ADDIS ABABA UNIVERSITY

SCHOOL OF PUBLIC HEALTH

DEPARATEMENT OF PREVENTIVE MEDICINE

Contraceptive use and depression among female employees in governmental institution in Sebeta Town, Oromia Regional State, Ethiopia

By

Gadisa Lenjisa (BSc*)*

Thesis Submitted to Department of Preventive Medicine, School of Public health, College of health Sciences, Addis Ababa University as partial fulfillment for the Requirements of Master of Public Health (MPH)

May, 2016

Addis Ababa, Ethiopia

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COLLEGE OF HEALTH SCIENCES

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CONTRACEPTIVE USE AND DEPRESSION AMONG FEMALE EMPLOYEES IN GOVERNMENTAL OWNED INSTITUTIONS IN SEBETA TOWN, OROMIA REGIONAL STATE, ETHIOPIA

By: Gadisa Lenjisa

Approved by Examing Board

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May, 2016

Addis Ababa, Ethiopia

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Acknowledgements

My deepest gratitude and sincere appreciation goes to my adviser Dr NegussieDeyessa for unreserved advices, comments, follow up and invaluable help from the very beginning of proposal development to the write up of this thesis report.

I am thankful to the instructors of the Department of preventive medicine who have commented critically on the development of this thesis report.

I thank Addis Ababa University, Graduate Studies Program for financial assistance made to conduct this thesis research.

I would like to extend my appreciation to my colleagues, especially, Hailu Merga for his support during the course of the paper.

I would like to acknowledge the staff members of Sebeta town Health Office who have made a wonderful help during data collection process and also thanks to all respondents who actively participated in the study. Lastly my thanks got to facilitator, supervisors and all research participants.

Above all I thank the Almighty God helping me to finish my study successfully existence.

Acronyms

AAU Addis Ababa University

AOR Adjusted odd ratio

CDC Centers for disease control and prevention

CI Confidence interval

CPR Contraceptive Prevalence Rate

EDHS Ethiopian Demographic and Health Survey

FDRE Federal Democratic Republic of Ethiopia

FP Family planning

IUCD Intra Uterine Contraceptive Device

MoH Ministry of Health

OC Oral contraceptive

OCP Oral contraceptive pills

OR Odd Ratio

PHQ Patient health questionnaire

RHB Regional Health Bureau

STHO Sebeta Town health office

UNICEF United Nations Children's Fund

WHO World Health Organization

Abstract

Background: None of the contraceptive methods are fully side-effect free. The number one reason women give for dissatisfaction with discontinuation hormonal contraception is side effects, such as mood disorder and depression that lead to discontinuation. The purpose of this tudy was to assess the association between contraceptive use and depression among female employeesin governmental institution in Sebeta town, Oromia regional state, central Ethiopia.

Methods: Institutional based cross sectional study was conducted among female employees in governmental institutions found in Sebeta town, conducted from August 2015 to Jun 2016. Self-administered questionnaire was used to collect data. The data were obtained through a standard questionnaire including PHQ-9 (Patient Health Questionnaire-9). The questionnaire was included socio demographic variable, social and economic factors, environmental variables. Data entry was being done using EPI-info version 7 and analysis was done using SPSS for windows version 20. Associations between determinants and outcome of interest (depression) was analyzed using multiple logistic regression, and was displayed using odds ratio with confidence intervals.Logistic regressions were used to assess the impact of different determinants for depression.

Results: According to the PHQ-9, 34.10% women employees were identified by PHQ-9 as having had any form of depression diagnosis disorder. After adjusting confounding effects current use of contraceptive was not associated with depression, however marital status (AOR=2.31,95%CI (1.00, 5.33)), ever use of injectable(AOR=1.59,95%CI(1.02, 2.49)), Exposure of violence (AOR=1.98,95%CI(1.20, 3.26)), sufficiency of income (AOR=2.11,95% CI (1.26, 3.53)), total family size(AOR=1.50, 95%CI(1.02, 2.20)), problems of everyday living food cost(AOR=3.47,95%CI(1.56,7.67)) and problems of everyday living house furniture cost (AOR=1.56,95% CI (1.01, 2.39)) were statistical significant.

Conclusion; In this study, there is no association between current use of contraception and depression. Marital status, ever use of injectable, exposure of violence, income covering living expenses, total family size, problems of everyday living food cost and problems of everyday living house furniture cost were the determinants ofdepression; therefore, women should be aware of using hormonal contraceptive with out fearing on its side effect related to depression.

Key words: Contraceptive methods and Depression**.**

1. Introduction

1.1 Background

Global 529,000 women still die every year from complications of their pregnancy, unsafe abortion and nearly 90% of these deaths are in sub-Saharan Africa and Asia [1]. At the beginning of 2014, the world's population was estimated at 7.2 billion, with approximately 82 million being added every year and roughly a quarter of this growth occurring in the least developed countries. On its current trajectory, the world's population is expected to reach 8.1 billion in 2025 and 9.6 billion in 2050 [2]. One of the major problems that developing countries confront with is the increasing growth of population which in fact is a serious threat for the global community [3]. Now days, family planning services is not only considered as the key to the population growth and women and children's health, but also is assumed as one of the fundamental human rights [4]. Physical, psychological, economic and religious factors to influence the decision on the selection and application of a contraceptive method [5].

None of the contraceptive methods are fully side-effect free [6]. According to the Centers for disease control and prevention report, the number one reason women give for being dissatisfied with their hormonal contraception is side effects. 63% of pill users, 74% of Depo-Provera users, and 45% of contraceptive patch users who discontinue use specifically cited side effects as their reason for stopping [7].

Depression affects people of all age group [8]. Worldwide, incidence of depression in females is two times more than males and also in Ethiopia incidence of depression in females is two times than males [9, 10]. One of the factors causing a difference between depression levels of women compared to men is hormonal factors [11], and the changes they experience is the most important reasons of depression [12]. Research has found that there are some hormonal changes that occur in depression, the brain goes through some changes before and during a depressive episode, certain parts of the brain are affected; this may be result in an over or under production of hormones, which may account for some of the symptoms of depression [13].

1.2 Statement of the problem

According to the Ethiopian Demographic and Health Survey (EDHS), 2011; 12-month contraceptive discontinuation rate for all methods is 37%. The highest discontinuation rate is for the pill (70%), followed by the male condom (62 %) and the other inject able contraceptives

(34.2%), implants (4.5%), Rhythm (23.6%) [14]. One of the side effects commonly causing discontinuation of the contraceptive methods is mood changes and depression [15].

Many research was done in developed country on contraceptive use and depersion;however, with different finding some study says there is association between contraceptive methods and depression in other hand others studies says there is no association between contraceptive methods and depression but there is limitation of these study specially in developing country including Ethiopia. However, in Ethiopia almost no study was undertaken to asses' association between contraceptive use and depression and also prevalence of depression among female governmental employees which this study aims at. Study will be needed to see the association between contraceptive methods use and depression. So the aim of this study will be to assess the association between contraceptive use and depression. The expected outcome of this study will be to determine the association between contraceptive methods use and depression.

1.3 Rationale for the Study

Depression is of public health concern because of the short and long term detrimental effects to the woman and her family. Individuals with depression experience high rates of anxiety, suicidality, substance use, and poor spouse/child relations. The world health organization considers depression the fourth leading cause of disability worldwide, and expects it to become the second leading cause of disability worldwide by 2020) [16]. The completion of the study is expected to serve, among other things, as baseline for future detailed studies. Therefore, this study will have a significant input in the formulation of appropriate strategy to modify and prevent depression problems in the women. The outcome of this study will hopefully use to design effective campaign messages and appropriate strategies to prevent depression from the people. It is believed that the study outcome will have important policy implications, since this information could assist policy makers, local government and public health practitioners how to prevent depression, and will also bring awareness among the community to react and be involved in use of contraceptivewithout fear of side effect of depression and to prevent depression. Moreover, it will encourage further researches.

2. Literature Review

Depression is a leading cause of disability and disease burden worldwide and in the United States, affecting millions of individuals worldwide, particularly women. Women have a high risk of experiencing depression with an estimated lifetime risk of 10–25% [17]. Depression is a significant contributor to the global burden of disease and affects people in all communities across the world. Today, depression is estimated to affect 350 million people. The world mental health survey conducted in 17 countries found that on average about 1 in 20 people reported having an episode of depression in the previous year.

Depressive disorders often start at a young age; they reduce people's functioning and often are recurring. For these reasons, depression is the leading cause of disability worldwide in terms of total years lost due to disability [18]. While depression is the leading cause of disability for both males and females, the burden of depression is 50% higher for females than males. In fact, depression is the leading cause of disease burden for women in both high-income and low and middle-income countries [19].

In Ethiopia, there is low prevalence of contraceptive rate according to Mini Ethiopian Demographic and Health Survey 2014 (EDHS 2014). The contraceptive prevalence rate is 29% for all women and 42% for currently married women [20].There is now a sufficient body of evidence to establish a relationship between the use of hormonal contraceptives and the occurrence of depression. The relationship is complex and depends on the physical and psychological predisposition of the woman as well as on the properties of the contraceptive itself[21]. Depression can have serious consequences for a patient and her family. Despite this the consensus of published opinion suggests that as many as 6-7% of women suffer depressive symptoms while taking an oral contraceptive compared to1-2% of controls [22].

Study conducted by Shakerinejad et al among 500 women who use oral contraceptive pills user's 406 women reported that they did experience oral contraceptive pills side effects. Of these, 37.7% of women (n=153) reported mood changes due to oral contraceptive pills use [23].

The study conducted in Ethiopia on perceived side effect of oral contraceptives in Jima zone, the commonest reasons of not using contraceptive methods among married women were fear of side effect (37%), need of more children (32%) and religions reason (22%), headache (30%), extreme

weakness (24%), sterility (20%) and depression (17%) were the most wide spread rumors on the effect of pills [24].

Meta-analysis done on the effect of oral contraceptive use on women's psychological well-being states that, from 1943 to 1966, various researchers reported a variety of findings, including a positive association between oral contraceptive use and depression, other that oral contraceptive reduced depression, and that a psychological predisposition associated with depression developed during oral contraceptive use, researchers found that oral contraceptive was associated with depression during the first month of use and diminished after that. In 1969, researchers concluded that depression during oral contraceptive use was correlated with previous instances of depression [25].

A meta-analysis reviewed seven clinical trials and showed that users of hormonal contraceptive methods have higher depression and anxiety than non-hormonal methods; however, these negative effects on mood were not because of medicinal properties but were due to psychological effects of pill using (drug). Women who receive placebo contraceptive (pill) experienced the same side effects that the group with real drug of low dose pills experienced and if contraceptive methods used to treat, their side effects would be two times higher than the condition for normal contraceptive method [26].

Another study conducted in Iran showed that depression is not correlated with family planning however, depression screening is very important before selection of contraceptive method and consultation about side effects and concerns at the time of decision and this issue should be taken into account by family planning services and consultants [27].

In the other hand study conducted in New York on hormonal contraception and mood by Keyes et al showed that use of hormonal birth control was inversely associated with depressive symptoms [28] and also study conducted in United States showed that there were protective associations between hormonal contraceptive use and high depression scores in other hand this means hormonal contraception may reduce levels of depressive symptoms among young women [29].

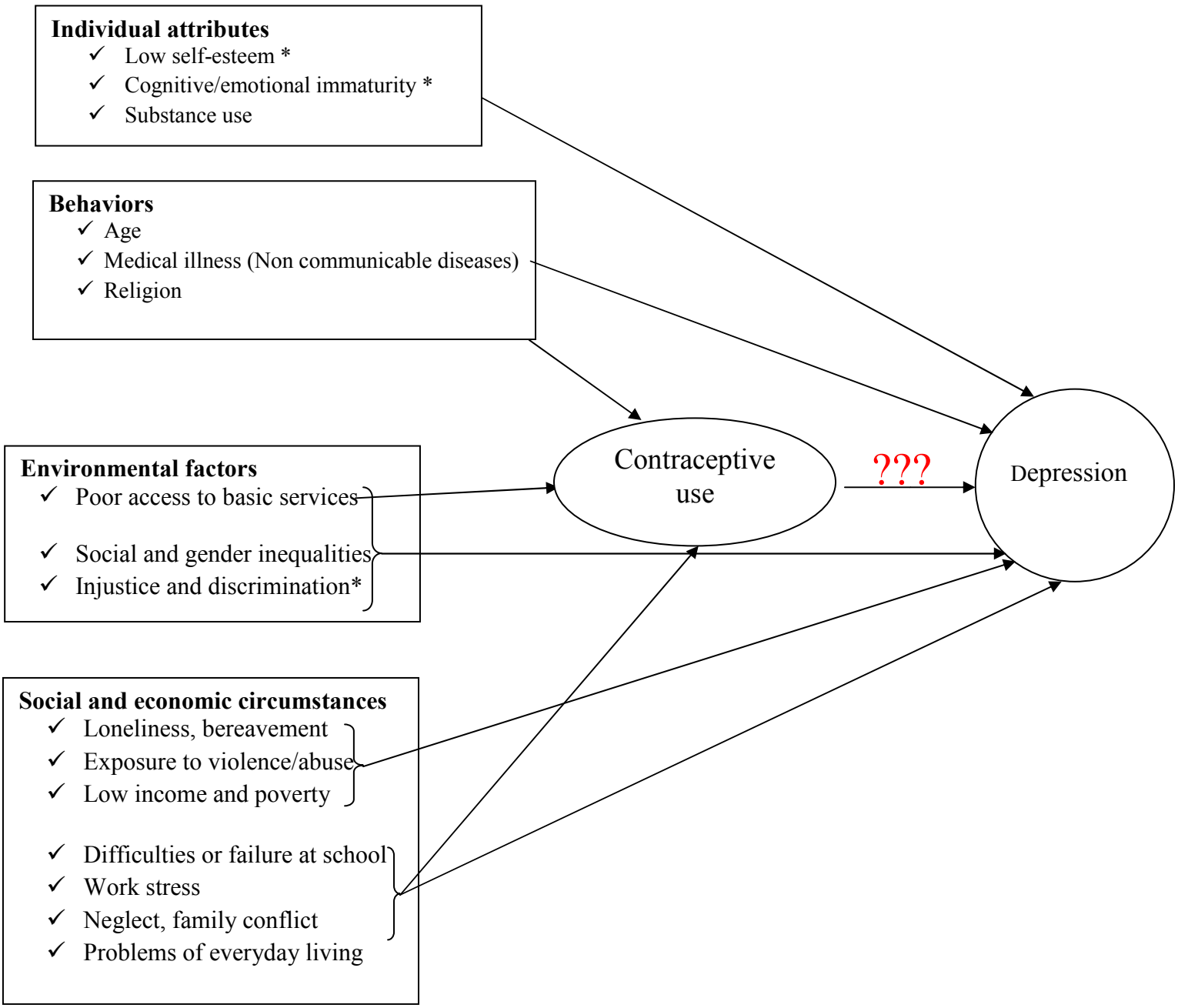
Study conducted on depressive symptoms and oral contraceptives shows that the groups of women taking oral contraceptives 6.6% were more severely depressed than any of the control

group or 6.6% of the women on oral contraceptives have depression scores which are higher than any of the scores obtained in the control group[30].

