Pregnant Women With Low Back Pain Have the Risk of Incontinent Urine in Leuwiliang District, Bogor West Java

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ABSTRACT
Objective: This study aims to determine the risk of low back pain complaints on the incidence of urinary incontinence in pregnant women in Leuwiliang District, Bogor. Methods: This study is case control with a total sample of 72 pregnant women (case = 36, control = 36) data collection using the Oswestry Disability Index for Low Back pain questionnaire and Questionnaire For Female Urinary Incontinence Diagnosis. Results: The results showed that the incidence or complaints of low back pain was 2.08 times more at risk of urinary incontinence, with a p-value = 0.144. 0.144 is not significant (OR = 2.0805% CI = 0.779-5.552 P = 0.144). Conclusion: This study shows that there is a risk of complaints of Low back Pain on the incidence of Urinary Incontinence which has a risk of 2.08 times but is not significant statically (P=0,144).

INTRODUCTION
Pregnant women will experience both physical and psychological changes such as nausea and vomiting in the early trimester, gradual abdominal enlargement and musculoskeletal anatomical changes (Odubamowo, Chilaka, & Walker, 2022). In the first 12 weeks of pregnancy, progesterone and estrogen production is dominated by the ovaries and placenta (Legacki et al., 2016). Fetal and placental changes. Fetal and placental changes are used for the growth and development of the baby and the mother to give birth (Plante, Winn, Vaillancourt, Grigorova, & Parent, 2022) (The New England Journal of Medicine, 2011). Pregnancy can cause mechanical and hormonal changes that will eventually cause complaints (Kalkbrenner, Schmidt, & Penlesky, 2014) (Price, 2010; Kazemirad, 2009).

Hormonal changes cause looseness of ligamentous joints, weight gain, and a shift in the center of gravity leading to hyperlordosis of the lumbar spine and anterior tilting of the pelvis (Fiani et al., 2021). In addition, vascular changes may lead to impaired metabolic supply in the lower back. The most common musculoskeletal complaints in pregnancy are low back pain and / or pelvic pain and pubic symphysis (Casagrande, Gugala, Clark, & Lindsey, 2015). In addition to the baby’s position factor which can compress the nerves which also adds to the complaints of low back pain (Frost, Camarero-Espinosa, & Foster, 2019) (Arun G. Maiya, 2015). (Danielle Casagrande, 2015). (Elanor, 2007). The pain is also anatomical changes due to carrying additional weight, shifting the center of gravity, and pressure from the baby’s position.
gravity, and lumbar lordosis to accommodate pregnancy (Stright, 2005). (Wahyuni & Prabowo, 2012).

Low back pain during pregnancy varies around 35%-60%. Among all pregnant women, it turns out that 47%-60% report that back pain occurs in 5-7 months of pregnancy. In Indonesia, research conducted by Suharto 2001, explained that of 180 pregnant women studied 47% experienced spinal pain. In East Java province, it is estimated that around 65% of 100% of pregnant women still experience back pain (Avinta mega oktavia, 2018). This reduction in postural muscle activity has been shown to disrupt spinal mechanics that can occur in the pelvic floor muscles in women with incontinence. (Michelle D Smith. 2006) (Yoshitaka Aoki, 2017).

The symptoms of urinary incontinence are highly prevalent among women and have substantial effects on health-related quality of life and are associated with major personal and social activities(Steibliene, Aniuliene, Aniulis, Raskauskiene, & Adomaitiene, 2020). (Yoshitaka Aoki, 2017) Urinary incontinence (UI) is defined as the involuntary leakage of urine, according to the International continence society(Alves, Ferreira, Lima, Coimbra, & Vaz, 2022) (ICS) (Ayesha Ahmad, 2016). Urinary incontinence is a common condition among women.

