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RESEARCH ARTICLE

Magnitude and associated factors of Utero-vaginal Prolapse among women's visiting gynecology ward from 2016-2019 at Dilla Referral Hospital, southern Ethiopia

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Abstract

Background: Utero-vaginal prolapse (UVP) is the herniation of the uterus and all vaginal segments wall. It is a major women's health concern throughout the world. Globally, 2-20% of all women are affected by utero-vaginal prolapse. The prevalence of utero-vaginal prolapse in Ethiopia is 18.55% among all gynecological operations. Despite the fact, there is no enough study conducted in southern Ethiopia, therefore, this study aimed to assess the prevalence and associated factors of utero-vaginal prolapse among patients admitted at gynecological ward in Dilla University Referral Hospital, Dilla town, southern Ethiopia, 2020.

Methods: This study was an institutional-based retrospective cross-sectional conducted in Dilla University Referral Hospital from records. We included 257 gynecologic ward admitted patients chart which were selected, using systematic sampling from 1864 charts from September 2016 to June 2019. The study was conducted from December 2019 to September 2020 at Dilla University referral Hospital (DURH). We used SPSS version 22 for data entry and analysis. A bi-variable and multi-variable logistic regression (95% CI, $p<0.05$) were conducted to identify the factors associated with Utero-vaginal prolapse. Descriptive statistics, such as frequency, percentage, and tables were used to display the result.

Result: This study found that 27 (10.5%) of the participants had utero-vaginal prolapse. The predictor variables for utero-vaginal prolapse were absence of perianal tear [AOR= 0.016; 95% CI (0.001, 0.506)], absence of chronic constipation [AOR= 0.015; 95% CI (0.001, 0.528)], absence of chronic cough [AOR= 0.020; 95% CI (0.001, 0.749)], and having no family history of UVP [AOR= 0.031; 95% CI (0.004, 0.230)] decreased the risk of UVP.

Conclusion: This study identified that one-fourth of the participants had Utero-vaginal prolapse. This study also identified modifiable factors related with the outcome variable. Therefore, giving special attention, creating awareness, and working on those risk factors is crucial for the prevention and management of utero-vaginal prolapse.

Keywords: Gynecology ward, South Ethiopia, Utero-vaginal prolapse, Women

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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, which is held inside the pelvic cavity by various ligaments, muscles, and connective tissues which are collectively known as the pelvic floor [1]. The common complaints are pelvic pressure, discomfort, visible bulging, and sexual impairment. And clinically graded based on the quality of life affected, the severity and stage of prolapse [2–6].

The common cause of UVP was the early age of the marriage, culture related to caste/ethnicity, less access to health services due to poor economic condition, delivery at a young age, lack of spacing between pregnancies. Other causes were older age, Family history, menopause, higher parity, vaginal delivery, and prolonged labor [7–10].

It affects women's sexual, gynecological, psychological, and mental wellbeing, and quality of life; results in social stigma and discrimination in low and middle-level countries, which the culture is discouraging, secret, feel of shame to clarify Franky the condition at the public [11–13].

Globally, 2-20% of all women are affected by utero-vaginal prolapse and estimated that the prevalence of any degree of uterine prolapse among women age 20-59 was 5%. The incidence of utero-vaginal prolapse was 14.2% in the UK, 17% in Australia, 8.5% in France, 27% in Turkey, and 10% in India [14–18]

The mean prevalence of pelvic organ prolapses among low and middle-income countries was 19.7%. In Ethiopia, 19.9 % in Gondar, and 17.2% in Gandhi memorial hospital [7,12]. Despite its magnitude and effects, there is no enough study conducted in southern Ethiopia. Therefore, this study aimed to assess the magnitude and its determinants among women attended a gynecological treatment service [19].

Study Objective

General Objective

To assess the prevalence and its associated factors of utero-vaginal prolapse among gynecological patients in DURH, Dilla town, Gedeo zone, south Ethiopia, 2020.

Specific objectives

To assess the prevalence of utero-vaginal prolapse among gynecological patients in DURH, Dilla town, Gedeo zone, south Ethiopia, 2020; To determine factors associated with utero-vaginal prolapse among gynecological patients in DURH, Dilla town, Gedeo zone, south Ethiopia, 2020.

