College of Health sciences

School of graduate studies

Department of Anatomy

Prevalence and associated factors of utero-vaginal prolapse at governmental hospitals in Addis Ababa, Ethiopia.

A Thesis submitted to the Department of Anatomy, School of Medicine, College of Health Science, Addis Ababa University in partial fulfillment of the requirement for Master of Science (MSc) degree in Human Anatomy

By; Zelalem Mekuria

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Addis Ababa, Ethiopia

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Prevalence and associated factors of utero-vaginal prolapse at governmental hospitals in Addis Ababa, Ethiopia.

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November, 2019

Addis Ababa, Ethiopia

Declaration

I Zelalem Mekuria /GSR 4295/10 do hereby declare that this Thesis is my original work and that it has not been submitted partially or in full by any other person for an award of master's degree in any other university institution.

Name of investigator: Zelalem mekuria; signature _____ Date; 11/11/2019

This thesis has been submitted for examination with my approval advisors

Principal advisor: Dr. Girma Seyoum; signature _____ Date; 11/11/2019

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The undersigned certify that they have read and here by recommend to Addis Ababa university College of health sciences, School of Medicine and Department of Anatomy to accept the thesis submitted by Zelalem mekuria and entitled as "prevalence and associated factors of utero-vaginal prolapse at governmental hospitals in Addis Ababa, Ethiopia." In partial fulfilment of the requirement for the award of a Master's Degree in Medical Anatomy.

Examiner: **Dr. Eskinder Kebede**; signature _____ Date; 11/11/2019

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Lists of Abbreviations and Acronyms

AAU	Addis Ababa university
CI	Confidence interval
CHS	College of health sciences
EC	Ethiopian calendar
GC	Gregorian calendar
GYN	Gynecology
OR	Odds Ratio
P	Parity
POP	pelvic organ prolapses
SNNP	Southern Nation Nationalities and people
S-POPQS	Simplified pelvic organ prolapse quantification staging system
UVP	uterovaginal prolapse
WHO	World health organization

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Abstract

Background; Uterovaginal prolapse (UVP) is a major women's health concern throughout the world. Globally, 2-20% of all women are affected by uterovaginal prolapse (2). The mean prevalence of pelvic organ prolapse in developing countries is 19.7% (7). the prevalence of utero vaginal prolapse in Ethiopia is 18.55% among all gynecological operations (8). Older age, being menopause, higher parity, vaginal delivery, and prolonged labor are major risk factors for the development of uterovaginal prolapse (1).

Objective of the study; To assess the prevalence and associated factors of utero vaginal prolapse at governmental hospitals in Addis Ababa, Ethiopia.

Methodology; institution based cross-sectional study was employed retrospectively in Addis Ababa city governmental hospitals by reviewing the medical chart of women admitted in gynecology ward for two years, from March 2017 to February 2019 G.C. All women whose medical information was entered into the registry book of gynecology ward of the study hospitals during the study period were included under the study whereas Women with incomplete records and women whose medical charts are lost from the MRN archive of the hospitals were excluded from the study. A randomly selected medical records of 400 women admitted in gynecology wards were included in the study. The data were entered to EpiData 4.4 and analyzed using SPSS version 24 statistical package. Bivariate and multivariate logistic regression were carried out.

Result; The prevalence of utero-vaginal prolapse is 12.8 % per total number of patients who admitted at gynecology ward of Addis Ababa city governmental hospitals. The leading determinants of utero-vaginal prolapse were menopause (OR = 2.611 (at 95 % CI: 1.531, 3.838), age > 40 years (OR = 2.143 (at 95 % CI:1.496, 6.602), parity of >4 (OR = 4.201 (at 95 % CI 1.652, 10.685), age at first delivery <20 years old (OR = 7.988(2.682,23.792) and home delivery (OR = 1.380 (at 95 % CI:1.212, 2.572).

Conclusion; the prevalence of uterovaginal prolapse in this study was high compared to reported literatures. The high prevalence of UVP indicates the suffering of many women with the problem. The leading determinants of UVP were menopause, having >4 deliveries, age >40 years, age at first delivery <20 years old and home delivery.

Key Words; utero-vaginal prolapse, risk factors, Ethiopia

Chapter 1. Introduction

1.1. Background

Utero-vaginal prolapse (uvp) is the herniation of the uterus and vaginal segments, such as the anterior wall, the posterior wall or the apex of the vagina into or beyond the vagina (1). It is due to defects in the support structures of the uterus and vagina namely the uterosacral ligaments, the cardinal ligaments complex and connective tissue of the urogenital membrane (2).

According to Baden–Walker half way system, there are four stages of utero vaginal prolapse: stage 0 – no prolapse, stage 1–halfway to hymen, stage 2 – to hymen, stage 3 – halfway past hymen, stage 4 –maximum descent (3).

The reported prevalence of uterovaginal prolapse is different in different countries. The exact prevalence of uterovaginal prolapse is difficult to be determined because many women are asymptomatic, and many women feel shy or do not reveal the presence of uterovaginal prolapse due to the social reason (4).

Globally, 2-20% of all women are affected by uterovaginal prolapse. The incidence of utero vaginal prolapse is 17% in Australia, 8.5% in France and 27% in Turkey (2).

In the United States of America, the prevalence of uterine prolapse is 14.2% among women in the Women's Health Initiative Hormone Replacement Therapy Clinical Trial (5). In the United Kingdom, the disorder accounts for 20% of women waiting for major gynecological surgery (6). In a population-based survey, the prevalence of uterovaginal prolapse has been reported to be 10% in Indian Women (4).

The mean prevalence of pelvic organ prolapses among low-income and lower-middle-income countries were found to be 19.7% (7). In Ethiopia, the prevalence of UVP is 18.55% of all major gynecological operations (8).

The etiology of uterovaginal prolapse is multifactorial. A weakening of the pelvic support structures may be as a result of either congenital or acquired causes. Older age, Family history, menopause, higher parity, vaginal delivery, and prolonged labor are major risk factors for the

development of uterovaginal prolapse (1). The collagen content of connective tissue supporting pelvic organs decreases in women after menopause. Changes in collagen or estrogen and progesterone receptor density affect the strength of pelvic organ support. A weakness of uterosacral ligament, which is composed of connective tissue, smooth muscle, and blood vessels, may result in uterovaginal prolapse. Postmenopausal state due to hypoestrogenemia and genital atrophy play the most important role in the pathogenesis of uterovaginal prolapse (9).

