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Prevalence and Characteristics of Pregnant Women With Urinary Incontinence at Rika Amalia Hospital Palembang

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ABSTRACT

Introduction. Urinary incontinence (UI) is the involuntary discharge of urine. UI is often not reported due to social stigma and public relief. In addition, UI is a non-life-threatening condition so people consider UI as a nuisance and not a health problem. This shows the need for promotive and preventive efforts so that patients can immediately seek medical treatment and prevent UI. This study aims to identify the prevalence and characteristics of pregnant women with UI at Rika Amalia Hospital Palembang. **Methods.** This study is an observational descriptive research with a cross-sectional research design using primary data by filling out questionnaires and direct interviews with pregnant women at Rika Amalia Hospital Palembang**. Results.** This study involved 73 pregnant women. Most UI cases were at the age of <35 years (88%), education level ≤12 years (68%), no smoking behavior (100%), no caffeinated beverage consumption behavior (96%), third trimester (60%), multipara (40%), vaginal delivery (56%), BMI ≥ 25 kg/m^2 (56%), no history of constipation (60%), no history of UI before pregnancy (92%), and had no family history of UI (88%). **Conclusion.** The prevalence of pregnant women with UI at Rika Amalia Hospital Palembang from August to October 2024 is 34.2%. Most UI cases happened in pregnant women with the age of <35 years, education level ≤12 years, no smoking behavior, no caffeinated beverage consumption behavior, third trimester, multipara, vaginal delivery, BMI ≥ 25 kg/m^2, no history of constipation, no history of UI before pregnancy, and no family history of UI.

1. Introduction

Urinary incontinence (UI) is the involuntary release of urine. UI is often not reported due to social stigma and public belief that UI is a normal condition. In addition, UI is a non-life-threatening condition so people consider UI as a nuisance and not a health problem. As a result, UI is very rarely diagnosed and left untreated. Millions of women around the world suffer from UI. The World Health Organization (WHO) reports that over 200 million people globally suffer from urinary tract issues. In the United States alone, 13 million individuals are affected by UI, with 11 million of them being women.[1] A study reported that UI is more common in women than men and about 10% of all adult women suffer from UI.[2] Asia Pacific Continence Advisor Board (APCAB) determined the prevalence of UI in Asian women is 14.6% and about 5.8% are Indonesian women.[3] In a study conducted by Amalia in 2019 at the Puskesmas of Seberang Ulu 1 Palembang District found that 79 out of 200 pregnant women experienced UI and the most common type was the stress urinary incontinence (SUI) as many as 32 people (40.5%).[4] In a study conducted by Azusena at Dr. Mohammad Hoesin Palembang Hospital in 2022, it showed that the prevalence of SUI in pregnant women is 34.3%.[5] UI before pregnancy, vaginal delivery, and coffee consumption have been confirmed to be associated with an increased risk of UI in pregnant women.[6] In addition, some studies have shown an association between education level and high BMI with UI.[7]

The researcher conducted this study because there was no research on the prevalence and characteristics of pregnant women with UI at Rika Amalia Hospital Palembang, also to confirm the relationship of variables with UI carried out by previous studies, and add other variables that can cause UI, as well as using different regions to determine whether sociodemographic differences produce different results from previous studies. It is hoped that the results of this study can be utilized for intervention efforts in the form of clinician and community knowledge as a preventive effort in reducing the incidence of UI and improving the quality of life of pregnant women.

2. Methods

This study is a descriptive observational study with a cross-sectional research design that aims to determine the prevalence and characteristics of pregnant women with urinary incontinence. This study was conducted at the obstetric polyclinic of Rika Amalia Hospital Palembang at 17.00 - 20.00 WIB during August to October 2024. This study has been approved by the Medical and Health Research Ethics Committee under Protocol No. 207-2024, and respondents have agreed and signed consent to participate in this study by being informed about the purpose of this study, there are no risks or side effects in this study and data confidentiality is fully accounted for by the researcher.

The sample in this study was all pregnant women at Rika Amalia Hospital Palembang in August to October 2024 who met the inclusion criteria and did not meet the exclusion criteria. The exclusion criteria for this study sample were pregnant women with a history of pelvic trauma, pregnant women who were experiencing lower urinary tract symptoms (LUTS) and pregnant women who were not willing to become respondents. A history of pelvic trauma and LUTS was excluded because it caused the patient to experience UI which would confuse the results of this study. Patients who experienced LUTS were given education to seek medical care and can prevent it by doing Kegel exercises.