The study conducted on oral contraceptives, depression, and libido found that 25% stopped using oral contraceptives because of side effects, the most common of which were headaches, depression, and loss of libido and also the Intra Uterine Contraceptive Device, group was significantly more depressed than the oral contraceptive total group both initially and throughout the survey [31].

The study conducted in Ethiopia shows that older age, marital status, number of diagnosed chronic non communicable diseases and alcohol consumption found to be the most important risk factors for depressive episodes and the prevalence of depressive episode was 9.1% [32]. Other study conducted in Ethiopia on prevalence of depression shows that Other consistently reported potential risk factors of depression include chronic illness like HIV/AIDS, habit of substance abuse, stigma, intimate partner violence, migration and parental violence [33].

Figure 1. Conceptual framework for factors that can affect Depression



It is adopted from WHO, 2012[34]

3. Objective

3.1 General Objective

To asses association between contraceptive use and depression among female employees of governmental owned institutions in Sebeta Town, Oromia regional state, central Ethiopia, 2016.

3.2 Specific Objectives

1. To determine magnitude of depression among female employees of governmental institutions in Sebeta town.
2. To assess the relationship between contraceptive use and depression among female employees' governmental institutions in Sebeta town.
3. To identify factors associated with depression among female employees' governmental institutions in Sebeta town.

4. Methodology

4.1 Study design

An institutional based cross sectional study design was conducted to asses' association between contraceptive methods use and depression among female employees governmental owned institutions in Sebeta town, Oromia Regional State, central Ethiopia.

4.2 Study area

The study was conducted in Sebeta town, Oromia regional state, central Ethiopia which is located 24-km to the south west of Addis Ababa on Jima road. According to health profile of Sebeta town, it has 8 urban Kebeles and has a population size of 123,269 with a male to female ratio of 1:0.96 and population density of 290 Sq. Km. Sebeta Town is surrounded by Sebeta Awas Woreda and Addis Ababa City Administration. Number of females in a reproductive age group (excluding pregnant women), is estimated to be 22,965 (18.63%). The town has four governmental health centers and different types of non governmental health facilities (such as 27 primary clinics, 24 medium clinics, 2 higher clinics, 3 specialty centers, 2 pharmacies, 18 Drug stores, and 2 rural drug venders). The town health service coverage, as of 2008 E.C is 100 %. (Source: **Sebeta Town health office**).

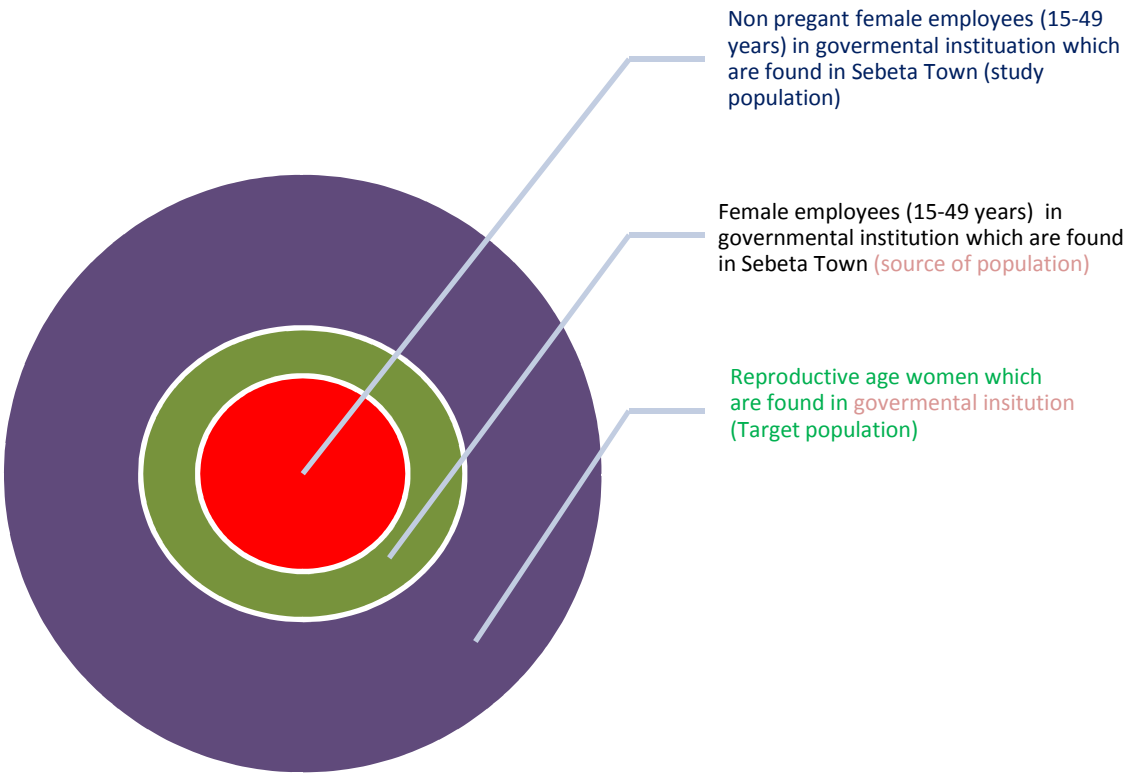
In Sebeta town there are 28 different governmental offices namely: education office, finance and economic development office, health office, mayor's office, labor and social affairs office, water office, culture and tourism office, transport office, civil service and good governance office, environmental protection office, urban agricultural office, revenue authority, investment office, urban land management office, micro enterprise office, sport and youth office, women and child office, police office, peace administration office, communication office, building office, trade market and development agency, municipality office, training, technical and professional educational office, speaker office, Prosecutor office, Court office and cooperative association office. Those government sector categorized into three based on Ethiopia government budgeting system as: general governess sector, social sectors, and economic sectors. In addition to these there are eight Keble's, 8 kindergarten (KG), 9 primary school (1-8), 2 high school, 2 preparatory school, 1 vocational school, 1teacher training college and also many private sectors like manufacturing industries, private health intuitions, different types of private schools etc. found in the town. Health facilities providing many different services such as maternal and child health services, out patient services, in patient service etc. Among maternal and child health servicesfamily planning

was one of the services provided. Both short (such as condom, pills, injectables) and long acting (such as norplant, IUCD) contraceptive methods were provided. (Source**: Sebeta city administration**)

4.3 Study population

The target populations were reproductive age women which are found in governmental owned institutions and also the source populations were women employees of reproductive age (15-49 years) in governmental institution which are found in Sebeta town. The study populations were non-pregnant female employees in government institution who were available during data collection time.

Figure 2Study population diagram



Exclusion criteria: -

- Women havingor diagnonized with common mental illness inluding schizophrenia
- Pregnant women employees in government institutions.

4.4 Sample size

The sample size required for this study was done for first objectives by using proportion for single population formulaand forsecond objectives by using the formula for estimating proportion for two populations and finally the largest sample size was selected. Sample size was determined by assuming prevalence of depression among non-exposed group (proportion of outcome among non-exposed group) of 4.6% [35], and assuming proportion of depression among exposed group (users of contraceptive) of 11%, at 95% confidence level of certainty (alpha= 0.05), power of 80%, ratio of unexposed to exposed group of 1:1. With the above assumptions, the sample size was calculated using STATCAL program of EPI INFO program, version 7 and the overall sample size was found to be **552** and also for first objectives assuming proportion of depression among female employees 50% ,at 95% confidence level of certainty (alpha= 0.05),with the above assumptions, the sample size was calculated using STATCAL program of EPI INFO program, version 7 and the overall sample size was found to be 384**,** Adding 5% of non-response, the final sample size was 580 and 404 respectively**.** Selected sample size was the largest on that means 580.

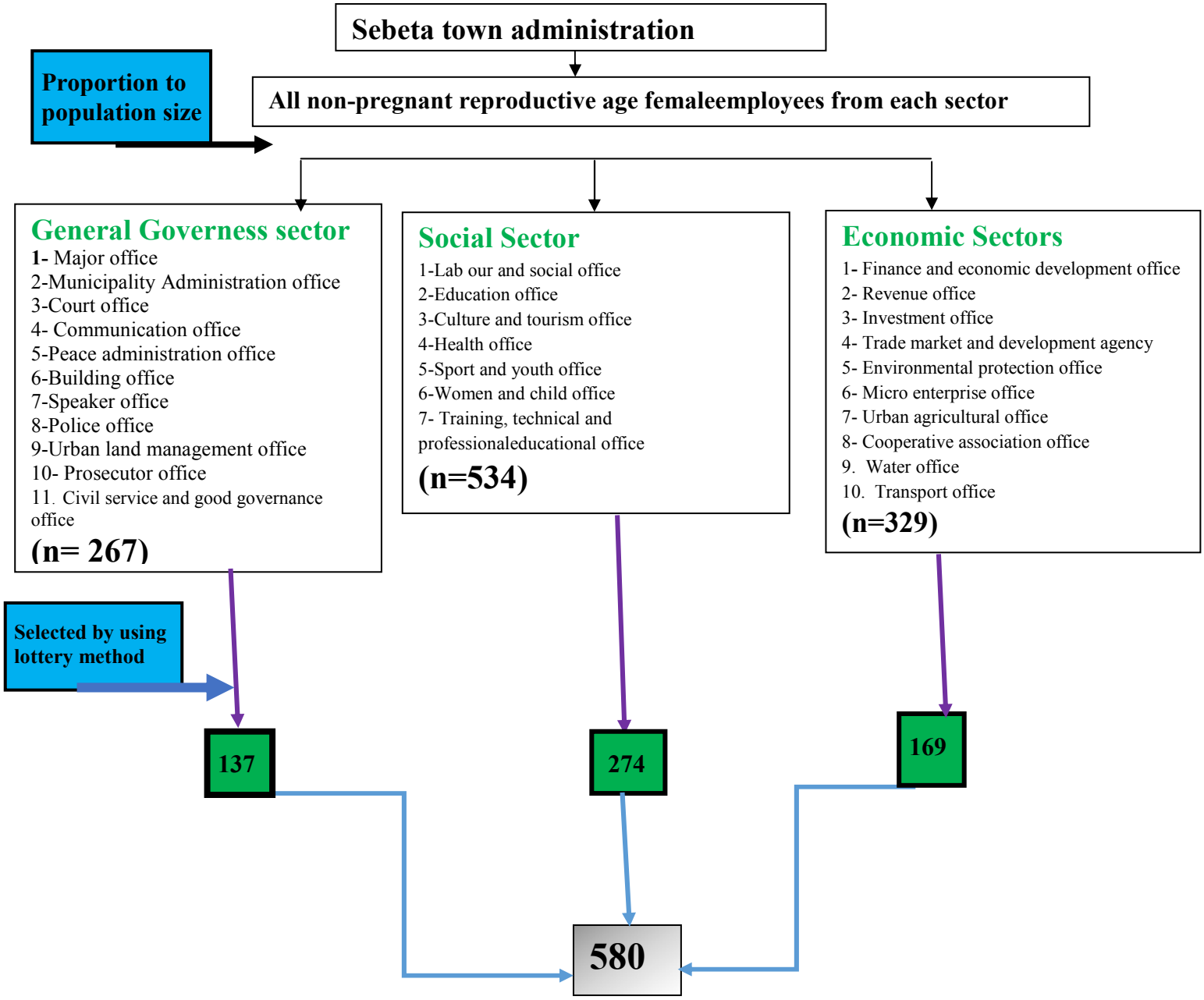
Table 1.Sample size summary

Objectives	Formula used	Calculated sampe size by using EPI INFO program version 7	%5non response rate	Total sample size
First	Proportion for single population	384	19.2~20	**404**
Second	Proportion for two population	552	27.6~28	**580**

4.5 Sampling procedures

The sampling method used to select study participants for this cross sectional study was using simple random sampling technique. A sampling frame that contains the list of female employees from each of the institution was developed after making survey in the town to identify the existingfemale employees. Representative sample size was drawn from each sectors using proportional to size allocation. Thus, a total of 580 non pregnant reproductive age female employees have been selected randomly using a lottery method from governmental sector.

Figure 3. Sampling procedure for selection of female employees from each sectors



4.6 Data collection procedures

The survey questionnaires were adapted from different literature developed for similar purposes by different referance; then it was reviewed to suit the local condition. Data was collected from study participants; the language of questionnaire was developed in English and translated from English into local language (Amharic and Afan Oromo) and translated back to English to keep for the consistency. Prior to the actual data collection questionnaire was pre tested on similar population. Pre test was done in Sebeta Awas Woreda on 5% of sample size.Training was given to organizer and supervisor on the study instrument, data collection procedure. Self-administered questionnaire was used to collect data.

