# Prevalence of Asymptomatic Bacteriuria among Pregnant Women

**Mona Al-Deeb Mahmoud[1], Azza Ali Abd El- Hamed[2], Safaa Ibrahim Ahmed[3], and Amel Dawod Kamel[4]**
[1]Assistant Lecturer in Obstetrics and Gynecologic Nursing, Faculty of Nursing-Sohag University
[2]Professor of Maternal and Newborn Health Nursing, Faculty of Nursing Cairo University
[3] Professor of Obstetrics & Gynecology Nursing, Faculty of Nursing Sohag University
[4]Assistant Professor of Maternal and Newborn Health Nursing, Faculty of Nursing Cairo University
**Corresponding author email Email:** ***mona_marzouk@nursing.sohag.edu.eg***
**Phone number:** ***002-01017647213***

## Abstract

**Background:** Urinary tract infections (UTIs), one of the most common bacterial illnesses that pregnant women contract, raise the risk of morbidity and mortality in prenatal patients if treatment is not administered. **Aim:** To assess the prevalence of asymptomatic bacteriuria among pregnant women. **Design:** Exploratory and descriptive. **Setting**: The research was conducted at Sohag University Hospital's Obstetrics and Gynecology Outpatient Clinic. **Sample:** There are 440 expectant mothers, regardless of gestational age, parity, or age who were selected as a convenience sample. **Data collection tools:** Three tools were utilized to gather the data; **the first tool** was A structured interviewing questionnaire; **the second tool** was a laboratory investigation record; **the third tool** was the UTI symptomatology tool. **Results**: The frequency of asymptomatic bacteriuria in all pregnant women was 17.3%. **Conclusion:** Pregnant women had a significant rate of UTI prevalence. In all, 17.3% of pregnant patients had asymptomatic bacteriuria. Bacteriuria may be influenced by risk factors such as using synthetic underwear, cutting back on fluid intake, multigravidity, not working, and mid educational level. **Recommendations** It is important to do routine urine analysis for all pregnant women at every visit.

**Keywords**: **Asymptomatic bacteriuria/ pregnancy/ prevalence**

## Introduction

Urinary tract infections are a broad spectrum of illnesses ranging from kidney-related disorders such as pyelonephritis to lower urinary tract ailments including cystitis and asymptomatic bacteriuria (ASB). There exist two classifications of bacteriuria linked to urinary tract infections: asymptomatic and symptomatic **(Balachandran et al., 2022)**.

According to **Sonkar et al (2021),** ASB is the existence of bacteria within the urinary system that is actively spreading yet no symptoms present. According to a study by **Patel et al (2022)** to investigate the frequency of ASB in pregnant patients attending a Western Indian tertiary care hospital, the estimated prevalence of ASB is 13.8%.

A different study done in Libya by **Abdallah et al (2022)** revealed that 28.7% of pregnant women had ASB. Furthermore, **Onemu et al (2024)** conducted a study of the frequency of asymptomatic bacteriuria in pregnant women in Akure, Ondo State, Nigeria revealed that bacteriuria's frequency in Nigeria was found to be 74.1%. S. aureus was the most common germ, accounting for 23.6% of all isolates, subsequently Escherichia coli and Klebsiella species.

The structural and physiological changes that occur during pregnancy enhance a woman's vulnerability to urinary tract infections (UTIs), which can start at week 6 and peak between weeks 22 and 26. Additionally, pregnancy raises the risk of urinary tract infections (UTIs) due to increased concentration of both amino acids and glucose in urine. Progesterone relaxes the smooth muscle of the ureters, which boosts the risk of dilatation of the upper urinary tract.

Additionally, the growing uterus can also cause bladder displacement superiorly and anteriorly, which can impair bladder emptying and result in urine stasis. The risk of bacterial infections during pregnancy is increased by a bloated pregnant belly that makes it harder to maintain proper hygiene and a short urethra **(Johnson, 2017).**

Expectant mothers often have undiagnosed and untreated ASB, which is often associated with adverse outcomes for both the mother and the fetus. Underweight babies and premature labor are examples of poor fetal outcomes, while acute pyelonephritis and hypertension/preeclampsia are examples of poor mother outcomes. **(Ngong, et al., 2021; Raut, et al., 2021).** In addition, preterm rupture of the membranes and elevated perinatal mortality were observed by **Radhamani et al. (2022)**.

