

Analysis of Factors Influencing the Incidence of Urinary Incontinence in Elderly Women in Medan

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Abstract: Urinary incontinence is a serious health problem that is very vulnerable to be experienced by the elderly caused by urinary disorders, especially women who can increase the risk of postpartum infection. This study used an observational analytic study with case control design. The results of the study based on the results of statistical tests obtained p value > 0.05 indicating that there was no effect of increasing body weight on the incidence of urinary incontinence. In the blood sugar level variable, the p value < 0.05 showed that there was an effect of blood sugar levels on the incidence of urinary incontinence with an OR = 4.375 (95% CI; 1.320-14.504). Blood pressure on the incidence of urinary incontinence with a value of OR = 4.250 (95% CI; 0.507-9.993), the variable history of delivery obtained p value < 0.05 there is an effect of mode of delivery on the incidence of urinary incontinence with an OR value of 4.190 (CI 95%; 0.716-6.698), the parity variable obtained p value > 0.05 , there was no effect of the number of parity on the incidence of urinary incontinence, the variable length of menopause obtained p value > 0.05 indicating that there was no effect of the length of menopause on the incidence of urinary incontinence, on the history of hysterectomy variable obtained p value < 0.05 , there is an influence between the history of hysterectomy surgery on the incidence of urinary incontinence with OR = 2.740 (95% CI; 0.252-2.175), on the variable r gynecological history Statistical test results obtained p value > 0.05 indicating that there is no effect between the history of geniculate surgery on the incidence of urinary incontinence.

Keywords: blood pressure, Elderly Women Incidence, labor, urinary incontinence.

INTRODUCTION

Urinary incontinence is a serious health problem that will interfere with daily activities, and quality of life and increase the risk of postpartum infection. Urinary incontinence is a complication of childbirth that usually occurs in the postpartum period. Urinary incontinence (IU) does not threaten the patient's life, but this can have an impact on the physique and quality of life. Urinary incontinence will indirectly increase the occurrence of infections in the postpartum period, physical complications that generally occur in patients with urinary incontinence are bladder infections, urethral infections, and vaginal irritation (Sari et al., 2016). The negative impact of urinary incontinence is being shunned by others because it smells of urine, inferior, insecure, causing infection in the genital area, and discomfort in activities including sexual intercourse which can ultimately reduce the quality of life (Corrado et al., 2020)(Almousa & Bandin Van Loon, 2019).

There are 350 million urinary incontinence patients in the world (Esparza et al., 2018). More than 200 million people live with urinary incontinence world (Mostafa Elbana, 2018). Urinary incontinence in Turkey is 23.9%, in Japan at 31%, in Australia between 12.8 and 46%, in the Netherlands at 46%, in Canada at 51% and 34.8% in South Korea (Holly, 2018). In Spain, the average prevalence of urinary incontinence is 15% in women and 11.6% in men (Esparza, Tomas & Pina, 2018). According to the Asia Pacific Continence Advisor Board (APCAB), the prevalence of IU in Asian women is 14.6 %, of which around 5.8% came from Indonesia (Juananda & Febriantara, 2017).

Based on research by Khan et al. stated that there was a relationship between menopause and the occurrence of urinary incontinence ($p = 0.002$) (Omar et al., 2015)(Kołodzyńska et al., 2019). The next factor that causes IU is hypertension, according to the research conducted by Amelia. From the results of the research conducted, it was found that elderly people who experience urinary incontinence suffer from 50% hypertension. Research by Schreiber et al states that there is a relationship between diabetes mellitus and the incidence of urinary incontinence ($p < 0.001$), and diabetes mellitus has a 1.5 times risk of causing urinary incontinence (OR 1.5, 95% CI 1.1–2.1) (Faasse et al., 2015).

Regarding the knowledge and practice of treating urinary incontinence from various previous studies, it has been shown that the relationship between knowledge and practice is very strong. Meanwhile, the prevalence of nurses who recognize and resolve urinary incontinence problems in the treatment room is very minimal. Urinary incontinence can occur more frequently when sneezing, coughing, and walking which can be corrected by the toilet training method in patients (Mardiyah, 2013). From these data, some nurses may still not consider urinary incontinence treatment as part of their obligations. Various research results show that nurses have minimal knowledge regarding the assessment and management of urinary incontinence. Therefore, an assessment of the knowledge of nurses and the practice of treating urinary incontinence is very important so that later nurses can receive adequate education and training on the care of patients with urinary incontinence. The purpose of this study is to identify influencing the incidence of urinary incontinence in elderly women.