4.7 Measurement

The data was obtained through a standard questionnaire including (PHQ-9). Patient depression was measured by using PHQ-9 with a 3-point severity scale over the last 2 weeks preceeding survey. Based on the instrument standard PHQ-9 interpretation of total score from 1-4 Minimal depression, 5-9 Mild depression, 10-14 moderate depression,15-19 moderately severe depression and severe depression score($\geq$10 score was considered as significant for meeting the symptoms of depression)this instrument was validated in Ethiopia [36]. Depression diagnosis was also made using algorthim from PHQ-9, Major depression was considered when study subject responded one or more of the first main symptoms of depression and other five syptoms. Otherdepression was considered when study subject responded one or more of the first main symptoms of depression and others two, three and four.The questionnaire consisted socio demographic factors, social and economic factors, environmental factors which include age, marital status, religion, education level and job, the average monthly income, the number of dependents, duration of using the current contraceptive method, housing condition, substance abuse, alcoholism, medical illness etc.

4.8 Study variables

4.8.1 Dependent variable

- Depression status

4.8.2 Independent variables

- ✓ Contraceptive use
- ✓ Religion

- ✓ Age in years
- ✓ Income monthly (Economic status)
- ✓ Marital status
- ✓ Alcoholism
- ✓ Housing condition
- ✓ Types of job (Work stress)
  - Working hours
- ✓ Education level by completed grade
  - Work overload, Job category
- ✓ Loneliness, bereavement
- ✓ Medical illness (chronic diseases)
- ✓ Exposure to violence/abuse
- ✓ Substance use (chat chewing, smoking)
- ✓ Family conflict.

4.9 Operational definitions

- **Current use of contraception**: those respondents who are using contraceptive method during the period of data collection.
- **Hormonal contraception** refers to birth control methods that act on the endocrine system, almost all methods are composed of steroid hormones.
- **Depression syptoms**: is measured by using PHQ-9 with a 3point severity scale over the last 2 weeks preceeding the survey; based on the instrument standard PHQ-9 score ≥10 is considered as significant for meeting any form of depression diagnosed disorder.
- **Minor depressive disorder**, also known as minor depression, is a mood disorder that does not meet the full criteria for major depressive disorder but at least two depressive symptoms are present in the last two weeks preceeding survey.
- **Major depression disorder**: is considered when study subject responded one or more of first main syptoms of depression and other five syptoms.
- **Any form of depression disorder**: minor depression and major dipression disorder considered us any form of depression disorder.
- **Bereavement**: is the state of being sad because a family member or friend has recently died or especially: the loss of a loved one by death.
- **Loneliness:** is the distress that results from discrepancies between ideal and perceived social relationships.
- **Violence:** isthe use of force to harm a person (like rape, abduction)
- **Problems of everyday living**: is having less than 2 meals per day as a proxy indicator of problems of everyday living and only one set of clothes. If both are present, this was considered a living problem such as food, clothing, housing, transportation, furniture, medical treatment costs, and children's education.
- **Social problems**; is living alone, detached from children and relatives such as inability to visit friends and relatives, being worried about the children's future, feeling lonely, having no friends.

4.10 Data quality management

To assure the quality of the data, properly designed (standard) data collocation tool was prepared. On each data collection day 5% of the **c**ollected data was reviewed by principal investigator, any problem faced in the time of data collection was discussed, immediate solution was made and data collectors were instructed to check the completeness of the response.

The principal investigator and field supervisor were rechecking completeness of the questionnaire immediately after interview at field level and during submission. All collected data were checked for completeness, accuracy and consistency by the supervisors and principal investigator every day. Anything, which was unclear and ambiguous, was clarified for data collectors on the next day.

4.11 Data processing and analysis

First code was given to the completed and corrected questionnaire. Data was entered into EPI-info version 7 and analyzed using SPSS statistical package windows version 20. Data cleanup was performed to cheek for frequencies, accuracy, outliers, and consistencies and missed values and variables. The data was summarized and organized using appropriate descriptive measures, tables and graphs. Associations between different determinants and outcome of interest (depression) were analyzed using logistic regression, and displayed using odds ratio with confidence intervals. Multiple logistic regressions were used to show the impact of different determinants for the depression and to predict the probability depression with given different determinants. P-values less than 0.05 was considered for statistical significant. Associations between risk factors and depression episodes were analyzed using bivariate and multivariate logistic regressions. Variables with $P< 0.25$ at 95 % confidence interval in bivariate logistic regression were entered into multivariate logistic regression. Variables with $P<0.05$ in multivariate logistic regression was considered as significantly associated with any form of depression disorder diagnosis.

4.12 Ethical consideration

Ethical clearance was obtained from the ethical review board of college of health sciences of Addis Ababa University. Written consent was obtained from Oromia regional heath Bureau

(ORHB), Sebeta municipality and Sebeta town heath office (STHO) to conduct the study on eligible subjects. Every procedures and the need to conduct the study was clearly explained to all who the study was conducted and their individual verbal consent was obtained. Privacy and confidentiality was maintained throughout the procedure.

4.13 Dissemination of results

Results of the study will be submitted to the school of public health, Addis Ababa University, Oromia regional health bureau, Sebeta town health office, and will be given to other concerned bodies when deemed necessary and also the result of the study will be communicated to the organizations or institutions or individuals who have direct or indirect input to the thesis. All attempts will be made to present for scientific community or to publish the results of the study on local and /or international peer reviewed Journals.

5. Result

5.1 Socio-demographic and economic characteristics of respondents

A total of 580 female employees were invited to participate in the survey, and the response rate was 100%. The mean,median and standard deviation of age of the respondents were 32.09, 30 and 7.70respectively and, ranging from 18 to 49 years. The age range for husband was from 22 to 65 years with mean of 38.88. Concerning the marital status of the respondents, 442 (76.20%) were currently married/cohabit, 102 (17.60%) of the respondents were unmarried and 36(6.20%) were divorced/separated/widowod.

The dominant ethnic group were Oromo 496 (85.50%) followed by 67 (11.65) Amara. By religion, 286 (49.30%), 243 (41.90%), 36 (6.20%) and 15 (2.60%) were orthodox, protestant, Muslim, and others, respectively. Regarding their education status, 291 (50.20%) were diploma/level, 216 (37.20%) were degree and above, 73(12.60%) of the respondents were under secondary education. Mean of total family size and dependent family size were 3.99 and 1.42 respectively. Three hundred sixty-five (62.90%) of respondents have less than 5 family size and 215 (37.10%) have 5 and above family size.

Regarding the employment status of respondents, 480 (82.80%) were full time work and 100 (17.20%) were not full time work/part time. Concerning working hours per day 445 (76.70%)of the respondents were working 8hours only and 135 (23.30%) of the respondents were non 8hours (less than 8hours and greater than) 8hours.By types of work/ work categories of respondents 446 (76.90%) were working at managerial/professional class and 134(23.10%) were working at non-professional/othe class.Regarding the monthly salary of the respondents, 339(58.40%) were earning less or equal than 3000 birr while, 241 (41.60%) were earning greater than 3000 birr.

Majority of the respondents 338 (58.30%) were living in rent houses and 232 (40%) were live in their own houses. When the respondents compare their income or economic status with others employees classified themselves based on their economic status, as perceived by the respondents, the majority, 353 (60.90%) of the respondents were medium, followed by poor 159 (30.30%). Total family income sufficient to cover living expenses according to respondent's responses majority of the respondents 462 (79.70%) were our income is not enough to cover our living expenses and 118 (20.50%) were enough to cover our living expenses. Fifty-eight percent of respondents had work overload at their work place and 289 (41.20%) had not(table 2).

Table 2.**Socio-demographic economic characteristics of the study population, Sebeta town, Oromia regional state, central Ethiopia, 2016.**

Variables	Frequency (N=580)	percentage
Age of respondents		
15-24	102	17.60
25-34	247	42.60
35-49	231	39.80
Marital status		
Never Married	102	17.60
Currently Married/cohabit	442	76.20
Divorced /Separated/Widowed	36	6.20
Religion		
Orthodox	286	49.30
Protestant	243	41.90
Muslim	36	6.20
Others	15	2.60
Educational status		
Primary and secondary (1-12)	73	12.60
Diploma/level education	291	50.20
Degree and above	216	37.20
Total family size		
1-4	365	62.90
5 and above	215	37.10
Employment status		
Full-time work	480	82.80
part time	100	17.20
Working hours per day		
8hr only	445	76.70
Non 8hr	135	23.30
Types of Employees /category		
Managerial/Professional class	446	76.90
Non Professional and other class	134	23.10
Work overload at work place		
Yes	341	58.80
No	239	41.20

Table 3. Economic characteristics of the study population, Sebeta town, Oromia regional state, central Ethiopia, 2016.

Variables	Frequency (N=580)	percentage
Monthly Income (salary)		
≤ 3000	339	58.40
>3000	241	41.60
Monthly income when compared to other employees		
poor	159	30.30
Medium	353	67.20
Rich	13	2.50
Housing ownership		
Rent house	338	58.30
Own house	232	40.00
Others	10	1.70
Sufficiency of income		
Yes	118	20.30
No	462	79.70

5.2 Practice of modern contraceptive methods

5.2.1 Ever use of modern contraceptive methods

Among ever user of modern contraceptive methods were 254 (43.80%) had ever used pills and 326 (56.20%) not, 34 (5.90%) had ever used IUCD and 546 (94.10%) not, 341 (58.80%) had ever used injectable and 239 (41.20%) not, 87 (15%) had ever used condom and 493 (85%) not, 65 (11.20%) had ever used Norplant and 515 (88.80%) not, and 2 (0.30%) had ever used tubal ligation and 578 (95.70%) not. Totally 492 (77.90%) of the respondents had ever used modern contraceptive in the past and 128 (22.10%) had never used modern contraceptive methods in the past **(**table 2).

Table 4. Types of contraceptive methods used in the past (ever used) of the study population, Sebeta town, Oromia regional state, central Ethiopia, 2016.

Variables	Response	
Ever use of contraceptive	**Yes**	**No**
Pills	254 (43.80%)	326 (56.20%)
IUCD	34 (5.90%)	546 (94.10%)
Injectable	341 (58.80%)	239 (41.20%)
Condom	87 (15.00%)	493 (85.00%)
Norplant	65 (11.20%)	515 (88.80%)
Tubal ligation	2 (0.30%)	578 (99.70%)
Never used	128 (22.10%)	452 (77.90%)

Age of first use of contraceptive 29 (6.40%) were used in 15-19 years, 246 (54.40%) were used in 20-24 years, 140 (31.80%) were used in 25-29 years, 26 (5.80%) were used in 30-34 years and 11 (2.40%) were used in 35-39 years. The highest percentage of first use of contraceptive use was found among women aged between 20 –24 years.

5.2.2 Types of contraceptive used currently

Seventypercent of the respondents were currently used modern contraceptive and 30% not used currently modern contraceptive methods because of different reason. By methods injectable contraceptive was the most commonly used method by 165 (28.40%) of women employees, the second most commonly used method was Norplant 115 (19.80%), the rest 64 (11.00%), and 59 (10.20%), were used pills and IUCD, respectively. The least used method was condom and tubal ligation. Study subjects did not use the diaphragm, spermicide, and vasectomy. In general, 344(59.30%) of the respondants were use hormonal contraceptive and 62(10.70%) ofthe respondants were use non hormonal contraceptive methods.

Table 5. **Types of modern contraception methods currently used of the study population, Sebeta town, Oromia regional state, central Ethiopia, 2016.**

Variables	**Response**	
Current of contraceptive	**Yes**	**No**
Hormonal contraceptive	344	59.30
Non hormonal contraceptive	62	10.70
Not using currently	174	30.00

Those who use currently modern contraceptive methods without stopping were 67 (16.50%) using for less than 1years, 236 (58.10%) using for 1- 4years, 81 (20.00%) using for 5-9years and 22 (5.40%) using for 10 years and above among users of modern contraceptive currently (n=406)**.**

5.3. Other determinants

Among the respondents 14.50% of the respondents have the exposure of violence which have been happen on their personality in the past (like abduction, rape and sexual abuse), 86.20% of the respondents have good family relationship/agreement at home and thirty-seven point six percent of the respondents have been lost their family members /loved one by death within one years from the total respondents.

Among the total respondents 24% of the respondents have been on menstruation cycle during data collection and also 14.10% of the respondents have been diagnosed by non-communicable disease. 20.50% of the respondents have social problems like Living alone, detached from children and relatives such as inability to visit friends and relatives, being worried about the children's future, feeling lonely, having no friends.

Five point nine percent (5.90%) of the respondents have problems of food cost, 51.90% have problems of house cost, 26.70% have the problems of house furniture cost, 49.50% have the problems of transportation cost, 12.10% have the problems of clothing cost, 21% have the problems of medical transport cost, 39.70% have the problems of education cost and 58.60% have

the problems of recreation cost (problems of ever day or indicators of problems of everyday living (table 5).

About 541 (93.30%) of the respondents have positive relationship with coworkers and 39 (6.70%) have no positive relationship with coworkers. Among the respondents 72 (12.40%) have family conflict at home and 508 (87.60%) have no family conflict (table 5).

Table 6.**Other determinant variables of the study population, Sebeta town, Oromia regional state, central Ethiopia, 2016.**

Variables	Frequency	Percent
Exposure of violence		
Yes	184	14.50
No	496	85.50
Good family r/ship		
Yes	500	86.20
No	80	13.80
Lost family members		
Yes	218	37.60
No	362	62.400
Diagnosed by NCD		
Yes	82	14.10
No	498	85.90
Social problems		
Yes	119	20.50
No	461	79.50
Problems of food		
Yes	134	5.90
No	546	94.10
Problems of living house		
Yes	301	51.90
No	279	48.10
Problems of house furniture		
Yes	155	26.70
No	425	73.30
Problems of transportation		
Yes	287	49.50
No	293	50.50
Problems of clothing		
Yes	70	12.10
No	510	87.90
Problems of medical treatment		
Yes	122	21
No	458	79
Problems of education		
Yes	230	39.70
No	350	60.30
Problems of recreational		
Yes	340	58.60
No	240	42.40
Positive relationship with coworkers		
Yes	541	93.30
No	39	6.70
Family conflict		
Yes	72	12.40
No	508	87.60

5.3. Patient health Questionnaire (PHQ-9)

According to the responses of the study groups majority of the respondents 208 (35.90%) were have probable major depression based on PHQ-9, 174 (30%) have minor depression disorder and 24 (4.10%) have major depression disorders diagnosis. General any form of depression disorder diagnosis was 34.10%. Prevalence of depression according to the PHQ-9, 34.10% of women employees were identified by PHQ-9 as having any form of depression disorder diagnosis in the two weeks preceding the survey.

