Austin Gynecology Case Reports

Open Access

Austin Publishing Group

Research Article

Prevalence of Utero-Vaginal Prolapse and Associated Factors among Women Attending Gynecologic Ward in Public Hospitals in Hawassa City, Sidama Regional State, Ethiopia, 2025

Busera Seman Kedir
Department of Midwifery, Hawassa College of Health Sciences, Hawassa City, Ethiopia

***Corresponding author:** Busera Seman Kedir, Department of Midwifery, Hawassa College of Health Sciences, Hawassa City, Ethiopia
Email: semanbusera7@gmail.com

Received: October 22, 2025
Accepted: November 11, 2025
Published: November 14, 2025

Abstract

Background: Utero-vaginal prolapse is abnormal herniation of uterus from its normal position in pelvis due to failure of anatomical support. It is a major reproductive crisis in women which affect a woman's quality of life with a great negative impact on women's social, physical, economic, and psychological wellbeing. The aim of this study was to assess prevalence of Utero-vaginal prolapse and associated factors among women attending gynecologic ward in public hospitals of Hawassa city, Sidama region, Ethiopia.

Methods and Materials: A facility based cross sectional study was conducted among women attending gynecologic ward in selected public hospitals found in Hawassa Sidama Ethiopia 2025. A total of 311 was enrolled by systematic sampling technique. Data was collected using Kobo toolbox after developing structured questionnaire from different literatures. Then it was exported to statistical package for social science version 25 for analysis. The association between variables was analyzed with binary logistic regression. A statistical significance was declared at p value < 0.05, with 95% confidence interval.

Result: A total of 296 women were participated in the study with response rate of 95.2%. The overall prevalence of UVP among women attending public hospitals in Hawassa city was 17.6%, with a 95% CI (12.9%, 22.3%). The independent predictors of UVP were women with a history of chronic constipation (AOR = 2.92; 95% CI: 1.39–6.12), having a family history of UVP (AOR = 3.87; 95% CI: 1.53–9.77), frequent heavy weight lifting (AOR = 3.73; 95% CI: 1.66–8.35), women who had 4–6 spontaneous vaginal deliveries (AOR = 5.30; 95% CI: 1.82–15.42) and history of prolonged labor (AOR = 3.36; 95% CI: 1.64–6.89).

Conclusion: The overall prevalence of UVP was relatively higher. The identified predictors of utero-vaginal prolapse were chronic constipation, family history of UVP, prolonged heavy lifting, moderate number of vaginal deliveries (4–6), and prolonged labor.

Recommendation: These findings underscore the need to promote women's health through health education on preventing chronic constipation, routine pelvic examinations for those at risk, safe labor practices, family planning, and protective measures against heavy lifting to reduce the risk of utero-vaginal prolapse.

Keyword: Utero-vaginal prolapse; Prevalence; Public hospitals; Hawassa city Ethiopia

Abbreviations and Acronyms

AOR: Adjusted Odds Ratio; BMI: Body Mass Index; CI: Confidence Interval; CHS: College Of Health Sciences: CS: Cesarean Section; EC: Ethiopian Calendar; GC: Gregorian Calendar; GYN: Gynecology; OPD: Outpatient Department; OR: Odds Ratio; POP: Pelvic Organ Prolapses; S-POPQS: Simplified Pelvic Organ Prolapse Quantification Staging System; UVP: Utero Vaginal Prolapse; WHO: World Health Organization; P: Parity.

Introduction

Background

Utero-vaginal prolapse (UVP) refers to the downward displacement of the uterus through the vaginal canal, resulting from weaknesses or defects in the supportive structures of the uterus and vagina caused by various contributing factors [1-3]. When the ligamentous and fascial supports fail, the uterus may descend partially or completely into the vaginal canal, leading to a protrusion

Citation: TBusera Seman Kedir. Prevalence of Utero-Vaginal Prolapse and Associated Factors among Women Attending Gynecologic Ward in Public Hospitals in Hawassa City, Sidama Regional State, Ethiopia, 2025.
Austin Gynecol Case Rep. 2025; 10(1): 1053.

of the uterus, the vagina, or both [4]. The Baden–Walker halfway classification system categorizes UVP into four stages: stage 0 – no prolapse, stage 1 – descent halfway to the hymen, stage 2 – descent to the hymen, stage 3 – descent halfway beyond the hymen, and stage 4 – maximum descent [5].

Clinically, women with UVP may present with a bulging mass from the vagina, urinary symptoms such as incontinence, urgency, and frequency, as well as vaginal discharge, itching, ulceration, and sexual dysfunction [6]. Due to the variability in symptom severity, defining treatment success can be challenging; however, vaginal hysterectomy combined with vaginal apex suspension and anterior-posterior vaginal wall repair remains a widely effective surgical approach [7]. It is estimated that the lifetime risk for women undergoing surgery for UVP is between 12–19%, with more than 300,000 prolapse surgeries performed annually in the United States alone [8].

The exact prevalence of utero vaginal prolapse is difficult to determine because many women are asymptomatic, and do not reveal the presence of utero vaginal prolapse due to the social reason [6]. One population-based study found that about 3% of 1961 adult women surveyed reported symptomatic vaginal bulging [4]. Globally, 2-20% of all women are affected by UVP [9]. In the USA, the prevalence of uterine prolapse was reported to be 14.2% among women in the Women's Health Initiative Hormone Replacement Therapy Clinical Trial [10]. The uterine prolapses among low and lower-middle-income countries mean prevalence were 19.7% [11]. In Ethiopia, the prevalence of UVP was 18.55% of all major gynecological operations [12].

Uterine prolapse is a hidden problem especially in developing countries like Ethiopia the situation is far worse [13]. UVP can severely affect a woman's quality of life with a great negative impact on women's social, physical, economic, and psychological wellbeing [14]. Most importantly problems or physical disorders that occur in patients with prolapse can reduce women's reproductive health, such as women feeling uncomfortable because there of the mass in and out of the genitals [13].

Statement of the Problem

Utero-vaginal prolapse is a major health concern through the world and contributes as the major cause of reproductive health morbidity among women [15,16]. UVP is a common gynecological problem, in which the presentation varies in type and severity among patients.

In developed countries, the prevalence is high among postmenopausal women, whereas in developing countries, the condition is common in women of reproductive age [17]. It has been argued that prolapse may be more common in resource-constrained settings owing established factors and to heavy physical burdens, and that the condition may affect daily life more severely than in high-income settings [17]. The burden of UVP in low- and middle-income countries particularly in Sub Saharan African countries is still challenging [15]. Moreover, the prevalence of UVP in low income countries is much more increasing which recently has been reported to be around 20% [18]. The estimated worldwide prevalence of UVP was ranged from 1% to 65% [18]. Given global increases in aging populations in well-resourced countries, the need for UVP treatment is anticipated to increase in the coming decades [19]. The global age-standardized incidence rate (ASIR) and age-standardized disability adjusted life years AS-DALYs for UVP were 316.19 and 10.37 per 100,000 population, as of 2019 report. Even there was gradual reduction, UVP remains a major health problem, especially among females in less developed countries [16].