Prolonged labor at home before going to a health facility or conduct of labor by unskilled attendants are risks for uterine prolapse. Resultant weakness in pelvic floor muscles occurs during the menopause and atrophy of pelvic tissues due to hypoestrogenic state causes significant damage to the pelvic support system resulting in uterovaginal prolapse (10). UVP present with symptoms like; vaginal hernias or protrusion of mass through vagina, urinary symptoms, vaginal discharge, vaginal itching, ulceration, and impaired sexual function (4).

Generally, women in Ethiopia have many responsibilities such as reproduction and child-rearing, household maintenance and earning. Under traditional gender divisions of labor, women tend to concentrate more on their reproductive roles and household responsibilities. As a role of reproduction, they are expected to give childbirth and rear the children (8).

Due to prevailing cultures and social norms of the society, many women with UVP are afraid of social stigma and discrimination. So, their problems remain hidden which leads them into complications. The study was conducted to review the prevalence and possible risk factors of uterovaginal prolapse in Addis Ababa city governmental hospitals, Ethiopia.

1.2. Statement of the problem

Uterovaginal prolapse (UVP) is a major women's health concern throughout the world. Globally, 2-20% of all women are affected by utero vaginal prolapse (2). It is estimated that the prevalence of any degree of uterine prolapse is 5% in women aged 20-59yrs (11).

In developing countries, the mean prevalence of pelvic organ prolapse was 19.7% (range 3.4–56.4%). In low-income and lower-middle-income countries, the extent and consequences of the burden of disease due to pelvic floor dysfunction are even more poorly understood (7).

Existing knowledge on the prevalence, risk factors, and consequences of living with prolapse in low-income settings is scanty. The fertility rate is higher, and the access to obstetric care is far more restricted than in more affluent settings have implications for the risk of pelvic floor disorders (12). Uterovaginal prolapse greatly affects women's quality of life and result in physical, social, psychological, sexual and economic problems (13).

Women with UVP are not volunteer to disclose their problem due to fear of social stigma or discrimination and, they are not comfortable to have sexual intercourse, as a result, many women got divorced due to this problem. Women with UVP especially in rural areas are facing many difficulties to do daily activities like; childcare, cooking, the fetching of water and collecting of firewood (14).

Uterovaginal prolapse is a source of severe morbidity and psychological upheaval to the patient, who is often socially withdrawn and stigmatized. Uterovaginal prolapse negatively affects socioeconomic and reproductive activity of affected women; it is therefore of interest to study the prevalence and factors associated with the condition.

1.3. Significance of the study

Uterovaginal prolapse greatly affects women's quality of life and result in physical, social, psychological, sexual and economic problems. Knowledge of risk factors of UVP is very important to prevent or reduce the incidence of UVP and related complications.

The prevalence and associated risk factors of UVP were not studied and documented enough yet in our country. so, this study investigated the prevalence and determinants of uterovaginal prolapse in women admitted to Addis Ababa city governmental hospitals.

The result of the study will help health professionals and provides preliminary information for future study or intervention. The study also provides baseline information for policymakers to allocate the necessary budget to manage UVP in our country.

Chapter 2. Literature Review

In United States, a cross-sectional study was conducted among 27,342 women who enrolled in the Women's Health Initiative Hormone Replacement Therapy Clinical Trial. The study showed that the prevalence of uterine prolapse is 14.2%. Parity and obesity were strongly associated with increased risk for uterine prolapse (5).

A study conducted on 16 low-income and lower-middle-income countries in 2010 G.C revealed that the mean prevalence of pelvic organ prolapse was found to be 19.7%. Age and parity are both clearly related to the prevalence of POP. Most women in developing countries undertake manual work on a regular basis, frequently involving heavy lifting, even while pregnant or shortly after delivery; this probably contributes to high rates of prolapse (7).

In Iran, a study done on 1010 seminomadic Qashqai married women with gynecological problems reported that 53.6% of participants were having pelvic organ prolapse. Age, delivery at early age, high parity, and poor access to health facilities were risk factors for prolapse. age≤19 years 12.2%; 20–29 years, 28.5%; 30–39 years, 57.2%; 40–49 years, 67.3%;50–59 years, 61.1%; 60 years and over, 68.6%. 77.9% of women in a study had four or more deliveries, 83.8% of them were married by the age of 20yrs (15)

In Nepal a community based descriptive cross-sectional study was conducted in 2018 G.C. Among the 153 married women, the Prevalence of uterine prolapse was 13.7%. Nearly half (48.4%) of the respondents were over 35 years and fifteen (9.8%) of respondent lies below 25 years of age. The mean age of the respondents was 35.38 years; almost all were married before the age of 20 years. Illiterates and low family income women were the most affected (16).

Another Descriptive cross-sectional study done in Nepal in Bharatpur hospital, Chitwan in 2014 G.C on 100 women diagnosed with uvp reveals that 47% of the respondents were between the ages of 51-65 and only four (4%) of them were more than 80 years of age. Mean age of respondents was 59.14 years. Eighty eight percent of women were involved in agriculture and 82% of them were illiterate. Ninety-two percent of the women got married before the age of 20, 42 % of women became pregnant 3-5 times, 96.33% of babies were born at home and 100% of them were born

vaginally. Sixty-six percent of the women gave birth to the first child between the ages of 16-20 years (17).

A study done in South Indian women in 2017 G.C reported that the prevalence of uterovaginal prolapse is 1.6%. Nearly 21% of the study population was above 50yrs. 10% presented with prolapse in the age group below 35yrs.The mean age of the patients in a study was 49yrs. Only 2% of the patients were nulliparous and 94% of women were multiparous. Twenty-nine (60.5 %) of women with prolapse were post-menopausal, Stage of prolapse reported as; Stage I 4.2%, Stage II 4.2% and Stage III 8.5%, Stage IV 80.8% (4).