Furthermore, a study carried out in Pakistan by

**Khursheed et al (2022)** discovered that among the fetal problems, there were 18.5% preterm deliveries, 14.6% preterm rupture of the membranes, and 20.5% low-birth-weight newborns. According to a study by **Prabhavathi and Prasad (2022)**, hypertension affected 17.6% of the population, preeclampsia affected 8.8%, preterm low birth was noted in 14.7% of the women exposed to ASB, and 23.5% of the women had a birth weight of less than 2500 g.

Additionally, poor socioeconomic standing, sexual engagement, diabetes, long-term urine retention, the trait of sickle cells, history of urinary tract infections, neuromuscular malfunction of the bladder, urinary tract anatomical problems, kidney stones, and catheter use are risk factors for bacteriuria during pregnancy **(Cibulka et al., 2017).**

Studies suggest that simple changes in lifestyle, such as good hygiene, adequate hydration (6-8 glasses of water a day), and regular and complete bladder evacuation can prevent UTI infection. Improved awareness in this regard can potentially reduce the incidence of UTI during pregnancy and mitigate associated risks. Healthcare providers must play a pivotal role in delivering comprehensive information and guidance, ensuring the well-being of both expectant mothers and their unborn children (Yazdi et al., 2020& Oyem et al., 2024).

A large-scale national study should be carried out in Egypt to determine which population is most susceptible to asymptomatic bacteriuria, particularly in the obstetric community. Many research studies have looked at a variety of topics related to UTIs in pregnant women, including risk factors and prevalence, but they haven't addressed Upper Egypt. Thus, determining the frequency of asymptomatic bacteriuria in expectant mothers is the goal of the suggested research.

## Significance of the study

In a different study, **Ghazi et al. (2021)** assessed the occurrence of a symptomatic bacteriuria among pregnant women and the correlation between ASB and preeclampsia in El Shatby University Hospital. They discovered that 30% of pregnant women had ASB. Also, in Damietta, **Abd EL-Aziz et al. (2021)** found that 13.8% of expectant mothers had ASB. Furthermore, a study by **Abdel-Hak and Fawzy (2022)** revealed that the prevalence of ASB was 38.8% among pregnant women at Minia obstetrics university hospitals had ASB.

Moreover, a study conducted by Mayomba et al (2024) revealed that the overall prevalence of ASB among the study participants at Bugando Medical Centre in Mwanza, Tanzania was 16.9%. The most common uropathogen isolated was Escherichia coli, followed by Klebsiella pneumonia.

The development of acute pyelonephritis is one of the major consequences that might arise from long-term neglect of ASB during pregnancy. Significant pregnancy concerns associated with acute pyelonephritis include preterm labor, intrauterine growth restriction, premature rupture of membranes, septicemia, anemia, temporary renal impairment, and preeclampsia. Accordingly, early detection and treatment of UTIs may be crucial to preventing pregnancy problems, lowering fetal mortality, and preventing preterm birth (**Matuszkiewicz-Rowinska et al., 2013; Yadav et al., 2014; Chu and Lowder, 2018**).

In antenatal clinics, nurses and other health care professionals are essential to the prenatal screening programs that examine the prevalence of asymptomatic bacteriuria in expectant mothers. This information contributes to the body of knowledge and aids in early detection and prevention. Thus, the frequency of asymptomatic bacteriuria in expectant patients at Sohag University Hospital is included in the proposed study.

## Aim of the study

The aim of this study is to assess the prevalence of asymptomatic bacteriuria among pregnant women and to investigate associated risk factors.

## Research questions

1. What is the prevalence of asymptomatic bacteriuria among pregnant women?
2. What are the potential risk factors that increase the prevalence of asymptomatic bacteriuria in pregnant women?

## Subjects and Method

### Research design

The design of this study was a descriptive-exploratory study.