METHOD

This research is an observational analytic study with a case-control research design with a retrospective approach. The independent variables of this study are the factors that cause urinary incontinence consisting of factors (Diabetes mellitus, hypertension, parity, method of delivery, history of hysterectomy surgery, history of gynecological surgery, menopause, weight and education). The dependent variable of this study is the incidence of urinary incontinence in elderly female patients.

The number of samples in this study was 60 people with sampling done by the total sample method. The inclusion criteria in this study were respondents who suffer from urinary incontinence in elderly women aged > 50 years and are willing to be research respondents. Patients with other comorbidities such as kidney failure and taking diuresis drugs were excluded as research respondents. In this study, statistical tests for univariate analysis were carried out using descriptive analysis through frequency and percentage distributions, bivariate analysis using chi-square, and multivariate logistic regression analysis. The test is used because the data is non-parametric by using ordinal and ordinal measurement scales (Rianto, 2012).

Researchers pay attention to the basic principles of research ethics which consist of beneficence, respect for human dignity and justice (Polit & Beck., 2012). Ethical considerations related to this research were carried out through approval from the health research ethics committee of the Faculty of Nursing, University of North Sumatra with No: 938 KEP/USU/2021.

RESULT

The description of the characteristics of the respondents based on the results of research at the Adam Malik Hospital in Medan totaling 60 respondents with each group consisting of 30 respondents can be seen in the following table.

Table 1. Frequency Distribution and Percentage of Respondents with Urinary Incontinence Based On the Characteristics of The Respondents.

Responden Characteristic	Un-Incontinensia		Incontinensia	
	N	%	n	%
Age				
50-55 years old	20	33.33	18	30.00
56-60 years old	10	16.67	12	20.00
Ethnic group				
Batak	17	28.33	17	28.33
Jawa	7	11.67	6	10.00
Melayu	6	10.00	3	5.00
Minang	0	0.00	4	6.67
Other	0	0.00	0	0.00
Occupation				
PNS	2	3.33	3	5.00
Karyawan Swasta	11	18.33	2	3.33
Wiraswasta	4	6.67	6	10.00
IRT	13	21.66	19	31.66
Other	0	0.00	0	0.00
Education				
No school	0	0.00	0	0.00
Elementary	2	3.33	0	0.00
Junior School	5	8.33	3	5.00
Senior School	19	31.67	22	36.67
Bachelor	4	6.67	5	8.33
BMI				
Underweight (< 18,4 Kg)	1	3.33	2	6.67
Ideal Weigh (18,5 - 24,3 Kg)	4	13.34	8	26.67
Overweight (25 – 29,9 Kg)	21	70.00	15	50.00
Obesity (30 – 39,9 Kg)	4	13.33	5	16.67
Very Fat (> 40 Kg)	0	0.00	0	0.00

Table 1 shows the distribution based on the age of Urinary Incontinence patients dominated by patients aged 50-55 years, namely 20 patients (33.33%) dominated by the Batak tribe, namely 17 patients each (28.33%). The average occupation of Urinary Incontinence patients is a housewife (IRT), namely 13 patients (21.66%) in the Un-incontinence group and 19 patients (31.66%) in the incontinence group. The last education of Urinary Incontinence patients was that the average high school student was 19 patients (31.67%) in the non-incontinence group and 22 patients (36.67%) in the incontinence group.

Table 2. Explains that there is an influence of diabetes mellitus on the incidence of urinary incontinence. The value of OR = 4.375 (CI 95%; 1.320-14.504) means that elderly women who have diabetes mellitus have a risk of 4.375 times more prone to urinary incontinence. In addition, hypertension is also significant for the incidence of urinary incontinence. The value of OR = 4.250 (CI 95%; 0.507-9.993) means that elderly women with hypertension have a risk of 4.250 times more prone to urinary incontinence. Mode of delivery was significant for the incidence of urinary incontinence p <0.05 OR value = 4.190 (CI 95%; 0.716-6.698) meaning that elderly women who had a history of cesarean section delivery had a risk of 4.190 times more prone to urinary incontinence, and hysterectomy surgery was significant for the occurrence of urinary incontinence. The value of OR = 2.740 (CI 95%; 0.252-2.175) means that elderly women who have a history of hysterectomy have a 2.740 times greater risk of urinary incontinence.

