



ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF PUBLIC HEALTH

**PREVALENCE AND DETERMINANTS FOR LOW BACK PAIN AMONG
TAXI DRIVER ASSISTANTS IN ADDIS ABABA, ETHIOPIA**

BY: KEMAL MOHAMMED

ADVISORS: - SAMSON WAKUMA (PhD)

TEFERI ABEGAZ (PhD)

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Declaration

I hereby declare that this MPH thesis is my original work and has not been presented for a degree in any other university, and all sources of material used for this thesis have been duly acknowledged.

Name of investigator: Kemal Mohammed

Signature: _____

Date: _____

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

Name: main advisor: Samson Wakuma(PhD) : Signature: _____ Date: _____

Co-advisor Teferi Abegaz (PhD) : Signature: _____ Date: _____

ADVISORS' APPROVAL SHEET

This is to certify that the thesis entitled “prevalence and determinants for low back pain among taxi driver assistants in Addis Ababa, Ethiopia, 2023: A community based cross-sectional study” submitted in partial fulfillment of the requirements for the degree of Masters in Public Health, specialty in environmental and occupational health the Graduate Program of the School of Public Health, and has been prepared by Kemal Mohammed under my supervision. Therefore, I recommend that the student has fulfilled the requirements and hence hereby can submit to the Thesis to the School.

Samson Wakuma (PhD)

Main Advisor

Signature

Teferi Abegaz (PhD)

Co-advisor

Signature

EXAMINERS' APPROVAL SHEET

The undersigned certify that we have read this thesis “the assessment prevalence and determinants for low back pain among taxi driver assistants in Addis Ababa, Ethiopia, 2023: A facility based cross-sectional study” and hereby recommend to school of public health to consider it as a partial fulfillment of the requirements for the award of a Master of Public Health.

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Chairman, Graduate committee	Signature
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Internal Examiner	Signature
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External Examiner	Signature

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.

Abbreviation and Acronyms

AAU	Addis Ababa University
ANOVA	Analysis Of Variance
AOR	Adjusted Odds Ratio
COR	Crude Odds Ratio
CSA	Central Statistics Agency
CI	Confidence Interval
DALYs	Disability Adjusted Life Years
ETB	Ethiopian Birr
GBD	Global Burden of Disease
LBP	Low Back Pain
MSD	Musculoskeletal Disease
MPH	Master of Public Health
MOH	Minister of Health
SDGs	Sustainable Development Goals
SPSS	Statistical Packages for Social Science
UNICEF	United Nations International Children's Emergency Fund

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Abstract

Background: - Globally Low back pain (LBP) is the most known musculoskeletal problem which causes limitation of activity and work absenteeism and it is one of the major across-the broad public health problems. In Ethiopia there is a high burden of LBP in the working segment of the Ethiopian population including drivers and their assistants. And it is common problem that indicates the importance of the problem in public health which needs an attention.

Objective: -The study aims to assess the prevalence and determinants of low back pain among taxi driver assistants in Addis Ababa, Ethiopia.

Method: A cross-sectional study design was employed among taxi driver assistants in Addis Ababa from March-July 2023. A total of 633 taxi driver assistants were participated in the study. A standardized questionnaire adapted from the Nordic questionnaire was used to collect the information. The data's were entered and cleaned using Epi-info version 7.2 and exported in to SPSS Version 25 software for data analysis. Descriptive statistics were used to compute means and standard deviations for numerical variables. Bivariate analysis was used to assess the association between these variables and multiple logistic regressions were conducted to identify factors predicting low back pain. The threshold for statistical significance was $p < 0.05$.

Result: - A total of 633 taxi driver assistants with the mean age of 26.3 (± 7.3) and the mean experience of driver assisting 3.9 (± 2.6) was participated in this study. Of the 633 participants, 292 (i.e., 46.1%) reported having low back pain at least for one day in the 12 months prior to the survey. Many of the participants mentioned lack of physical exercise [AOR =6.1,(95% CI, (2.5-15.1)] year of assisting experience [AOR = 3.3 (95% CI, (1.1-9.2)] and There were also respondents who mentioned sitting on uncomfortable seat while assisting [AOR=3.2 (95% CI, 2.4-6.9)] as determinant of low back pain by taxi driver assistants in Addis Ababa.

Conclusion: - Low back pain was found to be common among taxi driver assistants in Addis Ababa. Occupation and behavior related factors were noted as strong determinants of LBP among the taxi driver assistants found in the present study. Further study, with an alternative designs, were recommended to investigate other determinants of low back pain among assistants in broad scope.

1. Introduction

1.1 Background of the Study

Low back pain is pain felt in lower back or lumbar spine and the lower back is the part of human spine between the bottom of the ribs and the top of pelvis[1]. This part of spine is designed to be strong and allows to turn, twist or bend and to stand, walk and lift and most back pain happens in lower back pain and it contains the five vertebrae in the lumbar region and it supports much of the upper body weight[1]. The gap between the vertebrae are sustained by round, rubbery pads that act like shock absorber all through the spinal column to cushion the bones as the body moves[2]. A wedding ring of tissue known as, ligaments hold the vertebrae in place and tendons connect the muscles to the spinal column. Thirty-one pairs of nerves are rooted in the spinal cord and they regulate the movement of the body and transmit signals from the body to the brain.[2]

Globally Low back pain (LBP) is the most known musculoskeletal problem which causes limitation of activity and work absenteeism because of its burden[3]. It also results in a huge medical load with a rise of cost[3]. And it is accordingly one of the major across-the broad public health problems[3]. Systematic review and meta-analysis revealed in Ethiopia showed that there is a high burden of LBP in the working segment of the Ethiopian population including driver[4].

In Ethiopian context most of the shared taxi operators in Ethiopia own a mini bus taxi that have a capacity of 12 passengers generally the vehicles are operated by hiring personnel, that is, drivers and their assistants[5]. The drivers are assisted by the assistants who are responsible in facilitating the transport service by performing activities like announcing transport line destination, announcing tariffs receiving payment from customers, lifting and dropping high load objects of customers and taking care of the belongings of customers that have determinants that make them vulnerable to low back pain.

1.2 Statement of the problem

Low back pain has a pain that may go down to legs or worsen with bending, twisting, lifting, standing or walking. It has pain ranging from mild to severe that causes disability, sleep disturbance and high cost [7]. Low back pain has many different causes like muscle sprains or strains because of sudden movements or poor body movement while lifting heavy objects, conditions and also from disease, mostly results because of injuries on muscles or tendons. Back pain can range from a muscle aching to a shooting, burning or stabbing sensation[6].

The most common type of low back pain is called ‘non-specific low back pain’, and accounts for approximately 90% of cases in primary care settings and between 49% and 90% of people in developed countries will experience at least one episode of low back pain during their lifetime. Back pain usually resolves within 2 weeks, but symptoms may linger for up to 2 months. However, 24% to 80% of patients will experience further episodes within a year, and over three quarters will have a reoccurrence at some point in their lives(1).

The study done in 2015 among taxi drivers in Addis Ababa indicated that above half of the studied participants are affected by low back pain and the prevalence was 64.2% [8] and some determinant factors that are associated with low back pain were year of driving, history of back trauma, frequent load lifting, lack of rest break during work day, uncomfortable seat pan and previous job involve sitting [8]. The studies conducted in Ethiopia, the determinant factors that contribute to low back pain among drivers are uncomfortable seat, frequency of lifting loads, prolonged setting with awkward posture and whole body vibration, not aware of ergonomics and lack of exercise [9, 10].

However, in Ethiopia there are limited studies that are done on driver’s assistants, since taxi driver assistants have similar determinant factors compared to drivers because they have the same work characteristics, and the assistants also engage those determinants that are related with low back pain. This all makes them vulnerable to low back pain.

Therefore this study aims to assess the prevalence and determinant factors of low back pain among taxi driver assistant.

1.3 Rationale of the study

In our country context, the work of taxi transport providers is performed with the aid of driver assistants. This study makes driver assistants the main target group by taking into account their responsibility and vulnerability for LBP such as load lifting, uncomfortable seat pan, long working hours and stress. This study was considering these determinants as an explanatory variable for LBP of driver assistants.

1.4 Significance of the study

This study have immense contribution for the following parties

- The research was providing possible determinant for LBP and helps the taxi driver assistants to be aware about the problem.
- It provides information or awareness about the problem for all concerned bodies such as policy makers and decision makers.
- The research was serve as a referencing material for interested researchers in the area

1.5 Literature review

1.5.1 Prevalence of low back pain

The most common type of low back pain is called ‘non-specific low back pain’, and accounts for approximately 90% of cases in primary care settings and between 49% and 90% of people in developed countries will experience at least one episode of low back pain during their lifetime. Back pain usually resolves within 2 weeks, but symptoms may linger for up to 2 months. However, 24% to 80% of patients will experience further episodes within a year, and over three quarters will have a reoccurrence at some point in their lives(1). The prevalence of LBP among drivers has been shown to be high. The prevalence is believed to vary between 34.3% and 78% in different parts of the world [9].

Low back pain affects people of all ages, from children to the elderly, and is a very frequent reason for medical consultations [11-13]. The 2010 Global Burden of Disease study estimated that low back pain is among the top 10 diseases and injuries that account for the highest number of DALYs worldwide[14].

In Africa when we see the prevalence of low back pain among drivers in the studied area, it is increasing, According to the systematic and meta-analysis study done on the prevalence of low back pain in Africa the pooled lifetime, annual and point prevalence of LBP in Africa was 47%; 57% and 39%, respectively[4, 15].Studies conducted in Nigeria on professional drivers reported prevalence of LBP to be 73.5%[9]. Studies conducted in Ghana among urban taxi and commercial mini-bus drivers reported prevalence of LBP among occupational drivers indicate 34% and the study conducted in Nigeria on professional drivers was 58.8%[16].

Systematic review and meta-analysis revealed in Ethiopia showed that there is a high burden of LBP in the working segment of the Ethiopian population including driver[4].Studies in Ethiopia with four-wheel taxi drivers and bus drivers has found a high prevalence of LBP among these occupational groups 38.6–60.0%[8].Even if the studies conducted in Ethiopia compared to other countries are less but there are studies that describe the prevalence of low back pain among taxi drivers[17].