The prevalence of urinary incontinence has previously been documented to be high both during and after pregnancy, and childbirth is a risk factor for urinary incontinence among young and middle-aged women. However, estimates of incontinence incidence and prevalence vary widely. Only a few population-based studies have examined the prevalence of urinary incontinence during pregnancy by type and severity(Patel, Godecker, Giles, & Brown, 2022). Also, data are scarce on risk factors for incontinence in pregnancy(Khan et al., 2023) (Stian Lageland Wesnes, 2007). The prevalence of UI in women varies from 13 to 35%. Important factors that have an association with UI in the reproductive age group of women are pregnancy, anatomical defects, postpartum development, changes in hormonal and urethrovesical angles, increased pressure on levator muscles, connective tissue and ligaments. Other risk factors contributing to UI include advanced age, multiparity, multiple pregnancy, smoking, alcohol consumption, coffee consumption, increased body mass index, diabetes and constipation. (Ayesha Ahmad, 2016)

Incontinence during pregnancy has been associated with age, body mass index (BMI), strenuous physical exercise, or smoking history(Kim, Ladi-Seyedian, Ginsberg, & Kreydin, 2022). Vaginal birth is a major determinant of incontinence. Age, family history, BMI, and excess weight gain during pregnancy were associated with a higher risk of incontinence(Hage-Fransen et al., 2021). These results are similar to those found in studies suggesting that intrinsic factors may favor incontinence during pregnancy and increase the risk after delivery. (Maite Solands- Domenench, 2010)

The incidence is higher in the third trimester of pregnancy, when the most important biomechanical and morphological changes occur (Gemma Bivia Roig et al., 2018). Eliasson et al investigated 200 women with LBP and found that 78% of them also suffered from stress urinary incontinence (UI), suggesting that there may be an association between LBP and UI. Stress UI is defined as involuntary leakage of urine during effort or activity, or during coughing, sneezing, and laughing. Stress UI has a high prevalence in women, and factors such as age, pregnancy, childbirth, and hormone-related conditions have been reported to increase its prevalence. UI has a negative and undeniable impact on health and quality of life affecting the social, psychological, occupational, physical, and sexual activities of the sufferers.( Fariba Ghaderi, 2016, Megumi Mutaguchi; 2022, Ahmad H. Alghadir ;2021)

Based on the nature of its reversibility urinary incontinence can be grouped into 2 namely: Acute urinary incontinence (Transient incontinence): Urinary incontinence is sudden, occurs less than 6 months and is usually associated with acute illness or iatrogenic problems which disappear if the acute condition is resolved. The causes are known by the acronym DIAPPERS: delirium, infection and inflammation, atrophic vaginitis, psychology and pharmacology, excessive urine production, mobility restriction and stool impaction Chronic (persistent) Urinary Incontinence: Urinary incontinence is not related to acute conditions and lasts for a long time (more than 6 months) Measurement of Low Back Pain and Urinary Incontinence in this study with the Oswestry Disability Index for Low Back Pain (Oswestry Disability Index (ODI) initiated by John O’Brien in 1976. and Urinary Incontinence (QUID) which has been proven to be reliable. Some of the muscles include the
superior diaphragm, pelvic floor muscles (PFM) inferiorly, transverses abdominis (TrA) anteriorly, and lumbar and posterior extensor muscles. Among these muscles, the PFM has an important role not only in spinal stability but also in continuity maintenance (Tang et al., 2022). The dual function of the PFM may describe more UI events in women with LBP (Mazur-Bialy, Kołomańska- Bogucka, Nowakowski, & Tim, 2020). (Khadijeh Mohammadi, 2016). This paper aims to analyze the risk of low back pain complaints on the incidence of urinary incontinence in pregnant women in Leuwiliang sub-district, Bogor (Rania, 2020).

METHODS
This study was conducted with a case-control analysis of Low Back Pain complaints against the incidence of Urinary Incontinence in pregnant women. Samples were taken randomly with the number of samples using the formula case control minimum sample obtained 36, As a case Defined pregnant women who experience incontinence. who are in leuwiliang sub-district, while the control is pregnant women who did not experience urinary incontinence in Leuwiliang sub-district, Bogor district. Criteria for pregnant women included in the definition of cases and controls in leuwiliang sub-district, Bogor district. Exclusion criteria: uncooperative pregnant women.