The sample size calculation in this study used the Lemeshow formula where the minimum sample size needed in this study was 66 pregnant women. With the addition of a sample of 10% of the total sample calculated to anticipate drop out, the sample size in this study was 73 pregnant women. Data were collected from direct interviews with pregnant women who met the inclusion criteria and did not meet the exclusion criteria at Rika Amalia Hospital Palembang and filling out the QUID (Questionnaire for Urinary Incontinence Diagnosis) questionnaire, The QUID questionnaire used in this study was translated by a certified translator and subsequently validated by urogynecology specialists at the urogynecology division of Cipto Mangunkusumo Hospital (RSCM) in Jakarta. A pre-sampling test of the QUID questionnaire was conducted in the urogynecology clinic at RSCM, involving 30 randomly selected samples. The validation test results demonstrated high reliability, with Cronbach's alpha values of 0.97 for the SUI and 0.96 for the UUI.[8] Bradley, et al who developed the QUID questionnaire discovered that the QUID questionnaire correctly diagnosed the type of UI in 80% of 117 women presenting for urologic care and showed sensitivity and specificity for SUI of 85% and 71% and for UUI of 79% and 79%.[9] The results of the data that have been collected are processed using IBM SPSS statistics 26 software and then analyzed by univariate analysis to describe the frequency of each variable studied and then presented descriptively in tabular form and described narratively.

3. Results

This study is a descriptive observational study with a cross-sectional research design that aims to determine the prevalence and characteristics of pregnant women with UI based on sociodemographic, obstetric, and clinical characteristics. This study used primary data by filling out questionnaires and directly interviewing pregnant women at Rika Amalia Hospital Palembang during August to October 2024. From the results of data collection, 1 pregnant woman met the exclusion criteria, namely pregnant women who were experiencing LUTS and 73 pregnant women who met the inclusion criteria and did not meet the exclusion criteria. Of the 73 pregnant women, 15 pregnant women experienced SUI, 7 pregnant women experienced UUI, and 3 pregnant women experienced MUI, and 48 other pregnant women did not experience UI or normal.

The prevalence of pregnant women with urinary incontinence at Rika Amalia Hospital Palembang is 34.2% (Table 1). Based on the age variable, the highest distribution was obtained at the age of <35 years (88%), based on the education level variable, the highest distribution was obtained at the education level ≤12 years (68%), based on smoking behavior variables, the highest distribution was obtained in pregnant women who did not smoke (100%), based on caffeinated beverage consumption behavior variables, the highest distribution was obtained in pregnant women who did not consume caffeinated drinks (96%), based on the gestational age variable, the highest distribution was obtained in the third trimester (60%), based on the parity variable, the highest distribution was obtained in multipara (40%), based on the history of labor variable, the highest distribution was obtained in vaginal delivery (56%), based on the BMI variable before pregnancy, the highest distribution was found in BMI ≥ 25 kg/m^2 (56%), based on the variable history of constipation, the highest distribution was found in pregnant women who did not experience constipation (60%), based on the variable history of UI before pregnancy, based on the variable of family history with UI, the highest distribution was found in pregnant women who did not have a history of UI before pregnancy (92%), based on the variable of family history with UI, the highest distribution was found in pregnant women who did not have a family history with UI (88%) (Table 2).

Table 1. Prevalence of pregnant women with urinary incontinence at Rika Amalia Hospital Palembang

Urinary Incontinence	Number (n)	Percentage (%)
Stress urinary incontinence	15	20.5
Urge urinary incontinence	7	9.6
Mixed urinary incontinence	3	4.1
Normal	48	65.8
Total	**73**	**100**

Table 2. Distribution of pregnant women with urinary incontinence based on sociodemographic, obstetric, and clinical characteristics at Rika Amalia Hospital Palembang

Variable	SUI		UUI		MUI		Total	
	n	%	n	%	n	%	n	%
Age								
< 35 years	13	52	7	28	2	8	22	88
≥ 35 years	2	8	0	0	1	4	3	12
Education level								
≤ 12 years	12	48	3	12	2	8	17	68
> 12 years	3	12	4	16	1	4	8	32
Smoking behavior								
Yes	0	0	0	0	0	0	0	0
No	15	60	7	28	3	12	25	100
Caffeinated beverage consumption behavior								
Yes	0	0	0	0	1	4	1	4
No	15	60	7	28	2	8	24	96
Gestational age								
First trimester	2	8	0	0	1	4	3	12
Second trimester	5	20	2	8	0	0	7	28
Third trimester	8	32	5	20	2	8	15	60
Parity								
Nullipara	4	16	5	20	0	0	9	36
Primipara	5	20	0	0	1	4	6	24
Multipara	6	24	2	8	2	8	10	40
Delivery history								
Vaginal delivery	10	40	1	4	3	12	14	56
Cesarean delivery	1	4	1	4	0	0	2	8
Never	4	16	5	20	0	0	9	36
BMI before pregnancy								
< 25 kg/m^2	6	24	4	16	1	4	11	44
≥ 25 kg/m^2	9	36	3	12	2	8	14	56
History of constipation								
Yes	6	24	3	12	1	4	10	40
No	9	36	4	16	2	8	15	60
History of UI before pregnancy								
Yes	1	4	1	4	0	0	2	8
No	14	56	6	24	3	12	23	92
Family history of UI								
Yes	1	4	2	8	0	0	3	12
No	14	56	5	20	3	12	22	88
Total	**15**	**60**	**7**	**28**	**3**	**12**	**25**	**100**