The prevalence of low back pain among taxi drivers in Addis Ababa was 64.2% which indicates that most of taxi drivers were the victim of low back pain[18].Furthermore if there are more studies done in Ethiopia among drivers the problem will be addressed using the recommendation given by the researchers. The studies also determine not only the prevalence but also the determinant factors that can contribute for the development of low back pain among drivers(1). Some determinant factors that are associated with low back pain among drivers are mentioned below.

1.5.2 Socio demographic related factors

The study done in Taiwan on the prevalence and factors associated with low back pain among adults shows that the prevalence of low back pain was 18% in young adults aged 20-29 years old it increases when they are old age, 70 years and above (34.9%)[30]. The study done in Modjo port in Ethiopia shows that the prevalence of low back pain among age <37.7 years was 112 (55.2%) and the prevalence of low back pain among age > 37.7 years was 148 (75.1%)[21].The study done in Mekele in Ethiopia shows that the prevalence of low back pain among age 20-30 years was 16 (19.75%) and the prevalence of low back pain among age 31-40 years was 29 (32.2%)[28].

Those studies that as age increase the prevalence of low back pain also increase but in the study done in Israel among truck drivers the mean age of the drivers that have low back pain problem are 45.0 ± 9.5 years and those that are free from low back pain are 47.0 ± 10 years, that means those who had LBP problem are younger than those with no LBP[31].

The study done in Taiwan shows those peoples with low education are with a high prevalence (35.5%) than peoples with high education (18.1%)[30]. And the studies done in Ethiopia in Addis Ababa shows that the prevalence of LBP among drivers with low education was 69.8 % than high educated 63.2%(2)[30].

1.5.3 Behavior and Psychosocial related factors

Obviously, every job has its own stress characteristics. According to some research, driving is among the stressful jobs. Driving requires skill, high concentration and accuracy, careful judgment and confidence in decision-making; therefore, increasing in drivers' stressors will end in accidents.[32].The prevalence of LBP among drivers in Mekelle, Ethiopia and Modjo, Ethiopia with job stress was 67 (30.7%), 212 (70%) and without job stress was 15(19.7%),48 (49.5%) respectively[28][21].In the study done in Ethiopia among taxi drivers job

stressfulness in was found to be 37% and those that are free from job stress was reported 63%.[33].

Back pain is more common among people who are not physically fit. Weak back and abdominal muscles may not properly support the spine. “Weekend warriors”—people who go out and exercise a lot after being inactive all week—are more likely to suffer painful back injuries than people who make moderate physical activity a daily habit. Studies show that low-impact aerobic exercise can help maintain the integrity of intervertebral discs and Being overweight, obese, or quickly gaining significant amounts of weight can put stress on the back and lead to low back pain.(2)

Study conducted in mekele among taxi driver states that less than 10% of the study participants were smokers and 185 (62.9%) were alcohol drinkers(3). Drinking alcohol, chewing chat and smoking cigarettes were reported by 217 (51.4%), 152 (35.8%) and 130 (30.8%) respondents respectively(33)

The study done in Taiwan among truck drivers indicated that the prevalence with drivers that smokes with LBP 3,988 (26.4%) and the prevalence without smoking was 2,282 (24.4%)[30].The study done in Ethiopia among drivers in Addis Ababa was indicated that the prevalence with drivers that drunk alcohol with LBP 157(72.4%), and the prevalence without alcohol drunk was 114(55.6%)[9].

1.5.4 Ergonomic related factors

One risk factor that aggravates the probability of low back pain, was seating posture. For example, studies conducted among 96 bus drivers in Johor Bahru, Malaysia indicated that seating posture was associated with low back pain[19].Comparing the improper seating posture of drivers while driving and proper seating posture while driving the odds is found to be higher in improper seating[20].Improper seating such as half buttock sitting, bending forward to the steering wheel, and lateral twisting either to the window of the truck’s door or in the opposite direction of it while driving can cause compression on the lumbar structure and finally result in LBP[21].

And studies conducted in Jimma city, Ethiopia indicates that Respondents who had comfortable seating postures were 68% OR 0.32 [95% CI 0.12–0.86] less likely to develop lower back pain than those who reported uncomfortable seating posture[22].In a previous study done in Israel shows that uncomfortable seat is one of the risk factors associated with

low back pain, and also when we see studies conducted in Ethiopia uncomfortable seat was associated with a higher prevalence of LBP among taxi drivers. That is because mechanical stress upon the spine and its surrounding soft structures, and this, may ultimately cause LBP[23].According to the study done in Egypt among bus drivers the association between LBP and uncomfortable seat, the results showed that those who complained of uncomfortable seat experienced higher significant LBP (81.8%; OR=2.83; 95% CI: 1.43–5.59)[24].

According to the study done in Ethiopia among taxi drivers lumbar /back support was strongly associated with low back pain[4]. And the study done in Cairo, Egypt among bus drivers shows that back support is associated with low back pain, it is reported that the prevalence of low back pain for those that did not have back support is 74.3%[25].

According to the study done in UK and Ethiopia frequent involvement in lifting or carrying objects was strongly associated with an increased risk for LBP. Improper lifting or carrying activities could be the reasons that are prone to back injury[26].Frequency of lifting loads was significantly associated with a higher prevalence of LBP[27]. This might be due to the fact that taxi drivers spend most of their time confined to the driver's seat inside the taxi. This restricts muscle relaxation. In the absence of muscle relaxation load lifting may cause muscle injury on the lower part of the back[27].In Ethiopian context frequent lifting of loads are primarily by assistances and the driver himself assists.

According to studies done in Malaysia among bus drivers indicate that no awareness of ergonomics increases the development of low back pain because when there is awareness one will be ready to do works in proper ergonomic positions, the study done in Mekelle in Ethiopia among taxi drivers also showed that taxi drivers who were not aware of ergonomics were about 2.5 times more likely to develop LBP than their counterparts[28].The study done in Egypt among drivers found that average daily working hours above 8 hours is strongly associated with low back pain[29]. Other study done in Ethiopia among drivers showed that average driving hours greater than 12 hours is associated with LBP[21]

1.6 Conceptual framework

This study used a conceptual framework that shows relationships among relevant contextual factors of low back pain. The details of the framework displayed in figure 1 below. Low back pain is the outcome, socio-demographic characteristics are underlying causes for work characteristics, and here work characteristics are immediate factors for low back pain. The arrows in the diagram show interactions between the variables, most of the factors are interrelated to each other. As depicted in the diagram low back pain is affected by socio-demographic, Lifestyle characteristics Work characteristics, Psychological characteristics or factors.

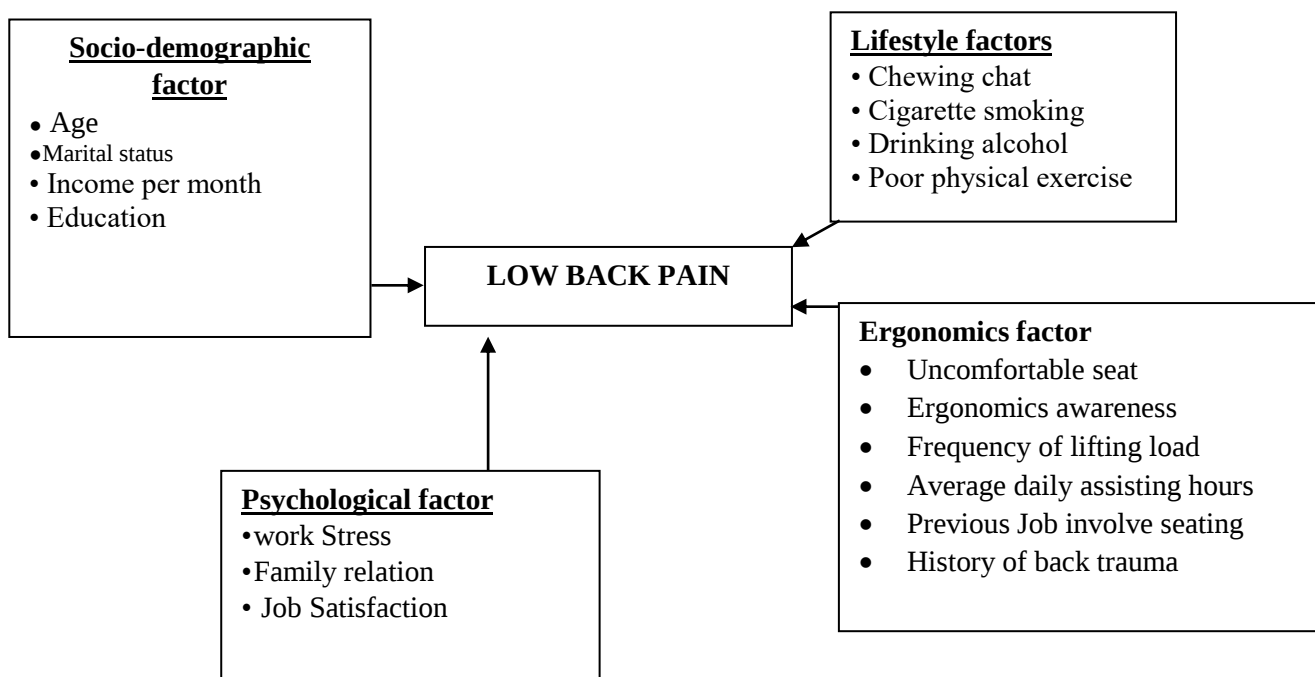


Figure:- 1 the conceptual framework prevalence and risk factors for low back pain among taxi driver assistance in Addis Ababa, Ethiopia 2023

2. Objectives

2.1 General objective

- The general objective of the study was to assess the prevalence and determinants of low back pain among taxi driver assistant in Addis Ababa, Ethiopia.

