

# Uterine prolapse and associated factors among reproductive age women in Dawro zone, southwest Ethiopia: a community based cross sectional study

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## Research article

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# Abstract

**Background:** Uterine Prolapse is an important but one of the most neglected public health problems causing maternal morbidity and mortality among women of reproductive age in developing countries including Ethiopia. However, yet few data are available with respect to uterine prolapse. The objective of this study was to assess the prevalence of, and factors associated with uterine prolapse among women of reproductive age.

**Methods:** A community based cross-sectional study was conducted in Loma Woreda, Dawro southwest Ethiopia, from November to December 2019. A total of 422 randomly selected women of reproductive age were participated in the study. Data were collected by face-to-face interview with pre-structured questionnaire and clinical diagnoses were carried out. Epi data 3.2.1 and SPSS version 24 were used for data entry, processing and analysis. Binary Logistic regression was used to find out the association between dependent and independent variables. Variables with P-value less than 0.25 in bivariate logistic regression were further examined using multivariate logistic regression to investigate an association between dependent variable and independent variables.

**Results:** The mean age of the respondents was 35.4 years ( $\pm 7.994$  SD). This study identified that the prevalence of symptomatic and anatomical uterine prolapse was 6.6 %(28) and 5.9%(25) respectively. The prevalence of anatomical prolapse was used as a reference when determining the associated factors. Age at first marriage (AOR: 0.25, 95%CI (0.07, 0.89)), place of delivery (AOR: 3.33, 95%CI (1.21, 9.13)), birth attendant assisted delivery (AOR 0.21; 95%CI (0.06, 0.71) and history of abortion (AOR: 2.94, 95%CI (1.08, 7.97) were found to have significantly and independently associated with prevalence of uterine prolapse.

**Conclusion:** Uterine prolapse is common among women of reproductive age group age at first marriage, place of delivery, birth attendant assisted delivery, and history of abortion were found to be independent predictors of prevalence of uterine prolapse.

## Background Of The Study

Uterine prolapse (UP), known as pelvic organ prolapse (POP) and genital prolapse; dropping of uterus from its anatomical confines to positions within or outside the vaginal introitus, occurs weakened pelvic muscles no longer support the appropriate positioning of pelvic organs, vagina and uterus in particular accompanied by different prolapse symptoms like heaviness or something coming down, and other sexual, urinary, and bowel [1].

UP is most common gynecological health problems contributing to maternal morbidity and mortality among women of reproductive age in developing countries; lead to severe degrees of physical disability; for instance, inability to work, difficulties in walking or standing up, difficulties in urinating or defecating, painful intercourse, increased social stigma, and economic deprivation also affects physical and mental health of women, and can be fatal if left untreated[1, 2, 4].

The worldwide prevalence of UP has been reported to be around 9%. However, in developing countries, it is estimated to be nearly 20%. The developing countries studies report an astounding variation in the prevalence of POP (3.4-56.4%)[6].

Prevalence based on symptoms is 3-6% and up to 50% when defined by vaginal examination[7]. The global estimate shows that 30% of all women who have delivered a child are affected by UP[8]. The severity of uterine prolapse is determined based on its degree; first degree when the uterine cervix protrudes into the lower third of the vagina, second degree when the cervix protrudes past the vaginal opening and the third degree(severe) when the entire uterus protrudes outside the vaginal opening[9].

The burden of UP in low-income countries is expected to be worse than that of developed countries given the low level of awareness of women in developing countries. [10-12].

Major risk factors associated with UP are adolescent pregnancy, lack of rest during and immediately after pregnancy, carrying heavy loads, delivery by unskilled birth attendants, poor nutrition, frequent pregnancies and pregnancies close together due to prolonged and obstructed labor as well as weakening of pelvic organ muscles as a result of aging or other medical problems [4] [5].

The treatment of UP depends on the severity of the prolapse, the woman's general health, age and desire to have children. First and second degree prolapse usually treated using ring pessaries which is inserted into the vagina in order to stretch the vaginal walls, often used in combination with pelvic floor exercises. The prolapse above second degree is often treated by surgery[9].

Uterine Prolapse is an important but one of the most neglected public health problems in developing countries including Ethiopia and less has been documented regarding the prevalence of UP[3, 9].