Table 7. **Patient health questionnaire (PHQ-9) of the study population, Sebeta town, Oromia regional state, central Ethiopia, 2016.**

Variables	**Frequency**	**Percent**	**95% CI**
Probable major depression			
Yes	208	35.90	35.90(31.90, 39.90)
Minor depression disorders diagnosis			
Yes	174	30.00	30.00(26.30, 33.60)
Major depression disorders			
Yes	24	4.10	4.10(2.80, 6.01)
Any form of depression disorder diagnosis			
Yes	198	34.10	34.10 (30.30, 37.90)

5.5. Factors associated with any form of depression disorder (Bivariate Logistic regression analysis)

Variables which had significant associations on bi- variate analysis at p-value 0.25 were then entered for multivariate analysis. In bivariate analysis age group of respondents 35-49 years were found any form depression disorder 1.448 more times than age group of 15-24 years [OR=1.44 ,95%CI (0.88, 2.37)]; however, the difference was not statistically significant.Those separated/divorced/widowodrespondents were 2.863 more times found any form depression disorder than never married before [OR=2.86, 95%CI (1.31, 6.25)]. In binary logistic regression educational status of the respondents was not associated with any form of depression disorder. The respondents who have 5 and above family size were 1.281 times at higher risk of any form of depression disorderthan who have total family size 1-4 [OR=1.28, 95%CI (0.90, 1.82)], but not statistically significant (table 8).

Types of work/category, working hours perday, employement status and work over load at work place of the respondents were not associated with any form of depression disorder. Those respondents who have no sufficient income to cover living expenses were 2.36 times at higher risk of any form depression disorder than those who have sufficient income to cover living expenses [OR=2.36, 95%CI (1.45, 3.84)] (table 8).

Alcoholic drinking was significantly associated with any form of depression disorder diagnosis in bivariate analysis, respondents taking alcohol 1-4days a week /less than three days in months have 1.67times at higher risk of any form of depression disorder than non-drinker [OR=1.67, 95%CI (1.08, 2.59)] (table 9).

Those, female's employees no have positive relationship with coworkers were 1.22 times at higher risk of any form of depression disorder diagnosis than those who have positive relationship with coworkers [OR=1.22, 95%CI (0.62, 2.38)]; however, the difference was not statistically significant (table 9).

The respondents who ever used pills and injectable were significantly associated with any form ofdepression disorder. Respondents who ever used pills were 1.46times at higher risk of any form of depression disorder than never used pills in the past [OR=1.46, 95% CI (1.03, 2.06)] and also those respondentswho ever used injectables were 1.49 times at higher risk of any form of depression disorder than never used injectables in the past [OR=1.49, 95% CI (1.05, 2.13)]. In bivariate analysis ever use of contraceptive methods and depression symptoms were statistical significant, those respondents who ever used contraceptive in the past were 1.74 times at higher risk of any form of depression disorder than never used contraceptive in the past [OR=1.74, 95%CI (1.11, 2.71)]. In this study current use of contraceptive methods werenot associated with any form of depression disorder (table 10).

The respondents who have the exposure of violence in the past have 2.17 times at higher risk of any form of depression disorder diagnosis than no exposure of violence in the past [OR=2.17, 95%CI (1.36, 3.48)].The result of analysis of independent variables in relation of depression showed that respondents who have non communicable diseases are 1.53 times more likely have depression than not have non communicable diseases [OR=1.53, 95% CI (0.95, 2.46)]; however,association was not statistical significant (table 11).

The respondents who have social problems like living alone, detached from children and relatives such as inability to visit friends and relatives, being worried about the children's future, feeling

lonely, having no friends) were have 1.40 times at higher risk of depression than no have social problems [OR=1.40, 95% CI (0.92, 2.12)];but, the association wasnot statistical significant. The respondents who have the problems of everyday living like problems of food cost, problems of house furniture cost, problems of transportation cost and clothing cost were have 3.36, 2.05, 1.74 and 2.12 times at higher risk of any form of depression disorderdiagnosis than no have problems of food, house furniture, transportation and clothing [OR=3.36, 95% CI (1.64, 6.88)], [OR=2.05, 95%CI (1.41, 3.00)], [OR=1.74, 95%CI (1.23, 2.47)] and [OR=2.12, 95%CI (1.28, 3.52)] respectively(table 11).

The respondents who have the problems of medical treatment cost have 2.05 times at higher risk of any form of depression disorder diagnosis than not have problems of medical treatment costs [OR=2.05, 95% CI (1.37, 3.09)] and also the respondents who have problems of everday living education costs were have 1.53 times at higher risks of depression than not have problems of education costs [OR=1.53, 95% CI (1.08, 2.175)]. The respondents who have family conflict at home were 1.75 times at higher risk of any form of depression disorder diagnosis than no have family conflict at home [OR=1.75, 95% CI (1.06, 2.89)] (table 11).

In this study current use of contraceptive,educational status, total family size, dependent family size, employment status, working hours per day, income, housing ownership, work over load, ever used of IUCD, ever used of Norplant, ever use of condom, age of first use of contraception, duration of contraceptive use, family relationship, loss of family members, diagnosed by NCD, social problems, problems of living house, problems of recreation and relationship with coworkers were not associated with any form of depression disorder in bivariate analysis; however, other variables are statistical significant.

Table 8. Socio demographic variables evaluated for possible association with any from of depression disorder in bivariate analysis of the study population, Sebeta Town, Oromia regional state, central Ethiopia, 2016.

Variables	Any form of Depression disorder diaganosis		COR (95%)CI
	Yes	No	Crude OR
Age of respondents			
15-24	32(31.40%)	70(68.60%)	1.00
25-34	74(30.00%)	173(70.00%)	0.93 (0.56, 1.54)
35-49	92(39.80%)	139(60.20%)	1.44 (0.88, 2.37)
Marital status			
Never married	31(30.40%)	71(69.60%)	1.00
Currently married/cohabit	147(33.30%)	295(66.70%)	1.14 (0.71, 1.81)
Separeted/widowod/divorced	20(55.60%)	16(44.40%)	**2.86 (1.31, 6.25)**
Educational status			
Under Secondary education (1-12)	21(28.80%)	52(71.20%)	0.71 (0.40, 1.27)
Diploma/level education	99(34.00%)	192(66.00%)	0.91 (0.63, 1.31)
Degree and above	78(36.10%)	138(63.90%)	1.00
Total family size			
1-4	117(32.10%)	248(67.90%)	1.00
5 and above	81(37.75)	134(62.30%)	1.28 (0.90, 1.82)
Employment status			
Full-time work	167(34.80%)	313(65.20%)	1.00
Part time	31(31.00%)	69(69.00%)	0.84(0.53, 1.33)
Working hours per day			
8hours only	150(33.70%)	295(66.30%)	1.00
Non 8hours	48(35.60%)	87(64.30%)	1.08 (0.72, 1.62)
Types of Employees /category			
Managerial and Professional class	145(32.50%)	301(67.50%)	0.73(0.49, 1.09)
Non Professional and other class	53(39.60%)	81(60.40%)	1.00
Work overload at work place			
Yes	127(37.20%)	214(62.80%)	1.40(0.98, 2.00)
No	71(29.70%)	168(70.30%)	1.00

Table 9.Economic charterstics and other variables evaluated for possible association with any form of depression disorder in bivariate analysis of the study population, Sebeta Town, Oromia regional state, central Ethiopia, 2016.

Variables	Any form of Depression disorder diaganosis		COR (95%)CI
	Yes	No	Crude OR
Monthly Income(salary)			
≤3000	108(31.90%)	231(68.10%)	0.78 (0.55, 1.11)
>3000	90(37.30%)	151(62.70%)	1.00
Housing ownership			
Own house	82(35.30%)	150(64.70%)	1.00
Rent	113(33.40%)	225(66.60%)	0.91 (0.64, 1.30)
Others	3(30.00%)	7(70.00%)	0.78 (0.19, 3.11)
Sufficiency of income			
Yes	24(20.30%)	94(79.70%)	1.00
No	174(37.70%)	288(62.30%)	**2.36 (1.45, 3.84)**
How frequently taken alcohol			
1-4 days a week/Less than three days this month	47(43.50%)	61(56.50%)	**1.67 (1.08, 2.59)**
Less than every month	26(34.70%)	49(65.50%)	1.15 (0.68,1.94)
Never drink	125(31.50%)	272(68.50%)	1.00
Good family r/ship			
Yes	167(33.40%)	333(66.60%)	1.00
No	31(38.80%)	49(61.20%)	1.26 (0.77, 2.05)
Positive relationship with coworkers			
Yes	183(33.80%)	358(66.20%)	1.00
No	15(38.50%)	24(61.50%)	1.22 (0.62, 2.38)
Inferiority of female at work place			
Yes	64(38.80%)	101(61.20%)	1.32 (0.91, 1.93)
No	134(32.30%)	281(67.70%)	1.00

Table 10.Contraceptive use variables evaluated for possible association with any form of depression disorderin bivariate analysis of the study population, Sebeta Town, Oromia regional state, central Ethiopia, 2016.

Variables	Any form of Depression disorder diagnosis		COR (95%)CI
	Yes	No	Crude OR
Ever used Pills			
Yes	99(39.00%)	155(61.00%)	**1.46 (1.03, 2.06)**
No	99(30.40%)	227(69.60%)	1.00
Ever used IUCD			
Yes	13(38.20%)	21(61.80%)	1.20 (0.59, 2.46)
No	185(33.90%)	361(66.10%)	1.00
Ever used Injectable			
Yes	129(37.80%)	212(62.20%)	**1.49 (1.05, 2.13)**
No	69(28.90%)	170(71.70%)	1.00
Ever used condom			
Yes	25(28.70%)	62(71.30%)	0.74 (0.45, 1.22)
No	173(35.10%)	320(64.90%)	1.00
Ever used Norplant			
Yes	26(40.00%)	39(60.00%)	1.32 (0.78, 2.25)
No	172(33.40%)	343(66.60%)	1.00
Never used in the past			
Yes	32(25.00%)	96(75.00%)	1.00
No	166(36.70%)	286(63.30%)	1.74 (1.11, 2.71)
Current use of contraceptive			
Hormonal Contraceptive	122(35.50%)	222(64.50%)	1.28 (0.87, 1.90)
Non hormonal contraceptive	24(38.70%)	38(61.30%)	1.48 (0.80, 2.71)
Not using currently	52(29.90%)	122(70.10%)	1.00
Duration of using			
Less than 1years	12(33.30%)	24(66.70%)	1.00
1-4 years	89(37.70%)	147(62.30)	1.21 (0.57, 2.54)
5 years and above	38(36.90%)	65(63.10%)	1.16 (0.52,2.60)

Table 11. Other determinant variables evaluated for possible association with depression in bivariate analysis of the study population, Sebeta Town, Oromia regional state, central Ethiopia, 2016.

Variables	Any form of Depression disorder diaganosis		COR (95%)CI
	Yes	No	Crude OR
Exposure of violence			
Yes	42(50.00%)	42(50.00%)	**2.17 (1.36, 3.48)**
No	156(31.50%)	340(68.50%)	1.00
Lost family members			
Yes	79(36.20%)	139(63.80%)	1.16 (0.81, 1.65)
No	119(32.90%)	243(67.10%)	1.00
Diagnosed by NCD			
Yes	35(42.70%)	47(57.30%)	1.53 (0.95, 2.46)
No	163(32.70%)	335(67.30%)	1.00
Social problems			
Yes	48(40.30%)	71(59.70%)	1.40 (0.92, 2.12)
No	150(32.50%)	311(67.50%)	1.00
Problems of everyday living food cost			
Yes	21(61.80%)	13(38.20%)	**3.36 (1.64, 6.88)**
No	177(32.40%)	369(67.60%)	1.00
Problems of everyday living house cost			
Yes	109(36.20%)	192(63.80%)	1.21 (0.85, 1.71)
No	89(31.90)	190(68.10%)	1.00
Problems of everyday living house furniture cost			
Yes	72(46.50%)	83(53.50%)	**2.05 (1.41, 3.00)**
No	126(29.60%)	299(70.40%)	1.00
Problems of everyday living transportation cost			
Yes	116(40.40%)	171(59.60%)	**1.74 (1.23, 2.47)**
No	82(28.00%)	211(72.00%)	1.00
Problems of everyday living clothing cost			
Yes	35(50.00%)	35(50.00%)	**2.12 (1.28, 3.52)**
No	163(32.00%)	347(68.00%)	1.00
Problems of everyday living medical treatment			
Yes	58(47.50%)	64(52.50%)	**2.05 (1.37, 3.09)**
No	140(30.60%)	318(69.40%)	1.00
Problems of everyday living education cost			
Yes	92(40.0%)	138(60.00%)	**1.53 (1.08, 2.17)**
No	106(30.30%)	244(69.70%)	1.00
Problems of everyday living recreational cost			
Yes	125(36.80%)	215(63.20%)	1.33 (0.93, 1.89)
No	73(30.40%)	167(69.60%)	1.00
Family conflict			
Yes	33(45.80%)	39(54.20%)	**1.75 (1.06, 2.89)**
No	165(32.50%)	343(67.50%)	1.00

5.6 Multiple logistic regression analysis

Multiple logistic regression (stepwise) model was used to adjust for the effects of confounding if any existed. Determinants which had significant associations on bi- variate analysis at p-value 0.25 were then entered for multivariate analysis. On multivariate analyses socio-demographic variables like age of respondents, work overload, types of work category, monthly income and housing owner ship showed no statistically significant or not associated with depression; butage categories of the respondents were statistically significant in bivariate analysis after adjusting the confounding not statistically significant, howeverassociation of marital statusand any form of depression disorder showed that statistically significant difference. Female employees who separated/widowod/divorced were 2.31 more times at higher risk of any form of depression disorder than those who never married [AOR=2.31, 95%CI (1.00, 5.33)] and p.value 0.049.

