያቄዎች	የመልስ አማራጮች	ይዝለሉ
17	ለፀጉር ሥራ የሚጠቀሙባቸው ምርቶች ከመጠቀምዎ በፊት መመሪያዎቹን ያነባሉ	ሀ. አዎ ለ. አይደለም	
18	የፀጉር መዋቢያ ምርቶች ፋብሪካ የሚያስገነዝባቸውን የደህንነት መመሪያዎችን ይከተላሉ	ሀ. አዎ ለ. አይደለም	
19	የፀጉር ቀለም /ፐርም እና ሌሎች ኬምካሎችን ስትቀብ የመቀቢያ መሳሪያ (አፖልኬተር ትጠቀሚለሽ?)	ሀ. አዎ ለ. አይደለም	
20	በሚከተሉት የሥራ ሂደቶች ሁል ጊዜ ጓንት ይጠቀማሉ 1. በፀጉር እጥበት ጊኤ 2. ቀለም (ኬምካሎችን መቀበት/መቀላቀል) 3. በማፅዳት ስራ ጊዜ	ሀ. አዎ ለ. አይደለም	
21	እነዚህ የፀጉር ኬሚካሎች በጤንነት ላይ ጉዳት ሊያደርሱ እንደሚችሉ ያውቃሉ::	ሀ. አዎ ለ. አይደለም	
22	መደበኛ የሆነ የፀጉር ሙያን ሥልጠና / ትምህርት ወስደዋል	ሀ. አዎ ለ. አይደለም	መልሱ አይደለም ከሆነ ወደ ተ.ቁ 24 ይሂዱ
23	ተ.ቁ.22 መልሰዎ አዎ ከሆነ ከሥራዎ ጋር በተያያዘ ሊከሰት የሚችለውን የጤና ችግር የሚአስሱበት የሚከላከሉበትን መንገድ ተምረዋል?	ሀ. አዎ ለ. አይደለም	
24	ተ.ቁ 23 መልሶዎ አዎ ከሆነ ከተማሩት ውስጥ ጥቅት ሀሳቦችን ቢዘረዘሩ	....	

ክፍል IV፡ የጤና ሁኔታን የሚዳስሱ ጥያቄዎች

ተ.ቁ	ጥያቄዎች	የመልስ አማራጮች	ይዝለሉ
25.	ቀጥሎ ከተዘረዘሩት በሽታዎች ውስጥ በማንኛውም ጊዜ በጤና ባለሙያዎች ተመርምረው ህክምና ወስደው ያውቃሉ? (ያሉትን በሽታዎች በሙሉ ያክብበ-) 1. የሳንባ ምች		

	2. አስም 3. የዓይን መቆጥቆጥ / አለርጂ 4. የአፍንጫ አስም (ሳይነስ) 5. ብሮንካይትስ (የጉሮሮ ህመም) 6. የእጅ ቆዳ መቅላትና ማሳከክ 7. የልብ ህመም 8. የጡንቻ እና መገጣጠሚያዎች ህመም (የወገብ፣የአንገት፣ የትከሻ፣የእጅ፣ የባት ፣የእግር ህመም) 9. የደም ሥሮች ችግር (ቨርኮስ ቬን) 10. ጫ̲ገራ		
26.	ባለፉት 12 ወራት ውስጥ በማንኛውም ጊዜ ላይ ሳይነስ ይዞት ያውቃል? (ይህም ማለት ጉንፋን ሳይዞት ማስነጠስ፣ የአፍንጫ መታፈን ወይም ንፍጥ (ፈሳሽ ኖሮዎት ያውቃል?)	ሀ. አዎ ለ. አይደለም	መልስዎ አይደለም ከሆነ ወደ ተ.ቁ 28 ይለፉ
27.	የተራ ቁጥር 26 መልስዎ አዎ ከሆነ በሥራ ቦታ /በሥራ ጊዜ ህመሙ ምን አይነት ለውጥ ያሳያል	ሀ. ለውጥ የለውም ለ. ይሻለኛል ሐ. ይብስብኛል	
28.	ባለፉት 12 ወራት ውስጥ በማንኛውም ጊዜ ላይ ሲጥ ሲጥ የሚል ድምፅ ከደረትዎት / ከአየር ቧንቧ ውስጥ ሲተነፍሱ ተሰምቶት ያውቃል	ሀ. አዎ ለ. አይደለም	መልስዎ አይደለም ከሆነ ወደ ተ.ቁ 30 ይለፉ
29.	የተ.ቁ 28 መልስ አዎ ከሆነ ህመሙ በሥራ ጊዜ/ቦታ ምን አይነት ለውጥ ያሳያል?	ሀ. ለውጥ የለውም ለ. ይሻለኛል ሐ. ይብስብኛል	
30.	ባለፉት 12 ወራት ውስጥ ምንም አይነት አደጋ/ከባድ ሥራ ሳይሰሩ የትንፋሽ ማጠር በቀን ሥራ ላይ አጋጥምዎት ያውቃሉ	ሀ. አዎ ለ. አይደለም	
31.	ባለፉት 12 ወራት ውስጥ መተንፈስ አቅቶት በሌሊት ከእንቅልፍዎ ነቅተው ያውቃሉ?	ሀ. አዎ ለ. አይደለም	
32.	ባለፉተ 12 ወራተ ወስጥ ሳል ከእንቅልፍዎ ቀስቀሶት ያውቃል?	ሀ. አዎ ለ. አይደለም	
33.	በአብዛኛው ጧት ጧት ከእንቅልፎ ሲነቁ ያስልዎታል?	ሀ. አዎ ለ. አይደለም	መልስዎ አይደለም ከሆነ ወደ ተ.ቁ 35 ይለፉ
34.	በሥራ ላይ እያሉ ሳሉ ምን አይነት ለወጥ ያሳያል?	ሀ. ለወጥ የለውም ለ. ይሻለኛል ሐ. ይብስብኛል	