In Ethiopia, almost no population-based studies have been performed on UP. However, reports from hospitals suggest a high burden of POP among women at gynecological outpatient clinics and wards. [5, 6].

There is paucity of locally generated evidence on the magnitude and associated factors among women regarding UP to design appropriate prevention strategies[3, 13],

Women who are suffering from UP experience a protruding mass inside or outside vagina, accompanied by difficulty in sitting, standing up, walking, and lifting. In developing countries, this may affect women's social acceptance and can lead to physical and emotional isolation. Due to stigma in low-income countries, women affected by POP often hide their situation, do not seek help and live with the disease and its complications for long period[11].

Regardless the report from different studies, the actual number of women affected by prolapse is unknown because many women don't seek medical help because of the shame from the condition which

affects a sensitive part of the women's body[9].

According to a projection from 2007 national census, in 2019, Ethiopia has nearly 110 million inhabitants. The women in the reproductive age group constitute 23.4%. Thus, nearly 25.5 million Ethiopian women are between 15 and 49 years of age. These women, in one or other ways are affected by the burden of uterine prolapse.

To design appropriate intervention strategies on awareness creation, the prevalence and factors associated with uterine prolapse among women need to be well determined. However, in Ethiopia there is scarcity of research evidence concerning prevalence of, and factors associated with UP[3, 13].

There for aim of this study was assessing prevalence and associated factors with uterine prolapse among women of reproductive age group.

## **Methods**

### **Study Design and Period**

A community based cross-sectional study was conducted from November to December, 2019.

### **Settings**

This study was conducted in Loma Woreda of Dawro Zone. Dawuro Zone is one of the fifteen Zones in Southern Nations, Nationalities, and Peoples' Region (SNNPR). It is located at about 560km Southwest of Addis Ababa, the capital of Ethiopia. and 375 km of Hawassa, the capital of the SNNPR. Loma Woreda is one of the ten woredas, consists of 28 Kebeles (smallest administrative units) with an estimated population number of 105,551. According to the data from National Statistical Agency, 23.4% of Ethiopian population is women of reproductive age group; thus, the number of reproductive age group women in Dawuro Zone and Loma woreda was estimated to be 152,100 and 24,699, respectively. The data from the Woreda Health Office showed that, there were one Primary Hospital and three Health Centers, two medium clinics, three primary clinics and two drug stores in Woreda giving both curative and preventive health services for the Woreda population

Gessa Primary Hospital, the only hospital in the Loma has seven departments; OPD, IPD, Emergency, MCH, OR, Pharmacy, and Laboratory department; staffed with 4 General Practitioners, 6 Health Officers, 25 clinical Nurses, 11 Midwives, 5 laboratory technicians, and 4 pharmacy technicians.

### **Source and study population:**

The source or target populations of the study were all women of reproductive age group who had history of at least one delivery in Loma Woreda while the study populations were all women in the randomly selected.

### **Inclusion Criteria**

All ever-married and single women of reproductive age group who had history of at least one delivery in the included. Pregnant women were excluded study.

### **Sample Size Determination and Sampling**

Sample size was calculated by using a single population formula with  $p=0.5$  Margin of error ( $d$ )= 0.05. 422 randomly selected women were involved in to study using household folder as sampling frame.

### **Data collection method**

Eight trained diploma Midwives collected data by face-to-face interview at the participant's home by being supervised by two BSc Nurse Supervisors.

### **Quality assurance**

Data collectors and supervisor trained for three days on study overview, communication, respecting the cultural norms of women, detailed review, informed consent process, and administration of the study questionnaire.

Before collection of the actual data, 5% of total sample size was pretested and necessary corrections on questionnaires were made accordingly. Translating and back translating of questionnaire from English to Amharic and back to English to check consistency was made. At the end of each data collection day, data were checked for completeness and consistency and discussion with the research assistants was undertaken

### **Data Collection Instrument and measurement**

A structured questionnaire was developed from similar uterine prolapse prevalence studies. The interview question was composed of three main sections; the first two were phase 1 and the third was considered as phase two:

- 1) Socio-demographic variables and Obstetric and gynecologic history (14 questions),
- 2) Questions regarding symptoms of uterine prolapsed (6questions),
- 3) The third section included two items; confirming by vaginal examination whether the women who reported symptomatic prolapse had anatomical prolapse or not, and the staging the prolapse was done then.