Methods and Materials

Study Area and Period

This study was conducted in Dilla referral hospital which is found in Dilla town, located in Gedeo Zone, SNNPR, Ethiopia. Dilla town has nine kebeles, two health centers, and one hospital and located 360 km faraway from Addis Ababa, the capital city of Ethiopia, and 90 km from Hawassa, the capital city of southern nation nationalities and peoples region (SNNPR). The total population is estimated to be 96, 920, and 22,539 of them were women of reproductive age (15-49 years of age). The study was conducted from December 2019 to September 2020 at Dilla University referral Hospital (DURH).

Study Design

This study was a facility based retrospective cross-sectional study design and secondary data from the medical record charts of women admitted in the gynecology ward of the DURH was the source of data.

Source Population

All women's visiting gynecological ward at Dilla referral hospital

Study Population

Participants of this study were all women with utero-vaginal prolapse who visited gynecological ward.

Study Unit:

Individual level

Sample Size Determination

The sample size was determined using a single population proportion formula of a cross-sectional study design. The researchers used the proportion (19.9%) of UVP in gynecologic hospital admissions conducted in Gondar hospital [12].

On the basis of this statistics, desired sample of the study was calculated as:

$$\text{n} = \frac{Z^2 p(1-p)}{d^2}$$

Where,

n=Desired sample size for the study
Z=the standard normal variety, value of Z at 95% CI=1.96
P=prevalence of uterine prolapse Q=1-P
D=permissible errors, value of D is =0.05

Using the above formula, the sample size were calculated as follows:

$$\text{n} = \frac{(1.96)^2(0.199)(1-0.199)}{(0.05)^2}$$

$\text{n} = 244.93 \approx 245$ +5% non-response rate [9]

Therefore, the total sample size of this study was 257.

Sampling Procedure

Researchers selected the required number of samples using systematic random sampling after proportional allocation for each four strata years (2016, 2017, 2018, and 2019). Systematic random sampling was used to select all required samples using intervals (K^{th}) units by dividing the total case notes by the calculated sample size. Finally, a total of 257 women's medical records were selected for conducting this study.

$$K^{th} \text{ int.} = \frac{all gynecologic cases from Sep.2016 - June 2019}{Total no of my sample size \approx 257}$$

$$= \frac{1864}{257}$$

$$= 7.25 \approx 7$$

The researchers selected all required samples (n=257) every 7^{th} interval. Data were extracted from the medical record charts using a pretested self-prepared checklist.

Inclusion Criteria

This study included all participants with full medical information available in the registration book archive of the hospital and admitted from 2016-2019.

Exclusion Criteria

This study excluded those participants with comorbid case in addition to utero-vaginal prolapse

Study Variables

Dependent Variable:

Utero-vaginal prolapse

Independent Variables:

Socio-demographic variables: age, occupation, ethnicity, educational status, address, religion.

Reproductive variables: gravidity, parity, prolonged labor, age at first delivery (years), place of delivery, mode of delivery, perianal tears, family history of UVP, history of UVP.

Medical status: chronic cough, chronic constipation and smoking.

Work related factors: heavy load lifting.

Operational Definition

Pelvic organ prolapses: It is the abnormal herniation of pelvic viscera including uterus, vaginal vault, bladder, rectum, and small or large bowel against the vaginal walls or through the vaginal introits [**??**].

Utero-vaginal prolapse: It is the descent of the uterus/cervix and vaginal segments through the vaginal canal.

Stages of UVP prolapse: 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 [7].

Data Collection Instruments

The researchers used standard and validated tool to measure each variables of the study. The researchers conducted pretest for each tool before the actual data collection period.

Data Collection Procedure

After the preparation of the structured questionnaire, the researchers selected three midwifery data collectors and one medical doctor supervisor to collect the outcome and other independent variable information of participants from their admission chart and medical record chart.

Data Quality Control

All data collectors and supervisors have taken two days of training. The researchers conducted a pretest among 5% of the study subjects before the actual data collection time. Supervision was employed on daily basis to check completeness and consistency by both the supervisors and the principal investigator to keep the quality of data.

Data Processing and Analysis

The entire questionnaire was checked for completeness. The data were cleaned, coded and entered into the computer using Epi-data version 3.1 then exported to SPSS 20 version statistical software for analysis. Binary logistic regression statistical model was used to estimate the relationship between dependent and independent variables. P-value ≤ 0.25 were entered into multivariate logistic regression and $p \leq 0.05$ used to identify variables independently predict the outcome variable at 95% confidence interval.