Those respondents who have no sufficient income to cover living expenses were 2.11 times higher risk of any form of depression disorder than those who have sufficient income to cover living expenses [AOR=2.11, 95% CI (1.26, 3.53)] and p.value 0.004.

In this study female employees who ever used of modern contraceptive methods showed that respondents who ever used pills are not statistically significant or associated with any formof depression disorder in multivariate analysis;however respondents who ever used injectables in the past was statistically significant or associated with depression, respondents who ever used injectable were 1.59 times at higher risk of any form of depression disorder diagnosis than who never used injectable in the past [AOR=1.59, 95%CI (1.02, 0.03)] and p.value 0.039.

Current use of contraceptive methods like hormonal contraceptive use and non hormonal contraceptive use werenot statistically significant/ not associated with any form of depression

disorder diagnosis and also duration of contraceptive use and age of first use of contraception were not statistically associated with any form of depression disorder.

In this finding female employees who use alcohol are not statistically significant in multivariate analysis, but statistical significant in bivariate analysis.

Exposure of violence which was significant before adjusting confounders and still shows significant association yet in multiple logistic regressions analysis, respondents who have the exposure of violence were 1.98 times higher risk of depression than who have no exposure of violence or association between exposure of violence and any form of depression disorder diagnosis was statistical significance [AOR=1.98, 95% CI (1.20, 3.26)] and p.value 0.007.

Those respondents who have the problems of everyday living food cost were 3.47 times higher risk of depression disorder than who have no the problems of everyday living food cost [AOR=3.47, 95% CI (1.56, 7.67)] and p.value 0.002.

In multiple logistic regression analysis respondents who have the problems of everyday living house furniture costwere have 1.56 times at higher risk of depression than no have the problems of everyday living house furniture cost [AOR=1.56, 95% CI (1.01, 2.39)] and p. valve 0.042.

In another hand the respondents who have the social problems, diagnosed by NCD, inferity of female at work place, problems of everyday living (such as living house, transportation, clothing, education, recreation cost) and family conflict were not statistical significant, but statistical significant before adjusting confounding.

Table 12.Sociodemographic& contraceptive use variables which have p. value <0.25 in bivariate analysis entered into multivariate analysis of the study population, Sebeta Town, Oromia regional state, central Ethiopia, 2016.

Variables	OR (95%)CI	
	Crude	Adjusted OR
Age of respondents		
15-24	0.69 (0.42, 1.13)	0.70 (0.38, 1.31)
25-34	**0.64 (0.44, 0.94)**	0.99 (0.50, 1.95)
35-49	1.00	1.00
Marital status		
Never married	1.00	1.00
Currently married/cohabit	1.14 (0.71, 1.81)	0.88 (0.50, 1.55)
Separated/widowed/divorced	**2.86 (1.31, 6.25)**	**2.31 (1.00,5.33) ****
Total family size		
1-4	1.00	**1.00**
5 and above	1.28 (0.90, 1.82)	**1.50 (1.02,2.20) ****
Types of Employees /category		
Managerial and Professional class	0.73 (0.49, 1.09)	0.86 (0.54, 1.37)
Non Professional and other class	1.00	1.00
Monthly Income(salary)		
≤3000	0.78 (0.55, 1.11)	0.86 (0.56,1.33)
>3000	1.00	1.000
Sufficiency of income		
Yes	1.00	**1.00**
No	**2.36(1.45, 3.84)**	**2.11 (1.26,3.53) ****
Work overload at work place		
Yes	1.00	1.00
No	0.71 (0.50, 1.01)	1.21 (0.82, 1.79)
Ever used Pills		
Yes	**1.46 (1.03,2.06**)	1.19 (0.80, 1.77)
No	1.00	1.00
Ever used Injectable		
Yes	**1.49(1.05,2.13)**	**1.59 (1.02,2.49) ****
No	1.00	**1.00**
Current use of contraceptive		
Hormonal Contraceptive	1.28 (0.87, 1.90)	1.17 (0.63, 2.17)
Non hormonal contraceptive	1.48 (0.80, 2.71)	0.89(0.40, 1.96)
Not using currently	1.00	1.00
How frequently taken alcohol		
1-4 days a week/Less than three days this month	**1.67 (1.08,2.59)**	1.56 (0.96, 2.54)
Less than every month	1.15 (0.68, 1.94)	1.10 (0.62, 1.95)
Never drink	1.00	1.00

N.B Significantly associated** with depression after adjusted for age, marital status,total family size, types of work, monthly income, sufficient income to cover living expenses, work over load, , ever used of pills, ever used of injectable, current use of contraceptive, alcohol drinking habit, exposure of violence, inferiority of female at work place, diagnosed by NCD, social problems, problems of everyday living food cost, problems ofeveryday living house furniture cost,problems of everyday living transportation cost, problems of everyday living clothing cost, problems of everyday living medical treatment cost, problems of everyday living education cost, problems of everyday living recreation cost and family conflict.

Table 13. Other determinant variables which have p. value <0.25 in bivariate analysis entered in multivariate analysis of the study population, Sebeta Town, Oromia regional state, central Ethiopia, 2016.

Variables	OR (95%)CI	
	Crude	Adjusted OR
Exposure of violence		
Yes	**2.17 (1.36, 3.48)**	**1.98 (1.20,3.26) ****
No	1.00	1.00
Inferiority of female at work place		
Yes	1.32 (0.91, 1.93)	1.22 (0.81, 1.83)
No	1.00	1.00
Diagnosed by NCD		
Yes	1.53 (0.95, 2.46)	1.34 (0.78, 2.31)
No	1.00	1.00
Social problems		
Yes	1.40 (0.92, 2.12)	1.14 (0.70, 1.88)
No	1.00	1.00
Problems of everyday living food cost		
Yes	**3.36 (1.64, 6.88)**	**3.47 (1.56,7.67) ****
No	1.00	1.00
Problems of everyday living house furniture cost		
Yes	**2.05 (1.41, 3.00)**	**1.56 (1.01, 2.39) ****
No	1.00	1.00
Problems of everyday living transportation cost		
Yes	**1.74 (1.23, 2.47)**	1.43 (0.98, 2.09)
No	1.00	1.00
Problems of everyday living clothing cost		
Yes	**2.12 (1.28, 3.52**)	1.11 (0.53, 2.33)
No	1.00	1.00
Problems of everyday living medicaltreatment cost		
Yes	**2.05 (1.37, 3.09)**	1.37 (0.93, 2.02)
No	1.00	1.00
Problems of everyday living education cost		
Yes	**1.53 (1.08, 2.17)**	1.05 (0.66, 1.68)
No	1.00	1.00
Problems of everyday living recreational cost		
Yes	1.33 (0.93, 1.89)	0.88 (0.58, 1.34)
No	1.00	1.00
Family conflict		
Yes	**1.75 (1.06,2.89)**	1.54 (0.90, 2.65)
No	1.00	1.00

N.B Significantly associated** with depression after adjusted for age, marital status,total family size, types of work, monthly income, sufficient income to cover living expenses, work over load, , ever used of pills, ever used of injectable, current use of contraceptive, alcohol drinking habit, exposure of violence, inferiority of female at work place, diagnosed by NCD, social problems, problems of everyday living food cost, problems ofeveryday livinghouse furniture cost,problems of everyday living transportation cost, problems of everyday living clothing cost, problems of everyday living medical treatment cost, problems of everyday living education cost, problems of everyday living recreation cost and family conflict.

6. Discussions

A total of 580 female employees in governmental institution were participated in the study from Sebeta town governmental owned institutions. Majority of the respondents were currently in union. This study tested the association between modern contraceptive methods use and depression among female employees' governmental owned institutions in Sebeta town. In doing so, the participants were randomly selected from each governmental sector and found to have similarity to the source population. Accordingly, to the sample and source population there was no difference observed in this study. This similarity to some extent may enhance generalizability of the finding of the study to source population as a result of slight observed homogeneity between the sample and source population.

In this study totally 77.90% of the respondents had reported ever use modern contraceptive in the past. This finding consistent with the study conducted in Harari on measuring unmet need for family planning among wives, husbands & couples by Kerimudin Mubarak, 2005 were 80% of wives had reported ever use of contraceptives methods & also similarly with the type of methods used mostly were injection and pills[37].

According to this study current use of contraceptive methods among female employees was seventy percent which is similarly with report of mini Ethiopian demographic and health survey 2014 (mini EDHS 2014) that 70 percent of women with more than secondary school use contraceptive methods currently[16].

In our knowledge this is the first study to examine the association between contraceptive use and depression among females' employees governmental owned institutions in Ethiopia. Over all prevalence of depression according to the PHQ-9, thirty-four point one percent of women employees in governmental owned institutions were identified by PHQ-9 had any from depressive disorder diagnosis two weeks preceding the survey, which was high prevalence of depression. However, this finding is less than study conducted in Iran 48.60% of contraceptive users were depressed, women were covered by health centers and no private center was considered and also the world health organization considers depression the fourth leading cause of disability worldwide, and expects it to become the second leading cause of disability worldwide by 2020 [20].Another study conduct in Addis Ababaprevalence of depression was 44.7% among type 2 diabetic patientswhich was greater than this finding, but different study setting [38]. In another

hand study conduct in Korea the prevalence of depressive symptoms was 39% among employed workerswhich was somewhat similarly to our finding [39]. According study conducted in Thailand, the prevalence of depression among female employees was 28.8% which was less than our finding this difference may due to difference in study area [40].

The findings of this study showed that despite lack of significant difference between depression in current use of contraceptive methods, the high prevalence of any form of depressiondisorder diagnosis 34.1 percent could be due to factors other than type of contraceptive method.

In this study lack of association between current of use contraceptive methods and any form depression disorders. Similarly finding with study conduct in Iran by Ehsanpour, et al found that depression was not correlated with use of contraceptive methods and fear of depression should not be an obstacle to use contraceptive [27].

Also research review conducted in Finland on association of hormonal contraceptive and mental health by Ellen et al, 2013 were the use of hormonal contraception is not associated with negative influence on mental health. Current oral contraceptive use seems to be associated with better mood, where us the associations between duration of use of hormonal contraception and mental health effects are not clear [41].The finding of this study similarly with study conduct in United States on association of hormonal contraceptive use with reduced levels of depressive symptoms a national study of sexually active women in the United States found that at ages of 25–34 years, hormonal contraceptive users had lower mean levels of concurrent depressive symptoms (β=−1.04, 95% confidence inter- Val: −1.73, −0.35) [29].

In the other hand study conducted in New York on hormonal contraception and mood by Keyes et al these study showed that use of hormonal birth control was inversely associated with depressive symptoms [28].However, study conducted on depressive symptoms and oral contraceptives shows that the groups of women taking oral contraceptives 6.6 percent were more severely depressed than any of the control group[30].

In this study there was association between ever use of injectables and any form depression disorder, among respondents who ever use injectables were 1.59times depressed than who never used injectables in the past [AOR=1.59, 95% CI (1.02, 2.49)] and p.value 0.039.This finding consistent with study conduct on psych behavioral effects of hormonal contraceptive use also support this finding women who use hormonal contraceptives report higher rates of depression,

reduced sexual functioning, and higher interest in short-term sexual relationships compared to their naturally-cycling counterparts[42].

According to this study marital status was associated with any form of depression disorder, those respondant who separated/divorced/widowod were 2.31 times more depressed than never married before; this finding consistent with study conducted by Milanovic et al on prevalence of depression syptoms and associated socio-demographic factors in primary health care patients, marital status was associated with depression syptoms [(AOR=1.83: 95%CI (1.08, 3.13)] and P.value 0.025 [43] and also similarly with study conducted in Ethiopia, marital status was associated with depression; those who were separated [(AOR=2.92, 95%CI(1.35-6.34)], those who were divorced [(AOR=2.15, 95% CI (1.18-3.89)] and those were widowod [(AOR=1.95, 95% CI(1.16-3.28)] association was significant [32]. Another study review conducted in Ethiopia, it is reported that females divorced/widowed women had higher risk of depression than unmarried/married women [33] and also another study conducted in Ray-Iran marital status was significantly associated with depression [44].

According to this study those respondents who have no sufficient income to cover living expenses were 2.11 timesdepressed than those who have sufficient income to cover living expenses [AOR=2.11, 95%CI (1.26, 3.53)] and p.value 0.004.Similarly, with study conducted in Addis Ababaon sociodemographic, clinical and psychosocial factors associated with depression among type 2 diabetic outpatients in black lion general specialized hospital income was risk factor for depression (p-value=0.056; AOR=2.0; 95 % CI=1.01, 4.2) [38] and also anther systematic review conducted in Iran showed that low socioeconomic status was the most risk factors for depression [45]. This finding consistent with study conducted on prevalence of depressive symptoms and related factors in Korean employees: individuals with income of <150 was associated with higher odds for depressive symptoms than those a monthly income >300(OR=1.19,95%CI:1.11-1.28)[39]. Another study conducted in Ray-Iran economic status was significantly associated with depression [44].

Exposure of violence was found one of the important determinant factors in this study female employees who have the exposure of violence were 1.98 times more likely to have any form of depression disorder as compared to non-exposure of violence [AOR=1.98, 95%CI (1.20, 3.26)] and p.value 0.007. This agrees with review done on prevalence and risk factors of depression in

Ethiopia [33] and also study conduct in South Africa there wasstrong association between exposure of violence and any form of depression disorder diagnosis [46].

