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Profile of Urine Sediment Examination Results Among Tailors in Sidorejo Village, Comal Subdistrict, Pemalang Regency

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ABSTRACT

Background & Objective: Urine sediment examination is used to detect abnormalities in the kidneys and urinary tract, as well as the severity of disease. Morning urine is preferred because it contains a higher concentration of sediments. For workers engaged in prolonged static activities, such as tailors, this test is important to identify potential health risks associated with occupational habits and unhealthy environments. Tailoring requires sitting for long periods to meet customer demands, increasing the risk of urinary tract stones (urolithiasis). This study aimed to describe the results of urine sediment examination among tailors in Sidorejo Village, Comal Subdistrict, Pemalang Regency. **Method:** This descriptive study employed purposive sampling, with 30 respondents providing urine samples for sediment analysis. **Result:** Of the 30 urine samples, 2 showed erythrocytes, 2 showed leukocytes, 27 showed squamous epithelial cells, 9 showed transitional epithelial cells, 14 showed calcium oxalate crystals, and 12 showed uric acid crystals. **Conclusion:** Urine sediment examination among tailors in Sidorejo Village revealed the presence of erythrocytes, leukocytes, squamous epithelial cells, transitional epithelial cells, calcium oxalate crystals, and uric acid crystals. This highlights the importance of regular urine sediment testing for workers with static activities such as tailoring, as it may help in the early detection of potential health problems caused by occupational habits and poor working conditions.

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Introduction

Urine sediment examination is performed to identify abnormalities in the kidneys and urinary tract as well as to assess the severity of disease. Morning urine is typically used for this test because it has the highest concentration of sediments. Urine sediments may contain organic and inorganic components. Organic elements include epithelial cells, white blood cells (leukocytes), red blood cells (erythrocytes), casts, bacteria, and yeast cells, while inorganic elements include crystals, lipids, and amorphous substances (Damayanti, Parwati, & Abadi, 2020). For workers with prolonged static activities, such as tailors, urine sediment examination is important because it can help detect potential health problems caused by occupational habits and an unhealthy work environment. Tailoring requires individuals to sit for long hours to meet customer demands, making it an occupation with a high risk of urinary tract stones (urolithiasis) (Farizal, 2018).

Urolithiasis is one of the most common health problems worldwide. Its formation is influenced by intrinsic factors (such as heredity, age, and sex) and extrinsic factors (such as geography, occupation, stress, obesity, dehydration, diet, and habitual urine retention). The prevalence of urolithiasis is estimated at 13% in adult men and 7% in adult women. Approximately 5–10% of people in developed countries such as the United States experience this condition. It is also very common in developing countries such as India, Thailand, and Indonesia, with a prevalence of 2–15%. In Northern Europe, the prevalence is about 3–6%, in Southern Europe 6–9%, in Japan 7%, and in Taiwan 9.8%. In Asia, prevalence ranges from 1–5% (Silalahi, 2020).

According to Riskesdas (2018), there were 499,800 cases of ureteral stones in Indonesia, with 58,959 hospital visits and 19,018 hospitalizations. The mortality rate was 1.98%, equal to 378 deaths among hospitalized patients. The prevalence of urinary tract stones was 0.6%, with Central Java reporting 0.8%, the same as West Java and Central Sulawesi. Yogyakarta had the highest prevalence at 1.2%, followed by Aceh at 0.9%. Approximately 10% of the Indonesian population is at risk of urolithiasis, and 50% of patients who have experienced it are at risk of recurrence. Nationally, the prevalence of kidney stones is estimated at 0.6% or 6 per 1,000 people. Hospital records show 37,636 new cases out of 58,959 examined, with 19,018 requiring hospitalization and 378 deaths, reflecting a 1.98% mortality rate. Nephrolithiasis, also known as kidney stones, occurs in about 13% of adult men and 7% of adult women in Indonesia (Riskesdas, 2018).

