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## **The Effectiveness of Reusable Menstrual Cloth Pads to Reduce Urinary Tract Infections: A Study in Payo Selincih, Jambi - Indonesia**

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### **Abstract**

This study aimed to examine the effectiveness of Reusable Menstrual Cloth Pads (RMCP) to reduce urinary tract infections among women in Payo Salincih, Jambi – Indonesia. The study was a quasi-experimental study with two groups of pre and post-test design. The sample consisted of 48 women of 15-20 years old chosen by random sampling. The study was conducted in March – October 2020. The respondents were divided into 2 groups namely control and experimental groups. The result of this study showed that p-Value was 0.001 which meant there was significant difference between RMCP and FMP in reducing UTI. The mean of RMCP was  $1.30 \pm 0.067$  and FMP's mean was  $1.49 \pm 0.074$ . This result showed that RMCP was more effective in reducing UTI among women in Selincih Payo, Jambi.

**Keywords:** Effectiveness; Reusable menstrual cloth pads; UTI; Jambi.

### **1. Introduction**

National Kidney and Urologic Disease Information reported that Urinary Tract Infection has been becoming second-most-frequent disease. Moreover, 8.3 million UTI cases are reported per year. UTI is contagious for women in any ages from baby, toddler, teenager, adult and elderly [1].

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Urinary tract infection is a nosocomial infection that typically causes about 40% of infections per year. Furthermore, some studies discovered that about 80% of Urinary tract infection occurred after instrumentation, especially cauterization [2]. During menstruation, using menstrual pads longer potentially increase humidity that leads to bacterial development in urinary tract area. Women should replace menstrual pads every 3 to 4 hours before the menstrual pads full. For the past 30 years, some studies had illustrated the tendency that UTI and HPV (Human Papilloma Virus) were caused by the lack of knowledge among women regarding hygiene practice to keep their feminine area clean during menstruation. This condition resulted humidity and created a humid place for bacteria development in feminine area [3]. Moreover, the use of menstrual pads is another factor of UTI. In a previous study conducted by Sinha found that the usage of unhygienic menstrual pads was the main factors causing UTI among women in India. Therefore, the usage of hygiene menstrual pads is the best way to reduce Urinary Tract Infection among women [4]. Thus, this present study examined the effectiveness of Reusable Menstrual Cloth Pad (RMCP) to reduce Urinary Tract Infection (UTI) among women in Selincah Payo, Jambi. The RMCP was made of fabric that were generally used as cloth material. The RMCP will be the innovation in this present study to resolve the UTI problems among women in Jambi, Indonesia even throughout the world.

## 2. Method

This study was a quantitative study presented with numeral and statistical data using SPSS.2.0. Moreover, this study was a quasi-experimental study consisted of two groups and pre-posttest design. Data collection in this study was conducted by distributing questioner both in pre-test and post-tests. The aim of this study was to examine the effectiveness of reusable menstrual cloth pads among women to reduce urinary tract infection. This study was conducted from February to October 2020 in Payo Selincah, Jambi, Indonesia. Population in this study was all teenager and adult women between 15-20 years old. Furthermore, there are 48 respondents chosen by random sampling in this study. The questioner consisted of 19 questions and it was delivered to all 48 respondents that were divided into 2 groups namely experimental and control groups.

## 3. Result and Discussion

**Table 1:** UTI difference of experimental group in Selincah Payo, Jambi.

Variable	n	Median score (min-max)	Mean ±	P Value
UTI	Before	1 (1-2)	1.46± <b>0.509</b>	0.005
	After	1 (1-2)	1.79± <b>0.415</b>	

Based on the table 1, it illustrated that there was a significant difference among experimental group who used reusable-menstrual cloth pads. The table showed that before the use of RMCP, the mean was 1.46±**0.509** and it increased to 1.79±**0.415** after the usage of RMCP. Moreover, Wilcoxon test resulted that there was a difference of UTI before and after the usage of RMCP with P value 0.005 which meant that there was a significant changes statistically.