In a study conducted in southern Nigeria in 2010 G.C showed that the incidence of uterovaginal prolapse is 1.6% among patients who underwent major gynecological surgeries. Majority (85.7%) of the patients were within the age of 51 to 70 years, the mean age of the patients was 64 years. All were parous and post -menopausal, and 90.5% of them were grand multiparous with 9.5% having ten or more deliveries. Over three-quarter (76.2%) of the patients had no formal education and none had tertiary level of education. A greater proportion (76.2%) of the women were engaged in physically exerting occupation. Two (9.5 %) patients were second degree u-v prolapse (18).

Another study done in south-east Nigeria in a university teaching hospital in 2013 G.C revealed that the incidence of uterovaginal prolapse is 3.9% of total 1,075 gynecological admissions. Thirty-one patients (73.8%) had home deliveries while 26.2 % had hospital confinement. The mean age of the patients was 51.4yrs. The mean parity of the participants was 4.2. thirty-seven (80.1 %) of cases were grand multiparous. Degree of uvp in a study was; 4.75% first degree, 83.3% second degree, 11.9% third degree (19).

A cross-sectional study conducted in Ejura-Sekyidumasi, Ashanti region in rural Ghana that studied 200 women showed that the prevalence of pelvic organ prolapses was 12.07%. The mean age of women with pop was 45.5 years, and the mean parity of women with UVP was 5.2. Stages of uvp in a study; stage I 23.8%, stage II 33.3%, stage III 23.8% and stage IV 19% (20).

In Egypt, a Community based Study of Gynecological and Related Morbidities in Rural area conducted in 1993 G.C showed that 56 % of 507 women were found to be suffering from different types of genital prolapse. forty-one (7.9%) of the women had uterovaginal prolapse, 45% of them were being grand- multipara (21).

In Ethiopia, a community based cross sectional study was conducted by Berihun Megabiaw in Dabat district, North West Ethiopia resulted that Twenty-five (6.3 %) of study participants had symptomatic pelvic organ prolapse. The mean age of the participants was 35 yrs. Three hundred thirty (83.3 %) were multiparous, with the mean number of 4.8 deliveries. The mean age of first delivery of participants was 18.5 years (22).

Another similar study was conducted on 422 pedestrian back loading women in Bench Maji zone, Southwest Ethiopia in 2017 G.C, which reported that 13.3 % of the study participants had uterovaginal prolapse. The mean age of the study participants was 34.84 years. The likelihood of UVP was higher among women whose ages were between 41-50 years (OR = 11.10: 95 % CI: 2.54, 48.49) and above 50 years (OR = 35.42: 95 % CI: 6.94, 180.85) as compared with those who were less than 30 years (23).

Similar study was conducted among gynecologic patients in Bahir Dar city, North West Ethiopia, from July to October 2014 to assess determinants of POPs and showed that; family history of POP, being uneducated, having four or more vaginal deliveries, carrying heavy objects, age of 40 and above years, and having delivery assisted by non-health professional were the independent determinants of POP. The mean age of the participants was 46 years. One hundred five (84.7%) had more than four deliveries, 91.9% had their first child below or at the age of 20 years, 96% women did not have formal education, and 96% of women were unemployed. Determinants such as age of women (>40 years) had OR = 3.0(95 % CI: 2.26, 9.10), and parity (≥4) had OR = 4.5 (95 % CI: 2.26, 9.10) times higher risk of UVP than their counterparts [24].

In Ethiopia, another hospital-based retrospective descriptive study was conducted in Jimma University Specialized Hospital (JUSH) in 2011 G.C to assess the magnitude of pelvic organ prolapse and risk factors for it. The magnitude of POP out of the major gynecologic operations done in JUSH during the study period was 40.7%. The mean age of women with POP was found to be 42.43. Ninety-five (73.6%) of patients with UVP were of parity > 5 with mean parity of 6.5. Most (97.7%) of the cases delivered their babies at home. Farmers, housewives, merchants, and employed one accounted for 68.2%, 25.6%, 4.7% and 1.6%, respectively. Seventy-two (55.8%) had stage three, 44.2% had stage four prolapses (25).

Generally, in Ethiopia data concerning prevalence and associated risk factors of UVP is not available enough as to the best knowledge of the author except the one conducted before 10 years ago where a three years retrospective study was conducted in Gandhi memorial hospital and Gondar hospital. The study showed that UVP accounted for 19.9 % in Gondar and 17.2% at Gandhi memorial hospital of all major gynecological operations. The mean age of study participants in Gondar is 38.09 years and in Gandhi memorial hospital 42.17 years. Mean parity is 5.6 children in Gonder and 5.4 children in Gandhi Memorial groups. From the Gondar group, 92.2% of housewives were from the rural area and from Gandhi memorial Hospital group 90.5% were rural housewives (8).

Chapter 3. Objectives

3.1. General objective

- To assess the Prevalence and Associated Factors of Utero Vaginal Prolapse at Governmental Hospitals in Addis Ababa, Ethiopia

3.2. Specific objectives

- To assess the prevalence of uterovaginal prolapse at governmental hospitals in Addis Ababa, Ethiopia.
- To determine risk factors of uvp at governmental hospitals in Addis Ababa, Ethiopia.

Chapter 4. Methods and Materials

4.1. Study area

Addis Ababa, the capital city of the Federal Democratic Republic of Ethiopia, is located at the center of the country. The city has 10 sub-cities and 116 Woredas. There are 51 hospitals in Addis Ababa, of which 6 are owned by the Addis Ababa City Administration Health Bureau, 4 by the Federal Ministry of Health, 1 by Addis Ababa University, 3 by Non-governmental organizations, 3 by Defense Force and Police and 34 by private organizations. The study was conducted at **Gandhi memorial** (the hospital has 21 beds in gynecology ward and 57 admissions on average per month, it has 134 nurses, 33 midwives, 22 health officers, 28 general practitioner doctors, and 6 obstetrician and gynecologists.), **St Paul's hospital** (the hospital has 32 beds in gynecology ward and has 105 admissions on average per month; it has 806 nurses, 47 public health officers, 323 general practitioner doctors, and 190 senior doctors) and **Tikur Anbessa specialized hospital** (the hospital has 34 beds in gynecology ward and 108 admissions on average per month, it has 854 nurses, 69 midwives, 196 general practitioner doctors and 271 senior doctors) of Addis Ababa, Ethiopia.