In this study there was strong association between problems of everyday living food cost and depression, female employees who have the problems of food were3.47 times as likely to be depressed than who have no the problems of food [AOR=3.47, 95%CI (1.56, 7.67)] and p.value 0.030. This finding similarlywith study conducted in Sub Saharan Africa on mental health and urban living individual who live in household food problems in the previous months have high odds of being depressed (OR=1.8 (1.0,3.1) [47]and also similarly with study conducted in Sudan [48].

In this study there is statistical significant association between problems of everyday living (such as food, house furniture cost) and depression, female employees who have the problems of everyday living cost were 1.56 times as likely to be depressed than those no have the problems of transportation cost [AOR=1.56, 95% CI (1.01, 2.39) and p.value 0.042. This finding consistent with study conduct in Sudanese there was association between problems of everyday living (such as food, house living, education, transportation, and medical treatment cost in general) and depression [AOR=2.1; 95%CI: (1.19, 3.94)] and p.value 0.011[48].

In this finding there was association between total family size and any form of depression disorder diagnosis; those respondants who have family size 5 and above were 1.50 more times at higher risk of depression than those who have family size 1-4 [AOR=1.50, 95%CI (1.02, 2.20)] and p.value 0.038 [44]. This finding consistent with study conducted in Iran any increase in the family size worsened the depression and also similary with study conducted in Ray-Iran family size was significantly associated with depression [49].

Strength and Limitation of the study

Strength

- In this study it was tried to include all the variables that can affect depression.
- The non-response rate was almost none.
- The design was compatible with the duration of the study.

Limitations

- The limitation of this study lies in its cross-sectional design, which makes it difficult to determine whether these correlations between determinants and depressive indicate antecedents or consequences of depressive disorders. In order to make inferences with regard to causality, a longitudinal follow-up study will be needed difficult to know whether the determinant or the outcome occurred first.
- Lack of local and national reference materials to make comparison.
- This study was conducted on governmental owned institutions, and but notincluding those non-governmental institutions.

7. Conclusion

This study conducted among female employees in governmental institution in Sebeta town to determine the association of contraceptive use and depression is concluded as:

1. The study has shown that the total prevalence of depression symptoms was quite high for female employees' governmental owned institutions.
2. Socio-demographic and economic characteristics like

   - ✓ Age
   - ✓ Ethnic group,
   - ✓ Alcoholic consumption,
   - ✓ Social problems,
   - ✓ Employees' status,
   - ✓ Housing owner ship,
   - ✓ Types of work,
   - ✓ Monthly income,
   - ✓ Family conflict
   - ✓ Work over load and
   - ✓ Problems of everyday living like problems of living house, problems of cloth, problems of education, problems of recreational cost and work overload were not associated with any form of depression diagnosis disorder.

3. Current contraceptive use, duration of contraceptive use, age of first use of contraceptive and ever used contraceptive methods, use not associated with depression except ever use ofinjectables.
4. Problems of everyday living like food cost and house furniture cost were strongly associated with depression.
5. Family sizewas associated with any form of depression disorder diagnosis.
6. Exposure of violence was strongly associated with depression.
7. Incomes covering living expenses were associated with depression.
8. This study has demonstrated that depression was one of the major public health problems in female employees in governmental owned institutions.

Generally, there is no association between current use of contraceptive methods and depression.

8. Recommendation

Based on our finding the following recommendations are forwarded:

1. The findings of this study showed that depression is not related with current use of contraceptive; therefore, women should be aware of using hormonal contraceptive with out fearing on its side effect related to depression.
2. The results of this study indicated that depression as one of the major public health problems of the women population. Thus, initiating mental health service program in the study population area is of paramount importance.
3. Individual, patient-based decisions with consideration of the individual history and predispositions are recommended when starting contraception
4. If any forms of depression disorderor mood changes occur, decisions regarding discontinuation or medication change need to be made on an individual basis.
5. Finally, we recommend similar research to be conducted in other parts of the country to potentiate previous findings and come up with new findings to fill the remaining gap.

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Annex -1. The data collection instrument. English version.

A questionnaire prepared to assess association of contraceptive methods use and depression among female's employees.

Individual consent form

Dear Madam

My name is **Gadisa Lenjisa** I came from Addis Ababa University Department of preventive medicine. I am conducting a survey in Sebeta town to asses' association of contraceptive use and depression among female employees. Non pregnant female employees in this study are selected randomly. For this purposes certain questions which are thought to be important will be asked. You are kindly required to respond to these questions. We want to assure you that your answers will be strictly kept secret. We will also do not keep a record of your name or address. You have the right to refuse participation at any time or not to respond to questions that you are not willing to answer. Your participation is completely voluntary but your experiences could be very helpful. Thus once again assuring you that your responses will be kept confidential, we request your keen participation in this study.

1. Agree to participate
2. Does not agree to participate ➡ **stop**

PART I Socio-demographic and economic characteristics of respondents

No	Question	Choice of answers/Responses	skip
101	What is your age?	Enter age in years _____	
102	What is your marital status?	1. Never Married 2. Currently Married 3. Divorced /Separated 4. Widowed 5. Cohabit (living together)	

103	If your answer/response for question number **102** is **married** what is your husband age?	Enter age in years _____	
104	Religion	1. Muslim 2. Orthodox 3. Protestant 4. Others (specify)_____	
105	Ethnicity	1.Oromo 2. Amhara 3. Tigre 4. Gurage 5. Others [specify]_____	
106	Educational status/Educational level of respondent	1, Primary Education (1-8) 2, Secondary education (9-12) 3, Diploma/level education 4, BSC/BA degree 5, Masters and above	
107	How many persons live in your house (family size)	Enter the number _____	
108	Number of family size that are dependent (which means age less than 15years and above 65years?	Enter the number _____	
109	Employment status	1. Full-time work 2. Not full-time work /per time	
110	Working hours per day	1. 8hr only 2. >8hr 3. <8hr	
111	Types of Employees /category	1. Managerial class 2. Professional/Technical class 3. Non Professional class 4. Other specify_____	
112	Monthly income (salary)	Enter the number in Birr _____	

113	Monthly total family (house hold) income in Birr?	Enter the number in Birr _____	
114	If you compare your monthly income with other employee where you put your economic status?	1. very poor 2. poor 3. medium 4. rich 5. very rich 6. I can't say 7. no response	
115	Housing Ownership?	1. Own home → **Q117** 2. rent 3. other (specify)_____	
116	If your response to question no. **115** "rent house'' How much you pay each month for **rent** or house Payment?	_____Birr	
117	Is the total family income sufficient to cover living expenses?	1. Yes 2. No	
118	Do you have work overload in your work place (Work stress)?	1. Yes 2. No	
PART II. PRACTICE OF MODERN CONTRACEPTIVE METHODS **Now I would like to talk about family planning**			
201	Have you ever used modern contraceptive in the past and also what was the method you used in the past? (circle the answer) **Multiple answer is possible**	1. Pill 2. IUD 3. Injectable 4. Condom 5. Norplant 6. Diaphragm 7. Spermicides 8. Tubal ligation 9. Vasectomy 10. **I never Used** → **Q203**	

202	How old were you when you first started to use contraception?	Enter age in years _____	
203	Which types of contraceptive methods are using currently to delay or avoid getting pregnant?	1. Pill 2. IUD 3. Injectable 4. Condom 5. Norplant 6. Diaphragm 7. Spermicides 8. Tubal ligation 9. Vasectomy 10. **I am not using currently** → **Q205**	
204	For how long have you been using (Current method) now without stopping?	Year _____or Month_____	
205	If you ever used contraceptive methods but not currently using and what is your main reason to stop using currently and also if you never used contraceptive in the past and also not using currently what is your main reason? circle the answer (**Please don't read out the list)**	1. Fear of side effects 2. Medical problem 3. Fear of infertility 4. Cultural taboo 5. Preferred method is not available 6. Desire to have more children 7. Spouse disapproved 8. Lack of knowledge 9. It is sinful 10. Don't have marital or sexual partner at present. 11. Long waiting time to get the method 12. Service place is far from my residence 13. widowed/ divorced / separated 14. Other (specify)_____	

PART - III Depression related questionnaire **Now I would like to talk about Depression related questionnaire**			
301	Frequency of cigarette smoking	1. 1-5 cigarettes per day 2. 6-20 cigarettes per day 3. >20 cigarettes per day **4. I am not smoking cigarettes** →	**Q303**
302	Duration of cigarette smoking?	1. ≥ 2 years 2. < 2 years	
303	Do you currently use smokeless tobacco? Product such as snuff, chewing tobacco, etc.?	1. Yes 2. No	
304	Frequency of chat chewing.	1. Every day 2. 2-3 days per week 3. Once a week 4. Occasionally **5. I am not chewing chat** →	**Q306**
305	Duration of chat use?	1. ≥ 2 years 2. < 2 years	
306	In the past one month, how frequently have you taken at least one alcoholic drink?	1. 5 or more days a week 2. 1-4 days a week 3. Less than three days this month 4. Less than every month 5. **I never drink**	
307	Have you the exposure of violence which has been done on your personality in the past (Like rape, abduction, sexual abuse etc.)?	1. yes 2. no	
308	Did you observe inferiority of females and superiority of men in your work place?	1. yes 2. no	
309	Is there good family relationship/agreement in your home?	1. yes 2. no	
310	Have you lost your family members or loved one by death within one year?	1. yes 2. no	
311	Are you on menstruation today (at the time of data collection)?	1. yes 2. no	

<table>
<tr><td>312</td><td>Have you been diagnosed any one of non-communicable diseases like diabetes, blood? pressure, Heart disease, HIV etc.</td><td colspan="3">1. yes
2. no</td><td></td></tr>
<tr><td>313</td><td>Social problems (Living alone, detached from children and relatives such as inability to visit friends and relatives, being worried about the children's future, feeling lonely, having no friends)</td><td colspan="3">1. yes
2. no</td><td></td></tr>
<tr><td rowspan="9">314</td><td rowspan="9">Have you Problems of everyday living like (Having less than 2 meals per day as a proxy indicator of problems of everyday living and only one set of clothes). If both are present, this was considered a living Problem such as food, clothing, housing, transportation, furniture, medical treatment costs, and children’s education).</td><td>Everyday living Problems</td><td>yes</td><td>no</td><td rowspan="9"></td></tr>
<tr><td>Food cost</td><td>1</td><td>2</td></tr>
<tr><td>Living house cost</td><td>1</td><td>2</td></tr>
<tr><td>Different house furniture cost</td><td>1</td><td>2</td></tr>
<tr><td>Transportations cost</td><td>1</td><td>2</td></tr>
<tr><td>Clothing cost</td><td>1</td><td>2</td></tr>
<tr><td>Medical treatment costs</td><td>1</td><td>2</td></tr>
<tr><td>Education cost</td><td>1</td><td>2</td></tr>
<tr><td>Recreation cost</td><td>1</td><td>2</td></tr>
<tr><td>315</td><td>Have you positive relationship with your co-workers?</td><td colspan="3">1. yes
2. no</td><td></td></tr>
<tr><td>316</td><td>Is there family conflict in your family?</td><td colspan="3">1. yes
2. no</td><td></td></tr>
</table>

Part VI: - Patient Health Questionnaire (PHQ-9)

Over the last 2 weeks, how often have you been bothered by any of the following problems? (Tick your answer from choose given to indicate your answer)

No	**Over the last 2 weeks**, how often have you been bothered by any of the following problems? (Tick your answer from choose given to indicate your answer)	**Response/Choose**			
		Not at all	**Several days**	**More than half the days**	**Nearly every day**
401	Little interest or pleasure in doing things	0	1	2	3
402	Feeling down, depressed, or hopeless	0	1	2	3
403	Trouble falling or staying asleep, or sleeping too much	0	1	2	3
404	Feeling tired or having little energy	0	1	2	3
405	Poor appetite or overeating	0	1	2	3
406	Feeling bad about yourself or that you are a failure or have let yourself or your family down	0	1	2	3
407	Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
408	Moving or speaking so slowly that other people could have noticed. Or the opposite being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
409	Thoughts that you would be better off dead or of hurting yourself	0	1	2	3
Add columns					
Total summation					

Thank you!!

Annex -2. The data collection instrument. Afan Oromo version.

Gaaffilee waa'ee walitti dhufeenya karoora maatii fi dipiiriishiin/dukaakki hojjetoota mootummaa dubartoota ta'an irratti adda baafachuudhaaf kan qophaa'ee.

Fedhii Gaaffilee Debisuu

Seensa

Anni kanan dhufe Universitii Finfinnee Koolleejjii Fayyaarraati maqaan koo **Gaaddisaa Leenjisaa** jedhama. Universitii Finifinne irraa digirii 2^{ffaa} Eegumsa Fayyaa uummataa irratti barachaa kanaan jiruu yoo ta'u, barumsa kanaaf kan oolu qorannaa waa'ee walitti dhufeenya karoora maatii fi dipiiriishiin/dukaakkii irratti hojechaan jira. Kanaafuu firiin qorannoo kanaa Uummata naannoo kanaatiif akkasumas uummata iddoo gara biraa jiraataniif qusaannaa maatii illaalchisee sagantaa sirrii saganteefachuuf warra Eeggumsa Fayyaa irraatti hojjetan ni gargaara. Kanaafuu akka gaaffii fi deebii kana irratti hirmaattaniif fedhii keessan isin gaafachaa yoo feetan gaafichaa hin deebisu jechuu ni dandeesu, Garuu deebii hundaa yoo deebiftan isiin galateefadha. Gaaffii kana irratti maqaan, bakki keessan hin barreeffamu akkasumas icitii keessan eegamaadha. Nama biraattis darbee hin kenamu kanaafuu akka gaaffiileewwan kan naaf deebistaniif kabajaan isin gaafadha deebiin keessan bu'a guddaa qaba.

Gaaffii fi deebii kana irratti hirmachuuf fedhii kessanii?