In Ethiopia, UVP is one of major gynecologic problem and the pooled prevalence of UVP was estimated to be 23.52% [20]. Nowadays, UVP had become major reason for gynecological operation, 40.7% of major gynecological operations in Jima [21] and (41.1%) of hysterectomy followed by leiomyoma (23%) in Tikur Anbessa were done [22]. A woman's lifetime risk of surgery for UVP is 12-19% with over 300 000 prolapse surgeries performed annually in the US alone [22].

The true risk factors associated with UVP have been poorly understood. The cause of this disorder is likely to be multifactorial; attributable to a combination of risk factors, varying from patient to patient. This might be due to the most private and asymptomatic nature of the illness making UVP the "hidden epidemic" [23]. Major risk factors for the development of utero-vaginal prolapse are older age, Family history of UVP, menopause, higher parity, difficult labor and delivery, malnutrition, chronic cough and constipation, race is also considered a risk factor for prolapse, while African and Asian ethnicity is thought to be protective [24].

Despite efforts were made to understand the factors of UVP and its prevalence, the problem remained public health challenges particularly in reproductive group of women [20]. Still there is lack of detailed research on cultural, environmental, and socio-economic factors contributing to the high prevalence of UVP in Ethiopia and particularly in the study area. Therefore, the aim of this study was to fill this gap by assessing prevalence and identifying associated factors of utero-vaginal prolapse in the study area.

Literature Review

Prevalence of Utro-Vaginal Prolapse:

Globally anatomic UVP was a common gynecologic disorder which accounts up to 40%. The burden is higher in developing countries as of prevalence rates ranging from 3% to 56%, and commonly include both types of researches on symptomatic and anatomical prolapse [25]. Prevalence of UVP varied across countries in Africa region. For instance, in Tanzania, the condition is notably widespread which affects 64.6% women [26]. In contrast, Egypt reports a much lower prevalence which was 19.4%, while Nigeria sees an even smaller percentage at 6.5%. Similarly, rural Ghana experiences a prevalence rate of 12.07% [4]. Similarly, prevalence of UVP in Ethiopia were varied across regions. As retrospective cross-sectional study conducted in Adis Abeba the overall prevalence of UVP was 12.8% [27]. Across sectional study conducted in Amhara regional state referral hospitals, The overall prevalence of UVP (stage I–IV) was found to be 37.6% when determined by pelvic examination and 9.2% as assessed by prolapse symptoms [28]. Also Study in Dessi Zuriya districts the prevalence of UVP was 12.64 % [29]. Study in eastern parts of Ethiopia at Harrar, Hiwot Fana comprehensive hospital, among 387 responded women, 39 (10.1%; 95% confidence interval = 8.3–15.6) of them had at least one stage of UVP [30].

Another retrospective cross-sectional study conducted in Dilla referal hospital, about 10.5% of the participants had utero-vaginal prolapse [31]. In South west Ethiopia, Dawro, the prevalence of symptomatic and anatomical uterine prolapse was 6.6% and 5.9%, respectively [32].

Associated Factors of Utero-Vaginal Prolapse:

Socio-Demographic Factors: According to a case control study done in Bahir Dar Ethiopia, those mothers greater than 40 years had 8.1 times higher risk for UVP [33]. Additionally, a study conducted in Tanzania, showed increase age of between 35-44 had 1.62 higher risk where those women aged 45-54 years had 1.87 higher risk of developing UVP stage II–IV [26]. A study done in Bahir Dar, Ethiopia revealed nonattendance of formal education had 4.3 times higher risk for UVP [33]. According to a study done in Tanzania, farming women and women who were involved in petty trading and heavy lifting had an increased risk of UVP stage II–IV with AOR of 3.46 and 2.89 respectively [26]. According to a systematic study review result having less education and Place of residence as well as monthly income was significantly associated with UVP, while occupation not yet [34]. A woman who frequently engage in heavy weight lifting activities have risk of developing UVP. This finding was supported by a research conducted in Southern Ethiopia [38], in systematic review and meta-analysis conducted in Ethiopia claimed that women who engaged in frequent heavy weight lifting had around four time higher chances of developing UVP [40]. Other two studies conducted in Ethiopia in Harari region eastern Ethiopia indicated that heavy weight lifting contributes for UVP [30-41] and a case control study in Bahir Dar North West Ethiopia [33] showed the same finding that revealed prolonged heavy weight lifting might increase women's chances of acquiring UVP.

Obstetric Related Factors:

A study done in Bahir Dar, Ethiopia showed multipara women (parity ≥4) were 4.5 times more likely to have UVP compared with their counterparts [33]. A case control study done in Hawassa, Ethiopia had showed number of pregnancies ≥ 5 had 3.9 higher times of getting UVP [35]. In addition, finding from Nepal, Africa reported being multipara history of instrumental delivery, episiotomy, vaginal tear and sphincter damage history of prolonged labor is significantly associated with UVP [36,37]. However, a study from Bahir Dar shows absence of significant association between gravidity and UVP [33]. According to a case control study done in jimma, Ethiopia had showed those mothers with history of induced labour had 4.4 times greater risk of UVP [35]. A history of prolonged labor increased odds of UVP in Southern Ethiopia [38].

Gynecologic Related Factors:

Study conducted in Nekemte town East Wollega zone, Oromiya region Ethiopia, revealed that family history of utero-vaginal prolapse was significantly associated with UVP. It showed that women who have family history of UVP had 3.77 times higher of developing UVP compared to their have no history of UVP [42]. A meta-analysis study conducted in Ethiopia revealed that family history of utero-vaginal prolapse was around four times higher among women with family history of UVP [40]. Also, study findings revealed that, being menopause was 2.4 times significantly associated with the development of UVP. Also, injuries during childbirth, particularly third- or fourth-degree perinatal tear had 3.14 times more likely associated with UVP [6,27,28].

Another retrospective cross sectional record review study supported those conditions like chronic pelvic inflammatory disease (PID) and endometriosis had 3 and 2 times higher in developing UVP as compared to the counterpart [31,32,35]. However, another study showed no significance difference between groups regarding coexisting endometrities, endometrial polyp and endometrial hyperplasia, menopause [43].

Medical and Surgical Factors: A retrospective record review conducted in Turkey among women who undergone previous history of pelvic surgery and hysterectomy for UVP showed hypertension with diabetic mellitus together significantly increased risks with AOR of 1.9 [34].

A study done among in White, Black, and Hispanic Women for uterine Prolapse development risk factors showed those women with history of chronic constipation and chronic cough had 1.2- and 1.5-times higher risk for UVP development respectively [44]. Women with a history of chronic constipation have significantly higher risk of developing utero-vaginal prolapse (UVP) in study conducted in Nigeria [4] and Mekele Tigray Northern Ethiopia [45], where women with chronic constipation have higher odds of developing UVP.

Conceptual Framework

Conceptual framework adapted from different literature for the study associated factors of utero-vaginal prolapse among women visiting gynecologic ward in Hawassa public Hospitals, Sidama region, Ethiopia, 2025 [26-28,31-33,35,39,42,46] (Figure 1).