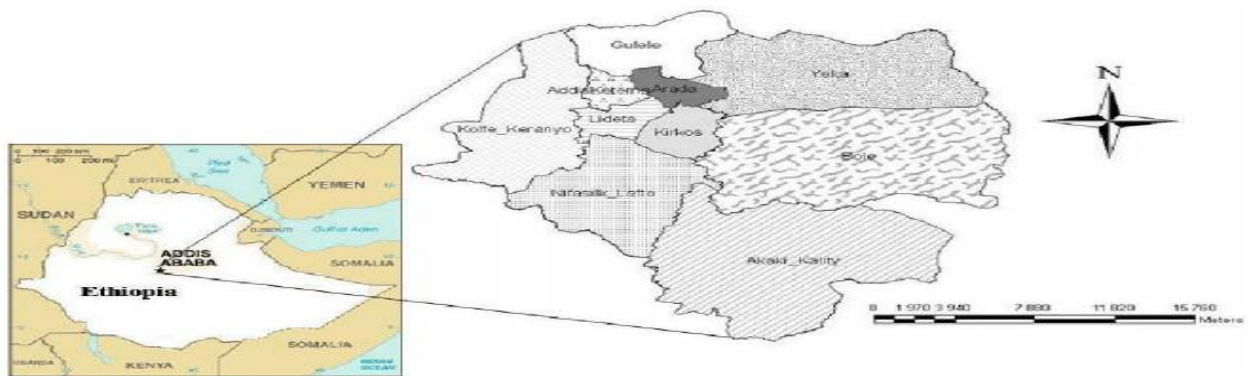
2.2 Specific objectives

- To assess the prevalence of low back pain among taxi driver assistants in Addis Ababa, Ethiopia
- To describe the determinant factors associated with low back pain among taxi driver assistants in Addis Ababa, Ethiopia

3 Methods

3.1 Study area

The study was conducted in Addis Ababa, the capital city of Ethiopia. According to Addis Ababa Road and Transport Bureau, the numbers of minibus taxis operating in Addis were estimated at 6819 in the year February 2023 GC. So around 6819 taxi driver assistants were available around Addis Ababa. According to Addis Ababa Road and Transport Bureau the distribution in sub-cities, Bole 486, Lideta 255, Yeka 992, Lafto 827, Arada 364, Qirkos 319, Addis Ketema 841, Kolfe 995, Qality 567, Gulele 465, and Lemikura 726 .



3.2 Study design and period

Across-sectional study design was conducted among taxi driver assistants in Addis Ababa from March to July 2023.

3.3 Source and study population

3.3.1 Source population

All taxi driver assistants in Addis Ababa, Ethiopia

3.3.2 Study population

All sampled taxi driver assistants that meet the criteria

3.4 Inclusion criteria

- full time assistance for taxi driver
- Have at least one year assisting taxi driving experience
- Be able to communicate,
- Be involved in working at the data collection time

3.5 Exclusion criteria

- Taxi drivers assistants that have starting point in Addis and transport outside Addis Ababa

3.6 Sample size determination

Since there were no previous studies done for low back pain among taxi driver assistants I considered 50% population proportion, confidence interval of 95%, confidence limit of 5%, adding a 10% non-response rate. The required sample size was obtained by the following formula:

For first objective:-

Where $n = \frac{(Z_{\alpha/2})^2 p (1-p)}{d^2}$ n= required sample size

$Z_{\alpha/2}$ =the standard normal deviation at 95%confidence interval; = 1.96

P= 5% (0.05)

1-p= proportion of population that do not possess the character of interest.

Therefore, $n = \frac{(Z_{\alpha/2})^2 p (1-p)}{d^2}$

$$n_i = \frac{(1.96)^2 (0.5) (1-0.5)}{(0.05)^2} = 384$$

The sample size for the first objective is about 384, and with 10% non-response it is about, 422

For specific objective: -

Sample size for the second objective

$$n1 = \frac{(Z_{\alpha/2} + Z_{\beta})^2 (P_1 (1-P_1) + [P_2 (1-P_2)])}{(P_1 - P_2)^2}$$

1. Ergonomic awareness

P₁= % who were not aware of ergonomic 41.4 % (5).

P_2 = % who were aware of ergonomic 23.7 % (5).

$Z_{\alpha/2} = 1.96$ (95% confidence level) $Z_{\beta} = 0.84$ (statistical power of 80%) $DE = 1.5$

The sample size for second objective is about 242 with 10% non-response it is about 260

Since the sample size for the first objective is higher than 2nd objective the sample size will be 422.

✓ multiplied by $DE = 1.5$ we will get the final sample size **633**

3.7 Sampling technique

Addis Ababa city administration has 11 sub cities, out of this five sub cities were selected randomly. From each selected sub cities taxi stations in the main road were selected proportionally. The number of taxis and their lines/routes in the station were picked by the distribution of taxis at the station. Then each number of taxi driver assistants were selected and interview by systematic random sampling with 3 up to 4 intervals. According to this distribution, 73 to 120 taxi driver assistants in the selected sub cities are included and 33 to 80 assistants in each main stations were systematically selected.

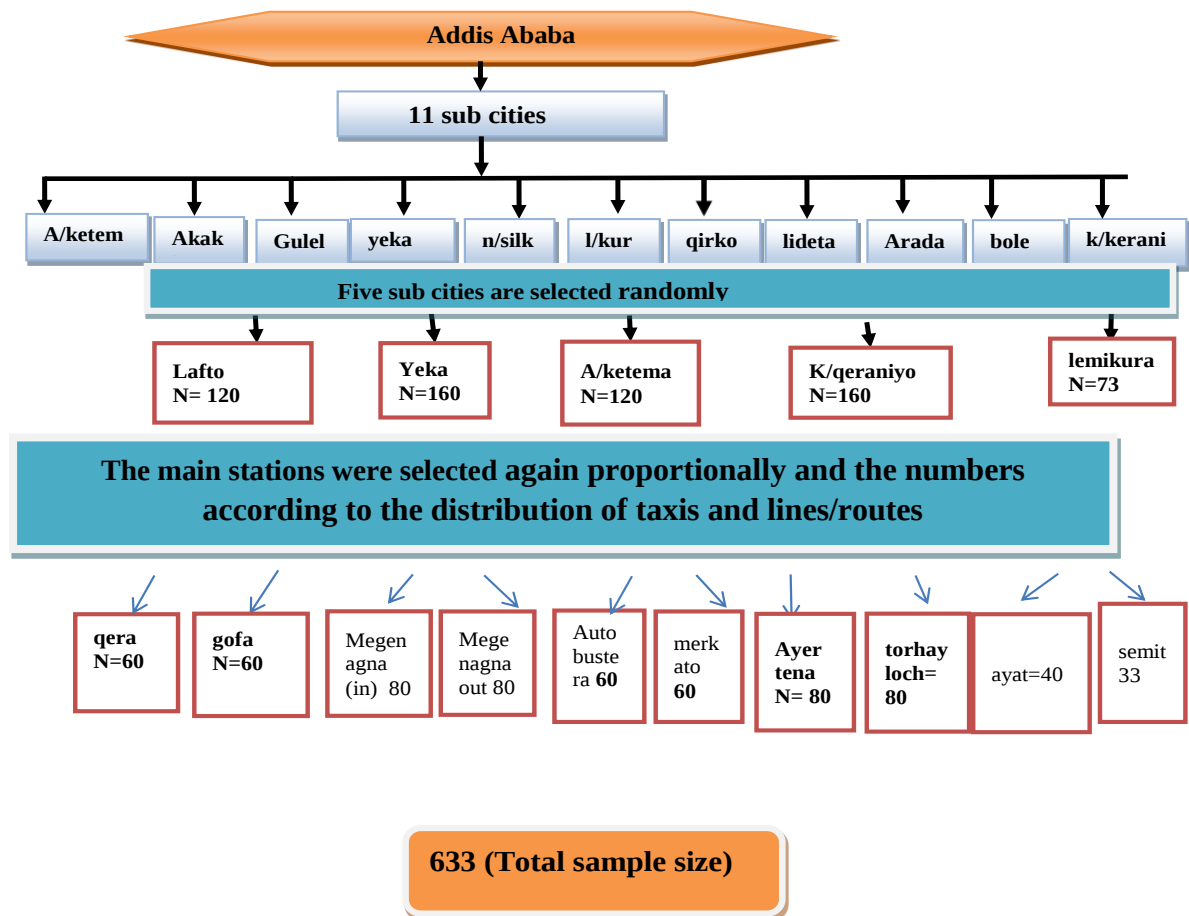


Figure 1 schematic presentation of sampling for the assess prevalence and determinants for low back pain among taxi driver assistants in Addis Ababa, Ethiopia 2023.

3.8 Operational Definitions

Low back pain (LBP):- was defined as pain at the lower back of the body of the assistants from announcing transport line to the dropping of customers to their destination(6).

Taxi driver assistants: - are individuals who are responsible in facilitating the transport service by performing activities like announcing transport line destination, announcing tariffs, receiving payment from customers, and taking care of the belongingness of customers.

Prevalence of LBP: - is the frequency of study subjects who will respond to experiences of LBP in the past twelve months' time (7)

A smoker: - is a person who smokes cigarettes daily whatever the number of cigarettes(8)

Drunker: - is a person who drinks beer, local beer or Areke, Tella, or Tej every day or every other day (9)

Chat chewer: - is a person who chews chats at least once within a week (10)

Having physical exercise:- means if someone had 3 or more days of physical exercise (walking, running, bicycling, and stretching exercise such as sit-ups and pull ups)

Improper seating posture: -means if someone had bending, twisting, and half-buttock sitting posture while assisting the driver in different tasks

Frequent involvement in carrying or lifting heavy objects: -means assistants who involved in carrying or lifting objects weighing 25 and above kilograms every day or every other day.

3.9 Data collection tool

A structured and customized questionnaire adapted from the standardized Nordic questionnaire was used (11).The questionnaire was prepared in English; after that it was translated to the local language Amharic. And then was translated back into English to ensure its consistency. Face-to-face interviews were conducted to gather relevant information on Socio-demographic characteristics (age in years, education, ergonomic awareness, monthly income, marital status, family size, weight, height, and BMI), Lifestyle (smoking cigarettes, chewing chat, drinking alcohol, and physical exercise), Work characteristics/condition (Uncomfortable seat, ergonomics awareness, frequency of lifting load, average daily driving hours and no back support) Psychological characteristics such as work stress, job satisfaction, and adequacy of spending time with family. The interview durations range were between 25 to 30 minutes.