Symptomatic POP was assessed by two questions previously used by other studies, Do you have a (1) feeling of bulging/pressure or something seems to be coming down through the vagina? or (2) Visible mass protruding via the vagina? A woman who had experienced one or both of these problems in the past 1 year was considered as having symptoms of UP and further questions followed to assess the duration and associated symptoms. Indication of prolapse based on the questionnaire was referred to as

symptomatic prolapse. Women who reported the symptoms of uterine prolapse were referred to Tercha Zonal hospital for pelvic examination in order to further identify anatomical prolapse and stages of prolapse. Pelvic Examination including Pelvic Organ Prolapse Quantification (POP-Q) system was performed by Gynaecologist at hospital and care and treatment provided.

## Data Analysis

Data entry and analysis were employed using Epi data 3.2.1 and SPSS version 25. Data cleaned before analysis. Descriptive statistics mean, frequency and percentage were done. Using P-Value <0.05 and 95% confidence interval used, bivariate and multivariable logistic regression analysis carried out to examine the relationship between the independent variable and dependent variables.

## Results

### Socio demographic characteristics of study participants

Four hundred twenty two women were participated in the study with the response rate of 100%. The mean age (+SD) of the respondents was 35.4 years ( $\pm 7.99$ ) and the mean age (+SD) at first marriage and at first childbirth was 18.14( $\pm 2.151$ ) and 19.94 ( $\pm 2.921$ ), respectively. The mean number of pregnancy and childbirth was 3.94 and 3.80, respectively. Three hundred and sixty five women (86.5%) were married, 30(7.1%) were divorced, and 26(6.2%) were widowed. more than three fourth 329(78%) of participants were rural residents. Unable to read and write and who had primary education constitute more than half, 235(55.7%) of the total respondents.

Around three fourth of 313(74.2%) respondents were housewife. Majority of respondents 322 (76.3%) were protestant religion (Table 1).

**Table 1:** Socio-demographic characteristics of study participants in the Loma Woreda, Dawuro Zone, Ethiopia 2020 (n=422)

Variable	Category	Frequency	Percentage
Marital status	Married	365	86.5
	Divorced	30	7.1
	Widowed	26	6.2
Residence	Urban	93	22.0
	Rural	329	78.0
Educational status	Unable to read and write	91	21.6
	Primary school	144	34.1
	Secondary school	128	30.3
	Higher education	59	14.0
Occupational status	House wife	313	74.2
	Government worker	65	15.4
	Merchant	36	8.5
	Others	8	1.9
Religion	Orthodox	93	22.0
	Protestant	322	76.3

### Obstetrics and Gynecologic Variables:

Half of the participants; 217 (51.4%) had a history of home delivery only, 122(28.9%) had a history of delivery in health institution.

The largest proportion of the study subjects, 89.3% (377) had a history of normal vaginal delivery. A caesarian section and an operative delivery constituted 3.6% and 2.8%. Only a third of study participants, 141 (33.4%) had a history of delivery assisted by health personnel. One hundred and fifty-three (36.3%) and 42(10%) of women's delivery were assisted by family/relatives and traditional birth attendants, respectively whereas the rest had history of two or more kinds delivery attendants.

Forty-three (10.2%) of the participants had a history of abortion. (Table 2)

**Table 2:** Obstetrics and Gynecologic characteristics of study participants in the Loma Woreda, Dawuro Zone, Ethiopia 2020 (n=422)

Variable	Category	Frequency	Percentage
Age at first marriage	Less than 18 years	252	59.7
	18 and above years	170	40.3
Age at first child birth	Less than 18 years	113	26.8
	18 and above years	309	73.2
Number of pregnancy	Grand multipara	158	37.4
	Primipara	59	14.0
	Multipara	205	48.6
Place of delivery	Home delivery	217	51.4
	Health institution	122	28.9
	Both home delivery and health institution	83	19.7
Mode of delivery	Normal vaginal delivery	377	89.3
	Operative delivery	12	2.8
	Caesarian section	15	3.6
	Two or more of the above	18	4.3
Birth attendant	Health personnel	141	33.4
	Traditional birth attendant	42	10.0
	Family or relatives	153	36.3
	Two or more of the above	86	20.4
History of abortion	No	379	89.8
	Yes	43	10.2

### Prevalence of uterine prolapse

Twenty-eight women reported symptoms of uterine prolapse in the previous 12 months, with the prevalence rate of 6.6%. All of these 28 women reported a feeling of bulging, pressure or something coming down from the vagina compared with visible mass protruding from the vagina (9; 2.1% of the total study subjects). Among 28 women who reported symptomatic uterine prolapse, 19 (67.86%) had either feeling of bulging/something coming down via vagina or visible mass protruding via vagina whereas the remaining 9(32.14%) reported both bulging and visible mass protruding via vagina.