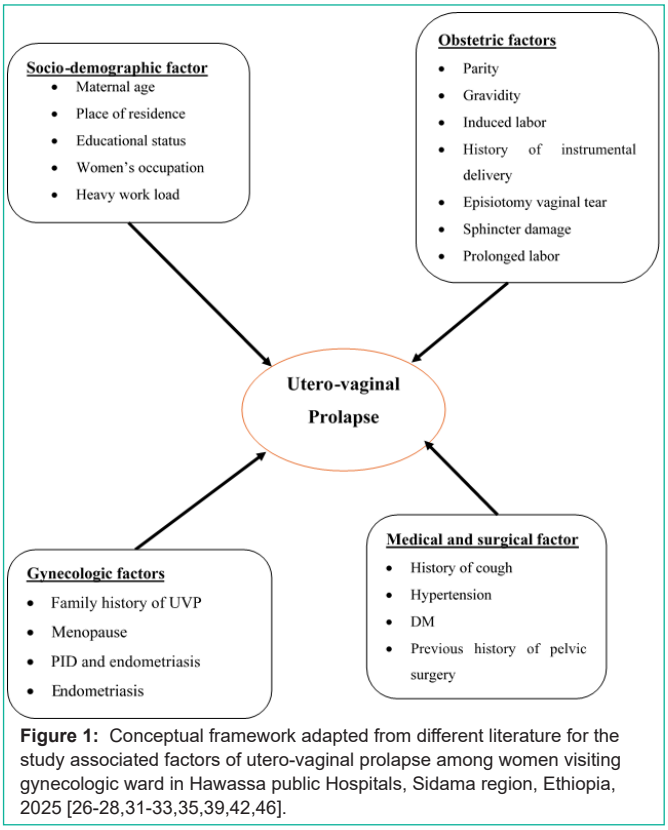

Figure 1: Conceptual framework adapted from different literature for the study associated factors of utero-vaginal prolapse among women visiting gynecologic ward in Hawassa public Hospitals, Sidama region, Ethiopia, 2025 [26-28,31-33,35,39,42,46].

Significance of the Study

Knowing the prevalence of UVP in this study setting may attract attention of stakeholders for appropriate public health intervention. The finding of this result will also identify factors that significantly associated with occurrence of UVP among women. This could be helpful to plan interventions at the grassroots level.

Moreover, the result of this finding would be used by policy makers and other stakeholders working on it to design appropriate strategies and intervention for improving maternal health, prevent or reduce the incidence of UVP and related complications.

Along with the investigation of more details about factors contributing to utero-vaginal prolapse and it may provide current information on gynecologic care. Finally, the finding of this research may close knowledge gaps about UVP and associated factors and may be useful for researchers as baseline data to do further inquiries.

Objective

General Objective

To assess the prevalence of utero-vaginal prolapse and associated factors among women attending gynecologic ward in public hospitals in Hawassa city administration, Sidama regional state, Ethiopia, 2025.

Specific Objectives

- To assess the prevalence of UVP among women attending gynecologic ward in public hospitals in Hawassa city administration.
- To identify factors associated with utero-vaginal prolapse among women attending gynecologic ward in public hospitals in Hawassa city.

Method and Materials

Study Area

The study was conducted at public hospitals found in in Hawassa city Sidama region, Ethiopia. Hawassa is capital city of Sidama regional state found in 275 Km far from Adis Abeba capital city of the country. Based on 2007 figures from the Central Statistical Agency of Ethiopia, the Hawassa city administration has an estimated projected total population of 409,809 among this women Female population 204822 or 49.98% of total population and expected pregnancy is 3.46%. An estimated 64.6% of the total population lives in urban, while 35.4% found in rural areas [47].

Concerning the health facilities, the city has one comprehensive specialized, two general hospitals public, 5 private hospitals, 10 public and 2 private health centers, 58 medium clinics and 137 drug stores found in the city [47].

Study Design and Period

A facility based cross sectional study design was used from April 01 to June 01 2025.

Population

Source Populations: The source population were all women who attend in gynecologic ward at public hospitals in Hawassa city. Study Populations: The study population were all women who attend in gynecologic ward at public hospitals in Hawassa city during the study period.

Inclusion and Exclusion Criteria

Inclusion Criteria:

➢ All women attend the gynecologic ward during the study period and age above 18 years old were included in the study

Exclusion Criteria:

➢ Those women attend the gynecologic ward and unable to respond due to severity of illness or any other mental disorder was excluded from the study.

Sample Size Determination

The sample size was determined through a single population proportion formula and with the basic assumption of 95% confidence interval, 5% margin of error (d) and 24.27% prevalence (P) of UVP from Jimma zone, Ethiopia [39].

$$n = \frac{(Z_{\alpha/2})^2 p(1-p)}{d^2} = \frac{(1.96)^2 * 0.2427(1-0.2427)}{0.05^2} = 283$$

By adding 10% of none response rate the final sample size is 311.

Sample Size for Objective Two

The sample size required to determine factors associated with UVP among women attending gynecologic ward in public hospitals was determined based on double population formula through Epi-info version 7.2 and taking a confidence level of 95%, power of 80% and considering the ratio of unexposed to exposed group of one. Hence, the sample size required for assessing determinant factors of UVP was 231. Therefore, after comparing the calculated sample sizes the largest sample size which is 311 was taken for conducting this study (Table 1).

Sampling Technique

Totally there are two general and one comprehensive specialized teaching hospital were found in the town and all are selected as study area due to high gyni patient fllow. Last year similar two-month report (from April to May 2025) from each hospital was taken to know the total gynecologic patient flow. Based on the report we found 982, 693 and 453 women who had attend gynecologic ward in Hawassa university comprehensive specialized hospital, Adare, and Tula general hospitals respectively. Then, proportional allocation will be used to distribute the total sample size (i.e. sampling fraction=sample size/total patient flow) for all general hospitals found in the city (Figure 2). Then systematic random sampling technique will be used on every Kth value by using their order of arrival to gynecologic ward with respective hospitals.

Table 1: Sample size determination for assessing factors associated with UVP among women attending gynecologic ward in public hospitals in Hawassa city, sideman regional state, Ethiopia, 2025.

Variable	Percent of outcome in unexposed	AOR	Percent of outcome in exposed	Sample size (n)	n after adding 10% non-respondent rate	Reference
History of abortion	72%	2.94	88.3%	210	231	[32]
Place of delivery	64%	3.3	85.4%	146	161	[32]

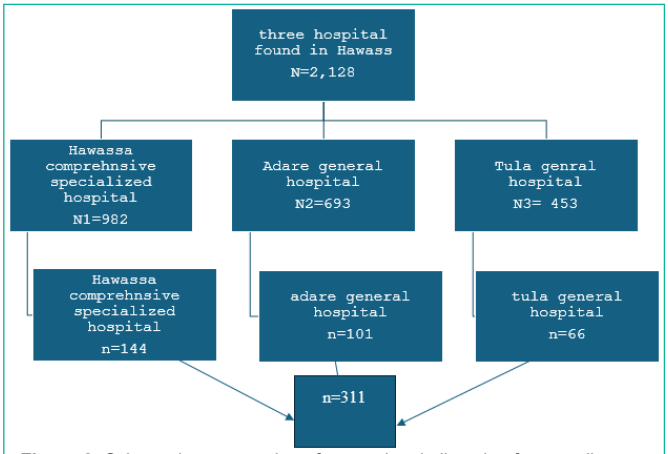

Figure 2: Schematic presentation of proportional allocation for sampling unit in three different hospitals for sampling procedure for a study on prevalence of UVP and associated factors among women attendee gynecology ward in Hawassa public general hospital,