3.10 Study Variable

3.10.1 Dependent variable/ Outcome

- Low back pain among taxi drivers assistants

3.10.2 Explanatory variables/ Independent variable

- Prevalence of low back pain
- Socio-demographic characteristics (age in years, education, ergonomic awareness, monthly income, marital status, family size, weight, height, and BMI),
- Lifestyle (smoking cigarettes, chewing chat, drinking alcohol, and physical exercise),
- Work characteristics/condition (Uncomfortable seat, ergonomics awareness, frequency of lifting load, average daily driving hours and no back support
- Psychological characteristics such as work stress, job satisfaction, and adequacy of spending time with family

3.11 Data collection procedure

After the preparation of the questionnaire, five BSc environmental health professionals and two qualified senior professionals were trained for three days. The training was given for data collectors and supervisors about the objective of the study, the process of data collection and its completeness, about the questionnaire, methodology and ethical issues of the study had a common understanding among data collectors and supervisors this and other activities were supervised and controlled by principal investigator.

3.12 Data Quality assurance

To ensure gathering valid and reliable data from sampled respondents, the researcher hired trained and experienced data collectors. These data collectors were brief the objective of the study for respondents and made effort to complete the questionnaire. The quality of data were maintained through careful design, and use of standardized and customized questionnaire adapted from standardized Nordic questionnaires for the analysis of musculoskeletal symptom. Since the questionnaire were prepared and customized in English it was translated to Amharic and then translated back to English to insure its consistency. A pre-test was conducted among 30 respondents in Gulele sub-city that was not be included in the study to

assure accuracy and to change any questions which were not easy to understand for respondents.

Training was given for data collectors and supervisors about the objective of the study, questionnaire, methodology and ethical issues of the study to have a common understanding among data collectors and supervisors this and other activities was supervised and controlled by principal investigator

3.13 Data management

After the process of data collection, all the questionnaires were checked for its completeness, clarity and consistency by principal investigator. After that it was coded and stored in a safe place. If there were Missing values and outliers it was checked using frequency tabulation and residual plotting, and then managed accordingly.

3.14 Data analysis

The data were entered and cleaned using Epi info version 7.2 and was exported in to SPSS Version 25 software for the data entry and analyses. For descriptive statistics the results were described using frequency distribution tables and percentages. And multiple logistic regression analysis was performed to identify determinant factors associated with LBP. And the associations between LBP and determinant variables were described using odds ratio with 95% confidence interval.

3.15 Ethical consideration

Ethical clearance was obtained from Research Ethical Committee at School of Public Health, Addis Ababa University. Permission to conduct the study was also obtained from Addis Ababa transport office and taxi driver assistants. Informed written consents were obtained from respondents after explaining the objective of the study. Participants were assured of confidentiality with regard to all information acquired. In addition the data collector gave awareness about low back pain. Withdraw from the study during data collection was guaranteed to all the study participants at any time.

5. Results

5.1. Socio-demographic factors of the respondents

A total of 633 taxi drivers' assistants participated in this study making the response rate 98.2%. The mean age of the respondents was 26.3 with standard deviation ± 7.3 years with the majority of them 485 (76.6%) were between 20 and 40 years of age. The majority of the respondents were Orthodox 347 (54.8%) and single 386 (61%). Around 264 (41.7%) were educated 9-12 level and 161(25.4%) of the participants had a monthly income more than 5000 Birr. (*See table 1*).

Table 1 the distribution of study participants by socio-demographic characteristics of tax drives assistants in Addis Ababa, Ethiopia 2023 (N=633)

Variables	Frequency(n)633	Percent (%)
Age group(year)		
<20	113	17.9
20-40	485	76.6
41-60	35	5.5
Religion		
Orthodox	347	54.8
Muslim	171	27.0
Protestant	114	18.0
Catholic	1	.2
Marital status		
Divorce	58	9.1
Married	189	29.9
Single	386	61.0
Level of education		
Read and write	61	9.6
1-8	228	36.0

9-12	264	41.7
Certificate and above	80	12.7
Income/month in (Birr)		
<=5000	472	74.5
>5000	161	25.4

5.2 Behavioral factors of the respondents

Two hundred thirteen (33.6%) participants were smoking cigarette. And 275(43.4%) were never smoking cigarette. Similarly, 213 (33.6%) and 100 (15.7%) participants were always drinking alcohol, 113(17.8%) sometimes and 206(32.5%) of the respondents were chewing chat. About four hundred fifty-nine (72.5%) of respondents were doing physical exercise at least one day per week for 30 minutes. Majority of taxi driver's assistants 611 (96.9%) had less than 10 years of driver assistant experience and the mean years of working as a driver's assistants was (3.9, $\pm$ 2.6) years. (*See table 2*)

Table 2 Behavioral characteristics of the respondents of tax drives assistants in Addis Ababa, Ethiopia 2023 (n=633)

Cigarette smoking		
Yes	213	33.6
Never	275	43.4
ex-smokers	145	22.9
Drinking alcohol		
No	420	66.4
Yes, always	100	15.7
Yes, sometimes	113	17.8
Chat chewing		
No	427	67.5
Yes	206	32.5
Exercise habit / week		

0	115	18.2
1-4	459	72.5
5-7	59	9.3
Years of driver assistance		
<10	611	96.5
>=10	22	3.5

5.3 Psychosocial factors of respondents

The majority of the respondents 376 (57.4%) had good relationship with their families. Based on this study result 360 (56.9%) of the participants satisfied by their job. 247 (39 %) respondents were engaged in stressful job and the remaining 61% of the respondents relatively engaged in non-stressful job. (*See table 3*).

Table 3 Psychosocial relationship of tax drives assistants in Addis Ababa, Ethiopia 2023 (N=633)

Variables	Frequency(n)	Percent (%)
Relationship to family		
Good	376	59.4
Not bad	111	17.5
Poor	146	23.1
Job satisfaction		
No	273	43.1
Yes	360	56.9
Have a stressful job		
No	386	61.0
Yes	247	39.0

5.4 Ergonomics factors

Four hundred twenty-one (66.5%) respondents complained that their seat pans were not comfortable the remaining 33.5% of the respondents were having comfortable seat pan. Two hundred five (32.4%) of the respondents worked more than eight hours a day and 320 (50.6%) were temporary workers. Taxi drivers who had history of another employment that involve seating before becoming taxi drivers assistant were 270 (42.7%). From the total respondents 445(70.3%) had no previous history of trauma. The majority of 331 (52.3%) the respondents participated in the load lifting sometimes and 242 (38.2%) respondents engaged in load lifting frequently. From total participants 414 (65.4%) of them stated that they were not aware of ergonomics (safety information). *(See table 4).*

Table 4Working condition of the tax drives assistants in Addis Ababa, Ethiopia 2023 (N=633)

Variables	Frequency(n)	Percent (%)
Sitting pan comfort		
Comfortable	212	33.5
Uncomfortable	421	66.5
Daily working hours		
<8	428	67.6
≥8	205	32.4
Terms of employment		
Temporary workers	320	50.6
Permanent employment	313	49.5
Previous job involve setting		
No	363	57.3
Yes	270	42.7
Previous history of trauma		
No	445	70.3
Yes	188	29.7

Times of load lifting		
Always	16	2.5
Not	44	7.0
Rare	242	38.2
Sometimes	331	52.3
Job safety information /ergonomic awareness		
No information	414	65.4
Little information about safety	156	24.6
Good information about safety	63	10.0

5.4 Prevalence of low back pain

Out of 633 participants, 292 (46.1%) reported that they had LBP in the past 12 months at least for one day and of them 200 (68.5%), 79 (27%) and 15 (5.1%) experienced pain for 1-30 days, 31 to 59 and >60 respectively and 133 (45.7%) of the pain was medium in severity. When we see the effect of LBP on work absence 248(84.9%) were absent from work for 1-30 days. Of those who had LBP 109 (37.7%) respondents had pain spread to leg and lower parts. Regarding the nature of pain onset among participants with LBP, 238 (82.1%) had pain that developed gradually and 44 (15.6%) had pain that occurred at sudden at their work activity. The majority 251 (85.9%) of the respondents reported that heavy load lifting during their work was the cause of LBP (See table 5).

Table 5 Prevalence and characteristics of low back pain among tax drives assistants in Addis Ababa, Ethiopia 2023 (N=633)

Variables		Frequency(n)	Percent (%)
Presence of LBP at least for one day (n=633)	No	341	53.9
	Yes	292	46.1
Persistence of (n=292)	1-30	200	68.5
	31-59	79	27

	>60	15	5.1
Severity of LBP(n=292)	High	92	31.5
	low	67	22.8
	medium	133	45.7
Effect of LBP on work absents(n=292)	1-30 days	248	86
	31-60 days	6	2.1
	> 60 days	6	2.1
	No absent	24	8.2
LBP spread to lower part(n=292)	No	183	62.3
	Yes	109	37.7
Nature of LBP onset(n=292)	Gradually	238	82.1
	Sudden at work	44	15.6
	Sudden out of work	10	2.3
Immediate cause of LBP(n=292)	Load lifting	251	85.9
	Twisting	16	5.1
	Binding	25	9.0

5.4 Association between low back pain and socio-demographic variables

In the bivariate analysis, age, were found to be significantly associated with low back pain. Taxi drivers assistants age 41-61 were 3 times likely to experience LPB compared to age less than 20 (COR: 3.1, 95% CI (1-7.3)). There was no significant association between low back pain and other socio-demographic variables in this study (See table 6).

Table 6 Socio-demographic factors associated with LBP by bivariate analysis in Addis Ababa, 2023(n=633)

Variable	Present of Low Back pain		COR (95% CI)	p-value
	No (%)	Yes (%)		
Age group(year)				
<20	170 (57%)	128 (43%)	1	

20-40	32 (44.4%)	40 (55.6%)	1.3 (1.2-2.1)	0.06
41-60	4 (20%)	16 (80%)	3.1 (1-7.3)	0.01
Marital status				
Divorce	12 (23.1%)	40 (76.9%)	1	
Married	90 (47.6%)	99 (52.4%)	0.3 (0.1-0.6)	0.4
Single	233 (61.9%)	147 (38.1%)	0.1 (0.09-0.3)	0.3
Level of education				
Read and write	11 (18.1%)	50(81.9%)	1.2 (0.9-4)	0.51
1-8	33(14.4%)	195(85.6%)	0.9 (0.85-1.5)	0.21
9-12	117(44.3%)	147(55.8%)	1.3 (0.8-1.3)	0.3
Certificate and above	74(92.5%)	6(7.5%)	1	

5.5 Behavioral and psychological characteristics of the respondents

Taxi drivers assistant who drink alcohol were 3 times taxi drivers more probable to develop LBP compared to taxi driver's assistants who didn't drink alcohol. (COR: 3.5 % CI, (2.5-4.9). Taxi assistant does exercise habit per- week 5-7 were 60% less likely (COR: 0.4, 95% CI, 0.2-0.7) to develop LBP compared to taxi drivers assistants who did not done exercise pre-week. Taxi drivers assistants working experience more than 10 years were 2 times more likely to have LBP than taxi drivers working less than 10 years (COR=2.09, 95% CI (1.8-5.07). Prevalence of low back pain with stress was 2.8 times higher among those who had not stress during their work day compared to those who had time to rest during work day COR=2.8 95% CI (2.1-4.1). Prevalence of LBP with respondents who were not satisfied in their job were 1.3 times (COR: CI, (0.9-1.8) (*See table 7*).