	ጥያቄዎች	የመልስ አማራጮች	ይዝለሉ
35.	በአብዛኛው ጧት ከእንቅልፍዎ ሲነሱ አክታ ይኖርዎታል?	ሀ. አዎ ለ. አይደለም	
36.	ለፀጉር ስፕሬይ ከተገለጡ በኋላ ቀጥሎ ከተዘረዘሩት ውስት የሚሰማዎት ስሜት አለ	1. ሀ. አዎ ለ. አይደለም 2. ሀ. አዎ ለ. አይደለም	

	ነ. የትንፋሽ ማጠር 2. ሳል 3. ደረት ላይ የመጨምደዲ ስሜት 4. ከአይን እምባ መፍሰስ /ማቀጣል 5. መስነጠስ /አፍንጫ መታፈን ወይም የአፍንጫ ፈሳሽ /ንፍጥ	3. ሀ. አዎ ለ. አይደለም 4. ሀ. አዎ ለ. አይደለም 5. ሀ. አዎ ለ. አይደለም	
37	ለፀጉር ስፕሬይ ከተገለጡ በኋላ ቀጥሎ ከተዘረዘሩት ውስጥ የሚሰማዎት ስሜት አለ ነ. የትንፋሽ ማጠር 2. ሳል 3. ደረት ላይ የመጨምደዲ ስሜት 4. ከአይን እምባ መፍሰስ /ማቀጣል 5. መስነጠስ /አፍንጫ መታፈን ወይም የአፍንጫ ፈሳሽ /ንፍጥ	ነ. ሀ. አዎ ለ. አይደለም 2. ሀ. አዎ ለ. አይደለም 3. ሀ. አዎ ለ. አይደለም 4. ሀ. አዎ ለ. አይደለም 5. ሀ. አዎ ለ. አይደለም	
38	ፀጉር ሲሰራ (ካውያ /ፔይስትራ) ቀጥሎ ከተዘረዘሩት ውስጥ የሚሰማዎት ስሜት አለ? ነ. የትንፋሽ ማጠር 2. ሳል 3. ደረት ላይ የመጨምደዲ ስሜት 4. ከአይን እምባ መፍሰስ /ማቀጣል 5. መስነጠስ /አፍንጫ መታፈን ወይም የአፍንጫ ፈሳሽ /ንፍጥ	ነ. ሀ. አዎ ለ. አይደለም 2. ሀ. አዎ ለ. አይደለም 3. ሀ. አዎ ለ. አይደለም 4. ሀ. አዎ ለ. አይደለም 5. ሀ. አዎ ለ. አይደለም	
39	ከቤተሰብ ውስጥ (እናት፣አባት፣ልጅ፣እህት፣ወንድም) አስም የለው አለ?	ሀ. አዎ ለ. አይደለም	
40	በአሁኑ ጊዜ የእጅ ቆዳ መድረቅ ፣መሰነጣጠቅ ወይም አላርጂክ አልዎት?	ሀ. አዎ ለ. አይደለም	መልሶዎ አይደለም ከሆነ ወደ ተ.ቁ 43 ይለፉ
4ነ	ተ.ቁ. 40 ላይ ከተጠቀሱት ምልክቶት ውስጥ ካሎዎት መጀመሪያ መቼ ነው የጀመሮዎት (ዓመተ ምህረቱን ይግለፁ)	……	
42	እነዚህ ምልክቶት ከሰራዎ ተፈጥሮ ማለተም የፀጉር ቀለም ከመነካካት ጋር ወይም ውሃ ነክ ስራዎች ጋር ይያያዛሉ?	ሀ. አዎ ለ. አይደለም	
43	በእጅዎት ላይ የመቆጥቆጥ ወይም የመቅላት ስሜት እና የመሸከክ ወይም የመበጥ ስሜት ተከስቶ ያውቃል?	ሀ. አዎ ለ. አይደለም	
44	ለ.ተ.ቁ. 43 መልስዎ አዎ ከሆነ ከ3 ስምንት በላይ ቆይቶብዎት ያውቃል?	ሀ. አዎ ለ. አይደለም	
	የጡንቻ የመገጣጠሚያ አጥንት ሁኔታ		