Results

Socio-demographic Characteristics of the Respondent

The response rate for the current study was 100%. Out of all 257 participants, 163 (63.4%) of them were age below 40 years old, and 159 (61.9%) came from a rural area, and 148 (57.6%) were protestant religion followers. 208 (80.9%) of them were married, and 151 (58.8%) of participants cannot read and write, and nearly half 122 (47.5%) of them were housewives (Table 1).

Table 1 Socio-demographic characteristics of respondents

Variable		Frequency (n=257)	Percentage (%)
Age group in years			
	≤ 40	163	63.4
	> 40	94	36.6
Address			
	Urban	98	38.1
	Rural	159	61.9
Marital status			
	Married	208	80.9
	Others*	49	19.1
Religion			
	Orthodox	67	26.1
	Muslim	42	16.3
	Protestant	148	57.6
Ethnicity			
	Gedeo	151	58.8
	Oromo	63	24.5
	Others**	43	16.7
Level of education			
	Unable to read and write	151	58.8
	Able to read and write	24	9.3
	Formal education	82	31.9
Occupation			
	House wife	122	47.5
	Others ***	135	52.5

Note: *widowed and divorced; **Amhara, Silite, and Gurage; ***merchant, employed

Obstetrical Characteristics of Study Participants

Out of all participants, 158 (61.5%) of them gave their first birth at age < 20 years of age, and 150 (58.4%) had > 4 times pregnancy history. More than half 146 (56.8%) of them attended home delivery, and 227 (88.5%) of them delivered vaginally. All of them had no smoking history (Table 2).

Table 2 Obstetrical characteristics of respondents

Variable	Frequency (n=257)	Percentage (%)
Age at first delivery		
≤ 20 year	158	61.5
> 20 year	99	38.5
Parity		
< 2	65	25.3
2-4	42	16.3
> 4	150	58.4
Mode of Delivery		
Vaginal	225	87.5
c/s	32	12.5
Place of delivery		
Home	146	56.8
Health center	111	43.2
Perianal tear		
Yes	88	34.2
No	169	65.8
Chronic constipation		
Yes	95	37.0
No	162	63.0
Chronic cough		
Yes	85	33.1
No	172	66.9
Degree of UVP		
First degree	2	7.4
Second degree	9	33.3
Third degree	13	48.2
Fourth degree	3	11.1
Duration of illness		
<1 year	2	7.4
1-5 years	15	55.6
6-9 years	9	33.3
≥ 10	1	3.7
Family history of UVP		
Yes	35	13.6
No	222	86.4
Prolonged labor		
< 8 hour	108	42.0
≥ 8 hour	149	58.0

Prevalence of Utero-vaginal Prolapse

This study showed that 27 (10.5%) of the participants had utero-vaginal prolapse. Out of that, 13 (48.2%) of them had third-degree UVP, and 15 (55.5%) of them had utero-vaginal prolapse for 1-5 years (Figure 1).