**Table 2:** UTI difference of Controlled group in Selincah Payo, Jambi.

Variable		n	Median score (min-max)	Mean $\pm$	P Value
UTI	Before	24	1 (1-2)	1.29 $\pm$ <b>0.464</b>	1.000
	After	24	1 (1-2)	1.29 $\pm$ <b>0.464</b>	

Table 2 showed that there was no significant difference among controlled group who were using factory menstrual pads. The mean was 1.29 $\pm$ **0.464** in pre-test and consistently remained in the post-test. Moreover, based on Wilcoxon test resulted that *P* value was 1.000 which meant that there was no difference in the usage of factory menstrual pad to reduce UTI among women in controlled group.

**Table 3:** The effectiveness of RMCP to reduce UTI's frequency among teenager women in Payo Selincah, Jambi.

Variable		n	Median score (min-max)	Mean $\pm$	P Value
UTI	RMCP	24	1 (1-2)	1.30 $\pm$ <b>0.067</b>	0.001
	FMP	24	1 (1-2)	1.49 $\pm$ <b>0.074</b>	

Table 3 showed that p-Value was 0.001 which meant there was significant difference between RMCP and FMP in reducing UTI. The mean of RMCP was 1.30 $\pm$ 0.067 and FMP's mean was 1.49 $\pm$ 0.074. This result showed that RMCP was more effective in reducing UTI among women in Selincah Payo, Jambi. The subject of this study was teenager and adult women based on inclusion and exclusion criteria in Selincah Payo, Jambi. Based on the questioner, there were 21 respondents (49.2%) were 18 years old and 5 (10.2%) respondents were 20 years old who experienced UTI. Teenager are more likely to have UTI and it tended to increase until they reached maturity in mature age. UTI cases among women had been increasing from 3.3% to 5.8% cases. Asymptomatic Bacteria increased among women from 18-40 years old were normally 5-6%. However, the percentage increased up to 20% among elderly [5]. Pads are generally used to absorb (discharge) menstruation [6]. The use of sanitary napkins on women who are menstruating is a common thing in the world. The choice of sanitary napkins is very individual and is influenced by different factors [7]. The use of sanitary napkins containing perfume or contaminated sanitary napkins can cause irritation and infection of the urogenital tract [8]. Based on research that has been done by Parveen et. Al, the prevalence of urinary tract infections in pregnant women related to age obtained by individuals from the age group 21-25 years had the highest incidence of infection (44.61%). Followed by the age group 26-30 years (27.69%), 31-35 years (16.92%) and 16 -20 years (6.15%). While the age group 36-40 years had the lowest incidence of infection (4.61%) [9]. Results Based on the statistics in table 2 the initial scores in the second group were obtained with the same score, namely 1 and 1. The results of the analysis showed that there was no significant difference in UTI in the second group ( $p > 0.283$ ). The initial assessment of UTI in adolescents was carried out using the complete form ICIQ-FLUTS 08/04. The symptom variables from this study were according to the ICIQ-FLUT 08/04 form, namely 19 points of assessment of age, frequency, nocturnal, urgency, urge urinary incontinence, bladder/bladder pain, stress urinary incontinence/stress incontinence, persistent urinary incontinence. unexplained/unexplained incontinence,