45	ከስራ ጋር በተያያዛ የህመም ስሜት በእነዝህ የሰውነት ክፍሎች ላይ ቢያንስ በወር አንዴ ተስምቶት ያውቃል? i. በወገብ ላይ (ክፍ ብሎ /ዝቅ ብሎ) ii. በትከሻ ላይ iii. በክንድ /የእጅ መገጣጠሚያ ላይ/ iv. አንገት ላይ v. በባት ወይም በእግር ላይ	1. ሀ. አዎ ለ. አይደለም 2. ሀ. አዎ ለ. አይደለም 3. ሀ. አዎ ለ. አይደለም 4. ሀ. አዎ ለ. አይደለም 5. ሀ. አዎ ለ. አይደለም	
46	በለያየ የሰውነት አቋቋም (በመቆም/በመቀመጥ) ለመስራት የሚያስችል በቂ የሆነ የስራ ቅይጥ አለ?	ሀ. አዎ ለ. አይደለም	
47	በስራ ላይ እረፍት የሚያደርጉበት መደበኛ የእረፍት ጊዜ አለዎት?	ሀ. አዎ ለ. አይደለም	
48	አብዛኛውን ጊዜ ምቹ የሰውነት አቋቋም ላይ ሆነው ሰራዎትን ያከነውኑሉ? ለምሳሌ ወገብዎ ሰይጠማም ወይም ሰያጎነብሱ ቀጥ ብሎ መስራት ትከሻዎ ወይም ክርኖዎ ወደላይ ከፍ ሳይል ዝቅ ብሎ መስራት	ሀ. አዎ ለ. አይደለም	
49	በብዛት የሥራ ጫና የሚፈጠሩብቸው ጊዜያቶት አሉ?	ሀ. አዎ ለ. አይደለም	
50	ለስራዎ በቂ የሆነ አድናቆት ከአሠራዎ ወይም ከስራ ባልደረባዎ ያገኛሉ?	ሀ. አዎ ለ. አይደለም	
51	የራሶዎን የየቀኑን የስራ ሰንጠረዥ ይቆጣጠራሉ? ማለተም መቼ ምን እንደሚያከነውኑ እና መቼ እረፍት እንደሚያደርጉ?	ሀ. አዎ ለ. አይደለም	
52	በስራ ሰዓት የወብት ሳሎኑ የሙቀት ሁኔታ ለስራ ምቹ ነው?	ሀ. አዎ ለ. አይደለም	
53	በላፉተ 12 ወራተ ውስጥ ለመፀኽስ ሞክረሽ ነበር?	ሀ. አዎ ለ. አይደለም	ምላሽዎ አይደለም ከሆነ ወደ ተ.ቁ 56 ይለፉ
54	የተ.ቁ. 53 ምላሽዎ አዎ ከሆነ ተስክቶልዎታል?	ሀ. አዎ ለ. አይደለም	
55	የተ.ቁ. 54 ምላሾዎት አይደለም ከሆነ በላፈት 12 ወራት ውስጥ ውርጃ አጋጥመዎት ያውቃል?	ሀ. አዎ ለ. አይደለም	
56	እርሶ ለፀጉር የሚሆኑ ምርቶተን ማለተም ቀለም ወይም ፕርም እና ሌሎች ኬሚካሎችን ይጠቀማሉ?	ሀ. አዎ ለ. አይደለም	
57	በላፉት 12 ወራት ውስጥ ጤንነትዎንና ደህንነትዎን አስመልክቶ የስራ ጉበኝት የደረገልዎት አካል አለ?	ሀ. አዎ ለ. አይደለም	