Table 7 Behavioral and psychological characteristics associated with LBP by bivariate analysis in Addis Ababa, Ethiopia 2023 (n=633)

Variable	Present of Low Back pain		COR (95% CI)	p-value
	No (%)	Yes (%)		
Cigarette smoking				
Never smoked	286 (68.1%)	234(31.9%)	1	
Current smoker	55 (25.8%)	158(74.2%)	6.1 (4.2-8.8)	0.06
Ex-smokers	76 (39.6%)	130 (63.1%)	1.7 (0.9-3.9)	0.31
Drinking alcohol				
No	159 (65.2%)	138 (34.8%)	1	
Yes	82 (34.7%)	154 (65.3%)	1.5 (0.5-4.9)	0.27
Chat chewing				
No	265 (62.1%)	162 (37.9%)	1	
Yes	76 (39.6%)	130 (63.1%)	1.7 (0.9-3.9)	0.31
Exercise habit per- week				
Not at all	39 (33.9%)	76 (66.1%)	0.34 (0.2-0.7)	0.0001
1-4 day	269 (58.6%)	190 (41.4%)	1.41 (1.2-1.7)	0.006
5-7 day	33 (55.9%)	26 (44.1%)	1	
job stress				
No	247 (62.9%)	139 (36%)	1	
Yes	94 (38.1%)	153 (61.9%)	2.8 (2.1-4.1)	0.0001
Current job satisfaction				
No	135 (49.5%)	138 (50.5)	1.3 (0.9-1.8)	0.05
Yes	206 (57.2%)	154 (42.8%)	1	

5.6 Association between low back pain and Ergonomic factors

The odds of developing LBP were about 11 times COR=11.9 95% CI (8.2-17.5) more likely among taxi drivers assistants whose previous job involve sitting when compared with those who not such history.

Drivers assistant with no back support were 3 times likely higher prevalence of low back pain compared to those with comfortable sit (COR=3.1 95%CI (2.0-4.7). The chance of developing LBP among previous back trauma was about six times to develop LBP compared with those who do not (COR=6.5, 95% CI (4.4-9.7). The odds of developing LBP were about three times COR=3.4 95% CI (1.01-11.3) more likely among taxi drivers assistants whose always load lift when compared with those never lift load. (*See table 8*).

Table 8 Ergonomic factors associated with LBP by bivariate analysis in Addis Ababa, Ethiopia 2023 (n=633)

Variable	Present of Low Back pain		COR (95% CI)	p-value
	No (%)	Yes (%)		
Previous Job involve sitting				
No	281(77.4%)	82(22.6%)	1	
Yes	60 (22.2%)	210(77.8%)	11.9 (8.2-17.5)	0.00
Present of rest break				
No	111 (50.2%)	110 (49.8%)	1.2 (0.9-1.7)	0.17
Yes	230 (55.8%)	182(44.2%)	1	
Sitting pan comfort				
Comfortable	153 (72.2%)	59 (27.8%)	1	
Uncomfortable	188(44.6%)	233(55.3%)	3.2(2.4-6.9)	0.001
History of back trauma				
No	297 (66.7%)	148 (33.3%)	1	
Yes	44 (23.4%)	144 (76.6%)	6.5 (4.4-9.7)	0.0001
Year of working as driver assistance				
<10 years	333 (54.5%)	278 (45.5%)	1	

≥10 years	8 (36.4%)	14 (63.6%)	2.1 (0.8-5)	0.1
Load lifting				
Never lift	34(77.3%)	10(22.7%)	1	
Sometimes	106(43.8%)	136(56.2%)	4.3 (2.0-9.2)	0.00
Frequently	193 (58.3%)	138 (41.7%)	2.4 (1.1-5.1)	0.018
Always	8(50%)	8(50%)	3.4 (1.01-11.3)	0.047
Driving assistant working hours/day				
≤8	229 (53.6%)	199 (46.4%)	1	
>8	112 (54.6%)	93(45.4%)	0.9 (0.68-1.3)	0.7
Job safety information /ergonomic awareness				
Yes	108(65.1%)	58(34.9%)	1.0	
No	163(63.7%)	93(36.3%)	1.1 (0.5-1.8)	0.8

5.7 Factors associated with LBP by multivariate analysis

To avoid excessive number of variables and unstable estimate in the final model, only variables with P-value less than 0.25 in the bivariate analysis were taken in the multivariate analysis. The multivariate logistic regression analysis identified that exercise habit pre- week, , experience of taxi driving assistant and sitting pan comfort had significant association with LBP. Taxi drivers assistant does not have exercise habit per- week were 6 times (AOR: 6.1, 95% CI (2.5-15.1) more probable to develop LBP compared to taxi drivers assistants who did exercise 5-7 days per- week. Taxi drivers assistants working experience more than 10 years were 3.3 times more likely to have LBP than taxi driver assistants working less than 10 years (AOR=3.3, 95% CI (1.1-9.2). Taxi drivers assistants who used uncomfortable seat pan were 3 times (AOR: **3.2** 95% **CI** (2.4-6.9)) increasing risk to develop low back pain compared to who uses a comfortable taxi seat pan. (See table 9)

Table 9 Multiple logistic regression analysis of factors associated with LBP among tax drives assistants in Addis Ababa, Ethiopia 2023 (N=633)

Variable	Present of Low Back pain		COR (95% CI)	P value	AOR (95% CI)	P value
	No (%)	Yes (%)				
Exercise habit per- week						
Not at all	39 (33.9%)	76 (66.1%)	0.34 (0.2-0.7)	0.001	6.1 (2.5-15.1) **	0.001
1-4 day	269 (58.6%)	190 (41.4%)	1.41 (1.2-1.7)		1.2 (0.5-2.6) **	0.57
5-7 day	33 (55.9%)	26 (44.1%)	1		1	
Years of working as driver assistant						
<10 years	333 (54.5%)	278 (45.5%)	1		1	
≥10 years	8 (36.4%)	14 (63.6%)	2.1 (1.8-5.07)	0.1	3.3 (1.1-9.2) **	0.02
Sitting pan comfort						
Comfortable	153 (72.2%)	59 (27.8%)	1		1	
Uncomfortable	188(44.6%)	233(55.3%)	2.8(2.4-6.9)	0.02	3.2(2.4-6.9) **	0.001

CI= confidence interval, AOR= adjusted odds ratio

****= shows an association in adjusted OR <0.05 for multivariate analysis**

5. *Discussion*

This study found that prevalence of LBP among taxi driver's assistants in Addis Ababa, Ethiopia was 46.1%. The study found that physical exercise, year of experience and uncomfortable seat were associated factors for low back pain among taxi driver assistants. The prevalence of LBP In this study was more or less similar with studies conducted in Malaysia, Japan and Taiwan, in which the prevalence of LBP among taxi drivers was 48.5, 45.8% and 49.7 % respectively [39-41].

The prevalence of low back pain in this study was lower than study conducted Nagpur City India which revealed that 65%(12),and study conducted in Addis Ababa which indicated that 64.2% prevalence rate among truck drivers (4), 64.8% occupational drivers in Nigeria [35],58.8% among commercial minibus drivers in Accra, Ghana [36], and also lower than 73.5% Prevalence of low back pain among professional drivers in Kano, Nigeria [37]and 78.0%, among professional car drivers in Dhaka city, Bangladesh[38]. However the finding in this study was higher than the study conducted in Mekele which reported that 27.9% of taxi driver had low back pain [28] and 34.3% of study conducted Ghana revealed that occupational drivers had low back pain[36]. These variations might be due to differences in taxi driving system, road safety, government regulatory laws, methodology, sample size and population, driver's awareness(13).

In this study, lack of physical exercise was associated with increased LBP among taxi driver's assistants. This study was in consistence with the study conducted in Addis Ababa among taxi drivers indicated the association between physical activity and low back pain. But the study conducted in Mekelle among taxi drivers indicated no association between the two physical activity and low back pain. [21, 9].This might be due to muscle strength, blood flow, and toughness of the muscle that arise from lack of physical exercise and also current scientific knowledge proved that physical inactivity is associated with several disease conditions. As a result, science recommends a person should have at least three days of physical activity (thirty minutes in a day) per week (4).

Study conducted in Israel stated that Evidence of the contribution of physical activity to the prevention and management of LBP is unclear(14). National institute of health in U.S guideline stated that back pain is more common among people who are not physically fit. Weak back and abdominal muscles may not properly support the spine. "Weekend

warriors”—people who go out and exercise a lot after being inactive all week—are more likely to suffer painful back injuries than people who make moderate physical activity a daily habit. Studies show that low-impact aerobic exercise can help maintain the integrity of intervertebral discs(15). Study conducted by lancet on Prevention and treatment of low back pain: evidence, challenges, and promising directions endorse the use of exercise range of other non-pharmacological therapies, alone and in combination(13). Physical activity is recommended. There is insufficient evidence to recommend for or against any specific kind of exercise, or the frequency/intensity of training(1)

This study revealed that odds of increased years of working as driver assistant were 3.3 times higher than compared with those who work as driver assistant less than ten years. This study was in line with study conducted in Addis Ababa among taxi drivers which stated that Duration employed as a taxi driver was found to be significantly related to LBP among drivers in an earlier study (9). This study also supported by study conducted in Malaysia among other professional drivers found a significant association between LBP and duration of employment as bus driver and military armored vehicle drivers (19). The relationship could be due to occupational stress over the years (16) However, study conducted in Nigeria, Kano on Prevalence and Risk Factors for Low Back Pain among Professional Drivers stated that long years of driving beyond 10 years had strong protective effect. The relatively lower prevalence among truck drivers in this study may be because unlike the bus and taxi drivers, truck drivers have several stopover places along their route(17). These variations might be due to methodology, sample size and population, driver’s awareness (4).