Several studies have linked occupational habits with urine sediment abnormalities. A study by Ni Made Ratih Dwi Marlini (2018), entitled "*Description of Urine Sediment Among Bus Drivers at Mengwi Terminal, Badung Regency*", found that among 32 bus drivers, 46.9% had abnormal calcium oxalate crystals, 31.4% abnormal epithelial cells, 18.8% increased leukocytes, 15.6% abnormal bacteria, and 12.5% increased erythrocytes, while all participants (100%) had normal casts. Abnormal urine sediments were most common in the 41–65 age group, often associated with low water intake, urine retention, and prolonged sitting during work. Similarly, research by Reza Rizkiana (2017), entitled "*Description of Urinalysis in Tailors on Jalan Lambung Mangkurat, Samarinda*", reported that among 35 tailors, leukocyte counts were normal in 28 samples and abnormal in 7, erythrocytes were normal in all 35, epithelial cells were positive in varying levels, calcium oxalate crystals were positive in 2 samples, bacteria were abnormal in 12 samples, and all 35 samples were negative for fungi.

In the present study, the research setting was Sidorejo Village, Comal Subdistrict, Pemalang Regency, where the majority of the workforce are tailors. Observations revealed that many tailors had habits of prolonged sitting, low fluid intake, urine retention, and lack of physical activity. These unhealthy lifestyle patterns, if sustained long-term, increase the risk of urinary tract stone formation. Once urinary tract stones develop, kidney function may be impaired, necessitating hemodialysis, and in severe cases, leading to death. Based on this background, the researcher was motivated to conduct a study entitled: *"Description of Urine Sediment Examination Results Among Tailors in Sidorejo Village, Comal Subdistrict, Pemalang Regency."*

Objective

This study aimed to describe the results of urine sediment examination among tailors in Sidorejo Village, Comal Subdistrict, Pemalang Regency.

Method

This study used a descriptive design, which provides an overview of conditions occurring within a community or population. The research was conducted from January to March 2025 with a population of 30 tailors working in Sidorejo Village, Comal Subdistrict, Pemalang Regency. Sampling was carried out using a purposive sampling technique, in which participants were selected based on predetermined criteria (Sugiyono, 2018).

The inclusion criteria were: (1) tailors living in Sidorejo Village, Comal Subdistrict, Pemalang Regency; (2) willingness to participate as respondents; and (3) working in a sitting position for more than 8 hours per day. Exclusion criteria included: (1) respondents who no longer worked as tailors, (2) respondents with severe illness preventing sample collection, and (3) respondents who died before sample collection. Urine samples were examined at the Clinical Laboratory of the Health Analyst Academy, Pekalongan. Data obtained were presented in tables and analyzed descriptively.

Results

The study on urine sediment examination among tailors in Sidorejo Village, Comal Subdistrict, Pemalang Regency, conducted at the Clinical Laboratory of the Health Analyst Academy, Pekalongan, obtained the following results:

TABLE 1. Results of Urine Sediment Examination in Tailors in Sidorejo Village, Comal District, Pemalang Regency

	Urine Sediment Examination Results								
No	**Erythrocytes**	**Leukocytes**	**Squamous Epithelium**	**Transitional Epithelium**	**Casts**	**Calcium Oxalate Crystals**	**Uric Acid Crystals**	**Bacteria**	**Amorphous Urates**
1.	-	-	+	-	-	-	-	-	-
2.	-	-	0 – 1	-	-	-	-	-	-
3.	-	-	0 – 4	-	-	-	-	-	-
4.	-	-	0 – 2	-	-	++	0 – 1	-	-
5.	-	-	0 – 1	-	-	+++	+++	-	-
6.	-	-	+++	-	-	-	-	-	-
7.	-	-	0 – 2	-	-	-	-	-	-
8.	-	-	0 – 1	-	-	-	-	-	-
9.	-	-	+	-	-	++	+	-	-
10.	-	0 – 1	+	0 – 1	-	-	-	-	-
11.	-	-	+++	-	-	-	-	-	-