### Setting

The research was carried out at the Sohag University Hospital's Obstetrics and Gynecology Outpatient Clinic.

### Sample

A convenient sample of 440 pregnant women was recruited based on power analysis. With a power value of 0.95 ($\beta=1-0.95=0.05$) and a moderate effect size of 0.3, the statistically significant level was selected at $\alpha$ 0.05 (one-sided). The study's 440 individuals represent a

10% absence of response rate, which would be withdrawn in line with the criteria for inclusion even in the case that power analysis is able to recruit the required 400 participants.

### Inclusion Criteria

All pregnant women regardless of their age, parity, or gestational month were included.

### Instruments of Data Collection

The first was a structured interviewing questionnaire; the second was a laboratory investigation record; and the third was a UTI symptomatology tool. These three Instruments were utilized to gather data. The researcher created a schedule for structured interviews and a tool for identifying UTI symptoms:

(1) Structured interviewing questionnaire: The four components of the questionnaire were: personal cleanliness and habits; medical and family history; reproductive history; and sociodemographic factors.

(2) Laboratory investigation record: UTI should be confirmed by urine analysis record that includes the following tests, which could be interpreted as normal or abnormal: pus, microorganisms, red or white blood cells, specific gravity, the pH value, glucose, reaction, amino acids, nitrites, and epithelial cells. In addition, a UTI diagnosis was determined based on the presence of bacteria, red blood cells, and pus cells.

(3) UTI symptomatology tool: This had information on symptoms of UTIs that pregnant women experienced, including fever, nausea, vomiting, frequency, urgency, suprapubic pain, itching, and burning or painful urine.

### Tool validity and Reliability

To test the content validity, the tools were presented to a group of five obstetricians and maternity nurses. Changes were made in accordance with the panel's assessment of the content's appropriateness and sentence clarity. Cronbach's alpha was 0.89, indicating that the instruments were tested and showed good internal reliability.

### Administrative design

The dean of the university's nursing faculty provided the director of Sohag University Hospital with an official letter of approval. This letter outlined the study's goals and characteristics and granted authorization to conduct it.

### Pilot study

Ten percent of the pregnant women participated in pilot research to evaluate the tools' viability and clarity as well as the amount of time needed to finish them. The study sample did not include any pregnant women who were part of the pilot study.

### Ethical considerations

The Cairo University Faculty of Nursing's Research Ethics Committee gave its primary approval for this study to be carried out. The lead research scientist then gave each expectant mother an introduction and discussed the significance and goal of the study. Every pregnant woman was told that there were no health risks or hazards associated with the study, that participation was completely voluntary, and that they could leave the study at any moment. The data was coded to ensure anonymity and secrecy. After that, written informed approval was acquired from each participant who satisfied the inclusion requirements and agreed to participate in the research. Pregnant women were guaranteed that their data would not be utilized in any other study. The same committee granted final approval to proceed with thesis completion (date) following the completion of the data collection phase.

### Procedure

### Interviewing phase

Expecting mothers who agreed to participate in the investigation and were scheduled for follow-up visits at the antenatal clinic were met by the researcher to gather information on sociodemographic traits, past reproductive events, health and familial history, personal hygiene and practices. The researcher conducted in-person interviews with the pregnant women, asking them straightforward Arabic questions. Each pregnant woman was interviewed for ten minutes.

**Assessment phase**

The physician asked the expectant patient to undertake a complete urine analysis. The presence of pus cells as well as red, nitrite, and microbes were used to make the diagnosis of UTI. The researcher gathered information from the pregnant women about the symptoms of their infections of the urinary tract (UTIs), including any burning or painful sensation when urinating, frequent urination, sense of urgency, suprapubic discomfort,

itching, a high temperature, feeling nauseated, vomiting, and so on. Additionally, the researcher questioned pregnant ladies regarding their duration of them. Each pregnant woman was interviewed for five minutes, following which the researcher recorded the information on the UTI symptomatology tool and based on the existence of UTI symptoms, the researcher separated the pregnant women into those with symptomatic and asymptomatic UTIs.