This study revealed that the odds of exposure among taxi driver assistants who used uncomfortable sitting pan had 3.2 times higher than those of driver assistants who used comfortable sitting pan. This finding is supported by studies conducted in Addis Ababa (12), Mekele (3), Turkey (13), and Central Europe [28]. This could be Uncomfortable seat may cause mechanical stress upon the spine and its surrounding soft structures, and this, may ultimately cause LBP.

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6. Conclusion

This study had revealed a high burden of LBP among taxi driver's assistants in Addis Ababa, Ethiopia. This showed that low back pain is an important public health problem that needs interventions. Lack of physical exercise, year of experience and uncomfortable seats were identified as determinants for low back pain.

7. Strengths and limitations of the study

7.1 Strength

- ✓ High sample size
- ✓ providing new information about the size of LBP among
- ✓ taxi driver assistants
- ✓ Identifying the possible risk Factors associated with this problem.

7.2 Limitations

- ✓ In this study, all of the participant driver assistants were males. There were no female taxi drivers in Addis Ababa during the period of data collection. Therefore, prevalence and other issues were described without considering gender comparisons.
- ✓ In addition, since this is a 1-year prevalence study, there may be recall bias. It is also a cross-sectional study design that cannot provide evidence on temporal relationship.

8. Recommendations

The burden of LBP among taxi driver's assistants in this study is significantly attributed with some occupational factors. With these findings policy makers, employers and occupational healthcare should take care of the outcomes during interventions so as to sustain or to reduce LBP. Above and beyond the following recommendations are vital based on the study findings:-

- a) **To Policy Makers :** The obtained information can be used as the base for decision making plans about the type of taxi seats which should be uniformly in all the taxis. Moreover, policy makers should make sure that medical examinations are conducted so as to reduce the magnitude of the problem and suitable intervention to be employed.
- b) **Taxi inspectors:** This information can be used for health planners labor inspectors as the basis so as to plan preventive measures such as improvement of the training on occupational health and safety, regular physical exercise, proper seat design. and the results under current study recommend periodic medical examination to prevent disability and reduction of quality of life among assistants.
- c) **General Population:-** Low back pain is Public Health problem affecting all age group, several etiologies had been reported to cause this problem such as Poor roads, overweight, limitation of knowledge regarding lifting of objects . Therefore the population should be aware of low back pain and its determinant factors.
- d) **Further studies.** The prevalence of LBP and associated risk factors especially those factors which were not examined under the current study.

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Annex: I questionnaires

Structured Questionnaire in English

Demographic and social questioners			
No	Questions	Choice of answers	Code

1.	How old are you?	1. -----years	
2.	What is your current marital status?	1. Never married	
		2. Married currently	
		3. Separated	
		4. Divorce	
		5. Widow,	
3.	What was the last level and grade of schooling you completed?	1. Read and write	
		2. Primary school(1-8)	
		3. Secondary school(9-12)	
		4. Technical Vocation	
		5. Diploma& above.	
4.	Overall, how-many- years have you been worked as a taxi driver assistant?	1. -----years	
5.	What is your Religion?	1. Orthodox Christian	
		2. Muslim	
		3. Protestant	
		4. Catholic	
		5. Others, specify/-----/	
6.	What is your Ethnicity?	1. Amhara	
		2. Tigray	
		3. Oromo	
		4. Gurage	
		5. Others, specify/-----/	
7.	What monthlygrossincome does you earning Ethiopian Birr?	1. -----birr	
<i>Personnel and life style questioners</i>			
8.	Have you smoke cigarette?	1. Yes	
		2. Never	
		3. Stop smoking	
9.	If your answer is yes for question number8 how many	1. -----sticks 2. -----packet	

	cigarettes do you smoking per day?		
10.	Do you currently drinking alcohol?	1. Yes	
		2. No	
11.	If yes for question number 10 how often do you drinking alcohol per week?	1. -----days	
12.	Do you have experience to chew chat?	1. Yes	
		2. No	
13.	If your answer is yes for question number 12 how often do you chew it?	1. -----	
14.	How often doing physical exercise per week at least for 30 minute?	1. -----days	
15.	How much you are weighing in kilograms?	1. -----kg	
16.	How tall you are in centimeter?	1. -----m -----cm	
17.	Have you ever had an accident in your back that required medical advice?	1. Yes	
		2. No	
<i>Psycho-social questioners</i>			
18.	How do you define your relationship with your family?	1. Good	
		2. Poor	
		3. Not good	
19.	Does your current job give your personal satisfaction?	1. Yes	
		2. No	
20.	Do you think you have enough rest breaks?	1. Yes	
		2. No	
21.	Do you think you have a stressful job?	1. Yes	
		2. No	
<i>Part two- work and work related questioners</i>			
	Questions	Choice of answers	Code

22.	How do you define comfort of your sitting pan?	1. Comfortable	
		2. Vibrated	
		3. Not thermal comfort	
		4. Not comfort at back rest	
23.	How many times do you lift loads an average working day when driving?	1. Not at all	
		2. Rare	
		3. Sometime	
		4. Always	
24.	How many hours do you drives as daily working hours?	1. -----hours	
25.	What terms of employment you are working now?	1. Own job	
		2. Permanent employee	
		3. contract employee	
		4. Day worker	
26.	Did your previous job involve prolonged sitting (other than driving)?	1. Yes	
		2. No	
Part three- Questioners on low back pain and Its Characteristics			
27.	Have you had low back pain in the area between 12th ribcage and pelvic region during the past 12 months which lasts a day?	1. Yes	
		2. No	
28.	If your answer is yes for question no.27, how long it lasts in total during the past 12th months this low back pain?	1. -----days	
29.	What level of sick, in your low back pain?	1. High	
		2. Medium	
		3. Low	
30.	How much times in total have you absent from work in the past 12th months due to low	1. -----days 2. -----months	

	back pain?		
31.	Has the pain spread down your leg to blow your knee during the past 12th months?	1. Yes	
		2. No	
32.	How the nature of low back pain first started, did it come on gradually or suddenly?	1. Gradually	
		2. Suddenly at work	
		3. Suddenly outside work	
33.	Have you remembered the immediate cause of low back pain first on set?	1. Yes	
		2. No	
34.	Your answer for question number 33 is yes, what was the cause?	1. Lifting load,	
		2. Twisting at work	
		3. Bent forward	
35.	Which factor increasing low back pain in your activity?	1. Waking	
		2. Long standing	
		3. Sitting	
		4. Lay down back ward	
		5. Side sleep	
36.	Which factor reliving low back pain in your activity?	1. Waking	
		2. Sitting	
		3. Lay down back ward	
		4. Side sleep	
	Good sitting posture and comfortable seat pans are important to reduce low back pain in taxi driving?	1. Yes	
		2. No	

የአማርኛትርጉምመጠይቅ

አዲስአበባዩኒቨርሲቲየህብረተሰብጤናክብከቤክፍልየሹፌርረዳቶችጃርባህመምለማጥናትየተዘጋጀመጠይቅ

ጤናይስጥልኝ:-

እኔከማልመሃመድ እባላለሁበአዲስአበባዩኒቨርሲቲህብረተሰብጤናትምሀርትቤትተማሪሲሆንዎመመረቂያፅሁፍለማዘጋጀትበጥናትላይነኝ።ጥናቱበሳይንሳዊዘዴበተመረጡሁኔታበታክሲየሹፌርረዳቶችጤንነትላይየሚሰራነዉ።የጥናቱዓላማየሹፌርረዳቶችሥራበበለሙያዎቹጤንነትላይየሚያስከትለዉንየጃርባ/የወገብ/ህመምእናለህመሙምክንያት

/ተያያዥዎሆኑጉዳዮችንለይቶለማወቅናየመፍትሄመንገዶችንመጠቆምነዉ።ለዚሁዓላማየእርስዎንማህበራዊ፣ስነ-

ህዝባዊ፣የጤንነትእናየስራሁኔታዎችንየተመለከቱተያያዥጉዳዮችንአስማልክቶመረጃዎችንእንሰበስባለን። በመሆኑምየሚሰጡንመረጃመንግስትናሌሎችጉዳዩየሚመለከታቸዉአካላትየስራአካባቢደህንነትናጤነአጠባበቅንለማሻሻልየመፍትሄመንገዶችንእንዲቀይሱይረዳቸዋል።በጥናቱላይየሚሳተፉትበፍላጎትዎሲሆንበሙሉምሆነበከፊልያለመሳተፍሙብትዎየተጠበቀነዉ።በሚንሰበስባቸዉመረጃዎችላይስምዎትስለማይመዘገብናሌሎችምመለያመረጃዎችበሚስጥርተጠብቀዉከጥናቱበኋላስለሚቃጠሉምስጥሮችእንደማይባክንእርግጠኛይሁኑ።ቃለ-መጠይቁ 30

ደቂቃዎችያህልየሚወስድሲሆንበማንኛዉምጊዜማቆምይችላሉ።እስካሁንበተነጋገርንበቸዉጉዳዮችላይያልገባዎትናግልፅያለሆነነገርካለመጠየቅይችላሉ።

በጥናቱለመሳተፍፈቃደኛነዎት? አዎ----- አይደለሁም-----

የጠያቂዉ፡-ስም-----ቃለ-መጠይቁየተደረገበትቀን ----- /2015 ፊርማ-----

የተቆጣጣሪዉስም-----ፊርማ ----- ቀን -----/-----2015

ቃለ-መጠይቁየወሰደዉሰዓት ----- የመጠይቁመለያቁጥር _____ ክፍለከተማ

_____ የዋናመንገዱስም _____ አቅጣጫከዋናመንገድ _____

መጠይቁየተደረገበትሰዓት_____

Annex: II ክፍልአንድማህበራዊእናስነ-ሕዝባዊመጠይቆች

ተ.ቁ	ጥያቄች	አማራጭመልሶች	መለያ
1.	እድሜዎስንትዓመትነዉ?	1. -----ዓመት	
2.	የአሁኑጋብችሁኔታዎምንድንነዉ?	1. ፈፅሞያላገባ	
		2. ያገባ	
		3. የተለያዩ	
		4. የተፋቱ	
		5. በሞትየተለዩ	
3.	ከፍተኛየትምህርትዳረጃዎምንድንነዉ?	1. ማንበብናመጻፍ	
		2. ከ(1-8)ኛክፍል	
		3. ከ(9 -12)ኛክፍል	
		4. ቴክኒክነሙያሰርትፍኬት	
		5. ዲፕሎማናከዛባላይ	
4.	በታክሲረዳትነትሥራስንትዓመትአገለገሉ?	1. -----ዓመት	
5.	የትኛዉሐይማኖትተከተይነዎት?	1. ኦርቶዶክስክርስቲያን	
		2. ፕሮቴስታንት	