The Oswestry Disability Index (also known as the Oswestry Low Back Pain Dysfunction Questionnaire) is a very important tool that disability researchers and evaluators use to measure patients’ permanent functional disability. It is considered the ‘gold standard’ of low back functional outcome tools (Davidson M & Keating J. 2001). Oswestry Disability Index For Low Back Pain / Dysfunction interview procedure (A. F. Mannion, A. Junge 2006) The questions given by the interviewer consist of the following Of 10 items which asked about; 1) pain intent 2). personal care 3) lifting weights 4). Walking 5) sitting 6).standing 7). Sleep 8) social life 9).traveling / travel 10) Changes in pain levels

Each answer has a score of 0 -5. Next scoring is done by totaling the total score of questions 1-10 is multiplied by 100% The result of the scoring were catagorized if the score is 0-20% is said to be normal subjects without any complaints of pain during daily activities. If the score is 21-40% is mean the subjects feel pain and experience difficulty in carrying out daily activities such as sitting, lifting goods or standing, or standing. The score 41-60% is a moderate category where pain all the time and daily activities are disrupted because of the emergence of pain. and daily activities are disrupted due to pain level. the score is 61-81% that mean severe category where pain all the time and daily activities are disrupted due to pain. the score is 81-100% is mean a very severe category where the subject is tormented by pain. tormented due to continuous pain.

Questionnaire For Female Urinary Incontinence Diagnosis (QUID) procedure was conducted with 6 questions where subjects were asked to fill in honestly according to the subject's situation whether you experience urine leakage (even small drops), wetting yourself, or wetting pads or clothes), namely: 1) When you cough or sneeze? 2) When you bend over or touch something? 3). When you walk fast. Jogging or jumping? 4) When you undress or use the toilet? 5) Do you get such a strong or uncomfortable urge to urinate that you leak urine (even small droplets) or wet yourself before reaching the toilet? 6) Do you have to rush to the bathroom because you need to urinate? Each question was scored from 0 to 5 where, 0 (never), 1 (rarely), 2 (occasionally), 3 (almost often), 4 (often), 5 (all the time) Scores were added to produce stress and urge type scores separately, questions 1,2,3 were summed for the stress type score and questions 4,5,6 were summed for the urge type score. Each score ranges from 0 to 15 points. For stress type score ≥4, while for urge type score ≥ 6.

Data Analysis Univariate analysis (descriptive) to see the description of the subject and bivariate analysis to see the risk (OR) with the relationship between Low Back Pain to Urinary Incontinence of pregnant women. The analysis test that will be used in this study is Odd Ratio (OR) This research has gone through the ethical approval process from the ethics committee of Binawan University

RESULTS AND DISCUSSION
Description of sample data was carried out by univariate analysis to determine the frequency distribution of characteristics including the results of the Oswestry Disability Index For Low back Pain
For the examination of the Oswestry Disability Index for Low Back Pain according to Fairbank, it can be categorized into normal, mild, moderate, severe, and very severe combined into a category of low back pain.

Based on table1 above, it can be seen that the frequency distribution of the Oswestry Disability Index for low Back Pain examination in pregnant women is divided into two categories, namely the frequency distribution with the normal / no low back pain category of 36.1% and the frequency distribution with the low back pain category of 63.9%. It can be concluded that pregnant women who experience complaints of Low Back Pain show the highest frequency distribution compared to mothers who do not experience complaints of Low Back Pain (Normal).
Based on table 2 above, it can be seen that the frequency distribution of urinary incontinence of pregnant women is divided into two categories, namely not urine incontinent by 50% and control by 50%.

**Bivariate Analysis**

Based on the analysis test in this study, complaints of low back pain to urinary incontinence amounted to 36.11%, while complaints of low back pain with no urinary incontinence (normal) amounted to 27.77%. The absence of low back pain with no urine incontinence is 22.22% while the absence of low back pain to urine incontinence is 13.88%.

Based on table .3 above, it can be seen that the highest frequency is shown in mothers with the incidence of low back pain to urinary incontinence. The results of bivariate analysis show that complaints of low back pain are more at risk 2.08 times to urinary incontinence, with a p-value = 0.144 not meaningful or not significant.