## Statistical analysis

Responses were coded and input into a personal computer for data management. To prevent inconsistencies, the researcher reviewed all the data. Data entry and coding errors were checked for. A Statistical Program for the Social Studies (SPSS) edition 20 of IBM Corp.'s Armonk, New York, was used to store the data acquired from participants. This version of SPSS was utilized for statistical evaluation of the information.

**Statistics for description**

These methods are used to summarize the data: (1) The center tendency of observations for each variable under study is described by the arithmetic mean, which is an average. (2) The standard deviation, which expresses how widely the findings vary from the mean value.

(3) The proportion and frequency of occurrences for every factor under investigation.

**Statistical inference**

Utilizing multivariate analysis of logistic regression, the independent risk variables for the development of UTIs were examined. In terms of significance, the threshold of significance for each statistical test was set at 0.5 probability; a result was deemed significant if the significance level was at or below 0.05. and nonsignificant if it was larger than 0.05.

## Results

**Table (1):** According to this data, the average age of the gravid women was 22.8±6.2 years. Thirty-seven-point-three percent of the expectant mothers had finished their secondary schooling. However, only 5% could read and write. About employment, most women (87.3%) did not have a job. Furthermore, nearly two-thirds (75.7%) of gravid mothers resided in the countryside regions. In terms of bathroom type, over half (55.5%) of the expectant mothers utilized balady toilet. Most pregnant women (94.3%) reported having a monthly salary of between 500 and 1000 Egyptian pounds. The percentage of homes with sanitary drainage was 55.7%. In terms of water availability, 99.3% of expectant mothers had access to it.

**Table (2):** The findings revealed that over two-fifths (46.3%) of the expectant mothers had multiple pregnancies, with a mean pregnancy of 1.77±0.42 and a range of 1 to 8. In terms of parity, 51.6% of the expectant mothers were multipara, with a mean delivery of 1.22±0.87 and a range of 1 to 6. In terms of prior delivery history, over two-thirds (71.4%) of the expectant mothers had given birth before. When it came to the pregnant women's past delivery methods, over half (57.6%) underwent a cesarean section. More than one-third (39.5%) of the expectant mothers used various forms of birth control. When it came to the kinds of birth control those women used, the majority (82.8%) of them were hormonal. In terms of prior infection histories with prior pregnancies, thirty-three percent of the expectant mothers had such histories. About two-thirds (80%) of the pregnant women developed vaginitis, according to the sorts of infections they had.

**Table (3):** According to this table, 70.5% of the pregnant women wore cotton underwear, which is more than two-thirds. In all, 10.5% of them lent their underwear, 15.2% utilized local antiperspirant, and 18.9% were boiling underwear. Most pregnant women (92.5%) cleaned their hands after using the restroom, but more than half of them (56.4%) did so before. Additionally, 30% of the expectant mothers utilized a vaginal douche. Precoital wash was used by over two-thirds of them (69.3%), while postcoital wash was used by most pregnant women (98.6%).

Eighty-one point eight of them maintained the perineum area dry. 97.7% of pregnant women had a urination before bed. As for the number of fluids consumed each day, the mean was 1.74±1.1 glasses, with sixty-six-point four percent of the pregnant women drinking 6 to 8 cups and 2.7% drinking more than 8 mugs. In terms of postponed voiding, ninety-nine percent of pregnant women postponed voiding once or twice a day.

**Table (4):** indicated that 42.3% of pregnant individuals experienced UTIs and asymptomatic bacteriuria was detected in 17.3 % of cases.

**Table (5):** shows that the number of UTIs and educational level differed statistically significantly ($\chi2$=10.463 and P=0.01). Furthermore, there was a statistically significant distinction between UTIs and occupation ($\chi2$=4.936 and P=0.02). Moreover, there was a statistically significant difference between gravidity and UTIs ($\chi2$=3.982 and P=0.04).

In addition, there was a difference of statistical significance ($\chi2$=4.757 and P=0.03) between the type of underwear worn and UTIs, and

between daily fluid intake and UTIs there was also a statistically significant variation ($\chi 2=55.583$ and P=0.001). Not working pregnant women, but pregnant women with a secondary education were shown to have a higher prevalence.