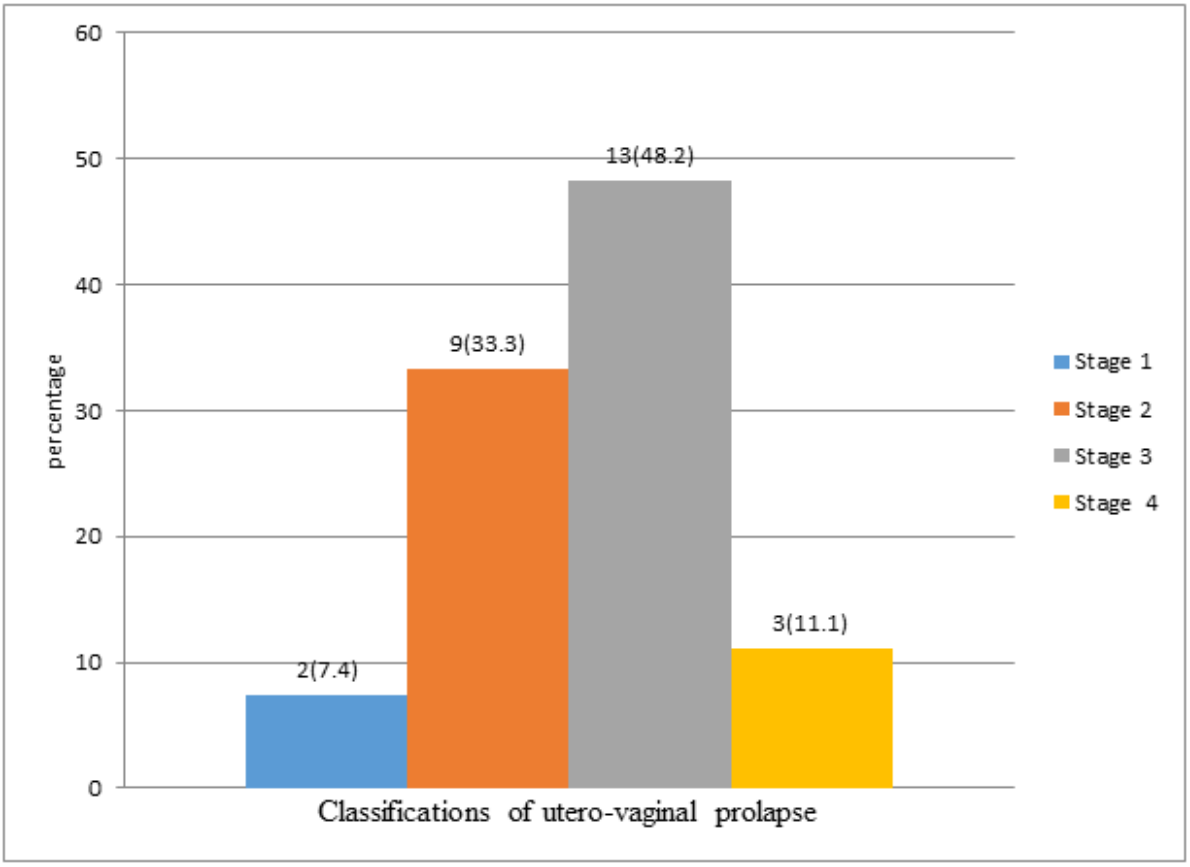

Figure 1 Stages of utero-vaginal prolapse

Factors Associated with Utero-vaginal Prolapse

During multivariate logistic regression; history of perinatal tears, chronic constipation, and cough and family history of UVP were significantly associated with UVP.

Those participants with history of perinatal tears had 10.93 times AOR=10.93, 95% CI (3.97, 30.08) more to develop utero-vaginal prolapse than their counter parts. Those participants with history constipation had 5.90 times AOR=5.9, 95% CI, (2.39, 14.58)* to experience utero-vaginal prolapse (Table 3).

Table 3 Predictors of utero-vaginal prolapse among respondents

Variables	**Utero-vaginal prolapse**		**Multivariable regression analysis AOR, (95% CI, p < 0.05)**
Category	YES	NO	
History of perinatal tears			
Yes	22	66	10.93 (3.97, 30.08)**
No	5	164	1
History of chronic constipation			
Yes	20	75	5.9 (2.39, 14.58)*
No	7	155	1
History of chronic cough			
Yes	21	64	9.08 (3.5, 23.52)**
No	6	166	1
Family history of UVP			
Yes	17	18	20.02 (8, 50.11)***
No	10	212	1
Age at first delivery			
≤ 20 year	78	80	1.57 (0.32-2.83)
> 20 year	46	53	1
Parity			
< 2	30	25	1.34 (0.12-3.25)
2-4	25	17	2.01 (0.33-3.92)
> 4	85	65	1
Mode of Delivery			
Vaginal	103	122	1
c/s	14	18	0.56 (0.11-2.11)
Place of delivery			
Home	85	61	1
Health center	67	44	2.47 (0.11-3.21)
Prolonged labor			
< 8 hour	55	53	1.11 (0.73-2.18)
> 8 hour	82	67	1

1=reference category, p < 0.05, *, P < 0.01, **, p < 0.001, ***

Discussion

This study was conducted to identify the prevalence of UVP and associated factors among women admitted to the gynecology ward of DURH from 1st September 2016 to June 2019. This study found that 27 (10.5%) of the participants had utero-vaginal prolapse, which was lower than the studies done in the United States (14.2%) [24], Nepal 13.7% [20], Gondar (19.9%) and Addis Ababa (17.2%) [12], and Bench-Maji Zone (13.3%) [21]. It might be due to the sociodemographic characteristics, study design, and period differences of study participants. On the other hand, the finding was higher than the studies in Egypt 7.9% [22] and Dabat (North West Ethiopia) 6.3% [23]. It might be due to the cultural and attitudinal differences toward marriage and delivery.