4. Discussion

Based on the results of filling out questionnaires and direct interviews with pregnant women at Rika Amalia Hospital Palembang, the prevalence of pregnant women with urinary incontinence at Rika Amalia Hospital Palembang from August to October 2024 is 34.2%. The most common type of urinary incontinence was SUI at 20.5%, followed by UUI at 9.6%, and MUI at 4.1%. This result is in line with a study conducted by Amalia in 2019 at the Seberang Ulu 1 District Health Center, Palembang, which found that as many as 79 out of 200 pregnant women experienced UI (39.5).[4] This result is also in line with a study conducted by Azusena at Dr. Mohammad

Hoesin Hospital Palembang in 2022 which showed that the most common type of UI was SUI at 34.3%, followed by UUI at 5.7%, and MUI at 2.9%.[5]

In general, SUI is more common in pregnant women caused by physiological changes during pregnancy that result in a decrease in the strength of the pelvic floor muscles, such as an increase in uterine pressure that is getting bigger and an increase in fetal weight in the pelvic floor muscles, along with hormonal changes related to pregnancy.[10] This can be prevented by doing Kegel exercises which have the effect of increasing the strength of the pelvic floor muscles in pregnant women.[11]

Pregnant women aged <35 years (88%) are the most common age group of pregnant women who experience UI. This finding aligns with research by Jaffar, et al. who reported that UI occurred more in pregnant women who were <35 years old with an average age of 29.8 years.[12] However, this contrasts with the study by Fiscarina, et al in 2022 at Hasanuddin University Hospital which found that pregnant women aged >35 years have a 1.83 times higher risk of developing UI compared to pregnant women aged <35 years.[13] This can occur because the research area has many newly married couples so that the distribution is the highest in pregnant women who are <35 years old who are of productive age and have more active daily activities so that they experience more stress or pressure on the bladder.[14]

Pregnant women with an education level of ≤12 years (68%) experienced more UI. This is consistent with research by Manso, et al. which found that UI is more common in women who are not educated (36.8%) than women who are educated for more than 12 years (4.6%).[15] Similarly, Saadia's research suggests that women with lower education levels recorded more UI cases due to limited access to information about UI.[16]

Pregnant women who did not have smoking behavior (100%) experienced UI. This aligns with findings by Brown, et al. who found no significant link between UI and smoking behavior, with 69.9% of UI cases occurring in non-smoking pregnant women.[17] However, this contradicts research by Caruso, et al. which indicated that smoking increases the risk of UI, with 53.1% of pregnant women who smoke experiencing UI. Smoking can cause coughing, elevate bladder pressure, and strain pelvic floor muscles, potentially leading to nerve damage.[10] In this study, there were no pregnant women who had smoking behavior, so the relationship between smoking behavior and the incidence of UI could not be studied. However, reducing or quitting smoking can avoid UI.

Pregnant women who did not consume caffeinated beverages experienced UI (96%). This contrasts with studies by Cameron, et al. and Alonezy, et al. which found that 81% and 78.1% of women who consumed caffeinated beverages experienced UI. Caffeine can directly irritate bladder tissue, triggering involuntary bladder contractions.[18–20]

Pregnant women in their third trimester experienced a higher incidence of UI (60%). This finding aligns with research by Azusena at Dr. Mohammad Hoesin Hospital which reported 58.8% of third trimester pregnant women experienced UI.[5] Similarly, a study by Dinc, et al. found that UI was found most in the third trimester with a prevalence of 32%.[21] Gestational age affects the occurrence of UI in pregnant women. The uterus is located behind the bladder, the fetus that grows larger in the uterus can press or push the bladder so that the bladder cannot hold more urine.[22]

Pregnant women with multipara pregnancy experienced more UI (40%). This result is consistent with Azusena's study at Dr. Mohammad Hoesin Hospital Palembang which found that UI was more experienced in multipara by 47.1%. However, this contrasts with research by Fiscarina, et al. which indicated that the incidence of UI occurred in primipara almost three times compared to multipara. Multipara can weaken the pelvic floor muscles over time, reducing their ability to control urination. Engaging in Kegel exercises can enhance this, as they help strengthen the pelvic floor muscles in pregnant women.[5,11,13,23]