amount of urine leakage, waiting/hesitating urination, bladder straining/straining, intermittent/intermittent urinary stream, nocturnal enuresis, flow, urinary retention, dysuria, feeling unexplained before voiding and ability to stop bladder flow. Frequency/increased frequency during the day is a complaint where urination occurs more frequently during the time the patient is awake than previously considered normal. The traditional definition in which the frequency of urination above 8 times a day is assessed in this study, then an analysis is carried out which complains about the number of urinations on the question of the degree of disturbance. Nocturia is a common symptom of patients when getting up at night to urinate one or more times. Each urination is followed by a return to sleep. Urgency is a patient's complaint of having a very strong urge to urinate that comes suddenly and is difficult to hold. Urge incontinence is a very strong urge to urinate and the patient cannot hold it so that sometimes before going to the toilet, urine has to come out first. Stress urinary incontinence is the involuntary discharge of urine when lifting weights, sneezing or coughing. Unexplained incontinence is urine per urethra without a clear cause. Urinary waiting / hesitancy is difficulty starting micturition which results in a delay in the onset of urination even though the patient is ready to urinate. Urination straining / straining is a muscle effort during the process of urination. An intermittent stream is a stream of urine that stops and starts again, once or several times during one voiding process. The feeling of not overflowing after urinating is a subjective complaint of patients after going through an urination process. Nocturnal enuresis is urinary incontinence when the patient is sleeping. Dysuria is a burning sensation and pain when urinating. Urinary shower assessment is normal if there is no decrease, the occurrence of a decrease in urine flow is one of the symptoms of urinary disorders. Urinary retention is a condition in which the patient is unable to excrete urine despite persistent efforts. The ability to stop the flow of urine during urination indicates good function of the external urethral sphincter. The prevalence of UTI varies according to gender and age. In general, UTIs are more common in women than men, both in children and in adults, except in the neonatal period, it seems that male infants are 75-80% more frequent than female infants are 20-25%. This is associated with a higher susceptibility of male infants to sepsis and bacterial infections in the neonatal period. The main symptoms of UTI in pubertal girls are dysuria and polyuria. However, these symptoms can also be caused by vaginitis, latent pyelonephritis, and urethritis. Other symptoms of UTI in this group include the urge to urinate, hematuria, fever and abdominal/waist pain. From the results of the study, it was found that cloth sanitary napkins were effective in reducing the incidence of urinary tract infections by obtaining a t count 23,464 and  $p < 0.005$ . The results of this study are in line with the theory that the cloth sanitary napkins used in this study contain 100% natural fabrics and ingredients. Some of the causes of UTI are the use of sanitary napkins during menstruation. Research conducted by Sinha 2013 stated that the use of sanitary pads during menstruation is the most important thing with the aim of preventing health problems such as reproductive tract infections, urinary tract infections and bad odors in the reproductive organs and urinary tract. Data and his colleagues found that hygiene during menstruation is the most important component in women, low hygiene can be a cause of urinary tract infections, reproductive tract infections, sexually transmitted diseases such as HIV/AIDS [10]. At the time of menstruation, using pads for too long can increase the humidity in the open urinary tract area. High humidity will be very favored by bacteria that cause UTIs to grow. Therefore, it is a good idea to change your pads regularly every 3 to 4 hours, even if your pads are not full yet. Self-care during menstruation is very important, because during menstruation the feminine condition is moist, so viruses that breed in the female genital organs can be at risk for UTI (Urinary Tract Infection). From various studies in the last 30 years, there is a tendency

that Urinary Tract Infection (UTI), Human Papilloma Virus (HPV), is caused by a woman's lack of knowledge in maintaining cleanliness, especially feminine hygiene during menstruation so that the virus will multiply in the female genital organs, humid conditions. Physical problems that may arise from a lack of knowledge are the lack of personal hygiene so that it is at risk for urinary tract infections. According to Abidin sanitary napkins with fragrance or containing perfume should be avoided because the perfume or fragrance in the sanitary napkins contains alcohol which causes irritation and itching of the sanitary napkins and a statement that reinforces the statement about disposable sanitary napkins that disposable sanitary napkins are dangerous if used in the long term. long time [11]. The results of research by Elmi Nuryati and his colleagues in the journal of maternal and child care about the use of safe sanitary napkins for reproductive health concluded that most of the disposable sanitary napkins contained dioxin and chlorine substances, which are harmful to the human body [12]. Istiqomah Shariati and his colleagues research on environmentally friendly and ethical sanitary napkins said that the use of single-use sanitary napkins for a long period of time has the potential to cause health problems for women and the environment [13]. Research conducted by Imtiyazi Nabila in 2015 in South Tangerang found one research subject who experienced an increase in the number of leukocytes after using non-herbal sanitary napkins and there was no difference in urine nitrite after using herbal dressings compared to non-herbal sanitary napkins [14]. Research conducted by Rani Purnama Sari and Muhatono in Lampung said that 39.4% of female employees had urinary tract infections. The risk factors related in this study were that there was a significant relationship between urinary tract infections and hygiene ( $p$  value = 0.019), holding back urination ( $p$  value = 0.005), lack of water intake ( $p$  value = 0.027) [15]. Research conducted by Anna Uswatun Qoyyimah said that there was a relationship between the use of sanitary napkins and the incidence of vaginal discharge in adolescent girls at SMA Negeri 1 Jatinom Klaten [16]. The results of Rosmina, Safrullah Amir, Badaruddin Ahdy Syafar research in Tondang Tallasa, Pangkep Regency show that young women have knowledge, attitudes, and behavior in using sanitary napkins which are still lacking with percentages of 57.45%, 57.45%, and 70.21%, respectively knowledge and attitudes show no association with the behavior of using sanitary napkins in adolescent girls in rural areas [17]. The cloth dressing material used is best suited to the skin so that it feels comfortable and does not leak when used. This is also because the sanitary napkin has enough width to cover the underpants. The cloth bandage material is more elastic and easy to fold. This statement is reinforced by Sinaga's statement that the selection of sanitary napkins is also crucial. A woman is expected to be able to choose the right sanitary napkin. The wrong choice of pads can result in skin irritation, allergies, to skin diseases and infections. The sanitary napkins also do not contain fragrance and the material is not too dense or light. All of these criteria are so that air circulation in the vagina is maintained, always dry because moist conditions make it easier for bacteria to breed and cause irritation. The selection of sanitary napkins with the above criteria is also adjusted to the activities that will be carried out by a woman. For example, wider pads while sleeping and thinner pads during activities [18]. Cloth sanitary napkins are designed to help users of cloth sanitary napkins feel comfortable all day long because they are made of materials that suit the needs of human skin, so the cloth sanitary napkins developed are designed not only from their appearance but also to the needs of human skin. The material used for cloth pads is for the upper outer part used is diadora cloth, a very soft cloth suitable for feminine skin and this cloth is also used for baby diaper cloth, the outer bottom is used milky parachute cloth, this milky parachute cloth is water proof and the inside The inside used is fleece.