		3. ሙስሊም	
		4. ሌላ፣ይግለፁ/-----/	
6.	የትኛውብሔረሰብተወለጅኖዎት?	1. አማራ	
		2. ትግሬ	
		3. ኦሮሞ	
		4. ጉራጌ	
		5. ሌላ፣ይግለጹ/-----/	
7.	የወርደሞዝዎምንያክልብርነው?	1. -----ብር	
የግለሰብባህረሁኔታንየተመለከቱጥያቂዎች			
8.	ትምበሆ /ሲጃራ/ያጭሳሉ?	1. አዎ	
		2. አላጭስም	
9.	ለተራቁጥር08 መልሰዎአዎከሆነበቀንምንየህልሲጃራያ ጭሳሉ?	1. -----በነጣለ 2. -----በኮ	
10.	አልኮልመጠጥይጠጥሉ?	1. አዎ	
		2. አልጠጣም	
	ለተራቁጥር10 መልሰዎአዎከሆነበሰምንትስንትቀንይ ጠጥሉ?	1. -----ቀናት	
11.	ጫትየመቃምልማድአሎዎት?	1. አዎ	
		2. አልቅምም	
12.	ለተረቁጥር11 መልሰዎአዎከሆነበሰምንትስንትቀንይ ጠቀመሉ?	1. -----	
13.	በየሳምንቱለምንየህልቀናትቢያንስለ30 ደቂቃስፖርትይሰራሉ?	1. -----ቀናት	
14.	የሰውነትዎክብደትስንትኪሎግራምይ ማዝነል?	1. -----ኪሎግራም	
15.	የሰውነትዎቁመትስንትሴንቲሜትርይረ ዝመል?	1. -----ሜትር----- ሢ.ሜትር	
16.	በጀርባዎ/ ዳሌዎላይሕክምናየሚያስፈልግጉዳትደ ርሶብዎትያዉቀል?	1. አዎ	
		2. አያቅም	
ከስናልባነጋርተያያዥነትያለቸዉጥያቂዎች			

17.	ከቤተሰብዎ ጋር የለውን ግንኙነት እንዴት ይገልፁታል?	1. ጥሩ	
		2. መጠነኛ	
		3. ጥሩ ያልሆነ	
18.	አሁን በሚሠሩት ሥራ ዳስተኛነዎት?	1. አዎ	
		2. አይደለም	
19.	በሥራዎ ላይ በቂ የእረፍት ጊዜ ይኖርዎታል ?	1. አዎ	
		2. አይኖረኝም	
20.	እየሰሩ ያለው ሥራ ስንድም ይጨናንቅዋል?	1. አዎ	
		2. አይደለም	
ክፍል ሁለት ከሥራ ላይ ሥራ አካባቢ ጋር ተያያዥነት የለቸው ጥያቄዎች			
21.	የሚቀመጡበትን የወንበር ምችት እንዴት ይገልፁታል?	1. ምቹነት	
		2. ይንቀጠቀጣል	
		3. መቀት ይፈጥራል	
		4. መደገፍ ያለመችም	
22.	በአማካይ ስራ ሰዓት ውስጥ ምን ያህል ጊዜ ከበድ እቃ ያነሳሉ?	1. በፍጹም አላነሳም	
		2. በገጠመኝ	
		3. አልፎ አልፎ	
		4. ሁልጊዜ	
23.	በየቀኑ ለምን ያህል ሰዓታት በረዳት ነት ይሰራሉ?	1. -----ሰዓት	
24.	የሥራ ቅጥር ሁኔታዎት እንዴት ነው?	1. የግል ሥራ/የራስ/	
		2. በቋሚነት	
		3. በኮንትራት	
		4. በጊዜያዊነት	
25.	ከዚህ በፊት ተቀምጦ የሠሩት ሥራ ከረዳት ነት ሌላ ነበር ?	1. አዎን	
		2. አልሠራሁም	
ክፍል ሦስት- ከጀርባ ህመም ጋር የተያያዙ ጥያቄዎች			
26.	በለፈው 12 ወራት ውስጥ ቢያንስ ለአንድ ቀን የቆየበታችኛው ጀርባ/ዳሌ አካባቢ ህመም ወይም የህመም ስሜት ተሰምትዎት ያውቃል?	1. አዎን	
		2. የለም	
27.	ለተራቁ ጥር 27 መልሰዎ አዎን ከሆነ የጀርባ ህመም ወይም የህመም ስሜት ተሰምትዎት ያውቃል?	1. -----ቀናት 2. -----ቀራት	
28.	የጀርባ ህመም ወይም የዳሌ ስሜት እንዴት ይገልጹ?	1. ከፍታኛ	

	ታል?	2. መጠነኛ	
		3. ዝቅተኛ	
29.	ባለፈው 12 ወራት ውስጥ በድምሩ ለምን ያህል ጊዜ በጃርባ/በዳሌ አካባቢ ህመም ወይም በህመም ስሜት ምክንያት ከስራ ቀርተዋል?	1. ----- ቀናት 2. ----- ወራት	
30.	በለፈው 12 ወራት ውስጥ በጃርባ እና ዳሌ አካባቢ ህመም ወይም የህመም ስሜት በተጨማሪ በእግር እና ጉልበት አካባቢ የህመም ምልክት ነበረዋል?	1. አዎን	
		2. የለም	
31.	በለፈው 12 ወራት ውስጥ በጃርባ እና ዳሌ አካባቢ ህመም ወይም የህመም ስሜት በተጨማሪ በእግር እና ጉልበት አካባቢ የህመም ምልክት ነበረዋል?	1. አዎን	
		2. የለም	
32.	በለፈው 12 ወራት ውስጥ በጃርባ እና ዳሌ አካባቢ ህመም ወይም የህመም ስሜት በተጨማሪ በእግር እና ጉልበት አካባቢ የህመም ምልክት ነበረዋል?	1. አዎን	
		2. የለም	
33.	በለፈው 12 ወራት ውስጥ በጃርባ እና ዳሌ አካባቢ ህመም ወይም የህመም ስሜት በተጨማሪ በእግር እና ጉልበት አካባቢ የህመም ምልክት ነበረዋል?	1. አዎን	
		2. የለም	
34.	በጃርባ እና በዳሌ አካባቢ ህመም ወይም የህመም ስሜት ሲጀምር በድንገት ወይስ በስቃይነት ነበረ?	1. ቀስ በቀስ	
		2. ድንገት በሥራ ላይ	
		3. ድንገት ከሥራ ውጭ	
35.	በጃርባ እና በዳሌ አካባቢ ህመም ወይም የህመም ስሜት ወደ ሲጀምር ትክክለኛ ምክንያቱም እንደነበረ ያስተውላሉ?	1. አዎን	
		2. አላስታውስም	
36.	ለጥያቄ ተረቂቅ ጥር 133 መልሰዎትልሁን ከሆነ ምክንያቱም እንነበረ?	1. ከባድ ዕቃ ማንሳት	
		2. ወደኋላ ዘርመሥራት	
		3. ሳንነብስ	
		1. አይቀንስም	

Annex: III participants Information Sheet

My name is----- I am working as a data collector for the study

being conducted in this community by Kemal Mohammed who is studying his Master's degree at Addis Ababa University College of Health Sciences School of public health.

I kindly request you to lend me your attention to explain you about the study and being selected

as the study participant.

THE STUDY TITLE: - assessments of prevalence and determinants for low back pain among taxi driver assistants in Addis Ababa, Ethiopia.

Purpose of the study

The purpose of the study is to assess prevalence and determinants for low back pain among taxi driver assistants in Addis Ababa, Ethiopia. Knowing this have importance for the transport bureau to plan strategies that can address the prevention of low back pain among taxi driver assistants and also the owner of the taxi will help him to manage how to deal with you to prevent low back pain.

Procedure and duration

You will be asked to take part in an interview which takes 25 up to 30 min. this interview will be conducted with an interviewer using questionnaires' prepared by Amharic which consists of

36 questions. You will be asked question on the information included in the questionnaire's''. You will be able to skip any questions that you do not want to answer.

Risks and benefits

The risk of being participating in this study is very minimal, but only taking your time. There would not be any direct payment for participating in this study. But the findings from this Research may reveal important information for the local planners and owners.

Confidentiality

All information given by you will be kept confidential and no one except the research team members will have access to the information. Your participation is completely voluntary and you are not obligated to answer any question you are not willing to respond. If you feel any discomfort with the question, it is your right to drop it at any time you want. You may even decide not to engage in this study from the very beginning. The result of the study will be written up into a report. I hope I have clarified the purposes of the study.

Contact address

If you have any question, you can ask me now or you may ask the principal investigator, Kemal Mohammed, whose telephone is 0910207676. My primary advisor is doctor Samson Waquma if you need any information, you can contact him by email:

samson_wakuma@yahoo.com Phone number [Tel:+251923940998](tel:+251923940998)

Annex: IV Information sheet for transport bureau

THE STUDY TITLE: - assessments of prevalence and determinants for low back pain among taxi driver assistants in Addis Ababa, Ethiopia.

My name is----- I am working as a data collector for the study

being conducted in this community by Kemal Mohammed who is studying his master's degree at Addis Ababa University College of Health Sciences School of public health.

I am currently undertaking honors masters in AAU and research proposal is to be submitted as a partial fulfillment of the course.

Procedure and duration

The information needed to complete this study will be gathered by means of a questionnaire a copy of which you will find enclosed. This will consist of the assessments of prevalence and determinants for low back pain among taxi driver assistants in Addis Ababa, Ethiopia. The results could prove to be beneficial in identifying any issues that need to be addressed should you agree to the participant, I would be grateful if you would provide me with a list of taxi driver assistant. Each participant will receive a cover letter and consent will be implied on receipt of completed questionnaires confidentiality and anonymity will be assured at all times.