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## Results

**Table (1): Distribution of pregnant women according to their sociodemographic characteristics**

| Characteristics | Freq. n=440 | % |
|---|---|---|
| **Age categories (years old)** | | |
| < 20 | 34 | 7.7 |
| 20 - | 255 | **58** |
| 30- | 145 | 33 |
| ≥ 40 | 6 | **1.4** |
| Mean ±SD | 22.8 ± 6.2 | |
| **Educational level** | | |
| Can not read & write | 49 | 11.1 |
| Read and write | 22 | **5** |
| Primary school | 40 | 9.1 |
| Preparatory school | 77 | 17.5 |
| Secondary school | 164 | **37.3** |
| University | 88 | 20 |
| **Residence** | | |
| Urban | 107 | 24.3 |
| Rural | 333 | **75.7** |
| **Occupation** | | |
| Not working | 384 | **87.3** |
| Working | 56 | 12.7 |
| **Monthly income** | | |
| Enough income | 415 | **94.3** |
| Not enough income | 20 | 4.5 |
| Income allows saving | 5 | 1.1 |
| **Type of toilet** | | |
| Balady | 244 | **55.5** |
| Afranji | 196 | 44.5 |
| **Sanitary drainage** | | |
| Yes | 245 | **55.7** |
| No | 195 | 44.3 |
| **Water supply** | | |
| Yes | 437 | **99.3** |
| No | 3 | 0.7 |

**Table (2): Pregnant women's distribution based on reproductive history**

| Characteristics | Freq. n=440 | % |
|---|---|---|
| **Gravidity** | | |
| Primigravida | 101 | 23 |
| Second gravida | 100 | 22.7 |
| Multigravida (3-5) | 204 | **46.3** |
| Grand multigravidity (>5) | 35 | 8 |
| Mean ±SD | 1.77±0.42 | |
| **Parity** | | |
| Nullipara | 126 | 28.6 |
| Primipara | 87 | 19.8 |
| Multipara | 227 | **51.6** |
| Mean ±SD | 1.22±0.87 | |
| **History of previous abortion** | | |
| Yes | 158 | **35.9** |
| No | 282 | 64.1 |
| **History of the previous delivery** | | |
| Yes | 314 | **71.4** |
| No | 126 | 28.6 |
| **Types of previous delivery (n=314)** | | |
| Vaginal delivery | 133 | 42.4 |
| Cesarean section | 181 | **57.6** |
| **Use of contraceptives** | | |
| | 174 | **39.5** |
| Yes | 266 | 60.5 |
| No | | |
| **Types of contraceptives (n=174)** | | |
| Hormonal | 144 | **82.8** |
| IUD | 30 | 17.2 |
| **History of infection** | | |
| Yes | 145 | **33** |
| No | 295 | 67 |
| **Types of infection(n=145)** | | |
| Urinary tract infection | 29 | 20 |
| Vaginitis | 116 | **80** |

**Table (3): The assignment of expectant mothers based on their personal hygiene and habits**

| Characteristics | Freq. 440 | % |
|---|---|---|
| **Types of underwear** | | |
| Cotton underwear | 310 | **70.5** |
| Nylon underwear | 130 | 29.5 |
| **Boiling underwear** | | |
| Yes | 83 | **18.9** |
| No | 357 | 81.1 |
| **Lending underwear clothes** | | |
| Yes | 46 | **10.5** |
| No | 394 | 89.5 |
| **Use local antiperspirant** | | |
| Yes | 67 | **15.2** |
| No | 373 | 84.8 |
| **Wash hands before toileting.** | | |
| Yes | 248 | **56.4** |
| No | 192 | 43.6 |
| **Wash hands after toileting.** | | |
| Yes | 407 | **92.5** |
| No | 33 | 7.5 |
| **The practice of vaginal douching** | | |
| Yes | 132 | **30** |
| No | 308 | 70 |
| **Precoital wash** | | |
| Yes | 305 | **69.3** |
| No | 135 | 30.7 |
| **Postcoital wash** | | |
| Yes | 434 | **98.6** |
| No | 6 | 1.4 |
| **Maintaining the perineum area dry** | | |
| Yes | 360 | **81.8** |
| No | 80 | 18.2 |
| **Urination before sleep** | | |
| Yes | 430 | **97.7** |
| No | 10 | 2.3 |
| **Daily fluid intake** | | |
| 6–8 glasses | 292 | **66.4** |
| >8 glasses | 12 | **2.7** |
| <6 glasses | 90 | 20.5 |
| <4glasses | 46 | 10.5 |
| **Mean±SD** | 1.74±1.1 | |