ANNEX V: TRAINING MANUAL AND GUIDELINE FOR DATA COLLECTORS

Topic: Assessment of health status of hairdressers in N/S/L/S/City.

Objectives of the research: to assess the self-reported health problems of hairdressers in N/S/L/S/City.

Purpose of the training

1 To familiarize the data collectors & supervisors with unfamiliar words and sentences used in questionnaire.
2 To adopt data collectors & supervisors with techniques to be followed in data collection and supervision procedures
3 To enable data collectors& supervisors in resolving problems in case of inconveniences

Methods of training

Discussion on data collection tool

Responsibility of research team members

Principal investigators – control/monitor the overall activities of the study

Supervisors – monitor for the correctness of data collations at the spot in the filed

♠ Monitor for consistency and completeness of data at the spot of data collection

♠ Monitor for availability of necessary supplies for the Data collection

♠ Ensure data quality at the spot of data collection

Data collectors/enumerators

♠handle necessary supplies to perform the study

♠perform the Data collection and enumerate correctly

♠communicate with supervisors and principal investigator for solving problems which are beyond their capacity, and for information which needs more clarifications

♠check for completeness of questionnaire at the site

Description on interviewing skills

♣The principal investigator clears the ethical issue of hairdressers salon in N/S/L/S/City by

Receiving Supportive letter from AAU-SPH, and deliver the name of the data collector and supervisor: then

♣Gaining access to the hairdresser's salons

♣Greeting

♣ Introducing yourself and the purpose of coming.

♣explain consent form and describe it for the respondent and keep confidentiality and approach friendly, and ask their willingness to respond for the question (do not pressured very much that do not want respond, but describe the objective of the study and confidentiality

Interviewing process

♣handle your questionnaire and pencil

♣give clear instruction to the respondent

♣directly read the question/interview neutrally and do not imply your understanding-be straight in communication.

♣Do not show agreement or disagreement

♣ listen carefully the response and record it without interrupting the respondents' response from pre-coded response

♣answer if any questions from the respondents

Ending the interview:- ♣check completeness

♣ thank the respondents

Annex VI: CURRICULUM VITAE (CV)

SARA DULA BUYO
Tele. 0911411437
P.O.Box. 145292
Addis Ababa
E-mail: sarabuyo99@gmail.com

Education:

1999-2001	MSc in nursing AAU
1993-1995 E.C	BSC in Nursing, Jimma University
1986-1989 E.C	Diplomas in comprehensive Nursing, Jimma Institute of health science
1982-1985 E.C	Certificate, Bethel Evangelical, Secondary School (BESS)

⏩ In addition I have participated in different training courses:
-VCT ---------- ------ Sep.12-23.2006
-Teaching learning workshop ---------- Aug. 8-18, 2005
- Research methodology---------- Apr. 11-15, 2005
-Lactation management---------- Dec. 8-9, 2004
- Essential nutrition action (ENA) & Behavior change communication (BCC) In the context of ENA approach -------Oct. 1-10, 2004