**Discussion**

From the descriptive results of research subjects conducted in Leuwiliang sub-district, Bogor West Java, Tahnu 2019, out of 72 respondents, 46 (63.9%) pregnant women were at risk of developing Low Back Pain. And as many as 26 (36.1%) pregnant women who are not at risk of Low Back Pain (Normal). So that pregnant women who are at risk of developing Low Back Pain are more than pregnant women who are not at risk of developing Low back pain, namely as much as (63.9%). This is in accordance with the opinion (Mogren 2006, Van de Pol et al., 2007; Dorheim et al., 2014) that pregnancy-related LBPP has been shown to have a detrimental effect on women's lives affecting their ability to walk, work and sleep as well as potentially being a catalyst for depression. It is clear that LBPP during pregnancy affects women in many ways, both physically in terms of walking, sleep and work ability; and emotionally affecting mood and bringing up additional concerns around giving birth. (Ciara Close. 2016). Our results show that LBP remains a common problem in women during pregnancy. Based on data collected from the Office. Planning and Development at Yale-New Haven Hospital, we estimated that 68.6 (95% CI 65.1-72.1%) women experienced LBP during pregnancy (Shu-Ming Wang, et al, 2004). The mean age of 1500 women was 26.5 ± 5.5 years. The prevalence of PRLBP was 53.9%, mostly in the third trimester. Women with PRLBP in the third trimester were more disabled than those in the first and second trimesters (mean ODI 40.0 ± 16.7 vs 34.9 ± 19.2 and 37.4 ± 15.3, respectively). Risk factors for PRLBP were history of LBP, PRLBP, and menstrual-related LBP and no homework help (OR = 5.394, 95% CI 3.128-9.300, p < 0.001; 3.692, 2.745-4.464, p < 0.001; 2.141, 1.563-2.932, p < 0.001; 1300, 1.029-1.64, p = 0.028, respectively) (: Savas Sencan Emel Ece Ozcan-Eksi Isu Cuce Selcuk Guzel Baki Erdem, 2017).

From the data of this study, the incidence of urinary incontinence was 36 (50.0%). This is in accordance with the opinion (Semra Kocaoz, 2010) about urinary incontinence which shows that experiencing UI during pregnancy is a major risk factor in terms of the development of problems later in a woman's life. Urinary incontinence is an important symptom that affects the physical, psychological, social and economic well-being of a woman. In this study, the prevalence of UI during pregnancy was found to be 40%. However, our study showed that stress incontinence is the main cause of UI in pregnancy, which is consistent with other studies. It was found in this study that 31.3% of pregnant women had mild urinary incontinence (stress), 59.7% moderate urinary incontinence (urge), and 9% severe urinary incontinence (mix). These results indicate that UI is a common occurrence during pregnancy and it is a major health concern (Ayten DINC¸ 2018 ) in his study mentioned that the risk of urinary incontinence is very influential during pregnancy.

The risk of Low Back Pain complaints with the incidence of Urinary Incontinence in pregnant women. There is an incidence of LBP and UI in pregnant and postpartum women. These two conditions exist together in some women, with a predominance in postpartum women (Elisabetta Pandolfi et.al 2019 Jeanne Bertuit, Els Bakker; 2021)

From the results obtained, mothers who experience Low Back Pain complaints have a 2.080-fold greater tendency to the incidence of Urinary Incontinence (OR = 2.0805% CI = 0.779-5.552 P = 0.144), but the results of the P-Value above show insignificant results (p> 0.05). A study conducted by Smith et al. suggested that "women with UI are twice as likely to experience back pain
as women without UI". Eliasson et al. also argue that "more than three-quarters of women with low back pain also have UI". The larger percentage of women in this study revealed that respectively, 35.9% and 42.6% of pregnant and postpartum women reported LBP along with UI symptoms. The results of this study revealed no significant correlation (pregnant: P = 0.324; postpartum: P = 0.464) between the intensity of LBP and the degree of UI. However, there was a significant correlation between LBP intensity and UI type (p = 0.041*) among pregnant women, whereas there was no significant correlation between LBP intensity and UI type (p = 0.529) among postpartum women (Chukwu Sylvester Caesar, 2019).

Research Limitations. :This study has several limitations in relation to the results of the analysis and many confounding factors that are not further examined in this study.

CONCLUSION

Based on the results of a selected study of 72 respondents in pregnant women in the Leuwiliang District of Bogor, West Java, it can be concluded that mothers who have complaints of Low Back Pain have a risk of urinary incontinence 2.08 times greater than mothers who experience complaints of Low Back Pain with no incidence of urinary incontinence (P-value 0.144) and statistically not significant.

REFERENCES