4.2. Study period

Duration of the study was from April to June, 2019 G.C

4.3 Study design

Institution based cross-sectional study was conducted retrospectively by collecting secondary data from the medical record charts of women admitted in gynecology ward of the study hospitals within the study period.

4.4 Source population

All women admitted in gynecology ward of governmental hospitals in Addis Ababa city from March 2017 to February 2019 G.C.

4.5 Study population

Women who are admitted and whose medical information has been recorded in the registry book of the gynecology wards of the study hospitals during the study period.

4.6. Sample size determination

The sample size was determined by using a single population proportion formula by using the proportion of UVP in gynecologic hospital admissions as 18.55% (which is obtained from a study conducted in Gondar hospital and Gandhi memorial hospital, Addis Ababa, Ethiopia (8).

Considering the following assumptions, z = standard normal distribution value at 95% confidence level of zα/2 = 1.96 and margin of error (d) = 4%.

$n = \frac{(z\alpha/2)^2 .P (1-P)}{d^2}$ where; n = minimum sample size

p = estimated prevalence of UVP

Zα/2 = standard of normal variable

d = tolerated error

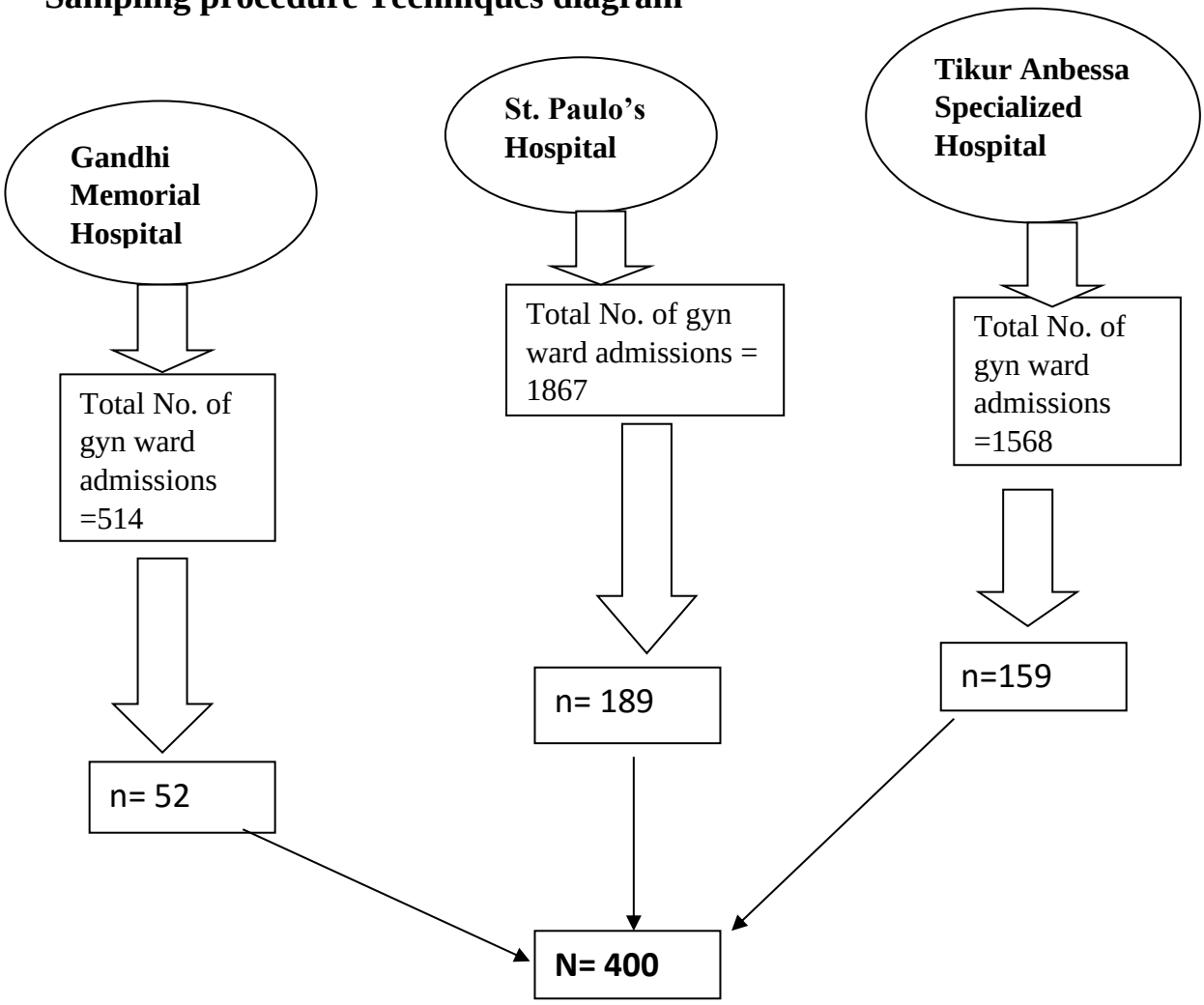
n = 363. Then adding 10% as a compensation for incomplete recordings

n = 400 is the final sample size.

4.7. Sampling procedure

From a total of eleven Governmental Hospitals in Addis Ababa; Gandhi Memorial, St Paul's and Tikur Anbessa specialized hospitals were selected purposively and based on the number of their total gynecological admissions, proportional number of study subjects were allocated for each study hospital. From all women admitted in gynecology wards and whose medical information was entered into the registry books of the study hospitals during the study period, 400 medical record charts were selected by simple random sampling method and their medical record number (MRN) was taken to retrieve the medical record charts from the MRN archive office. Medical record charts which are lost from MRN archive office were substituted by another charts. Data were extracted from the medical record charts using a pretested self-prepared check list.

Sampling procedure Techniques diagram



4.8. Inclusion and Exclusion criteria

4.8.1. Inclusion criteria

- All women whose medical information was entered into the registry book of gynecology ward of the study hospitals during the study period.