Among 28 women who reported symptomatic prolapse 25 of them (5.9% of the total study subjects) had anatomical prolapse when defined by vaginal examination. Thus, the prevalence of symptomatic prolapse and anatomical prolapse ascertained by this study was 6.6% and 5.9%, respectively. Twenty-five women, 89.29% of those who reported the symptoms of uterine prolapse found to have anatomical prolapse.

### **Factors associated with uterine prolapse**

Using multivariate logistic regression, age at first marriage, history of abortion, birth attendant who assisted the delivery and place of delivery were independent factors associated with uterine prolapse at p value <0.005.

Respondents who had history of abortion were 2.94 times more likely to experience uterine prolapse as compared with those who had no history of abortion (AOR:2.94,95%CI(1.08,7.97)).

Those women who were married at age of 18 and above years were 75% less likely to have uterine prolapse than those who were married before 18 years of age. (AOR: 0.25, 95%CI (0.07, 0.89)).

In this study, home delivery is one of the risk factor for uterine prolapse. Those women who had history of home delivery were 3.33 times more likely to have uterine prolapse than other modes of deliveries (AOR 3.33, 95%CI (1.21, 9.13)).

Moreover, women whose delivery was attended by health professional were 79% less likely to have uterine prolapse than all other birth attendants (AOR 0.21; 95%CI (0.06, 0.71) Table 3.

**Table 3:** Factors associated with the prevalence of uterine prolapse in the Loma woreda of Dawuro zone, Ethiopia 2020(n=422).

Variable	Category	Uterine prolapse		COR (95%CI)	P-Value	AOR(95%CI)	P-Value
		Yes	No				
Residence	Urban	9	84	0.47(0.21,1.12)	0.08	0.51(0.21,1.28)	0.152
	Rural	16	313	1		1	
Educational status	Able to read and write	3	88	1		1	
	Unable to read and write	22	309	2.08(0.61,7.14)	0.24	1.15(0.28,4.66)	0.836
Age at first mirage	Less than 18 years	22	230	1		1	
	18 and above years	3	167	0.199(0.05,0.64)	0.007	0.25(0.07,0.89)	0.033*
Place of delivery	Home delivery	9	208	1.95(0.84, 4.53)	0.117	3.33(1.21,9.13)	0.020*
	Health institution	4	118	1		1	
Birth attendant	Health personnel	4	137	0.36(0.12, 1.07)	0.067	0.21(0.06,0.71)	0.011*
	Others	21	260	1		1	
History of abortion	No	18	361	1		1	
	Yes	7	36	3.9(1.52, 9.96)	0.004	2.94(1.08,7.97)	0.034*

\*Significant at p-value<0.05

## Discussion

This study revealed prevalence of symptomatic prolapse, similarly to the global estimates (3-6%) and there is no recognizable variation in reports considering methodological differences[4]. However, the result of this study (6.6%) is less than another study conducted in Nepal which shows 13% prevalence rate[14].

In Iran, the prevalence of POP among women of childbearing age is 53.6%. This has a significant difference when compared to the finding of this study, 6.6% symptomatic UP with no prominent difference regarding associated factors; both reports early marriage and high parity as strongest predictors in common[15]. The big variation in magnitude might be because of socio-cultural, and ethnicity and racial differences. Similarly, the prevalence study of POP among married women in Lebanon aged 15-60 shows 49.6% with a big difference between the reports of this study[15]. This might also be because of socio-cultural, and ethnicity differences as well as methodological challenges. There is also another study conducted in Gambia, West Africa showing a significant difference with the prevalence rate of 46% when compared to the finding of the study, 6.6% of symptomatic uterine prolapse. However, similarly to this study, parity is the strongest risk factor in the study of Gambia[11]. Since ethnicity and anemia were the main risk factors reported in Gambia the higher prevalence of UP compared with this study might be because of the socio-cultural and ethnicity variation between the ethnic groups of the two different countries. In addition, the study in Tanzania reports 64.6% prevalence of anatomical prolapse which is substantially higher when compared to the reports of this study with 5.9% anatomical prolapse[12]. However, both studies share home delivery as a strongest risk factor in common.