Data Collection Tools and Procedures

The data was collected using pretested structured questionnaire by Kobo toolbox which is prepared after reviewing different literature on the area [28,29,35,38,39,41,42]. The questionnaire is composed of three main parts: mothers' socio-demographic factors (Maternal age, maternal educational status, and women's occupation, average monthly income), gynecologic factors (Family history of UVP, PID and endometriasis) and obstetric factors (Parity, Gravidity, induced labor, history of instrumental delivery, episiotomy vaginal tear, and sphincter damage), medical and surgical factors (History of cough, previous history of pelvic surgery Hypertension, DM, Chronic constipation). Data was collected through face-to-face interview by three trained data collectors using structured questioners designed via Kobo toolbox. The respondent mother was selected by using systematic random sampling techniques by using the bed number for each hospital until the required sample size was achieved. The interview was conducted at gynecologic ward after receiving the diagnosis from physician of public general hospitals in the city. Systemic random sampling technique was used to select study participants at K intervals gyni ward of all mothers who needs to receive care at each hospital to find interval by using formula K = N/n, and the first participant of the study was selected by lottery method based on the number of k value.

K value = N/n = 2128/311=7

where N = size of population, n=sample size

Variables of the Study

Dependent Variable:

- Utero-vaginal prolapse

Independent Variables:

Socio-economic and Demographic Factors: Maternal age, maternal educational status, and women's occupation, average monthly income.

Obstetric and Gynecologic Factors: Parity, Gravidity, induced labor, history of instrumental delivery, episiotomy vaginal tear, and sphincter damage, Family history of UVP, PID and endometriasis

Surgical and Medical Factors: History of cough, previous history of pelvic surgery Hypertension, DM, Chronic constipation

Operational Definitions

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 [15].

Utero-vaginal Prolapses; 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 [31]

Gravidity: Refers to the total number of pregnancies, including those that end before 6 months, miscarriages, and abortions [23].

Parity: refers to the number of times a woman has given birth to a fetus that was at least 24 weeks gestation, including stillbirths and live births [23].

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 [48].

Heavy Work Load: Those a usual task involving lifting of heavy object/ doing extensive physical labor that strains the pelvic organs such as farming, looking for cows, sheep, and goat herd, carrying and marketing of agricultural products, wood collection, fetching water and preparing kocho /false banana [46,49]. Those women who practiced and scored the listed activities greater than or equal to the mean was considered as involved in heavy work load.

Light Work Load: Includes all tasks that do not involve a usual lifting of heavy objects/works didn't require heavy force to strain the pelvic organ [50].

Data Management and Analysis

The collected data was downloaded in the form of Excel and SPSS labels. Then the complete data was exported to SPSS version 25 for analysis. Descriptive statics analysis was conducted through frequency, percentage (proportion), mean, and standard deviation. Hence, variables at a p-values of less than 0.25 in bivariate analysis were considered for adjustment in the multivariable binary logistic regression. A 95% confidence level and p-value of less than 0.05 was considered to use to declare a statistical significance. The results were reported as Odds Ratio (OR) with respective 95% confidence intervals. Finally, the result was presented by tables, graphs and statements.

Data Quality Assurance Techniques

Questionnaires was adapted from relevant literature and developed in to English by the Investigators and then translated to Amharic by another individual who is native to Amharic language. The questionnaire also translated back to English by another

individual in order to maintain its consistency. Data was collected by 3 data collectors and pretesting of the instrument was done at another Hospital before the actual data collection. Investigators and supervisors took a part in a pre-test of the questionnaire among 5% of the study subjects in other health institutions and the necessary modifications and correction was made to standardize and ensure its validity. The investigators check and evaluate daily for completeness and consistence of the filled questionnaires. During entry and analysis of data SPSS version 25 was used. During analysis, missing values was handled not to be excluded in analysis by checking again and again.

Finally, a total of three diploma midwifery professionals who are fluent in speaking the local language and Amharic was recruited as data collectors. One day intensive training was given for data collectors about utilization of the data collection tool, ethical conducts and overall objective of the study. The data was collected under close supervision and facilitation by the investigators. Daily check up on the completeness and consistency of answers was made and appropriate correction was given.

Ethical Considerations

Ethical clearance was obtained from Institutional Review Board (IRB) of Hawass Health Science College. Then the letter of support was obtained from Hawassa city administration health department to referral, Adare and Tula general hospitals. Before starting data collection, informed verbal and written consent was obtained from the respondents and brief explanation about the aim of the study was provided. The data collector notified that they have the right to refuse or terminate at any point of interview and information provided by each respondent kept confidential. To protect their confidentiality, interviews should conduct with the participation of the only interviewer and interviewee and participants was identified by identification code.

Dissemination of Result

The final report would be presented and submitted to Hawassa health Science College. The summery of the final report would be disseminated to Sidama Region health department and hospitals. Furthermore, efforts will be made to publish in reputable national or international journals.

Result

Socio-demographic Characteristics

From 311 enrolled sampling patients 296 women were participated to the study, making the response rate of 95.2%. The mean (±SD) age of the respondents was 51.5 ± 10.8 years with the largest proportion women were in the age group of 41–60 years (65.9%), followed by those aged 61 years and above (20.6%), and 13.5% were between 20–40 years. With respect to residence, 46.6%of the women were from urban areas, while 53.4% were from rural areas. In terms of marital status, 79.1% were married, 14.5% widowed, 5.7% divorced, and 0.7% single (Table 2).

Regarding educational status, 44.6% of the women had no formal education, 30.4% had primary education, 13.2% had secondary education, and 11.8% had college-level education and above. Occupationally, 57.8% were housewives, 24.3% private workers, 9.8% government employees, and 8.1% unemployed. Additionally, 56.4% of the women had a history of prolonged heavy weight lifting, while 43.6% did not (Table 2).

Obstetrics Health Related Factors

Among women participated in the current study, 69.3% were grand multigravida and 70.9% were grand multipara. Spontaneous vaginal delivery was 78.0%, while 14.2% had instrumental delivery. Regarding lifetime vaginal deliveries, 37.8% had 4–6 deliveries, and 31.1% had 7 or more deliveries. Prolonged labor lasting more than 24 hours was 42.9%, and 72.9% had a history of home delivery (Table 3).

Vaginal tearing during childbirth was 57.8% of the women, sphincter damage by 28.7%, and fundal pressure during childbirth by 25.7%. Instrumental delivery and episiotomy were 22.3% and 22.6%, respectively. Antenatal care follow-up before delivery was 50.3%. Normal birth weight was 82.8% of the last childbirths (Table 3).

Table 2: Socio-demographic characteristics of Utero-Vaginal Prolapse among women Attending Gynecologic ward in Public Hospitals in Hawassa City, Sidama, Ethiopia, 2025.