Urine Sediment Examination Results									
No	**Erythrocytes**	**Leukocytes**	**Squamous Epithelium**	**Transitional Epithelium**	**Casts**	**Calcium Oxalate Crystals**	**Uric Acid Crystals**	**Bacteria**	**Amorphous Urates**
12.	-	-	0 – 1	0 – 1	-	+	-	-	-
13.	-	-	-	0 – 1	-	+++	+	-	-
14.	+++	+++	-	+++	-	+++	-	-	-
15.	-	-	0 – 3	-	-	++	+	-	-
16.	-	-	0 – 3	-	-	+	0 – 1	-	-
17.	-	-	0 – 2	-	-	-	-	-	-
18.	-	-	0 – 3	-	-	+++	0 - 1	-	-
19.	-	-	0 – 3	-	-	+++	+	-	-
20.	-	-	-	-	-	+++	+++	-	-
21.	-	-	0 – 4	0 – 1	-	-	-	-	-
22.	-	-	0 – 1	-	-	+++	+++	-	-
23.	-	-	0 – 4	0 – 1	-	-	-	-	-
24.	++	-	0 – 1	-	-	+	-	-	-
25.	-	-	0 – 4	-	-	-	0 – 1	-	-
26.	-	-	+	-	-	-	-	-	-
27.	-	-	0 – 3	0 – 1	-	-	-	-	-
28.	-	-	0 – 3	+	-	-	-	-	-
29.	-	-	0 – 4	0 – 1	-	-	-	-	-
30.	-	-	0 – 2	-	-	+	0 – 1	-	-

Table 1 above shows that from 30 urine samples of tailors, 2 samples were found to contain erythrocytes, 2 samples contained leukocytes, 27 samples contained squamous epithelial cells, 9 samples contained transitional epithelial cells, 14 samples contained calcium oxalate crystals, and 12 samples contained uric acid crystals.

Discussion

In the urine sediment examination of tailors, 2 samples were found to contain erythrocytes. Normal erythrocyte counts in urine sediment range from 0–3/HPF. In this study, 2 samples (6.67%) were found to contain 10–>20/HPF (abnormal). This finding is consistent with the study conducted by Kumala et al. (2021) at RSUD Dr. H. Abdul Moeloek, which showed that 80% of respondents had urinary erythrocyte counts greater than 1 cell per high power field, indicating inflammation of the urinary tract. This condition may be caused by damage to the glomerular membrane or injury to blood vessels along the urogenital tract (Lase, Tarigan, & Situmorang, 2023). Based on the questionnaire, one respondent whose urine contained erythrocytes reported occasionally experiencing hematuria. This finding is in line with the theory presented by Rosida & Pratiwi (2019), which states that hematuria may be caused by bleeding in the uropoietic tract due to kidney disease, urinary tract infections, or the use of anticoagulant drugs.

In the urine sediment examination of tailors, 2 samples were found to contain leukocytes. The normal leukocyte count in urine is 0–4/HPF. One sample contained leukocytes at 0–1/HPF, while 1 sample (3.33%) showed leukocytes >20/HPF (positive 3). According to urinalysis theory by Widyastuti et al. (2018), the normal range of leukocytes in urine is 0–4 cells/HPF. An increased number indicates inflammation, infection, or tumors. This finding is consistent with the study by Kurniasari et al. (2022), which showed that leukocytes were frequently found in patients with urinary

tract infections (UTIs). Their presence is influenced by factors such as bacterial or viral infections and other inflammatory processes, which trigger the immune response. Leukocytes may be detected in both symptomatic and asymptomatic individuals, with differences only in pain intensity and physical endurance, reflecting their role as early markers of infection or inflammation.