Pregnant women with a history of vaginal delivery experienced more UI (56%). This aligns with research by Indrawaty, et al in 2022 at dr. Abdul Rivai Berau Hospital which found that UI was more common in pregnant women with a history of vaginal delivery of 66.7%.[24] Additionally, a prospective cohort study by Rajavuori, et al. revealed that vaginal delivery was associated with a 78.2% incidence of UI, compared to 13.9% for cesarean delivery. Vaginal delivery alters pelvic floor anatomy, making women more suspectible to UI, while cesarean delivery appears to offer some protection.[23]

Pregnant women who had a BMI ≥ 25 kg/m^2 before pregnancy experienced more UI (56%). This is consistent with Azusena's study at Dr. Mohammad Hoesin Hospital Palembang that UI is most common in pregnant women who have a BMI of ≥ 25 kg/m^2 by 71.4%.[5] Research by Caruso, et al. also reported higher average BMIs (33.3 kg/m^2 and 29.5 kg/m^2) among patients with UI.[10] Excess weight increases intraabdominal pressure, which leads to the occurrence of UUI due to overload of the pelvic floor muscles, conjunctive tissue and pelvic floor innervation, which can lead to structural damage and neurological dysfunction.[25]

Pregnant women without a history of constipation experienced more UI (60%). This finding is similar to a study by Jung, et al. which found that 60.7% of pregnant women who experienced UI did not experience constipation.[26] However, this contrasts with research by Lian, et al. which found that constipation contributed to UI in 41.2% of women.[27] Constipation can strain the pelvic floor muscles during bowel movements, and prolonged straining may weaken these muscles, increasing the risk of UI.[28]

Pregnant women who did not have a history of UI before pregnancy experienced UI (92%). This finding aligns with research by Patel, et al. that pregnant women who do not have a history of UI before pregnancy experience more UI during pregnancy by 89.6%.[29] However, this contrasts with a study by XiaoJuan, et al. which identified a history of UI before pregnancy as the strongest predictor of UI during pregnancy, with 81.9% of women experiencing UI having a prior history.[6,30] This result can occur because pregnant women in this study do not have pelvic floor muscle weakness before pregnancy, but because during pregnancy there are hormonal changes and fetal pressure that are developing causing the pelvic floor muscles to weaken so that they experience UI during pregnancy.

Pregnant women who did not have a family history of UI experienced UI (88%). This result is in line with research conducted by Gari, et al. which stated that 64.6% of pregnant women with UI do not have a family history of UI.[31] There are several contradictions in the literature regarding family history relationships. A study conducted by McKenzie, et al. identified the existence of hereditary genes that make women more susceptible to UI.[32] However, contrary to research on certain genes conducted by Reischer, et al. found inconclusive results.[33] The researchers stated that daughters of mothers who had UI, or had older sisters who also had UI, had an increased risk of developing UI, indicating that hereditary factors did have an impact.[34] Inconsistent and contradictory literature makes for dubious results. This requires further research and some definitive explanations for the preventive management of UI.

This research has several weaknesses, such as the responses provided by the participants may have been influenced by their emotions, experiences, or personal preferences, potentially leading to subjective and biased data. Additionally, this is a descriptive study, so it was unable to reveal the relationships between variables, making it difficult to determine how these factors interact with the occurrence of urinary incontinence. Furthermore, the number of respondents who experienced urinary incontinence was only 25, which is insufficient to characterize pregnant women with this condition accurately.

5. Conclusion

The prevalence of pregnant women with UI at Rika Amalia Hospital Palembang from August to October 2024 is 34.2%. Pregnant women with the most UI at the age of <35 years, education level ≤12 years, no smoking behavior, no caffeinated beverage consumption behavior, third trimester, multipara, vaginal delivery, BMI before pregnancy ≥ 25 kg/m^2, no history of constipation, no history of UI before pregnancy, and no family history of UI. UI can be prevented by reducing daily activities, avoiding vaginal delivery, limiting pregnancy to two children, maintaining weight, and do Kegel exercise to increase pelvic floor muscle strength. Future researchers can conduct multifactorial studies to further investigate the relationship between characteristics and the incidence of UI and increase the number of samples in the study to get valid results, also may conduct longitudinal studies for more definitive results on the relationship between factors contributing to UI development during pregnancy.

6. Author Contribution

A.J. carried out the research and wrote the manuscript. A.F. and H.K.P. supervised the project. R.K. and R.N. examined the research.

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