The finding of this study, reports similarly to the study conducted in Dabat, Northern Ethiopia that reports the prevalence of symptomatic prolapse 6.3%[14]. However, the study in Dabat reports the prevalence among all women age 15 and above whereas this study ascertains the prevalence among reproductive age group women. Thus, the prevalence of UP among women in this study seems to be higher when compared to the study in Dabat since the cases of the prevalence of UP increases with age [6, 14]. Moreover, the prevalence of UP in this study is considerably higher than the finding of the study conducted in North and East Ethiopia, which reports only 1%[6]. The difference may be because of socio-cultural variation as well as methodological approach. In Keresha, Eastern Ethiopia to determine the prevalence of POP among ever married women reports 9.5% of POP[16]. This is a bit higher than the result of this study.

Both the findings of this study and one study conducted in Wolaita Sodo report that age at first marriage and place of delivery were significantly associated factors UP[17].

### ***Study limitations and strengths***

As strength, current study used relatively community based study which able to identify mother with utrine prolapse which could not be reported due to fear of mothers to expose themselves due fear of discrimination. The following limitations need to be considered when interpreting finding. the recall and social desirability bias might have been introduced and

## **Conclusion And Recommendation**

### ***Conclusion***

The study shows that uterine prolapse is common among reproductive age group women in Loma Woreda, Dawuro Zone. Age at first marriage, place of delivery, birth attendant assisted delivery, and history of abortion were found to be independent predictors of prevalence of uterine prolapse.

### ***Recommendation***

Based on the study findings the following recommendation forwarded.

Woreda Health Office and Zonal Health Department should maintain a link with Tercha Hospital uterine prolapse treatment program and/or health insurance program for those who are/were suffering from UP.

Health institution delivery and delivery by health personnel should be encouraged by local government.

Early marriage and unwanted pregnancy need to be prevented by appropriate strategies.

## **Abbreviations**

ANC- Antenatal Care

BMI- Body Mass Index

POP- Pelvic Organ Prolapse

UK- United Kingdom

UP- Uterine Prolapse

US- United States

USA- United States of America

UVP- Uterine Vaginal Prolapse

VAGH- Vaginal Hysterectomy

# Declarations

## Competing interests

The authors declare that they have no competing interests.

## *Ethics approval and consent to participate*

Ethical approval was obtained from the ethical clearance board of wolaita sodo University with reference number RPGC/446/2019, according to the standardized principle and procedure which in line with national and WHO guideline.

The participants were informed about the purpose of the study and written consent was obtained from each study participant.

## *Consent for publication*

Not applicable

## *Availability of data and material*

Datasets generated during and/or analyzed during the current available in corresponding Author.

## Competing interests

The authors declare that they have no competing interests.

## *Funding*

Nil

## Authors' contributions

MU, AS and ZG; conception and design of the study and data analysis, and interpreted the findings. MU: conducted and supervised data collection and management. All the authors read and approved the final manuscript.