In the urine sediment examination of tailors, 27 samples contained squamous epithelial cells. Normally, squamous epithelial cells in urine are 0–4/LPF. In this study, 21 samples were within normal range, 4 samples (13.3%) showed 5–10/LPF (positive 1), and 2 samples (6.67%) showed >20/LPF (positive 3). Squamous epithelial cells are the most frequently found and the largest type of epithelial cells in normal urine samples. They line the urethra, vaginal walls or vulva in women, and the lower urethra in men. Their presence may still fall within the normal range but may increase due to shedding of old cells or tissue damage caused by inflammation or kidney disorders (Riswanto, 2015).

In the urine sediment examination of tailors, 9 samples were found to contain transitional epithelial cells. Normally, transitional epithelial cells in urine range from 0–4/LPF. In this study, 7 samples were within normal limits, 1 sample (3.33%) contained 5–10/LPF (positive 1), and 1 sample (3.33%) showed >20/LPF (positive 3). Transitional epithelial cells are usually found in small amounts in the urine of healthy individuals due to regular cell shedding. However, elevated levels may indicate urinary tract infections (Riswanto, 2015).

In the urine sediment examination of tailors, 14 samples contained calcium oxalate crystals. Normally, calcium oxalate crystals are found at <1/LPF. In this study, 4 samples (13.3%) showed 2–5/LPF (positive 1), 3 samples (10%) showed 6–10/LPF (positive 2), and 7 samples (23.3%) showed >10/LPF (positive 3). The presence of calcium oxalate crystals may be influenced by habits such as holding urine, which can lead to urinary tract sediment and increase the risk of infection. Questionnaire results revealed that respondents with positive findings of oxalate crystals often had this habit. According to Haryono (Ardianzah, 2017), delaying urination allows toxins and waste products to accumulate, potentially causing urinary tract disorders. Other factors include consumption of oxalate-rich foods such as nuts, chocolate, spinach, potatoes, and tomatoes. Questionnaire results confirmed that some respondents consumed oxalate-rich foods. Muammar et al. (2020) also reported that individuals consuming high-oxalate diets were 3.45 times more likely to develop urinary stones.

In the urine sediment examination of tailors, 12 samples contained uric acid crystals. Normally, uric acid crystals are found at <1/LPF. In this study, 5 samples were within normal limits (0–1/LPF), 4 samples (13.3%) showed 2–5/LPF (positive 1), and 3 samples (10%) showed >10/LPF (positive 3). According to Noviyanti (2015), a diet high in purines, low in fiber, and insufficient water intake can increase uric acid levels. Questionnaire data revealed that respondents with uric acid crystals often consumed less than 8 glasses of water daily.

Conclusion

The urine sediment examination of tailors in Sidorejo Village, Comal District, Pemalang Regency revealed the presence of erythrocytes, leukocytes, squamous epithelial cells, transitional epithelial cells, calcium oxalate crystals, and uric acid crystals. Several samples showed values exceeding the normal range, particularly in erythrocytes, leukocytes, epithelial cells, and crystals, indicating possible urinary tract abnormalities. These findings highlight the importance of regular urine sediment examinations for workers with prolonged static activity, such as tailors, to detect potential health risks early.

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References

2018., K.R.H.R.K.D.T. (2018) 'kementrian kesehatan RI.2018', *Journal of Food and Nutrition Research*, 2(12), pp. 1029–1036. Available at: https://doi.org/10.12691/jfnr-2-12-26.

Ardianzah (2017) *Bahaya menahan buang air kecil bagi kandung kemih*. Biosains.

Budi Fristiani, A.K. and Anggraini, H. (2022) 'Gambaran Leukosit Dan Protein Urin Pada Penderita Gejala Infeksi Saluran Kemih', *Jurnal Labora Medika*, 6(2), p. 29. Available at: https://doi.org/10.26714/jlabmed.6.2.2022.29-32.