Diadora cloth is used for cloth dressing and is placed on the top. The characteristic of this material is not a little shiny (reflects light) when exposed to sunlight. The outer surface of this material is smooth and has a high density, while the inside is soft and inviting a warm effect to make it comfortable to wear. The type of milky cloth used for the bottom layer is a parachute cloth that has a milky coating (milky white color), made of waterproof like taslan. The quality of this fabric is quite good because it has water-resistant properties when the water is flowing/not stagnant, a parachute-like material with a thin layer and is noisy when the fabric surfaces rub against each other. Has waterproof characteristics. Milky fabric is usually used to make sports jackets, wind runners, windbreakers, outdoor jackets, bomber jackets and other types of parachute packages. Based on the composition of the material made, fleece can be grouped into several categories, ranging from cotton fleece, polyester fleece, micro fleece, bamboo fleece, polar fleece and others. The most popular fleece fabric in the world of clothing is fleece cotton. This fleece fabric is composed of a mixture of 80% cotton fiber mixed with 20% wool fiber. Fleece is used in the middle layer of the pads. This is supported by the opinion expressed by Malahayati that the solution to choosing sanitary pads that are safe for women is that the thickness factor of the type of sanitary napkin is indeed one of the determinants of comfort for women, but you should also pay attention to the absorption factor of the pads. This can be tried using water to test the absorption of the pads, Ensure that the pads have enough width to cover the panties and have good adhesive so they don't slide and fall off, Pay attention to the bottom of the pads and ensure that the bottom is watertight. This can be tried when doing the absorption test on the sanitary napkin, choosing the type of sanitary napkin that contains smooth and soft ingredients [19].

#### **4. Conclusion**

Urinary Tract Infection is one of the dangerous disease that can happen to women in any ages. There are some solutions to reduce UTI. One of the solutions is maintaining a hygiene practice during menstruation and using Reusable Menstrual Cloth Pads as the alternative of Factory sanitary pads that contains harmful materials. RMCP is better than factory pads because it is save, reusable and comfortable for skin in vital area. Hence, this study aimed to prove that RMCP is the better choice for women in reducing UTI. The result of this study showed that p-Value was 0.001 which meant there was significant difference between RMCP and FMP in reducing UTI. The mean of RMCP was  $1.30 \pm 0.067$  and FMP's mean was  $1.49 \pm 0.074$ . This result showed that RMCP was more effective in reducing UTI among women in Selincah Payo, Jambi.

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