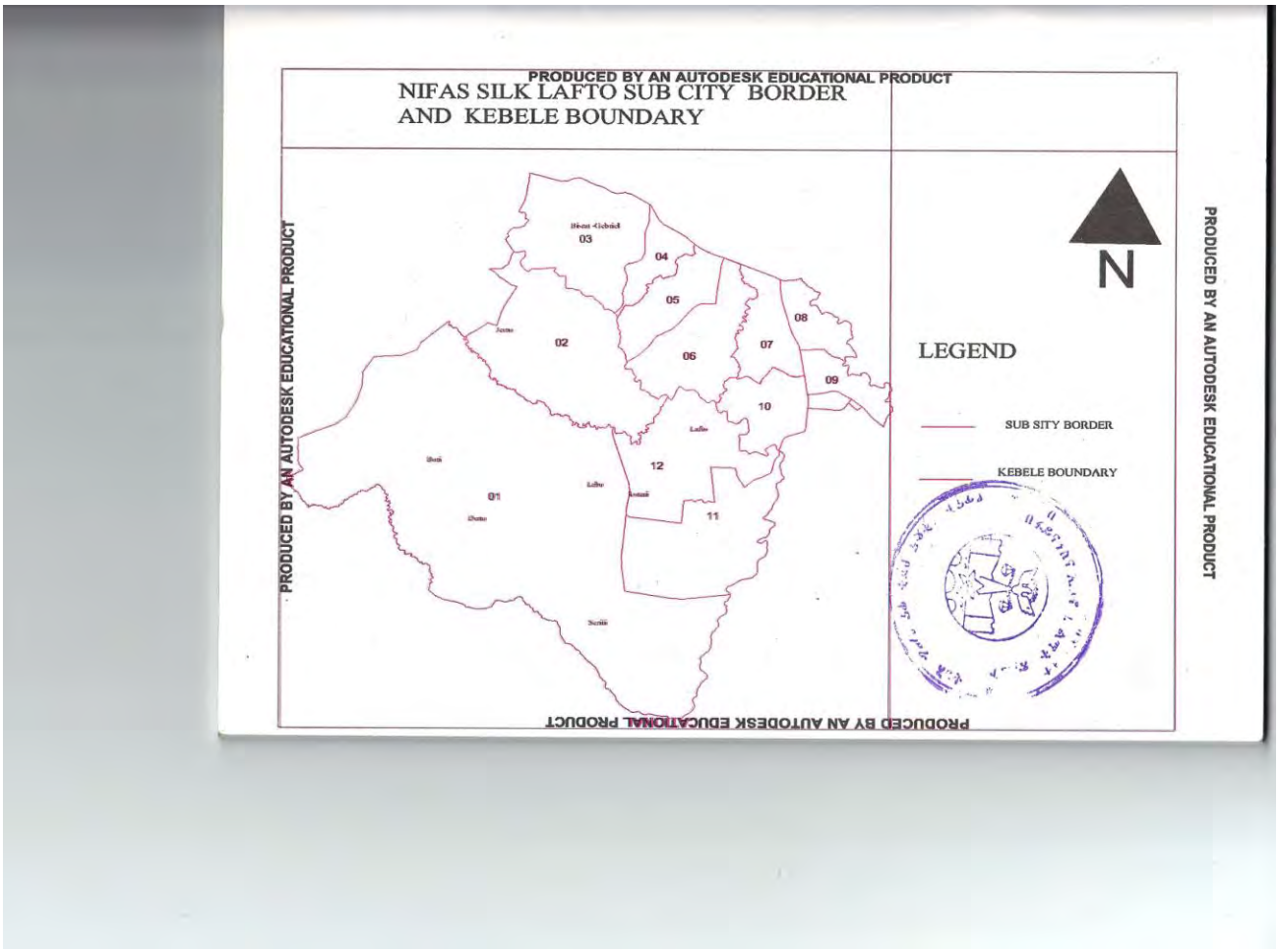
Experiences:
2001E.C- present ---- lecturer in Defense Health Science College
1996 E.C- 2000----assistant lecturer in Defense Health Science College
1989-1992 E.C-------As staff nurse in Ground Force Health Command

Researches:
-1996 E.C –constraints of research activities in DHSC and was presented on the national research symposium in Debre-zeit, Ethiopia, 2004.
- 1995 E.C—assessment of HIV/AIDS related knowledge and practice among the military students of Defense University College, 2003; and was presented on the annual student research Symposium, in 2003 and also presented on the annual conference of EPHA, 2003.

Languages: Afan Oromo, English, Amharic

Interest: playing tennis and doing aerobics

ANNEX VII: MAP OF NIFAS SILK LAFTO SUB CITY



MAP OF THE STUDY AREA

DECLARATION STATEMENT

I the undersigned, declare that this thesis is my original work in partial fulfillment for the requirements of Master's degree in Public Health.

All the sources of the materials used for this thesis and all people and institutions who gave support/contributed for this work are fully acknowledged.

Name of the student: Sara Dula Buyo

Signature

Place of submission: School of Public Health, Addis Ababa University, school of graduate studies

Date of submission

This thesis work has been submitted for examination with my approval as university advisor.

Name of advisor Abera Kumie (PhD)

Signature
Date of submission