Thank you for taking the time to read this letter. If you have any queries or would like to discuss this matter further before making a decision,

Contact address

Please do not hesitate to contact me by [Tel:+251910207676](tel:+251910207676) and by email abucft1@gmail.com. My primary advisor is doctor Samson Waquma if you need any information you can contact him by email: samson_wakuma@yahoo.com Phone number [Tel:+251923940998](tel:+251923940998)

.

Yours sincerely

.....

Annex: V consent form

Title: - the assessments of prevalence and risk factors for low back pain among taxi driver assistants in Addis Ababa, Ethiopia 2023 Protocol Number

Principal Investigator: - Kemal Mohammed

I have read the Participant Information Sheet or someone has read it to me in a language that I understand. I understand the purposes, procedures and risks of the research described in the project. I have had an opportunity to ask questions and I am satisfied with the answers I have received. I understand that I will be given a signed copy of this document to keep.

☐ I agree for this study only.

☐ I agree to the use of de-identified (coded) data obtained in this study to be used for further analyses

I have read the above information. I have asked all of my questions and I have received answers. I agree to enroll my child in this study.

.....

.....

Signature of participant Date

Investigator

.....

.....

Signature of investigator

Date

Annex: VIDummy Tables

Table 2 Socio-demographic characteristics of the respondents in Addis Ababa, Ethiopia,

Variables	Frequency(n)	Percent (%)
Age group(year)		
18-35		
35-50		
>50		
Marital status		
Not married		
Married		
Divorced		
Level of education		
Read & Write		
1-8 grad		
9 and above grad		
Ethnicity		
Amhara		
Tigre		
Oromo		
Others		
Income/month in (Birr)		
<2000		

2000-3000		
>3000		
BMI category		
18.5-24.9		
<18.5		
>=25.0		

Table 3 life style characteristics of the respondents

	Frequency(n)	Percent (%)
History of back trauma		
Yes		
No		
Cigarette smoking		
Yes		
No		
Drinking alcohol		
Yes		
No		
Chat chewing		
Yes		
No		
Physical Exercise / week		
Not at all		
1-4 days		
5-7days		

Table 4 psychological characteristics

	Frequency(n)	Percent (%)
Job satisfaction		
High		
Medium		

Low		
Job stress		
Yes		
No		

Table 5: Job characteristics of the respondents in Addis Ababa, 2023

Variables	Frequency(n)	Percent (%)
Uncomfortable seat		
Comfortable		
Vibrated		
Not thermal comfort		
Not comforted at back set		
Daily working hours		
<=8		
>8		
Terms of employment		
Self-employee		
Employee to other's		
Back support		
Yes		
No		
Times of load lifting		
Never lift		
Sometimes		
Frequently		
Ergonomic awareness		
Aware		
Not aware		

Annex: VII Assurance of Principal Investigators

I, the undersigned agree to accept all responsibilities for the scientific and ethical conduct of the research project. I would provide a timely progress report to my advisor and seek the necessary advice and approval from my primary advisors in the course of the research. I will communicate timely to my advisors all stakeholders involving in the study including my source of funding for this research.

Name of the students_____

Date_____

Signature_____

Approval of primary Advisor

Name of primary advisor_____

Date_____

Signature_____

Annex: VIII Bio sketch of primary advisors

1. Personal Identification

Name	Samson Wakuma Abaya
Sex	Male
Marital status	Married
Nationality	Ethiopian
Address:	School of Public Health, Addis Ababa University P.O.BOX 9086 Addis Ababa, Ethiopia Cell phone: +251923940998 E-mail: Samson_wakuma@yahoo.com or kiyasam@gmail.com

2. Education and Qualification

2014 - June, 2019	PhD in Public Health, Addis Ababa University, Ethiopia
2008-June, 2010	Master of Public Health, Lund University, Sweden,
2006-June, 2008	Master of Science in Environmental Studies and Sustainability Science, Lund University, Sweden
2001- July, 2004	Bachelor of Science in Environmental Heath, Jimma University, Ethiopia
1995- October 1997	Diploma in Sanitary Science, Gondar College of Medical Sciences, Ethiopia

3. Working Experience

July 2019- till now	Assistant Professor at School of Public Health, College of Health Science, Addis Ababa University, Ethiopia
June, 2013 - June 2019	Lecturer at School of Public Health, College of Health Science,

Addis Ababa University, Ethiopia

July 2004 -Aug, 2006

Assistant Lecturer, Haromaya University, Ethiopia

**January 2000 – Sept
2001**

Head of Chiro District Health Office, Oromia Region, Ethiopia

Nov1997- January 2000

Environmental Health Expert in Chiro District, Oromia Region,
Ethiopia

4. List of Publication

Peer reviewed articles

- ❖ Abaya S.W., Mandere N.M., Ewald G., 2009. Floods and Health in Gambella Region, Ethiopia, A qualitative assessment of the strengths and weakness of coping mechanisms. *Global Health Action* 2009. DOI: 10.3402/gha.v2i0.2019
- ❖ Abaya S.W., Mandere N.M., Winqvist N, 2011. Health officials' perceptions of and preparedness for the impacts of climate variability on human health in the Somali region Ethiopia. *Mitigation and Adaptation Strategies for Global Change*. DOI:10.1007/s11027-011-9282-1
- ❖ Mandere N.M., Anderberg S. Armaha F.A., Abaya S.W., 2011. Assessing the contribution of alternative agriculture to poverty reduction and employment creation: A case study of sugar beet cultivation in Kenya. *African Journal of Agricultural Research* 6(2):440-450
- ❖ Kumie A., Wakuma S., Bratvei M., Deressa W. Mamuya S., Teshome B., Moen B., 2017. Dust exposure levels among street sweepers in Bole Sub-city, Addis Ababa, Ethiopia. *Ethiopian Journal of Health Development* 31:4(236-243)
- ❖ Wanamo M., Abaya S.W., Aschalew A. B, 2017. Prevalence and risk factors for low back pain (LBP) among Taxi Drivers in Addis Ababa, Ethiopia. *Ethiopian Journal of Health Development* 31:4(244-250)
- ❖ Ayalew MA, Tefera W, Wakuma S, Mekonnen Z, 2018. Assessment of diarrhea and its associated factors in under five children among open defecation and open defecation free rural settings of Dangla District North west Ethiopia. *Journal of Environmental and Public Health*. <https://doi.org/10.1155/2018/4271915>
- ❖ Asfaw S., Enquselassie F., Tefera Y., Gizaw M., Wakuma S., 2018. Determinants of Chronic Respiratory Symptoms among Pharmaceutical Factory Workers. *Journal of Tropical Medicine*. [Doi.org/10.1155/2018/3815689](https://doi.org/10.1155/2018/3815689)
- ❖ Abaya S.W., Bråtveit M., Deressa W., Kumie A., Moen B.E. 2018. Personal Dust Exposure and Its Determinants among Workers in Primary Coffee Processing in Ethiopia. *Annals of Work Exposure Health*.doi: 10.1093/annweh/wxy079
- ❖ Abaya S.W., Bråtveit M., Deressa W., Kumie A., Moen B.E. 2018. Reduced Lung Function among Workers in Primary Coffee Processing Factories in Ethiopia: A Cross Sectional Study. *International Journal of Environmental Research and Public*

Health. doi:10.3390/ijerph15112415

- ❖ Abaya S.W., Bråttveit M., Deressa W., Kumie A., Tena A., Moen B.E. 2018. Microbial contamination of coffee during postharvest on farm processing: A concern for the respiratory health of production workers. Archives of Environmental and Occupational Health. DOI: 10.1080/19338244.2019.1592094
- ❖ Abaya S.W., Bråttveit M., Deressa W., Kumie A., Moen B.E. 2019. Respiratory health among hand pickers in primary coffee processing factories of Ethiopia. Journal of Occupational and Environmental Health, 61(7): 565-571
- ❖ Benti A. Kumie A. Wakuma S. 2019. Prevalence of occupational injury and associated factors among workers in large-scale metal manufacturing factories in Addis Ababa, Ethiopia. Ethiopian Journal of Health Development 33(2)94-101
- ❖ Kumie A, Bråttveit M, Deressa W, Wakuma S, Moen BE 2020. Personal cotton dust exposure in spinning and weaving sections of a textile factory, north Ethiopia. Ethiopian J Health Development;34(2):1-9.
- ❖ Lagiso Z. Mekonnen W. Abaya S. Takele A. Workneh M. 2020. Chronic respiratory symptoms, lung function and associated factors among flour mill factory workers in Hawassa city, southern Ethiopia: “comparative cross-sectional study” BMC Public Health 20 (909):
- ❖ Alemseged EA. Takele AK. Zele Y. Abaya SW. Kiros KG. Mehari M. et al 2020. Assessment of Chronic Respiratory Health Symptoms and Associated Factors Among Flour Mill Factory Workers in Addis Ababa, Ethiopia, 2019: A Cross-Sectional Study. Journal of Asthma and Allergy 13: 483-492.
DOI: [10.2147/jaa.s273820](https://doi.org/10.2147/jaa.s273820)
- ❖ Wondimagegnehu A, Hirpa S, Abaya SW, Gizaw M, Getachew S, Ayele W, et al. (2020) Oesophageal cancer magnitude and presentation in Ethiopia 2012–2017. PLoS ONE 15(12): e0242807. <https://doi.org/10.1371/journal.pone.0242807>
- ❖ Angaw Y. Kumie A Tefera Y. Wakuma S. Nega A Degefa H. et al. (2020). Temporary Hearing Loss and Associated Factors Among Ayka Addis Textile Factory Workers in Oromia Region, Ethiopia: A Cross-Sectional Study. Risk Management and Healthcare Policy 2021:14 719–728.
- ❖ Bråttveit M. Abaya S, Sakwari G. Moen BE. (2021). Dust Exposure and Respiratory Health Among Workers in Primary Coffee Processing Factories in Tanzania and Ethiopia. Frontiers in Public Health . <https://doi.org/10.3389/fpubh.2021.730201>
- ❖ Hailemariam D, Kumie A, Wakuma S, Tefera Y, Abegaz T, Tefera W, et al. (2021) Trends in non-pharmaceutical intervention (NPI) related community practice for the prevention of COVID19 in Addis Ababa, Ethiopia. PLoS ONE 16(11): e0259229. <https://doi.org/10.1371/journal.pone.0259229>