4.8.2. Exclusion criteria

- Patients whose charts are lost from the MRN archive of the hospitals
- Women with incomplete records

4.9. Data Collection Tool and Procedures

Data were collected by using a well-structured checklist. Data in the check list included were; age, ethnicity, parity, occupation, duration of labor, menopause, place of deliveries, mode of deliveries, age at first delivery and level of education of mothers.

Finally, based on the inclusion and exclusion criteria of the study, the medical record charts which had all the variables for the study was used.

Nine nurses were assigned to collect the data from medical record charts and three health officers have supervised the data collectors in the process of data collections. Necessary supervision was undertaken by the principal investigator during the data collection period.

4.10. Study variables

4.10.1. Dependent variable

- Utero-vaginal prolapse

4.10.2. Independent variables

- Age
- Parity
- Ethnicity
- mode of delivery
- place of delivery
- level of education
- age at first delivery
- duration of labor
- menopause

4.11. Operational Definition

- **Pelvic organ prolapses;** refers to the abnormal herniation of pelvic viscera, like uterus, vaginal vault, bladder, rectum, and small or large bowel against the vaginal walls or through the vaginal introits (26)
- **Utero-vaginal prolapse;** is the descent of the uterus/cervix and vaginal segments through the vaginal canal.
- **Stage 0 UVP**; no prolapse demonstrated
- **Stage 1 UVP**; halfway to hymen
- **Stage 2 UVP**; to the level hymen
- **Stage 3 UVP**; halfway past hymen
- **Stage 4 UVP**; maximum descent (3).
- **Menopause**; is the permanent cessation of menstruation due to the loss of ovarian follicular function. It is diagnosed after 12 months of amenorrhea. The average age at menopause is about 51 years (27).

4.12. Data analysis and Interpretation

The data were checked after each data collection for completeness. The data were entered into EPI data manager version 4.4 and analyzed by using SPSS Statistics version 24. The results were summarized in the form of proportions and frequency tables for categorical variables. Continuous variables were summarized by using means and standard deviation. Bivariate and multivariate logistic regression analysis were carried out to distinguish the relationship between dependent and independent variables.

4.13. Data quality control

To maintain data quality, training was given for data collectors and supervisors. Supervision was carried out on daily basis to check completeness and consistency by both the supervisors and the principal investigator to assure the quality of data. A pretest was performed in 10% of the study subjects before the actual data collection time. Double data entry was done to ensure the quality of data.

4.14. Ethical consideration

Ethical clearance was obtained from Human Anatomy department's the Departmental Research Ethics Review Committee (DRERC), and Institutional Review Board (IRB) of the Addis Ababa University. A letter of ethical clearance as well as a letter of cooperation was sent for the study hospitals to undertake the data collection.

4.15. Dissemination of results

The results of the study will be presented during the thesis defense and the result will be submitted to Addis Ababa University Human Anatomy Department. In addition to this, the result of this study will be disseminated to Tikur Anbessa specialized hospital, Addis Ababa regional health bureau, and federal ministry of health. Besides, the findings of the study will be disseminated to publications.

5. Result

5.1 prevalence of utero-vaginal prolapse

Within the study period 3,949 patients were admitted at the gynecology wards of the study hospitals, from which 400 study participants were selected. Out of these, the diagnosis of 51 cases was utero vaginal prolapse, making the prevalence of UVP 12.8 % among the total gynecologic admissions from the study hospitals during the study period.

5.2 Socio-demographic Characteristics

Mean and standard deviation of the age of respondents was 51.34±12.96 years with the range of 18-81 years. Majority (75.8 %) of respondents were over 40 years with four respondents (1.0 %) were 80 and above years of age. Majority (63.5 %) of the study participants were illiterate while only 47 (11.75%) were high school or college/university graduates. Half (50.3%) of the respondents were housewife and 23.3 % of the respondent's occupation is Agriculture (table 1).

Table1. Socio-demographic characteristics of respondents

Characteristics(n=400)	Frequency	Percent
Age group in years		
<30	32	8.0 %
30-39	65	16.3 %
40-50	83	20.8 %
>50	220	55.0 %
Total	400	100%

Variables	Frequency	Percent
Ethnicity		
Amhara	125	31.3 %
Oromo	147	36.8 %
Gurage	59	14.8 %
Silte	29	7.3%
Others	40	10.1%
Total	400	100 %
Religion		
Orthodox	188	47.0 %
Muslim	133	33.3 %
Protestant	76	19.0 %
Others	3	0.8 %
Total	400	100 %
Educational status		
Cannot read and write	254	63.3 %
Can read and write	31	7.75 %
Primary school	55	13.75 %
High school	37	9.25 %
College and above	10	2.5 %
Missing data	13	3.3 %
Total	400	100 %
Occupational status		
Housewife	201	50.3 %
Agriculture	93	23.3 %
Merchant	42	10.5 %
Labor work	11	2.8 %
Others	53	13.25 %
Total	400	100 %

The mean parity of the respondents was 5.53 with the standard deviation of 2.85. Nearly half of the respondents (50.6 %) were pregnant for more than 6 times while only 16.3 % were pregnant for less than two times. The mean age of the respondents at first delivery was 20.75 with a standard deviation of 3.62 years and nearly half of the respondents (47.8 %) delivered their first child before the age of 20 years. Most (96 %) of mothers was multiparous, 61.8 % of mothers being grand multipara and only 4 % were nullipara. Most (72.3 %) of the mothers delivered at home and the vaginal route was the mood of delivery for most (88.8 %). Most (97.8 %) of the respondents were non-smokers and only 0.8 % have a history of smoking. Two hundred twenty (55%) of the total respondents are menopausal. (Table 2).