This study found that 124 (48.2%) of respondents had third-degree UVP, which was in contrast with studies done in Nigeria, 83.3% were second degree [24], and in Ghana, 33.3% were second-degree utero-vaginal prolapse [25]. These differences might be due to the awareness gap towards utero-vaginal prolapse, different accessibility of health facilities, and socioeconomic variance.

This study found that 190 (74.1%) of women with UVP had their first child at the age of less than 20 years, which was lower than the study done in Bahir Dar (91.9%) [26]. Early marriage contributes to early pregnancy and delivery, which is the mainstay cause of utero-vaginal prolapse.

This study also found that 85 (35%) of the respondents had a chronic cough and 97 (37.0%) chronic constipation, which was higher than the studies done in Jimma [27] (20.9%) and 30.2%, respectively. It might be due to the difference in their day-to-day life activities, which in these study area women are highly engaged in carrying woods and had no enough nutrition status contribute to different chronic illness.

This study found that nine of women with UVP were from rural residents. Rural women are engaged in '*Kocho*' mining (traditional diet in SNNPR, made from '*enset*'), which is physically demanding and involving leg and back muscle fatigue and risk for utero-vaginal prolapse.

Moreover, the study found that women who have no perianal tear were 98.4% who are less likely to develop utero-vaginal prolapse than their counterparts and supported by a study done in Nepal [20]. It might be explained by sphincter muscles, together with their surrounding tissues, are responsible for keeping/supporting all of the pelvic organs. And this might be due to the perianal tear that may lead to different complications including UVP.

This study's result revealed that women who have no family history of UVP were 96.9%, who are less likely to develop UVP than their counterparts. This finding is supported by a study done in Bahir Dar, Northern Ethiopia [26], which showed that positive family history of pelvic organ prolapse were five times more likely to have had pelvic organ prolapse (POP) compared with their counter parts. This might be due to the risk of the problem may be transferred from their families genetically.

The result of this study showed that women who have no chronic constipation and chronic cough were 98.5% and 98.0% who are less likely to develop UVP than their counterparts respectively. This might be due to chronic constipation and chronic cough that increase pressure on pelvic organ which may increase the risk of UVP.

Limitation of study

This study used secondary data prone for Miss-information. This study was cross sectional study design which might not show the direct cause-effect relationship between the predictor and outcome variable.

Conclusion

According to the findings of this study, utero-vaginal prolapse was a common gynecological problem and reason for admission. Preventing and managing the case needs a collaboration work from different stake holders. Early managing medical conditions such as, constipation, cough and perinatal tears is vital to prevent the occurrence of UVP. Creating awareness about magnitude and risk factors is also another possible solution for the early managements of the case in different health organization.

Assertions

Abbreviations and Acronyms

AOR	Adjusted Odd Ratio
CI	Confidence interval
COD	Crude Odd Ratio
DURH	Dilla University Referral Hospital
EC	Ethiopian calendar
ETB	Ethiopian birr
GC	Gregorian calendar
JUSH	Jimma University Specialized Hospital
MRN	Medical record charts
OR	Odds Ratio
POP	Pelvic organ prolapses
SNNPR	Southern Nation Nationalities and Peoples' Region
SPH	Social Public Health
SPSS	Statistical Package for Social Sciences
UVP	Utero-vaginal prolapse

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Ethical Concern

Ethical clearance for this study was obtained from the Dilla university referral Hospital College of health sciences and medicine research review committee. The permission letter to review patient's medical chart was obtained from medical directorate and respective ward clinical coordinators. The issues of privacy and confidentiality issues were addressed throughout the survey.

Consent for Publication - Not applicable

Availability of Data and Materials

The datasets underlying the study are available from the corresponding author up on request.

Competing Interests

We confirm there are no competing interests on this research work.

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Author's Contributions

Kassahun Alehegn initiated the idea.

Chalachew Kassaw, Moges Mareg, and Daniel Sisay developed the proposal, involved in data collection, research writing, supervised the whole task, and developed the manuscript.

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