Table 2. Frequency Distribution and Percentage of Respondents with Urinary Incontinence Based On The Characteristics of The Respondents

Responden Characteristic	No continence		Incontinence	
	N	%	n	%
No DM (Normal)	5	16.67	14	46.67
DM	25	83.33	16	53.33
No Hypertension (Normal)	3	10.00	6	20.00
Mild Hypertension	13	43.33	19	63.33
Moderate Hypertension	14	46.67	5	16.67
Childbirth History				
Vaginal	7	23.33	12	40.00
Caesarian Section	9	30.00	11	36.37
Vaginal + Caesarean section	14	46.67	7	23.33
Parity				
There isn't any	1	3.33	0	0.00
≤ 2	11	36.67	13	43.33
3 - 4	17	56.67	17	56.67
>4	1	3.33	0	0.00
Menopausal Age				
<1 years	13	43.33	13	43.33
> 1 years	17	56.67	17	56.67
History of Hysterectomy				
No	19	63.67	21	30.00
Yes	11	36.67	9	70.00
History Gynecology				
No	21	70.00	21	30.00
Yes	9	30.00	9	70.00

Table 3. Effect of Urinary Incontinence on BMI, Diabetes Mellitus, Hypertension, Mode of Delivery, Parity, Menopause, Hysterectomy, History of Gynecological Operations

Category		No		Incontinence		p Value	OR (CI 95%)
		Continenence					
		n	%	N	%		
BMI	Normal Weight	5	16.67	10	33.33	0.233	2.50 (0.735 -8.502)
	Obesity	25	83.33	20	66.67		
Diabetes Melitus	Normal	5	16.67	14	46.67	0.025	4.375 (1.320-14.504)
	Diabetes Mellitus	25	83.33	16	53.33		
Hypertension	No	3	10.00	6	20.00	0.022	4.250 (0.507-9.993)
	Yes	27	90.00	24	80.00		
Labor Method	Normal	7	23.33	12	40.00	0.007	4.190 (0.716-6.698)
	SC	23	76.67	18	60.00		
Gestasi	< 1	12	40.00	13	43.33	1.000	1.147 (0.411-3.204)
	≥ 2	18	60.00	17	56.67		
Menopause	< 1 years	13	43.33	13	43.33	1.000	1.000 (0.360-2.777)
	> 1years	17	56.67	17	56.67		
Hysterectomy	No	19	63.33	21	70.00	0.008	2.740 (0.252-2.175)
	Yes	11	36.67	9	30.00		
Gynecological Surgery	No	21	30.00	21	30.00	1.000	1.000 (0.331 – 3.017)
	Yes	9	70.00	9	70.00		

Based on table 3, it is known that all the variables resulting from the bivariate analysis that had a p-value <0.05 were tested together in the multivariate analysis and obtained two variables which were significantly ($p < 0.05$) a risk factor for urinary incontinence, namely the method of labor with OR (EXP B) = 4.461, which means that history of childbirth has a 4.5 times greater risk of developing urinary incontinence in elderly women, while the variable history of hysterectomy surgery has OR (EXP B) = 2.678, which means elderly women who have a history of hysterectomy surgery has a risk of 2.678 times being affected by the incidence of urinary incontinence in elderly women.

Table 4. Multiple Logistic Regression Test Results of Late Model Diabetes Mellitus Hypertension, Mode of Delivery, Parity, History of Hysterectomy Operations for Urinary Incontinence

Independent Variable	B	Sig	Exp (B)	95% CI
Labor Method	0.067	.009	4.461	0.529 – 6.305
History of Hysterectomy Surgery	1.372	.061	2.678	0.807-8.229

DISCUSSION

The results of the study were dominated by patients aged 50-55 years, namely 20 patients (33.33%) in the incontinence group and 18 patients (30.00%) in the non-incontinence group. The results of this study are research conducted by Karjoyo. Aging causes a decrease in muscle strength, including the pelvic floor muscles. The pelvic floor muscles function to actively maintain the stability of the pelvic organs, contract, tighten and relax the genital organs, and control and control defecation and urination. Elderly people who experience urinary incontinence are those aged ≥ 60 years. Increasing age is one of the risk factors for weakening the strength of the pelvic floor muscles, muscles will tend to experience a decrease in strength based on increasing age and this cannot be avoided (Karjoyo et al., 2017). In line with the research of Rijal et al. Urinary incontinence is believed to be an indication of the aging process which is indicated due to changes in the musculoskeletal system, nervous system, and urinary system which result in a decrease in core muscle strength, especially the pelvic floor muscles which causes the urethral sphincter to become inadequate (Rijal et al., 2019).