**Table (4): Distribution of the Pregnant Women according to Results of Urine Analysis**

| Urine Analysis | Freq. | % |
|---|---|---|
| **Normal** | 254 | 57.7 |
| **Symptomatic urinary tract infections** | 110 | 25 |
| **Asymptomatic urinary tract infection** | 76 | **17.3** |

**Table (5): Risk factors that might affect the incidence of bacteriuria**

| Factor | P value |
|---|---|
| **Demographic factors** | |
| Age | 0.502 |
| Occupation | **0.005** |
| Educational level | **0.014** |
| Place of residence | 0.161 |
| Sanitation | 0.454 |
| Sanitary drainage | 0.488 |
| **Reproductive factors** | |
| Gravidity | **0.002** |
| Previous abortion | 0.224 |
| Type of previous delivery | 0.189 |
| Types of previous infections | 0.733 |
| Types of contraceptive methods | 0.764 |
| **Medical and family history** | |
| Chronic diseases | 0.638 |
| Family history of chronic diseases | 0.664 |
| **Personal habits** | |
| Type of underwear | **0.006** |
| Daily fluid intake | **0.001** |
| Precoital wash | 0.289 |
| Postcoital wash | 0.655 |
| Precoital micturition | 0.539 |
| Postcoital micturition | 0.638 |
| Voluntary delay of voiding | 0.768 |
| Number of sexual intercourses per week | 0.445 |
| The practice of vaginal douching | 0.500 |
| Maintain perineum area dry | 0.481 |
| Hand washing before toileting with soap | 0.674 |
| Boiling underwear | 0.225 |
| Lending underwear | 0.648 |
| Use of local antiperspirant | 0.372 |
| Urination before sleep | 0.617 |
| Frequency of micturition | 0.565 |

**Discussion**

One of the most prevalent bacterial illnesses in humans is urinary tract infections (UTIs) (Chu & Lowder, 2018). Two sections will be devoted to discussing the study's results. Pregnant women who experience bacteriuria without symptoms are the focus of the first part. Pregnant women's risk factors for asymptomatic bacteriuria are the main topic of the second part.

The frequency of asymptomatic bacteriuria (ASBs) was found to be less than one-fifth of pregnant women, Considering the outcomes of the current study. This study confirms the findings of Tadesse, et al (2014), who discovered that 18.8% of Ethiopian pregnant women had asymptomatic bacteriuria. Furthermore, the results of this investigation are consistent with those of Elzayat et al (2017) who discovered that 10% of pregnant women at two tertiary facilities in Cairo, Egypt had asymptomatic bacteriuria.

Furthermore, these findings concur with those of Musona-Rukweza et al (2017) who found that 14.2% of pregnant women in Harare, Zimbabwe had asymptomatic bacteriuria. However, a study by Patnaik et al (2017) indicated that 25.3% of women with infection in India do not exhibit UTI symptoms, which contradicts the prior findings of the current study. These findings also conflict with those of Ayoyi (2017) who found that 21.5% of pregnant Kenyan women had asymptomatic bacteriuria.

The reasons for variations in the previous studies' results could be attributed to various factors such as sample size, culture, perception of urinary tract infections, ethnicity, study setting, examination method, environmental alterations, and the financial standing of the expectant mothers.

The results of this investigation demonstrated that factors like using synthetic underwear, cutting back on water consumption, multigravidity, occupation, and educational attainment were danger indicators that could influence the frequency of bacteriuria.