1. Eeyyee
2. Lakki

Kuta –I Dhimma Haawaasummaa fi Galii

lak	Gaafii	Deebii	Darbi
101	Umuriin keessan meeqaa ? waggaadhaan guutaa	_____	
102	Sadarkaa gaa'ilaa keessan maala fakkaataa?	1. kan hin heerumne 2. kan herumtee 3. kan hiikte 4. kan jalaa du'e 5. kan waliin jiraatu otto wal hin fudhiin	
103	Deebii gaaffii keessan lakkoofsa "**102"** kan heerumte (deebii **2'ffaa**) yoo ta'e umuriin abbaa warra keessan meeqa waggaadhaan guutaa?	_____	

104	Amantaa	1. Muslima 2. Ortoodoksii 3. Pirootestaantii 4. Kan biro ibsaa_____	
105	Saba	1. Oromoo 2. Amaaraa 3. Tigiree 4. Guraage 5. Kan biro ibsaa_____	
106	Sadarkaa barumsaa	1. Sadarkaa 1ffaa (kutaa1-8) 2. Sadarkaa 2ffaa (kutaa 9-12) 3. Diploma ykn barumsa levelii 4. Digiriii 5. Digirii 2ffaa fi isa oli	
107	Nama meeqatu mana keessan keessa jiraata lakkoofsan guutaa (Baayina maatii)	_____	
108	Baayina Maatii keessan keessa kan of hin dandeenye meeqa lakkoofsan guutaa jechuun umirii wagga 15 gadii fi 65 oli?	_____	
109	Haala hojii keessan ilaalchisee	1. Guyyaa guutuu 2. Guyyaa guutuu kan hin taane	
110	Guyyaatti sa'aatii meeqa hojetuu?	1. Sa'aatii 8 qofa 2. Sa'aatii 8 oli 3. Sa'aatii 8 gadi	
111	Gosa hojii keessan kan ammaa hojjeechaa jirtan maalii ?	1. Hooggansa 2. Ogummaan 3. Ogummaan ala 4. Kan biro ibsaa_____	
112	Miindan ji'aan argachaa jirtan meeqa qarshiidhaan guutaa?	_____birr	
113	Waliigala galiin mana keessan ykn maatii keessan ji'aan meeqaa qarshiidhaan guutaa ?	_____birr	

114	Yeroo galii ji'aa keessan kan hojetaa biraa waliin ilaaltan kan keessan sadarkaa akkamii irra jiraa?	1. Baay'ee hiyyeessa 2. Hiyyeessa 3. Giddu galeessa 4. Sorreessa 5. Baay'ee sorreessa 6. Akkas jechuun natti ulfaata 7. Deebii hin qabu	
115	Qabiyyee manaa (Housing Owner ship)	1. Kan dhuunfa/ofii → **GG117 darbaa** 2. Kiraa 3. Kan birra ibsaa_____	
116	Deebiin keessan lakkoofsa ''**115''** irratti 2'ffaa (**kiraa**) yoo ta'e mana kiraadhaaf ji'aatti meeqa kanfaltuu birriidhaan guutaa?	_____birr	
117	Galiin maatii keessanii gahaadha wantoota jireenyaaf isin barbaachisu guutachuudhaaf ?	1. Eeyye 2. lakki	
118	Bakka hojii keessanitti hojiin baay'ee isinitti baay'ataa?	1. Eeyye 2. lakki	
Kutaa –II Gaaffilee waa'ee karoora maatii waliin wal-qabatee jiru			
201	Karoora maatii keessaa isa kam fudhatanii beektu yeroo darbee keessati deebii keessan lakkoofsa irratti itti maraa. "**Deebii baay'ee kenuun ni danda'ama kan fudhatni beektan hunda**"	1. Qoricha liqimsamu (pills) 2. Tubii karaa qaama hormaata dubartii galu (IUCD) 3. Liilmoon kan dubartiif kennamu (depoprovera) 4. Kondoomii 5. Kan gogaa dubartiif jala owwalamu (norplant) 6. Daafiraamii 7. Kan sanyii dhiira ajjeesu (spermicidal) 8. Dubartii maseena gochuu (tubal ligation) 9. Dhiira maseena gochuu (vasectomy) → **GG203 darbaa** **10. Fudhaadhee hin beeku**	
202	Umuriin keessan waggaa meeqaa yeroo jalqabaaf	_____	

	karoora maatii fudhachuu eegaltani waggaadhaan guutaa?		
203	Gosa karoora maatii keessa isa kamii fudhachaa jirtuu yeroo ammaa kanatti dahumsa tursiisuudhaaf ?	1. Qoricha liqimsamu (pills) 2. Tubii karaa qaama hormaata dubartii galu (IUCD) 3. Liilmoon kan dubartiif kennamu (depoprovera) 4. Kondoomii 5. Kan gogaa dubartiif jala owwalamu (norplant) 6. Daafiraamii 7. Kan sanyii dhiira ajjeesu (spermicidal) 8. Dubartii maseena gochuu (tubal ligation) 9. Dhiira maseena gochuu (vasectomy) **10. Fudhachaa hin jiru** → **GG205 darbaa**	
204	Kan amma fudhachaa jirtan kan hagamiif fudhachaa jirtuu osoo addaan hin kutiin	Waggaa_____ ykn Ji'a_____	
205	Karoora maatii yeroo ammaa kana fudhachaa hin jirtan yoo ta'ee sababiin isaa maalii, gonkuma fudhataan hin beektan yoo ta'e akkasumas duraan fudhatanii amma addaan kan kutan yoo ta'e sababiin isaa maalii. (**Sababa isaa filannoon dhiyaatan kan irratti maraa**)	1. Miidha sababa qoricha fudhachuun dhufu sodachuu (Side effect) 2. Rakkina fayyaatiin 3. Na maseensa jedheen waanan sodadheef 4. Aadaan keenya hin heeyamu 5. Gosa anni filadhu waan hin jireefi 6. Ijoollee baay'ee godhachuuf 7. Abbaa warra koo naaf hin eeyyamu 8. Beekumsa hin qabu 9. Waan badaa waan ta'eef 10. Hiriyyaa waan hin qabneef 11. Tajaajila kenamuu argachuuf yeroo dheeraa waan natti fudhatuuf 12. Bakka isaa narraa fagoo waan ta'eefi 13. Abbaa warra koo waan na jalaa du'eef ykn wal hiikineef 14. kan biro ibsaa yoo jiraate_____	

Kutaa –III Gaaffiilee waa'ee dipiirishiin/dukaakki waliin wal-qabatee			
301	Haala akkamiin tanboo/cigaaraa xuuxa jirtu yeroo amma kana?	1. Guyyaatti sigaaraa 1-5 ta'e 2. Guyyaatti sigaaraa 6-20 ta'e 3. Guyyaatti cigaaraa 20 oli kan ta'e 4.**Gonkuma tanboo hin xuuxu**	**GG303 darbaa**
302	Waggaa hangamiif tanboo /cigaaraa xuuxaa jirtuu otto addaan hin kutiin?	1. Waggaa lamaa oliif (≥2) 2. Waggaa lamaa gadiif (<2)	
303	Yeroo amma kan gosa tanboo ta'e adda addaa fudhachaa jirtuu fkn snuff, chewing (alafachuu)	1. Eeyye 2. Lakki	
304	Caatii haala akkamiin qaama'a jirtuu yeroo amma kana?	1. Guyyaa hunda 2. Torbeetti guyyaa 2-3 3. Torbeetti guyyaa tokko 4. Darbee darbee **5. Gonkuma caatii hin qaama'u**	**GG306darbaa**
305	Waggaa hangamiif Caatii qaama'a jirtuu otto addaan hin kutiin?	1. Waggaa lamaa oliif (≥2) 2. Waggaa lamaa gadiif (<2)	
306	Ji'a darbee kana keessatti dhugaatii alkooli qabu yoo xiqqaatte haala akkamiin dhugaa jirtuu ?	1. Torbeetti guyyaa shaniifi isa oli 2. Torbeetti Guyyaa tokko hanga Afuri 3. Guyyaa sadii gadi ji'a kana keessatti 4. Ji'a tokko gadi **5. Gonkuma hin dhugu**	
307	Wantootni Barmaatilee boodatti hafoo ta'an kan akka butii, dirqisiissani gudeeddu, wal qunamitii saala fedhii alaa isin irratti raawwatee beekaa?	1. Eeyye 2. Lakki	
308	Mana hojii keessan keessatti gadi aantummaan dubartoota fi ol-antummaan dhiira ni mul'ataa?	1. Eeyye 2. Lakki	
309	Walitti dhufeenya gaariin jiraa maatii keessan keessatti akkasumaas walitti dhufeenya gaarii qabduu maatii keessan waliin yeroo ammaa kan?	1. Eeyye 2. lakki	

310	Nama jaalattu ykn fira kee keessa kan isin jalaa du'e jiraa yeroo dhiyootti ykn waggaa tokkootii asitti.	1. Eeyye 2. Lakki			
311	Yeroo ammaa kana ykn torbee kana keessatti laguun keessan isin dhufeeraa?	1. Eeyye 2. Lakki			
312	Dhibbeewwan daddarboo hin ta'aaneen yaalamtanii beektuu ykn qabduu fkn dhiibee sukkaara , dhiibbaa dhiigaa, dhiibee onnee, akkasumaas HIV/AIDS etc)	1. Eeyye 2. lakki			
313	Rakkina haawasummaa qabduu fkn qophaa jiraachuu, warra , ijoollee fi fira irra adda bahuu akkasumaas yeroo barbaadameetti daawwachuu dhabuu,waa'ee ijoollee keessani gara fuuldura yaaduu, qophummaan namatti dhagahamuu, hiriyyaa dhabuu fi .k.k f)	1. Eeyye 2. Lakki			
314	Rakkina jireenya guyya guyyaa (nyaata guyyatti yeroo lama gadi nyaachuu, aakasumaas uffata jijjiiratan dhabbuu jechuun uffata tokko qofa qabaachu. Wantootni armaan olitti eeramni lamaan yoo jiraatni rakkoo jireenya guyya guyyaa jedhamu danda'a fkn nyaata, uffata, mana jireenya, geejjiba, meeshalee, yaaliidhaf qarshii dhabbuu, barumsa ijoolee qarshii dhabbuu akkumawaligalatti wantoota kan guutachuuf qarshii dhabbuu isin qunamee beekaa?) "**Deebii keessan lakkoofsa irratti maraa**"	**Rakkinoota guyyaa guyyaa**	**Eeyye**	**lakki**	
		Nyaataaf	1	2	
		Mana jireenyaaf	1	2	
		Meeshalee mana keessa adda addaaf	1	2	
		Geejjibaaf	1	2	
		Uffataaf	1	2	
		Baasii mana yaalaaf	1	2	
		Barumsaaf	1	2	
		Bashaanaanaaf	1	2	
315	Walitti dhufeenya gaarii qabduu kan waliin hojjetan wajjin.	1. Eeyye 2. lakki			
316	Maatii keessan keessa yeroo hundaa lolli ykn jeequmsi ni jiraa?	1. Eeyye 2. lakki			

VI. Gaaffiilee Waa'ee PHQ-9 (Patient Health Questionnaire-9)

lakk	Torbee lamaan kan keessatti yeroo ammamiif rakkinoota armaan gaditti eeraman kun hammam isin mudaatee beeka.	Deebii			
		Homtuu hinjiru	**Guyyaa xiqqoo**	**Guyyaa baay'ee**	**Guyyaa hunda**
401	Hojii yeroo hojjetan fedha dhabdan ykn fedhiin hojiidhaaf qabdan hir'atee beekaa?	0	1	2	3
402	Fedhii dhabuu, abdii kutachuu akkasumaas nama jibbisiisu/dukaakkiin isin qunamee turee?	0	1	2	3
403	Hiriba dhabuun jeeqamuu akkasumaas yeroo baay'ee rafuu isin qunamee beekaa?	0	1	2	3
404	Dadhabin namatti dhagahamuu akkasumaas humna dhabbuu isin qunamee beekaa?	0	1	2	3
405	Fedhii nyaata dhabuu akkasumaas humna oli nyaachuu isin qunamee beekaa?	0	1	2	3
406	Waa'ee ofitti gadduu akkasumaas maaltu na dhiibdee namatti dhagahamuu , of gatuu, kufatiin ofii namatti dhagahamuu akkasumaas kufatiin maatii namatti dhagahamuu isin qunamee beekaa?	0	1	2	3
407	Yeroo ofii wanta tokko irratti xiyyeeffachuu dhabuu akkasumas waa'ee ofii fi maatii maal ta'u jedhani xiyyeeffachuu dhabuu fkn bareeffama adda addaa dubbisuu , teelevishiin ilaaluun yeroo ofii dabarsuu isin qunamee beekaa?	0	1	2	3
408	Suuta jedhanii deemu fi dubbachuu faallaa kana immmoo asii fi achii deemu hanga namni biraa nama irratti baruutti kan dura waliin wal bira qabamee yeroo ilaalmu isin qunamee beekaa?	0	1	2	3
409	Jiraachuu irra du'a filaachuu fi karaa ta'een offi balleessuuf yaaduun isin qunamee beekaa ?	0	1	2	3
Ida'ama					
Ida'ama waligalaa					

Galatooma!!

Annex-3. The data collection instrument. Amharic version

በሰበታከተማሴትየመንግስትሰራተኞችላይየቤተሰብምጣኔአገልግሎትንናየመጫጫን /ድኘሬሽን/ ግንኙነታቸውንለመለየትየተዘጋጀመጠየቂያ

ጥቃቄየመመለስፍላጐት

መግቢያ

በአዲስአበባዩኒቨርሲቲጤናሳይንስኮሌጅየሁለተኛዲግሪዬንበመማርላይየምገኝተማሪጋዲሳሌኒጂሳለዚ ህየህብረተሰብጤናሳይንስመመረቂያየሚሆንጥናትበማካሄድላይእገኛለሁ፡፡ይህጥናትለአካባቢውማህ በረሰብየጎላጠቀሜታየሚሰጥየመመረቂያጥናትነው፡፡ስለሆነምጥናቱንለማዘጋጀትከዚህበታችየተዘረዘ ሩትንጥያቄዎችመልስበመስጠትእንድትተባበሩኝእየጠየቅሁ!