The results showed that the frequency distribution of the last education of Urinary Incontinence patients in the high school average was 19 patients (31.67%) in the Non-incontinence group and 22 patients (36.67%) in the incontinence group. Education is associated with an increase in human capital, resources psychosocial resources, living conditions, health care, and better lifestyles. A person with a good education can understand instructions given by health workers, can choose foods that are good for health, and always takes the time to do physical activity. This will indirectly have an impact on changes in the frequency of urinary incontinence (Rijal et al., 2019; (Lu et al., 2021)). A low level of education is related to a woman's knowledge of safe pregnancy and childbirth. The higher a person's education level, the better knowledge and awareness regarding safe pregnancy and childbirth, and vice versa. Therefore, urinary incontinence occurs mostly in women with low levels of education (Sutarmi et al., 2016).

The statistical test results obtained a p-value <0.05 indicating that there was an effect of blood sugar levels on the incidence of urinary incontinence. High levels of sugar in the blood of people with diabetes mellitus will usually be associated with cholesterol and triglyceride levels. Several studies believe that diabetes mellitus can increase the risk of urgent type IU due to diabetic neuropathy. In addition, lower urinary tract infections can also increase the risk of urgency-type IU by triggering hyperflexion of the detrusor muscle (Juananda & Febriantara, 2017). Different research results were obtained in the Seputra study based on statistical tests of diabetes mellitus, which had no relationship with the level of urinary incontinence ($p > 0.05$) in urinary incontinence patients with a history of diabetes mellitus of 4.3% (Haruna et al., 2018). The statistical test results obtained a p-value <0.05 indicating that there was an effect of blood pressure on the incidence of urinary incontinence. Women are more likely to develop

hypertension after menopause due to the influence of the hormone estrogen. In line with a study conducted by Okumura, patients with cardiovascular disease, especially hypertension, are associated with a high incidence of pathological proteinuria ($p < 0.001$) with a prevalence of $>+1$ proteinuria reaching 61% (Okumura et al., 2014).

The results of this study are not in line with research conducted by Seputra based on statistical tests of diabetes mellitus, it has no relationship with the level of urinary incontinence ($p > 0.05$) in urinary incontinence patients with a history of hypertension as much as 17.4% (Made et al., 2019). The statistical test results obtained a p-value < 0.05 indicating that there was an effect of vaginal delivery and a cesarean section on the incidence of urinary incontinence. The results of this study are in line with research conducted by Jayanti explaining that vaginal delivery can result in weakness of the pelvic floor muscles that occur due to levator ani trauma, nerve injuries, stretching of the fascia, and damage to vascularity due to stretching and pressing of the fetal head presentation during labor. Weakness of the pelvic floor muscles causes a weakness in the urinary continence mechanism according to the hammock theory and the theory of changes in the ureterovesical axis, namely inadequate urethral closing contractions which can trigger urinary incontinence (Jayanti, 2018). The statistical test results obtained a p-value < 0.05 indicating that there was an influence between the history of hysterectomy surgery and the incidence of urinary incontinence. The results of this study are in line with Mukti's research which states that the mechanism for the occurrence of urogenital fistula (an abnormal connection between the female reproductive tract and the urinary tract that can result in urine leakage) caused by hysterectomy surgery includes iatrogenic processes, namely the occurrence of tissue necrosis due to cauterization of bleeding and ligation during surgery hysterectomy surgery (Made et al., 2019).

CONCLUSION

Based on the results of the study it can be concluded that from the results of the multiple logistic regression test, the variables BMI, parity, menopause, and history of gynecological surgery do not affect the occurrence of urinary incontinence in elderly women, while factors of diabetes mellitus, hypertension, mode of delivery and history of hysterectomy surgery influence the incidence of incontinence urine in elderly women. The most dominant factor as a cause of urinary incontinence was the mode of delivery which means that too many delivery methods have a 4.461 times greater risk of urinary incontinence in elderly women. The results of this study are expected to be one of the solutions to nursing problems. Therefore, nurses are expected to be able to increase motivation, ability, skills and knowledge related to urinary incontinence and its management of urinary incontinence in elderly women.

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