Table 2: Obstetrical characteristics of study participants

Characteristics (n=400)	Frequency	Percent
Age at first delivery		
<20	191	47.8 %
≥20	188	47.0 %
Missing data	21	5.3 %
Total	400	100%
Parity		
0	16	4.0 %
1-4	137	34.25 %
5-9	218	54.5 %
≥10	29	7.25 %
Total	400	100 %
Mood od Delivery		
Virginally	355	88.8 %
CS	28	7.0 %
Missing data	17	4.2 %
Total	400	100 %

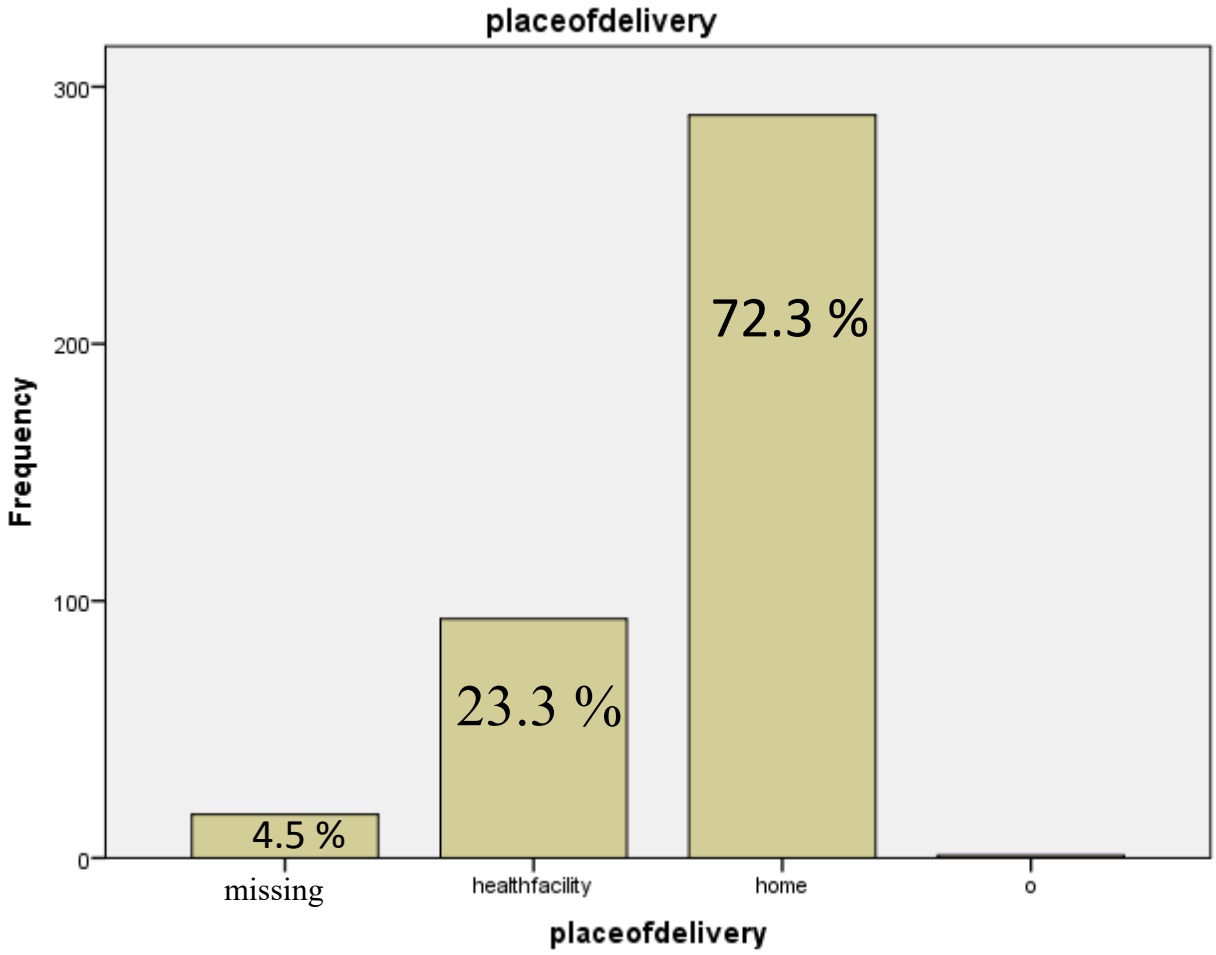


Figure 1: Place of delivery of women admitted in gynecology wards of governmental hospitals in Addis Ababa, Ethiopia.

Table 3: The staging of UVP according to S-POPQs and Duration of Illness of women with uterovaginal prolapse

Characteristics (n=51)	Frequency	Percent
Degree of UVP		
First degree	2	3.9 %
Second degree	6	11.7 %
Third degree	27	52.9 %
Fourth degree	16	31.5 %
Total	51	100 %
Duration of illness		
<1 year	10	19.6 %
1-5years	17	33.5%
6-9 years	8	15.6 %
≥10 years	16	31.3 %
Total	51	100 %
Menopausal status		
Age of ≤ 50 years	12	23.5 %
Age of ≥51 years	39	76.5 %
Total	51	100 %

Of the 51 patients with utero vaginal prolapse, the majority (52.9 %) had third-degree UVP, 31.5% fourth-degree, 11.7 % second degree and 3.9% first degree. Sixteen (31.3 %) of the women had had utero-vaginal prolapse for the last 10 or more years, with 3 (0.8 %) of them living with the condition for more than 20 years. Thirty-nine (76.5 %) of women with UVP were menopause. (Table 3)