Damayanti, K.Y., Parwati, P.A. and Abadi, M.F. (2020) 'Pengaruh Volume Presipitat Urine Terhadap Hasil Pemeriksaan Sedimen Urine', *Journal of Indonesian Medical Laboratory and Science (JoIMedLabS)*, 1(1), pp. 66–75. Available at: https://doi.org/10.53699/joimedlabs.v1i1.5.

Farizal, J. (2018) 'Hubungan Kebiasaan Lama Duduk Terhadap Proses Terbentuknya Kristal Urin Pada Penjahit Di Wilayah Kota Bengkulu', *Journal of Nursing and Public Health*, 6(1), pp. 36–40. Available at: https://doi.org/10.37676/jnph.v6i1.493.

Kumala, I., Triswanti, N. and , Hidayat, R.L.T. (2021) 'Gambaran Hasil Pemeriksaan Urinalisis Pada Pasien Infeksi Saluran Kemih Yang Terpasang Kateter', *Jurnal Medika Malahayati*, 7(1), pp. 1–23.

Lase, D.M., Tarigan, R.V.B. and Situmorang, P.R. (2023) 'Analisis Jumlah Leukosit Dan Eritrosit Pada Urine Lengkap Pasien Infeksi Saluran Kemih (Isk) Di Rumah Sakit Santa Elisabeth Medan Tahun 2023', *Journal of Indonesian Medical Laboratory and Science (JoIMedLabS)*, 4(2), pp. 95–103. Available at: https://doi.org/10.53699/joimedlabs.v4i2.153.

MARLINI, N.M.R.D. (2018) 'gambaran sedimen urin pada sopir bus diterminal mengwi kabupaten badung', *Nucleic Acids Research*, 6(1), pp. 1–7. Available at: http://dx.doi.org/10.1016/j.gde.2016.09.008%0Ahttp://dx.doi.org/10.1007/s00412-015-0543-8%0Ahttp://dx.doi.org/10.1038/nature08473%0Ahttp://dx.doi.org/10.1016/j

.jmb.2009.01.007%0Ahttp://dx.doi.org/10.1016/j.jmb.2012.10.008%0Ahttp://dx.doi.org/10.1038/s4159.

Muammar *et al*. (2020) 'Pengaruh Konsumsi Sayur Tinggi Oksalat terhadap Terjadinya Batu Saluran Kemih di Rumah Sakit Umum Daerah Zainoel Abidin Banda Aceh', *Jurnal Kedokteran Nanggroe Medika*, 3(2), pp. 1–6.

Noviyanti (2015) 'Hubungan pola makan dengan kadar asam urat di desa kalongan kecamatan kalawat'.

Riskesdas (2018) *Dinas Kesehatan Provinsi Jawa Tengah. (2019). Laporan Riskesdas 2018 Kementrian Kesehatan Jawa Tengah Republik Indonesia*, *Laporan Nasional Riskesdas 2018*.

Riswanto, R. (2015) *Menerjemahkan Pesan Klinis Urine*. 1st edn. Yogyakarta: Pustaka Rasmedia.

Rizkiana, R. (2017) 'gambaran urinalisa pada penjahit', 11(1), pp. 92–105.

Rosida, A. and Pratiwi, ewi I.N. (2019) *Pemeriksaan Laboratorium Sistem Uropoetik PK UNLAM*. Sari Mulia Indah.

Silalahi, M.K. (2020) 'Faktor-Faktor yang Berhubungan Dengan Kejadian Penyakit Batu Saluran Kemih Pada di Poli Urologi RSAU dr. Esnawan Antariksa', *Jurnal Ilmiah Kesehatan*, 12(2), pp. 205–212. Available at: https://doi.org/10.37012/jik.v12i2.385.

Sugiyono (2018) *Metode Penelitian Kuantitatif Kualitatif dan R&D*.

Widyastuti, R., Tunjung, E. and Purwaningsih, nur vita (2018) 'Modul praktikum urinalisis dan cairan tubuh', *Universitas Muhammadiya Surabaya*, pp. 1–68.