Variables	Frequency (n)	Percentage (%)
Age of the Women		
20-40 years	40	13.5%
41-60 years	195	65.9%
61 and above years	61	20.6%
Place of the residence		
Rural	158	53.4%
Urban	138	46.6%
Marital Status		
Single	2	0.7%
Married	234	79.1%
Divorced	17	5.7%
Widowed	43	14.5%
Educational Status of the Women		
No formal education	132	44.6%
Primary (grade 1-8)	90	30.4%
Secondary (grade 9-12)	39	13.2%
College and above	35	11.8%
Occupational status of the Women		
House wife	171	57.8%
Government Employee	29	9.8%
Private worker	72	24.3%
Unemployed	24	8.1%
Educational Status of the Husband		
No formal education	51	21.8%
Primary (grade 1-8)	75	32.1%
Secondary (grade 9-12)	56	23.9%
Collage and above	52	22.2%
Occupational status of the Husband		
Government employee	57	24.4%
Private worker	81	34.6%
Farmer	85	36.3%
Unemployed	11	4.7%
Monthly income		
< 5000 ETB	171	57.8%
5001-9000 ETB	58	19.6%
9001 ETB and Above	67	22.6%
Heavy work load		
Yes	167	56.4%
No	129	43.6%

Table 3: Obstetrics related factors of Utero-Vaginal Prolapse among Women Attending Gynecologic Ward in Public Hospitals in Hawassa City, Sidama, Ethiopia, 2025.

Variables	Frequency (n)	Percentage (%)
Gravidity		
Primigravida [17]	20	6.8%
Multigravida (2-4)	71	24.0%
Grand Multigravida (≥4)	205	69.2%
Parity		
Primipara [17]	19	6.4%
Multipara (2-4)	67	22.6%
Grand Multipara ((≥4)	210	71.0%
Mode of Delivery of Last Pregnancy		
Spontaneous vaginal delivery	231	78.0%
Caesarean delivery	23	7.8%
Instrumental/assisted delivery	42	14.2%
Life time Vaginal Delivery of the Women		
<= 3 Vaginal Delivery	92	31.1%
4-6 Vaginal Delivery	112	37.8%
7 and above Vaginal Delivery	92	31.1%
Place of the delivery the last birth		
Home	141	47.6%
health Institution	155	52.4%
History of Home Delivery		
Yes	216	72.9%
No	80	27.1%
History of prolonged Labor > 24 Hrs.		
Yes	127	42.9%
No	169	57.1%
History of Instrumental Delivery		
Yes	66	22.3%
No	230	77.7%
History of Episiotomy		
Yes	67	22.6%
No	229	77.4%
History of Induced Abortion		
Yes	95	32.1%
No	201	67.9%
History of Vaginal tear during childbirth		
Yes	171	57.8%
No	125	42.2%
History of Sphincter damage during child birth		
Yes	85	28.7%
No	211	71.3%
History of Fundal Pressure during child birth		
Yes	76	25.7%
No	220	74.3%
Antenatal Care follow-up before delivery		
Yes	149	50.3%
No	147	49.7%
Birth weight of the Last Child birth		
Low birth weight	34	11.5%
Normal birth weight	245	82.8%
Big Birth weight	17	5.7%
History of abortion		
Yes	121	40.9%
No	175	59.1%

Gynecologic Related Factors

Among the women assessed, 14.9% had a family history of utero-vaginal prolapse. A history of prior pelvic surgery was reported by 8.8% of the women. Regarding age at first marriage, 32.4% were married before the age of 18, and 67.6% were married at 18 years or older (Table 4).

In terms of age at first delivery, 44.9% gave birth between 15–19 years, 38.9% between 20–24 years, and 16.2% at 25 years and above. Menopause was reported by 51.0% of the participants, while 49.0% were not menopausal (Table 4).

Medical and Surgical Related Factors

Among the study participants, 10.1% reported a history of blunt or sharp physical injury to the reproductive organ or perineum, while 89.9% did not. A history of chronic cough lasting more than two weeks was 36.1%, and 63.9% had no such history (Table 5).

Chronic constipation lasting three months or more was reported by 36.5%, whereas 63.5% did not report this condition. Diabetes mellitus was present in 16.9% of the women, while 83.1% did not have diabetes. Hypertension was reported by 37.5% of the participants, and 62.5% did not have hypertension (Table 5).

Prevalence of UVP

The prevalence of utero-vaginal prolapse (UVP) among women attending at the selected public hospitals in Hawassa, Sidama region was 17.6%, with a 95% confidence interval of 12.9% to 22.3% (Figure 3).

Stages of Utero-Vaginal Prolapse

Among the 52 women identified with UVP, the majority were found to be in Stage 3, accounting for 26 cases. This was followed by 20 women diagnosed with Stage 2 UVP. A smaller proportion, comprising 6 women, was classified as having Stage 4 UVP (Figure 4).

Factors associated with UVP

First Bivariable logistic regression was conducted to identify eligible variables with p value < 0.25. Accordingly, nine variables were eligible and were fitted to multivariable logistic regression. A multivariable logistic regression analysis was performed to identify

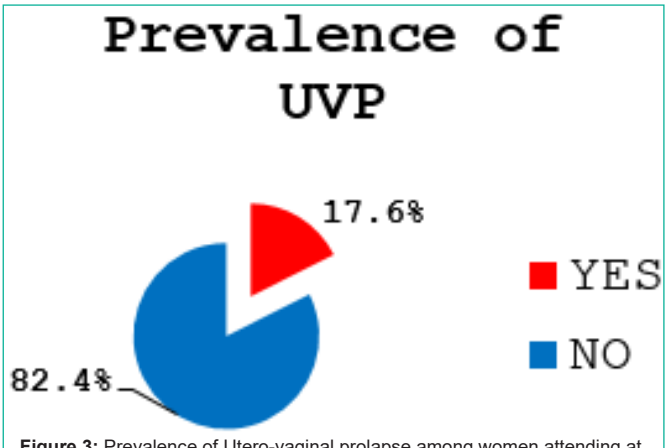

Figure 3: Prevalence of Utero-vaginal prolapse among women attending at the selected public Hospital in Hawassa city, Sidama region, Ethiopia, 2025.

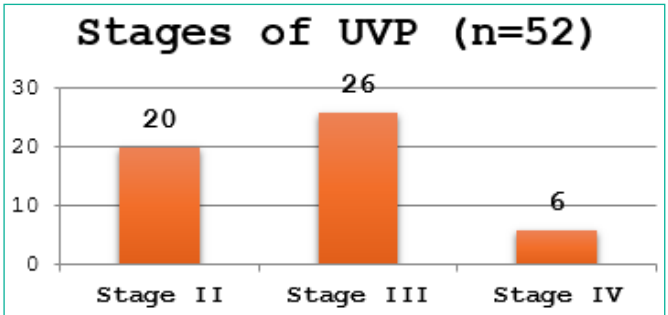

Figure 4: Stages of utero-vaginal Prolapse.

Table 4: Reproductive related factors of Utero-Vaginal Prolapse among Women Attending Gynecologic Ward in Public Hospitals in Hawassa City, Sidama, Ethiopia, 2025.

Variables	Frequency (n)	Percentage (%)
Family history of utero-vaginal prolapse		
Yes	44	14.9%
No	252	85.1%
History of prior pelvic surgery		
Yes	26	8.8%
No	270	91.2%
Age at First Marriage		
<18 Years	96	32.4%
>/= 18 Years	200	67.6%
Age at first Delivery		
15-19 Years	133	44.9%
20-24 Years	115	38.9%
25 Years and above	48	16.2%
Menopause		
Yes	151	51.0%
No	145	49.0%

Table 5: Medical and surgical related factors of Utero-Vaginal Prolapse among Women Attending Gynecologic Ward in Public Hospitals In Hawassa City Administration, Sidama, Ethiopia, 2025.