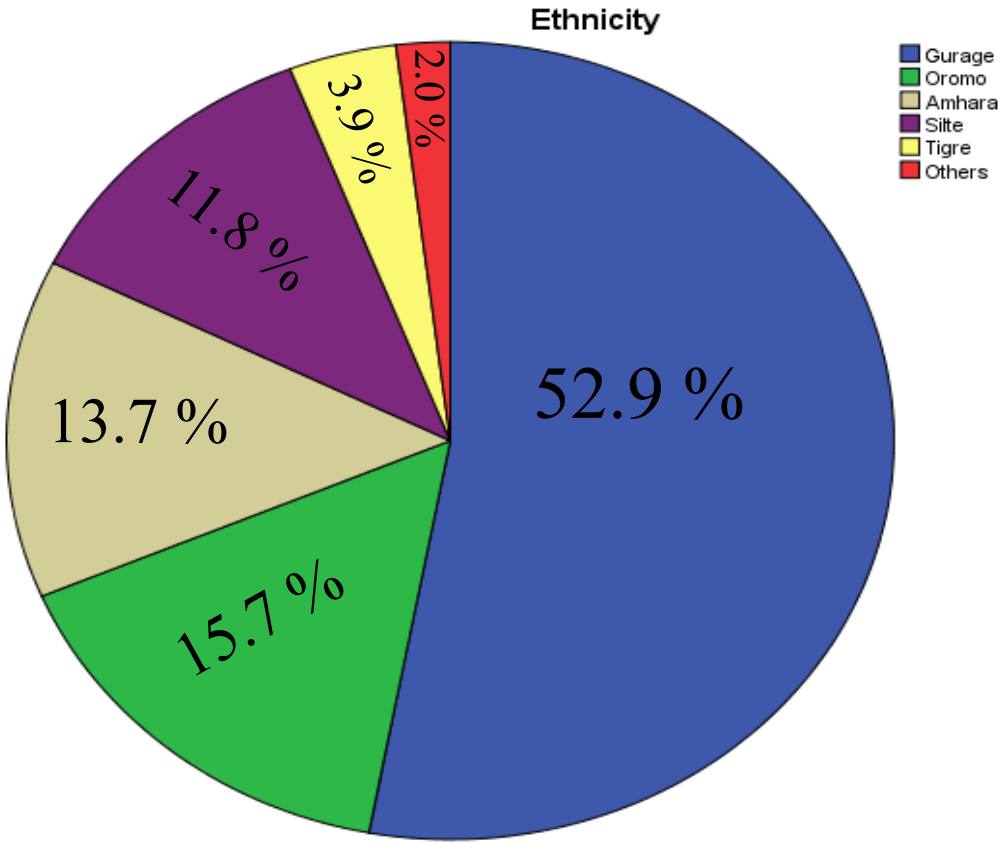


Figure 2: Ethnicity of women with uterovaginal prolapse admitted in the gynecology ward of Addis Ababa city governmental hospitals, Ethiopia.

Table 4: Results of bivariate and multivariate analysis for the determinants of utero-vaginal prolapse.

		Bivariate analysis		Multivariate analysis
Independent variables	Frequency (percentage)	COR (95% C.I for COR)	**P-value**	AOR (95% C.I for AOR)
Menopause				
Pre-menopause	180(45 %)	1.00		1.00
Post-Menopause	220(55%)	3.017 (1.528, 5.956)	0.001	2.611 (1.531, 4.838)
Age in years				
≤30	32 (8.0 %)	1.00		1.00
31-40	65 (16.3%)	0.476(0.064, 3.545)	0.276	0.541 (0.103, 0.826)
41-50	83 (20.8 %)	1.610(1.032, 7.975)	0.004	2.024(1.372, 5.479)
>50	220 (55.0 %)	3.232(1.741, 14.093)	0.000	3.380 (1.719, 8.989)
Parity				
0	16 (4.0 %)	0.000	0.010	0.000
1-4	137 (34.3 %)	1.00		1.00
5-9	218 (54.5 %)	4.176(1.707, 10.215)	0.002	4.133 (1.461, 11.694)
≥10	29 (7.25 %)	11.491 (3.747, 35.242)	0.000	9.376 (2.905, 30.262)
Place of delivery				
Health institution	93 (23.3 %)	1.00		1.00
Home	289(72.3 %)	1.347(1.098, 6.097)	0.009	1.380 (1.212, 2.572)
Mood of delivery				
Cesarean Section	37(9.3 %)	1.00		1.00
Vaginally	346(86.5 %)	1.208(0.268, 5.450)	0.208	1.037(0.572, 3.456)
Age atfirst delivery				
≥20	188(47.0%)	1.00		1.00

<20	191(47.8%)	12.573(4.404,35.897)	0.000	7.988(2.682,23.792)
Educational status				
Literate	133(33.25%)	1.00		1.00
Illiterate	254(63.3%)	1.111(0.596,2.073)	0.412	1.359(0.653,2.825)

Among independent variables menopause, age categories (31- 40, 41-50 and > 50), parity categories (5-9 and ≥10), place of delivery, mood of delivery, age at first delivery and educational status of women were analyzed first by using binary logistic regression to observe their significance with UVP at first column; variables which had a P-value ≤ 0.2 with 95 % C.I were menopause, age groups(41-50, and >50), parity groups (5-9, ≥10), age at first delivery <20 years old and home delivery are considered as significant. Age group ≤30 and parity group 1-4 were references. Variables which were significant in binary logistic model were entered to multiple logistic regression equation model.

Independent variables in the multiple logistic regression model were tested for their significance with UVP; those variables with p-value ≤ 0.05 at 95 % C.I including; menopause, age groups 41-50, age of >50, parity 5-9, parity of mothers ≥ 10, age at first delivery <20 years old and home delivery were considered as significant whereas age group of 31-40, vaginal delivery and being illiterate were not significant with uterovaginal prolapse.

Postmenopause women have an odds ratio of 2.611 (at 95 % CI: 1.531, 4.838) times higher risk of uterovaginal prolapse than pre-menopause women. Women with the age at first delivery of <20 years have an OR = 7.988(2.682, 23.792) times higher risk of UVP than their counter parts.

Women with 5-9 deliveries have OR= 4.133 (at 95 5 CI: 1.461, 11.694) and women with ten or more deliveries have OR= 9.376 (at 95 % CI: 2.905, 30.262) times higher risk of UVP than women with less than 4 deliveries .Grand multiparas' women (p≥5) have had an odds ratio of 4.686 (at 95 % CI 2.919, 8.443) interpreted as they will have approximately 5 times higher risk of developing uterovaginal prolapse compared with mothers delivered less than five times.