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## Author information

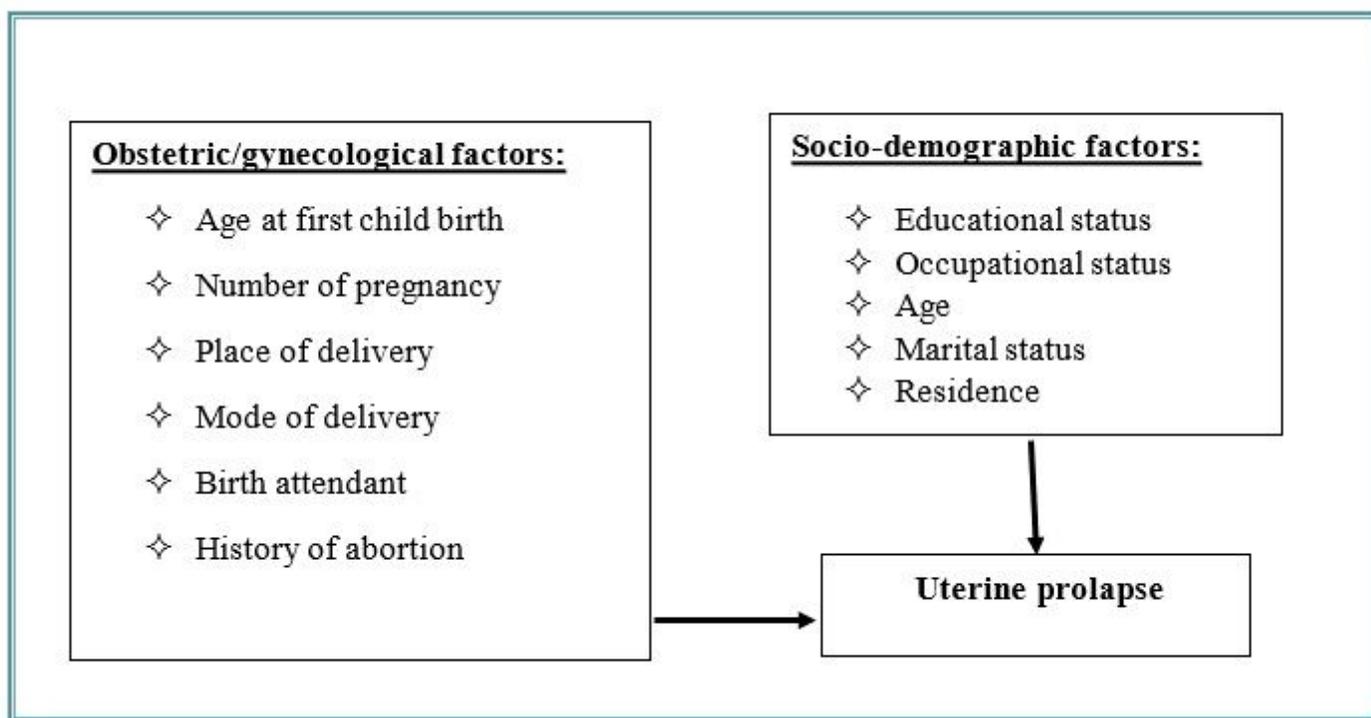
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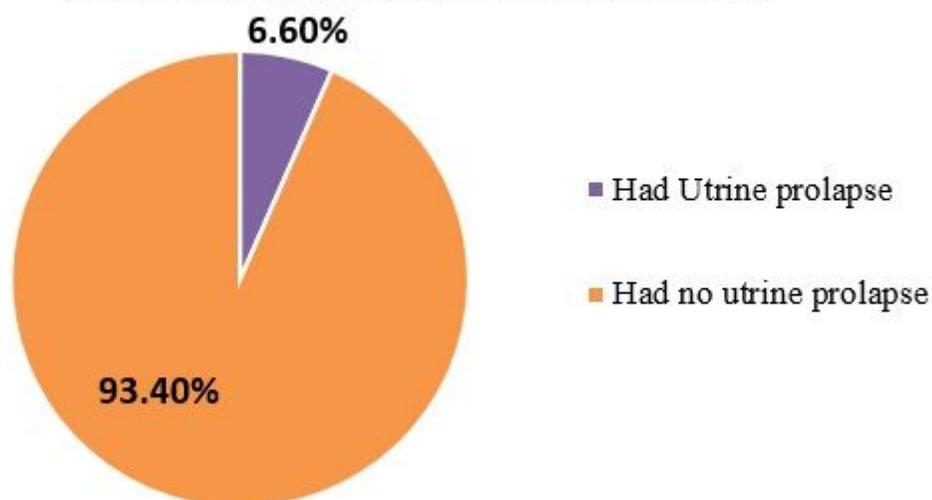
## Figures



**Figure 1**

Conceptual framework of the study developed from reviewing different literatures

## Prevalence of symptomatic uterine prolapse



**Figure 2**

Prevalence of symptomatic uterine prolapse in Loma Woreda, Dawuro Zone, Ethiopia 2020 (n=422)

## Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [questionnairesurveyUtrineprolapse.docx](#)
- [STROBEchecklistUtrineprolapse.doc](#)