Variables	Frequency (n)	Percentage (%)
History of blunt or sharp physical injury on reproductive organ/ perineum		
Yes	30	10.1%
No	266	89.9%
History of chronic cough (> two week)		
Yes	107	36.1%
No	189	63.9%
History of chronic constipation (for 3 month)		
Yes	108	36.5%
No	188	63.5%
Diabetes mellitus		
Yes	50	16.9%
No	246	83.1%
Hypertension		
Yes	111	37.5%
No	185	62.5%

factors independently associated with utero-vaginal prolapse among women. The multivariable analysis identified the predictors of utero-vaginal prolapse, including chronic constipation, family history of UVP, heavy work load, moderate number of vaginal deliveries (4–6), and prolonged labor. Women with a history of chronic constipation were nearly three times more likely to develop UVP compared to those without such a history (AOR = 2.92; 95% CI: 1.39–6.12). Similarly, having a family history of UVP was significantly associated with increased odds of developing the condition (AOR = 3.87; 95% CI: 1.53–9.77) (Table 6).

Frequent heavy work load also showed a strong association, with affected women having nearly four times higher odds of UVP (AOR = 3.73; 95% CI: 1.66–8.35). Women who had 4–6 spontaneous vaginal deliveries were over five times more likely to experience UVP compared to those with three or fewer (AOR = 5.30; 95% CI: 1.82–15.42). Additionally, prolonged labor was independently associated with 3.36 times higher odds of UVP (AOR = 3.36; 95% CI: 1.64–6.89) (Table 6).

Table 6: Bivariable and Multivariable Logistic regression on Utero-Vaginal Prolapse among Women Attending Gynecologic Ward in Public Hospitals In Hawassa City Administration, Sidama, Ethiopia, 2025.

Variables	Utero-vaginal Prolapse		COR (95% CI)	AOR (95% CI)	P-value
	No	Yes			
Chronic cough > 2 weeks					
Yes	82	25	1.83 (0.99,3.35)	1.66 (0.82, 3.36)	0.159
No	162	27	1		
History of Chronic Constipation (>3 month)					
Yes	79	29	2.63 (.43, 4.84)	2.92 (1.392, 6.12)	0.005
No	165	23	1		
Family history of utero-vaginal prolapse					
Yes	29	15	3.02(1.47, 6.14)	3.87 (1.53, 9.77)	0.004
No	215	37	1		
heavy work load					
Yes	127	40	3.07 (1.54, 6.14)	3.73 (1.66, 8.35)	0.001
No	117	12	1		
Number of Spontaneous Vaginal Delivery a woman had					
≤3 vaginal delivery	82	10	1		
4-6 Vaginal delivery	88	24	2.24 (1.01, 4.96)	5.30 (1.82, 15.42)	0.002
>7 Vaginal Delivery	74	18	1.99 (0.87, 4.59)	2.22 (0.78, 6.35)	0.135
History of home delivery					
Yes	177	39	1.14 (0.57, 2.27)	0.43 (0.16, 1.20)	0.107
No	67	13	1		
History of Prolonged labor (>24 hours)					
Yes	95	32	2.51 (1.36, 4.64)	3.36 (1.64, 6.89)	0.001
No	149	20	1		
History of episiotomy					
Yes	60	7	0.47 (0.20, 1.1)	0.78 (0.17, 3.47)	0.739
No	184	45	1		
History of instrumental delivery					
Yes	57	9	0.69(0.32, 1.49)	0.46 (0.11, 1.89)	0.284
No	187	43	1		

Discussion

The primary aim of this study was to determine prevalence of utero-vaginal prolapse and associated factors among women attending at the selected public hospitals in Hawassa city. Accordingly, the prevalence of UVP among women attending at the selected public

hospitals in Hawassa city was 17.6%, with a 95% CI (12.9%, 22.3%). This finding was consistence with the findings from low and middle-income countries 19.7% [11], Egypt that reported 19.4% [4] and in Ethiopia of a pooled prevalence of 22.20% [40]. The similarity of the current finding could be due to comparable healthcare-seeking behaviors, population demographics, and access to gynecologic services in urban hospital settings.

However, the prevalence of the current study was lower than the magnitude of the UVP reported in Tanzania where 64.6% of women had UVP [26], in Congo where UVP was 24.12% [51] and in Dale–Wonsho Health and Demographic Surveillance Site in Sidama region with magnitude of 34.27% [39]. The lower prevalence of UVP in the current study may be due to differences in study design, healthcare access, diagnostic criteria, and improvements in maternal health services in the study area.

On the other hand, the current prevalence of UVP was higher than study conducted in Nigeria (6.5%) [4] Dilla 10.5% [31] and Loma Woreda Dawro, South-West Ethiopia 6.6% [32]. The possible explanation for the higher prevalence reported might be by differences in sampling approaches such as targeting symptomatic or high-risk populations and possible delays in care-seeking that lead to a higher detection of advanced cases. The possible justification for differences might be in socio-demographic factors such as age distribution, parity, access to maternal healthcare, and urban-rural disparities.

This study revealed that women with a history of chronic constipation have significantly higher risk of developing utero-vaginal prolapse (UVP). Accordingly, women who had a history of chronic constipation were 2.92 times more likely to experience UVP compared to those without such a history. This finding was in line with study conducted in Nigeria [4] and Mekele Tigray Northern Ethiopia [45], where women with chronic constipation have higher odds of developing UVP. The possible justification for this association might be due to repeated straining during defecation, which increases intra-abdominal pressure and weakens of pelvic support structures.

Another independent predictor of UVP was family history of UVP. Hence, women who have a family history of UVP was associated with a nearly fourfold increase in the odds of developing the condition when compared to their counter parts. This finding was in line with a study conducted in Welega, West Ethiopia [42] and a meta-analysis study conducted in Ethiopia revealed that family history of utero-vaginal prolapse was around four times higher among women with family history of UVP [40]. This strong association may be attributed to shared genetic predispositions, such as connective tissue weakness, which can be inherited within families [52].

Additionally, women who frequently had heavy work load over extended periods had higher odds of UVP compared to those who did not. A woman who frequently engage in heavy workload activities have nearly four times higher odds of developing UVP. This finding was supported by research conducted in Southern Ethiopia [38], in systematic review and meta-analysis conducted in Ethiopia claimed that women who engaged in frequent heavy work load had around four time higher chances of developing UVP [40]. Other two studies conducted in Ethiopia in Harari region eastern Ethiopia indicated that heavy work load contributes for UVP [30,41] and a case control study in Bahir Dar North West Ethiopia [33] showed the same finding that revealed prolonged heavy work load might increase women's chances of acquiring UVP. The possible explanation might be frequent heavy work load likely increases intra-abdominal pressure, which can weaken pelvic floor muscles and contribute to the development of UVP over time. This underscores the need for public health interventions focused on educating women about safe lifting practices and preventive pelvic health measures [52].