Age group of 41-50 years have an odds ratio of 2.024 (at 95 % CI 1.372, 5.479) times higher risk of developing UVP than age group of <30years, and age of >50 years have an OR = 3.380 (at 95

% CI 1.719, 8.989), which means mothers with the age of 50 years or more are 3.38 times higher risk of developing utero vaginal prolapse than mothers with in the age of <30 years. (Table 4)

6. Discussion

Based on this study on the prevalence and associated risk factors of utero-vaginal prolapse in Addis Ababa city governmental hospitals, the prevalence of utero vaginal prolapse of 12.8% from this study is comparable with a study in Nepal; which reported that the prevalence of UVP was 13.7% [16], in United States, in the Women's Health Initiative Hormone Replacement Therapy Clinical Trial reported that the prevalence of UVP was 14.2% [5], in India; reported an incidence of 10 % [4] and in Ghana, the prevalence of UVP prolapses was 12.07% [20]. But, lower than that of other earlier reports from other parts of the country, at Gonder utero vaginal prolapse accounted for 19.9 % while in Gandhi memorial hospital 17.2% [8] and in 16 low-income and lower-middle-income countries revealed that the mean incidence of UVP accounted 19.7% [7]. however, it was greater than the research done in Dabat district, North West Ethiopia showed that the prevalence of UVP was 6.3 % [22], in a study done in France reported an incidence of 8.5% [2] and in Egypt; revealed that the incidence of UVP was 7.9 % [21].

Differences in prevalence among other studies may be due to cultural differences, type of population studied, ignorance due to lack of education, the attitude of people towards illness, and the influence of health facilities available.

In this review, women within the age group of 41-50 years have an odds ratio of 2.024 (at 95 % CI: 1.372, 5.479) times higher risk of developing UVP than age group of <30 years, and age of >50 years have an OR = 3.380 (at 95 % CI: 1.719, 8.989), which means women with the age of 50 years or more are 4 times higher risk of developing uterovaginal prolapse than women with the age of <30 years old, which is lower than the study done in Bench Maji Zone, Ethiopia which showed that age groups of 41-50 years have OR = 11.10(95% CI: 2.54, 48.49) and above 50 years (OR = 35.42: 95 % CI: 6.94, 180.85) as compared with those who were less than 30 years[23].

This association gap may be due to the difference in population studied, economic and sociocultural differences of the study population.

In this study, multipara women (parity ≥4) have an odds ratio of 4.201 (at 95 % CI 1.652, 10.685) and age of women >40 years have an odds ratio of 2.143 (95 % CI:1.496, 6.602) times more likely to have UVP compared with their counterparts. Which is consistent with a study done in Bahir Dar, Northwest Ethiopia, reported that parity (≥4) OR = 4.5 (95 % CI: 2.26, 9.10), and age of women (>40 years) OR = 3.0(95 % CI: 1.22, 7.82) [24].

In this study, from women who had uterovaginal prolapse, 31.3 % of the women had had the prolapse for the last 10 or more years, including 0.8 % (3/51) who had lived with the condition for more than 20 years. Which is lower than a study done in Amhara region, Ethiopia which revealed that approximately half of the women had had uterovaginal prolapse for the last 10 years or more, including 29 % who had lived with the condition for more than 20 years. Living with UVP for a long time without disclosing the problem is due to fear of social stigma and discrimination from the society and this resulted in them into an advanced stage of UVP and other complications [24].

The difference in duration of illness may also be more related to the type of population studied and due to inadequate sample size of those researchers.

In this review, the majority (52.9 %) of women with UVP were from Gurage Zone of SNNP region of Ethiopia and women in this community are more highly likely to involve in making Kocho (traditional diet in Gurage region, made from “enset”), which is a physically demanding job. This burden may be related to this reproductive health problem of women.

Most commonly diagnosed type of UVP in this study was third degree (52.9 %), which goes in line with a study done in JUSH, Ethiopia revealed that 55.8 % of participants were diagnosed with third-degree UVP[25].and in contrast to studies done in India, 80.8 % of study participants with UVP were fourth degree [4], and in Nigeria, 83.3 % were second degree [19], and in Ghana, 33.3 % were second degree uterovaginal prolapse [20].

These differences might be due to the awareness gap towards uterovaginal prolapse and different accessibility of health facilities.

Resultant weakness in pelvic floor muscles occurs during the menopause and atrophy of pelvic tissues due to hypo estrogenic state causes significant damage to the pelvic support system resulting in uterovaginal prolapse (9, 10). The findings of this study confirm this, as the mean age of the patients in this series was 51.37 years with most of the patients being post-menopausal.

7. Limitations of the study

Some other variables that may affect utero-vaginal prolapse were not included under the study (like; nutritional status, prolonged labor, duration of rest of women during pregnancy and postpartum) because the data was being secondary by source.

8. Conclusion

Utero-vaginal prolapse is a common gynecological problem in Addis Ababa city governmental hospitals. The prevalence of utero-vaginal prolapse was high compared to reported literatures. The high prevalence of UVP indicates the suffering of many women with the problem. The leading determinants of utero-vaginal prolapse were menopause, having >4 deliveries, age >40 years, age at first delivery <20 years old and home delivery assisted by nonhealth professionals.

9. Recommendation

public health education to create awareness on risk factors of utero-vaginal prolapse and use of contraception to reduce parity is recommended. Health institution delivery should be advocated to minimize the rate of home deliveries.

This is a hospital - based study amongst women presenting with symptoms of UVP, there is the need for population study to determine other determinants of UVP in Ethiopia. Further study on areas where the burden is high, particularly in Gurage region is mandatory for any modifiable risk factor.

Finally, female education should be given priority attention.

Chapter 7. References

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ANNEX 1; Checklists

Part 1; socio-demographic characteristics

1. Age _____
2. Ethnicity A. Amhara B. Oromo C. Gurage D. Silte. E. Tigray F. Others
3. Religion A. Orthodox B. Muslim C. Protestant D. Others

Part 2; Others

4. Occupation A. House –wife B. Farmer C. Merchant D. Governmental employer E. self-employed F. Labor work G. Student H. Others

5. Parity _____

6. Level of education A. cannot read and write B. can read and write C. Primary school (1-8) D. high school (9-12) E. college and above

7. Mode of delivery A. Vaginally B. Cesarean section (cs)

8. Place of delivery A. Home B. Health center/ hospital

9. UVP A. Yes B. NO

10. stage/degree of UVP A. first degree B. second degree C. third degree d. fourth degree

11. Age at first delivery _____

12. History of smoking A. yes B. No

13. Family history of uvp A. yes B. No

14. duration of illness _____