ጥያቄውንለመመለስምሆነላለመመለስሙሉመብትያለዎትመሆኑንእገልፃለሁ፡፡በመጠይቁላይስምዎ ትምሆነአድራሻዎትአይፃፍም፡፡የግልሚስጥርዎምየተጠበቀመሆኑንእናእርስዎየሰጡትንመልስለሌላ አካልአሳልፌየማልሰጥመሆኑንእየገለፅኩለዚህመጠይቅለሚሰጡኝመልስናቀናትብብርበቅድሚያአመ ሰግናለሁ፡፡

ጥያቄውንለመመለስፍላጐትአለዎት?

1. አዎ
2. አይ

ክፍልአንድ: - የማህበራዊናየገቢመጠየቂያ

ተ.ቁ	ጥያቄ	መልስ	ወደቀጣይእለፍ
101	እድሜዎስንትነው ?	___________	
102	የጋብቻሁኔታምንይመስላል ?	1. ያላገባች 2. ያገባች 3. የፈታች 4. በሞትየተለያት 5. ሽዴጋቯ ኦቮሮዊ የሧኟፎ	
103	መለሰዎ102ላይ “ያገባች” ከሆነየባለቤትዎዕድሜስንትነው?	___________	

104	እምነት	1. ሙስሊም 2. ኦርቶዶክስ 3. ፕሮቴስታንት 4. ሌላካለይግለጹ_____	
105	ብሔረሰብ	1. ኦሮሞ 2. አማራ 3. ትግሬ 4. ጉራጌ 5. ሌላካለይግለጹ_____	
106	የትምህርትደረጃ	1. አንዳኛደረጃ /1-8/ 2. ሁለተኛደረጃ /9-12/ 3. ዲፕሎማ /ሌቭል/ 4. ዲግሪ 5. ሁለተኛዲግሪናከዛበላይ	
107	የቤተሰብብዛትበቁጥር	_____	
108	ራሳቸውንያልቻሉየቤተሰብብዛትስንትነው (ከ65 ዓመትበላይእና 15 ዓመትበታች)? በቁጥር ይጻፉ	_____	
109	የስራሁኔታ ?	1. ሙሉሰዓት 2. ሙሉሰዓትያልሆነ	
110	በቀንስንትሰዓት ይሸጣሉ ?	1. 8 ሰዓትብቻ 2. ከ8 ሰዓትበላይ 3. ከ8 ሰዓትበታች	
111	የሸጣበ አይነትምንድነው ?	1. በጎላፊነት 2. በሙያ 3. በሙያያልሆነ 4. ሌላካለይግለጹ_____	
112	የሞስ ደመወዝበ ሸ»ቸኛዊ? በብርይጻፉ	_____ ብር	

113	ጠቅላላየቤተሰቦቧ ገቢ ቫዋስ በብርስንትነው ?	_____ ብር	
114	የካስሾዉየወርገቢከሌላውሰራተኛጋርሲነጻጸርበም ንደረጃይቀመጣል?	1. በጣምደኃ 2. ደኃ 3. መካከለኛ 4. ሐብታም 5. በጣምሐብታም 6. ይህንማለትይከብደኛል 7. መልስየለኝም	
115	የመኖሪያቤትሁኔታ ?	1. የግል 2. ኪራይ 3. ሌላካለይግለጹ_____	ወደጥ/ቁ117
116	በ115ተ.ቁላይመልስዎ “ኪራይ”ቤትከሆነበወርስንትይከፍላሉበብር ?	_____ብር	
117	ገቢዎየቤተሰብንፍላጐትለማሟላትበቂነውወይ ?	1. አዎ 2. አይደለም	
118	በስፌቦታስፌደበዛብዎታል	1. አዎ 2. አይደለም	
ክፍልሁለት:- በኬተሰብምጣኔሳደየተመሰረተመጠይቅ			
201	ከዚህበፊትየትኛውንዓይነትየቤተሰብምጣኔስገልግሎት ተጠቀሙ?ቁጥሩሳይያክቡትንዲዙምብዙመስለሳይጣክ በብይቻላል	1. የሚዋጥኪኒን /ኒልስ/ 2. በሴቶችማህፀንሙስጥየሚቀመጥ /አዩሲዲ/ሉፕ 3. በመርፌየሚሰጥ /ዲፖ/ 4. ኮንዶም 5. በክንድየሚቀበር /ኖርፕላንት/ 6. ዲያፍራም 7. የወንድንዘርየሚገድል/ስፐርሚሳይል/ 8. ሴቶችንመታንጣያድረግ /ቱባልጌሽን/ 9. ወንድመታንጣያድረግ /ቫዘክቶሚ/ 10. ምንም ተጠቅሜ አላውቅም::	ወደጥ/ቁ203 ይለፀ

202	ለመጀመሪያ ጊዜ የቤተሰብምጣኔአገልግሎት ሲወስዱ እድሜዎ ስንት·ነበር	_____	
203	በአሁጊዜየትኛውንየቤተሰብምጣኔአየተጠቀሙነዎት ›	1. የሚጥጥኪኒን /ኒልስ/ 2. በሴቶችማህፀንውስጥየሚቀመጥ /አዩሲዲ/ሉፕ 3. በመርፌየሚሰጥ /ዲፖ/ 4. ኮንዶም 5. በክንድየሚቀበር /ሞርኘላንት/ 6. ዲያፍራም 7. የወንድነዘርየሚገድል/ስፐርሚሳይድ/ 8. ሴቶችንመታገማያደረግ /ቱባልጌሽን/ 9. ወንድመታገማያደረግ /ቫዞክቶሚ/ 10. ምንምአየተጠቀሙአይደለም	ወደጥ/ቁ205 ይለፀ
204	አሁንአየወሰዱያሉውንያስማቂረጥከመችጀምርበመሙ ሰድሳይደገኛሉ	በዓመት _____/በወር _____	
205	የቤተሰብምጣኔ አገልግሎትአሁንምሆነበፊትየማይጠቀሙበት! ያቂረሙ ወይም ጭራሽ ተጠቅመው የማያውቁ ከሆነምክንያትዎምንድነዉ, ምክንያትዎንያክቡበት	1. መድኃኒቱየሚያስከትለውንህመምበመፍራት 2. የጤናችግር 3. መካንነትንያመጣለበማለትመፍራት 4. በባህላችንክልክልነው 5. እኔየምፈልገውአይነትበአከባቢዬባለመኖሩ 6. ብዙልጆችመውለድስለምፈልግ 7. ባለቤቴአይፈቅድልኝም 8. በቂልውቀትስላሌኝ 9. መጥፎነገርስለሆነ 10. ጓደኛ /ባል/ ስለሌለኝ 11. አገልግሎትስማግኘትስጓትስለሚፈጀብኝ 12. አገልግሎተመስጫውስረቅስለሆነብኝ 13. ባለቤቴስምተብኝ/ባልስለፈተሁ/ 14. ሌላካለይግለጹ_____	

ክፍልሶስት:- ከመጫጫን /ከዲኜፈሽን/ ጋርየተያያዘመጠይቅ			
301	ሲጀራ በምን አይነት ሁኔታ ያጨሳሉ ?	1. በቀን ከ1-5 ሲጀራ 2. በቀን ከ6-20 ሲጀራ 3. በቀን ከ20 በላይ ሲጀራ 4. ምንም አላጨስም →	ወደተ/ቁ 303 ይለፀ
302	ሳያቋርጡ ለምን ያህል አመት አጨሱ ?	1. ከ2 ዓመት በላይ 2. ከ2 ዓመት በታች	
303	የተለያየየትንባሆአይነት ይወስዳሉ፡ ለምሳሌ ትምባሆ ማኘክ !ጋያ ማጨስ ወዘተ .	1 አዎ 2 አይደለም	
304	ጫት በምን አይነት ሁኔታ ይቅማሉ ?	1 በየቀኑ 2 በሳምንት ከ2-3ቀን 3 በሳምንት አንድ ቀን 4 አልፎ አልፎ 5 በፍጹም አልቅምም →	ወደተ/ቁ 306 ይለፀ
305	ሳያቋርጡ ለምን ያህል አመት ጫት ቃሙ ?	1. ከ2 ዓመት በላይ 2. ከ2 ዓመት በታች	
306	ባለፉትወራቶችቢያንስአንድየአልኮልበምንአይነትጊዜትወስጂነበ ቤ	1 በሳምንትአምስትናከዚያበላይ 2 በሳምንትከአንድእስከአራትቀን 3 በወርከሶስትቀንበታች 4 ከአንድወርበታች 5 ምንምአልጠጣም	
307	ጉጂባህልከሚባሉትለምሳሌአስገድዶመድፈር፣ጠለፋ፣ያለፍላጉ ትግብረስጋግንኙነትማድረግበአንቺላይተከስቶያውቃል	1. አዎ 2. አይደለም	
308	በምትሰሩበትመስሪያቤትየወንዶችየበላይነትናየሴቶችየበታችነት ምልክትተመለከቻለሽወይ	1. አዎ 2. አይደለም	
309	ከቤተሰብ ጋርመልካምግንኙነትአንዲኖም በቤተሰብ መከከል መልከም ግንኙነት አለ	1. አዎ 2. አይደለም	
310	በዚህዓመት የሚወዱት አንዲኖምየቅርብዘመድ ሞተብዎታል ?	1 አዎ 2 አይደለም	
311	በዚህሳምንትወይምበዛፈውቀንየወርአበባሽመጥቷል	1 አዎ 2 አይደለም	

<table>
<tr><td>312</td><td>ተሳሳፈያልሆኑበሽታዎችለምሳሌደምብዛት! ስኳርበሽታ! የልብበሽታ! እንዲሁምኤች.አይ.ቪ/ኤድስ/ታክመሽታውቂያለሽ</td><td>1 አዎ
2 አይደለም</td><td></td></tr>
<tr><td>313</td><td>የማህበራዊችግርአለብሽወይ
ለምሳሌለብቻመኖርከሌተሰብከልጆችከዘመድመለየት፣እንዲሁ ምከሳይየተጠቀሱትንበምትፈልጊውሰዓትያለማግኘት፣ለለልጆች ሽማለብብቸኝነትመሰማትእናንደኛማጣትእናየመሳሰሉት</td><td>1. አዎ
2. አይደለም</td><td></td></tr>
<tr><td>314</td><td>የእለተተለትችግርአለብሽወይ, ወይምበቀንከሦስት ጊዜ በታችምግብ መመገብእንዲሁምአንድ ልብስ ወይም ቅያሬ ልብስ ማጣት:: ለምሳሌለምግብ! ለመጠለያ! ለቤትቁሳቁስ! ለትራንስፖርት! ለልብስለህክምናወጪ! ለትምህርትእናለመዝናኛብርማጣትእናየመሳሰሉት:: መልስዎን በቁጥሩ ላይ ያክቡ</td><td>
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<tr><td>መጠለያ</td><td>1</td><td>2</td></tr>
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<tr><td>ትራንስፖርት</td><td>1</td><td>2</td></tr>
<tr><td>ልብስ</td><td>1</td><td>2</td></tr>
<tr><td>የህክምናወጪ</td><td>1</td><td>2</td></tr>
<tr><td>ትምህርት</td><td>1</td><td>2</td></tr>
<tr><td>መዝናኛ</td><td>1</td><td>2</td></tr>
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<tr><td>315</td><td>አብረሽከምትሰፈያቸውሰዎችጋርመልካምግንኙነትአለሽ</td><td>1. አዎ
2. አይደለም</td><td></td></tr>
<tr><td>316</td><td>ከሌተሰብዎ ጋርእንዲሁምበሌተሰብመከከልዉብአለ</td><td>1. አዎ
2. አይደለም</td><td></td></tr>
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ክፍል 4፡ - ከመጫጫን /ከዲንፈሸን/ ጋርየተያያዘመጠይቅ /ሓሃሕ-9

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401	ከሚሰሩትሥራየሚያገኙትደስታአንሶመጸምቀንሶነበር?	0	1	2	3
402	ስሜትየማጣት፤መደበርመጸንምተስፋየመቁረጥስሜትነበር?	0	1	2	3
403	እንቅልፍስመተኛትችገር፤ተኝቶየመቆየትመጸንምብዙየመተኛትችገርነበረብዎ?	0	1	2	3
404	የድካምመሰማትመጸንምየስቅምማነስችገርነበር?	0	1	2	3
405	የምግብፍላጐትስመጥርመጸንምብዙየመመገብችገርነበር	0	1	2	3
406	ሰለራስዎመጥፎስሜትመሰማት፤የግድየለሽነትስሜት፤ራስዎንመጣልመጸንምቤተሰብዎንየመተውሁኔታነበር	0	1	2	3
407	ለነገርችየማተኮርችግር፡ (ለምሳሌሰለራስዎ፤ቤተሰብዎ) ምንደሆናሉብሎያስማሰብ፤ቱክረትያስመስጠትስሜትነበረብዎ	0	1	2	3
408	በሚንቀሳቀሱበትመጸምበሚያወረበትጊዜበጣምቀስማስት፤ (ማለትምሌሎችሰዎችስለኢያውቁድረስ) መጸምበተቃራኒጢስረፍትማጣት፤ከሌሳውጊዜበበለጠመጸዛመጸዚህማለትነበር	0	1	2	3
409	ብሞትይሻሳልመጸንምስራሌንበሆነመንገድብጐዳይሻሳልብለውያሳሰብዎትጊዜነበር	0	1	2	3

እናመሰግናለን!!

Assurance of principal Inestigator

The undersigned agrees to accept responsibility for the scientific ethical and technical conduct of the research project and for provision of required progress reports as per term and conditios of the Research Publications office in effect at the time of Grant is forwarded as the result of this application.

Name o f the student: **- Gadisa Lenjisa (BSc)**

Date _____ Signature _____

Approval of the primary Advisor

Name of the the Advisor: - **Negussie Deyessa (MD, MPH, PhD)**

Date _____ Signature _____