Furthermore, women with 4–6 spontaneous vaginal deliveries have over five times more chance of developing UVP compared to those with ≤3 deliveries. This finding was comparable with a study conducted in Southern Ethiopia [38], and meta-analysis conducted in Ethiopia [40] where women with history of grand multipara were found to have higher chance of getting UVP compared to their counter parts. The possible explanation for this association might be multiple spontaneous vaginal deliveries can lead to cumulative stress and trauma to the pelvic floor muscles and connective tissues, increasing the risk of UVP [52].

Finally, a history of prolonged labor was significantly associated with increased odds of UVP. It increases the odds of developing UVP by around three times among women experienced prolonged labour compared with their counterpart. This finding was in line with a study finding in Southern Ethiopia [38] and in a meta-analysis conducted in Ethiopia [40] where prolonged lobour was independent predictor of UVP. The possible justification might be prolonged labor can exert sustained pressure on the pelvic floor, leading to muscle fatigue, nerve damage, and weakening of pelvic support structures, thereby increasing the risk of UVP [52]. These findings highlight the need for timely and effective labor management to reduce long-term pelvic floor complications.

Strength and Limitation

Strength of the Study

- Enables estimation of UVP prevalence and identification of associated factors at a specific point in time.
- Findings can inform local facility-level interventions.
- Cross-sectional design is quicker and less expensive than longitudinal studies.

Limitation of the Study

- Results may not reflect the prevalence among women in the broader community.
- Cannot establish causal relationships between risk factors and UVP due to simultaneous measurement of exposure and outcome.
- Self-reported data on obstetric history or physical workload may be subject to recall bias

Conclusion and Recommendation

Conclusion

The overall prevalence of UVP among women attending public hospitals in Hawassa city was relatively high. Furthermore, chronic constipation, family history of UVP, prolonged heavy workload, moderate number of vaginal deliveries (4–6), and prolonged labor

were identified as the significant determinants of utero-vaginal prolapse. These findings underscore the need for targeted preventive strategies and early interventions focused on modifiable risk factors to reduce the burden of UVP among women in the region including preventing and managing chronic constipation counseling and regular pelvic examinations for women with a family history of UVP and family planning and birth spacing to reduce the frequency of vaginal deliveries.

Recommendation

Health Professionals and Health Facilities Should:

• Educate women on the importance of preventing and managing chronic constipation through dietary fiber intake, adequate hydration, and physical activity to reduce prolonged straining during defecation.

• Provide counseling and regular pelvic examinations for women with a family history of UVP to enable early detection and management.

• Advice women engaged in heavy labor, particularly in rural or informal sectors, on safe lifting techniques and the use of supportive devices to minimize prolonged heavy weight lifting.

• Encourage family planning and birth spacing to reduce the frequency of vaginal deliveries and ensure appropriate postpartum pelvic floor rehabilitation, especially for women with multi grand para.

• Enhance labor monitoring and timely obstetric interventions to prevent prolonged labor and its complications, thereby safeguarding pelvic floor integrity.

Acknowledgments

First of all, we would like to thank our almighty God for enabling us to reach this stage in our life and for being on the side of us in the efforts toward our successful completion of this research result write-up. Secondly, we would like to acknowledge our college for giving the opportunity to prepare research.

Also, our gratitude extended to our advisor Mr. Busera Seman (MPH in RH) for his support and constructive guidance throughout the development of this research His interest, encouragement, tolerance, unreserved guides and giving constructive comments most appreciated.

Finally, our appreciation goes to Hawassa public hospitals and patients for their cooperation in giving all necessary information as input for the development of this research result.

Reference

1. Zhao X, Qi Y, Wu T, Cheng G. Phosphoproteomic Analysis of the Jejunum Tissue Response to Colostrum and Milk Feeding in Dairy Calves during the Passive Immunity Period. Animals (Basel). 2022; 13(1).
2. Edmonds DK. Dewhurst's textbook of obstetrics & gynaecology: Wiley Online Library; 2007.
3. Bonetti TR, Erpelding A, Pathak LRJRhm. Listening to "felt needs": investigating genital prolapse in western Nepal. 2004; 12(23): 166-75.
4. Barber MD. Pelvic organ prolapse. Bmj. 2016; 354.
5. Kobak W, Rosenberger K, Walters MJIUJ. Interobserver variation in the assessment of pelvic organ prolapse. 1996; 7: 121-4.
6. Sumathi N, Nandhini CJSJAMS. Uterovaginal prolapse-a study in South Indian Women. 2017; 5(4F): 1698-704.
7. Shull BL, Bachofen C, Coates KW, Kuehl TJ. A transvaginal approach to repair of apical and other associated sites of pelvic organ prolapse with uterosacral ligaments. American journal of obstetrics and gynecology. 2000; 183(6): 1365-74.
8. Obstetricians TACo, Gynecologists, hi tAUSUTPBiua. Pelvic Organ Prolapse. Urogynecology. 2019; 25(6): 397-408.
9. Bump RC, Mattiasson A, Bø K, Brubaker LP, DeLancey JO, Klarskov P, et al. The standardization of terminology of female pelvic organ prolapse and pelvic floor dysfunction. 1996; 175(1): 10-7.
10. Hendrix SL, Clark A, Nygaard I, Aragaki A, Barnabei V, McTiernan AJAjoo, et al. Pelvic organ prolapse in the Women's Health Initiative: gravity and gravidity. 2002; 186(6): 1160-6.
11. Walker GJ, Gunasekera PJIuj. Pelvic organ prolapse and incontinence in developing countries: review of prevalence and risk factors. 2011; 22: 127-35.
12. Lukman YJEAmj. Utero-vaginal prolapse: a rural disability of the young. 1995; 72(1): 2-9.
13. Bijalwan RP, Bhagavatula M, Semwal VD, Rawat P, Anand V. Morbidity of uterine prolapsed among the women in the Chakrata block of Dehradun District. Indian Journal of Community Health. 2015; 27(1): 103-9.
14. Fritel X, Varnoux N, Zins M, Breart G, Ringa VJO, gynecology. Symptomatic pelvic organ prolapse at midlife, quality of life, and risk factors. 2009; 113(3): 609.
15. Haylen BT, De Ridder D, Freeman RM, Swift SE, Berghmans B, Lee J, et al. An International Urogynecological Association (IUGA)/International Continence Society (ICS) joint report on the terminology for female pelvic floor dysfunction. 2010; 29(1): 4-20.
16. Wang B, Chen Y, Zhu X, Wang T, Li M, Huang Y, et al. Global burden and trends of pelvic organ prolapse associated with aging women: An observational trend study from 1990 to 2019. Frontiers in Public Health. 2022; 10: 975829.
17. Central Statistical Agency (CSA) Eal, "Ethiopia Minin Demographic and Health Survey 2019: Key Indicators Report: Addis Ababa, Ethiopia, and Rockville, CSA and ICF, Maryland, USA.
18. Vos T, Flaxman AD, Naghavi M, Lozano R, Michaud C, Ezzati M, et al. Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. The lancet. 2012; 380(9859): 2163-96.
19. Ash K, Ash A. Pelvic organ prolapse: current understanding, assessment and management.
20. Gedefaw G, Demis A. Burden of pelvic organ prolapse in Ethiopia: a systematic review and meta-analysis. BMC women's health. 2020; 20(1): 1-9.
21. Akmel M, Segni H. Pelvic organ prolapse in Jimma University specialized hospital, Southwest Ethiopia. Ethiopian journal of health sciences. 2012; 22(2).
22. Gaym A. Elective hysterectomy at Tikur Anbessa Teaching Hospital, Addis Ababa. Ethiopian medical journal. 2002; 40(3): 217-26.
23. Whitfield CR. Dewhurst's textbook of Obstetrics & Gyneacology for postgraduates. 1995.
24. Buchsbaum GM, Duecy EE, Kerr LA, Huang L-S, Perevich M, Guzick DSJO, et al. Pelvic organ prolapse in nulliparous women and their parous sisters. 2006; 108(6): 1388-93.
25. Brown HW, Hegde A, Huebner M, Neels H, Barnes HC, Marquini GV, et al. International urogynecology consultation chapter 1 committee 2: Epidemiology of pelvic organ prolapse: prevalence, incidence, natural history, and service needs. International Urogynecology Journal. 2022: 1-15.