In terms of pregnant women's educational attainment, the current study found that over one-third of pregnant women with bacteriuria had completed secondary school. Shaheen et al (2016) observed that over two-thirds of pregnant women with bacteriuria had middle-class or lower-class educational backgrounds, which is consistent with this conclusion. Furthermore, Chand et al (2018) discovered a strong correlation between bacteria in their urine and educational attainment.

This can be the result of poor or intermediate education, which is linked to a lack of resources for information on bacteriuria and raises their occurrence. This finding conflicts with that of Elzayat et al (2017) who found no significantly different correlation between school achievement and asymptomatic bacteriuria in their investigation of 171 pregnant women. This discrepancy could result from the two study sites' differing sample sizes and cultural backgrounds.

Regarding occupation, the current findings showed that most pregnant women with bacteriuria were not employed, suggesting that not working was a predictor element that might influence the incidence of bacteriuria. This study concurs with Shaheen et al.'s (2016) findings that housewives account for more than half (58.2%) of bacteriuria in pregnant women.

Furthermore, the results of this study concur with those of Ali and Abdallah (2019) who discovered that most individuals with bacteriuria did not have a job. This conclusion might be explained by the fact that most of the expected mothers were unemployed, and unemployment is linked to poverty and a low standard of living, both of which increase the risk of diseases brought on by infections.

This result contradicts the findings of Okonko et al. (2010) in Nigeria, who discovered that the highest percentage of bacteria among pregnant women (77.8%) was found in civil workers, followed by teachers (70%) and businesswomen (53.8%). The lowest percentages were found in students (30.4%) and housewives (36.4%).

Furthermore, Nabbugodi et al. (2015) discovered no statistically significant relationship among urinary tract infections and profession. From the perspective of the researcher, this could be partially explained by the differences in the environments and levels of education of the expectant mothers, as well as the fact that most of them are overburdened with responsibilities and lack free time.

The results of the current study showed that gravidity is another predictive variable that may have an effect on the incidence of bacteriuria, with the highest incidence observed in pregnant women who were multigravidas. This result is consistent with that of Ali et al (2011) who discovered that multiparity was a significant risk factor because 5% of multiparity and 2.5% of primigravidae had asymptomatic bacteriuria. Furthermore, the results of the current study are in line with those of Younis et al (2019) who discovered that multigravida was a significant risk factor for urinary tract infections because it was present in 70% of cases.

According to the researcher, women who become pregnant quickly after another may be more susceptible to significant physiological alterations in the urinary tract during pregnancy. The results of Ranjan et al (2017) indicate that there is no significant association between gravidity and bacteriuria. A varied sample size may be the cause of this disparity.

The use of synthetic undergarments is another significant criterion related to underwear types that may influence the prevalence of bacteriuria. According to the current study's findings, synthetic underwear was worn by over half of the pregnant women who had bacteriuria. Numerous studies, including Mohamed et al (2017), Wamalwa et al (2013), and Shaheen et al (2016) have confirmed the findings of this study. These studies found that poor personal hygiene routines, such as wearing underpants made of non-cotton material, significantly increased the possibility of bacteriuria during pregnancy.

Merits of the study

This study contributes to the body of knowledge and aids in early detection of infection, treatment, and prevention. Also, this study will encourage researchers to develop guidelines that pregnant women follow to prevent infection in the maternity unit.

**Limitations of the study**

One significant limitation of this study was that it was limited to one institution. The second drawback was the small sample size which can be addressed by doing the study with a bigger sample size.

**Acknowledgment**
We would like to thank all puerperal women participants for their cooperation and help during data collection.

## Conclusion

The prevalence of asymptomatic bacteriuria was present in 17.3 % of total pregnant individuals. Risk factors for bacteriuria include using synthetic underwear, cutting back on fluid intake, multigravidity, not working, and middle educational level.

## Recommendations

In light of the study's findings, the following are recommended:

1. To investigate the impact of a health education program on symptom relief and recurrence prevention during pregnancy, more research is required.
2. To investigate the frequency of pregnancy-related UTIs and the effects of UTI complications on the course of pregnancy under different Egyptian governments more research is required.
3. Antenatal care providers should stress to all expectant moms the importance of health education about personal cleanliness and behaviors.

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