26. Masenga GG, Shayo BC, Rasch V. Prevalence and risk factors for pelvic organ prolapse in Kilimanjaro, Tanzania: a population based study in Tanzanian rural community. PloS one. 2018; 13(4): e0195910.

27. Mekuria Z, Mengesha A, Seyoum G. Prevalence and Associated Factors of Utero-Vaginal Prolapse in AddisAbaba, Ethiopia: A Cross-Sectional Study. 2021.

28. Muche HA, Kassie FY, Biweta MA, Gelaw KA, Debele TZ. Prevalence and associated factors of pelvic organ prolapse among women attending gynecologic clinic in referral hospitals of Amhara Regional State, Ethiopia. International urogynecology journal. 2021; 32: 1419-26.

29. Seid NY, Belay MA, Workie A, Eshete A, Abebe M, Deneke ZS. Pelvic organ prolapse and reasons for delay in treatment-seeking among women in Dessie Zuriya Woreda, Northeast Ethiopia, 2022. International Journal of Africa Nursing Sciences. 2024; 21: 100796.

30. Abebe D, Kure MA, Demssie EA, Mesfin S, Demena M, Dheresa M. One in ten ever-married women who visited health facilities for various reasons have pelvic organ prolapse in Harari regional state, Eastern Ethiopia. BMC Women's Health. 2022; 22(1): 223.

31. Alehegn K, Kassaw C, Mareg M, Sisay DJSM. Magnitude and associated factors of utero-vaginal prolapse among women's visiting gynecology ward from 2016-2019 at Dilla Referral Hospital, southern Ethiopia. 2020; 1(02).

32. Badacho AS, Lelu MA, Gelan Z, Woltamo DD. Uterine prolapse and associated factors among reproductive-age women in south-west Ethiopia: a community-based cross-sectional study. PloS one. 2022; 17(1): e0262077.

33. Asresie A, Admassu E, Setegn TJIjowsh. Determinants of pelvic organ prolapse among gynecologic patients in Bahir Dar, North West Ethiopia: a case–control study. 2016: 713-9.

34. Vergeldt TF, Weemhoff M, IntHout J, Kluivers KB. Risk factors for pelvic organ prolapse and its recurrence: a systematic review. International urogynecology journal. 2015; 26: 1559-73.

35. Dora BT, Kassa ZY, Hadra N, Tsigie BB, Esayas HL. Determinants of pelvic organ prolapse at public hospitals in Hawassa city, Southern Ethiopia, 2020: unmatched case control study. BMC Women's Health. 2022; 22(1): 301.

36. Bonetti TR, Erpelding A, Pathak LR. Listening to "felt needs": investigating genital prolapse in western Nepal. Reproductive health matters. 2004; 12(23): 166-75.

37. Pant P. Utero-vaginal prolapse in far western region of Nepal. Journal of Institute of Medicine Nepal. 2009; 31(2): 19-21.

38. Asfaw Borsamo , Mohammed Oumer, Ayanaw Worku, Asmare Y. Associated factors of pelvic organ prolapse among patients at Public Hospitals of Southern Ethiopia: A case-control study design. ploS one. 2023.

39. Siyoum M, Nardos R, Teklesilasie W, Astatkie A. Prevalence and risk factors of pelvic organ prolapse among women in Sidama region, Ethiopia: A community-based survey. Women's Health. 2024; 20: 17455057241265078.

40. Dagne Addisu, Maru Mekie, Yismaw Yimam, Belachew, Alemu Degu, Gebeyehu NA. The prevalence of pelvic organ prolapse and associated factors in Ethiopia: a systematic review and meta-analysis. Front Med. 2023; 10.

41. Ali A, Yadeta E, Eyeberu A, Abdisa L, Bekana M, Dheresa M. Pelvic organ prolapse and associated factors among women admitted to gynecology ward at the Hiwot Fana Comprehensive Specialized Hospital, Harar, eastern Ethiopia. SAGE open medicine. 2022; 10: 20503121221126363.

42. Firdisa G, Tilahun T, Kejela GJIUJ. Determinants of uterovaginal prolapse in Western Ethiopia. 2022; 33(2): 421-9.

43. Isık H, Aynıoglu O, Sahbaz A, Selimoglu R, Timur H, Harma M. Are hypertension and diabetes mellitus risk factors for pelvic organ prolapse? European Journal of Obstetrics & Gynecology and Reproductive Biology. 2016; 197: 59-62.

44. Kudish BI, Iglesia CB, Gutman RE, Sokol AI, Rodgers AK, Gass M, et al. Risk factors for prolapse development in white, black, and Hispanic women. Female pelvic medicine & reconstructive surgery. 2011; 17(2): 80.

45. Mekonen B, Hintsa S, Syum H, Zenebe D, Lema GK, Shimondi A, et al. Determinants of pelvic organ prolapse among adult gynecologic patients in Mekelle University Ayder Comprehensive Specialized Hospital, Tigray, Ethiopia: Case control study design. PLoS One. 2025; 20(4): e0322297.

46. Henok AJEjohs. Prevalence and factors associated with pelvic organ prolapse among pedestrian back-loading women in Bench Maji Zone. 2017; 27(3): 263-72.

47. RHB. Annual report of Sidama regional health beurou. 2024.

48. Sm MJM. Brambilla DJ. Posner JG. The normal menopause transition. 1992; 14: 103-15.

49. Lema Z, Yemane Berhane MJJBAH. Determinants of pelvic organ prolapse among gynecological cases in Wolaita Sodo University Referral Teaching Hospital, Southern Ethiopia: a case-control study. 2015; 5(21): 1-10.

50. Thapa S, Angdembe M, Chauhan D, Joshi RJJoO, Research G. Determinants of pelvic organ prolapse among the women of the western part of N epal: A case–control study. 2014; 40(2): 515-20.

51. al. ATKe. Pelvic organ prolapse: a cross-sectional study during mass campaign in two hospitals in the city of Kananga in the Democratic Republic of Congo. pan African medical journal 2024; 47(52).

52. Subak LL, Waetjen, L. E., van den Eeden, S., Thom, D. H., & Vittinghoff, E. Predictors of pelvic organ prolapse. American Journal of Obstetrics and Gynecology. 2001; 184(7): 1496–502.