# HUBUNGAN ANTARA KADAR PLUMBUM (Pb) DARAH TEPI DAN NEUROPATI PERIFER PADA PEKERJA SENTRA INDUSTRI BATIK DI KECAMATAN LENDAH, KABUPATEN KULONPROGO

## ABSTRAK

Meskipun dikenal memberikan banyak manfaat, timbal atau dikenal juga sebagai plumbum (Pb) ternyata berpotensi menimbulkan dampak negatif terhadap kesehatan manusia. Salah satu target yang paling sensitif terhadap efek toksik timbal adalah sistem saraf, tak terkecuali sistem saraf tepi (SST). Terhadap sistem organ tersebut, pajanan timbal dapat menimbulkan suatu kelainan yang disebut neuropati perifer. Industri batik termasuk bidang usaha yang tidak lepas dari pajanan timbal. Pada proses pembuatan produk tekstil tradisional ini, timbal dapat ditemukan antara lain dalam zat pewarna sintetiknya. Penelitian ini bertujuan untuk mengetahui hubungan antara kadar timbal dalam darah dan neuropati perifer pada pekerja industri batik. Penelitian ini menggunakan disain studi potong lintang (*cross-sectional*). Subjek penelitian ini adalah pekerja 3 sentra industri batik di Kecamatan Lendah Kulon Progo. Hubungan antara kadar Pb darah tepi dan kejadian neuropati perifer dianalisis menggunakan *independent T-test*, sementara korelasi antara kadar Pb darah tepi dan skor DNE untuk neuropati perifer dilakukan menggunakan rumus korelasi Pearson jika data terdistribusi normal atau rumus korelasi Spearman jika data terdistribusi tidak normal. Hasil analisis statistik dinyatakan signifikan apabila $p < 0,05$. Pengambilan sampel pada bulan Juli-Agustus 2018 mendapatkan 51 subjek yang memenuhi kriteria inklusi dan eksklusi penelitian ini. Analisis bivariat dengan *independent T-test* menunjukkan rerata kadar Pb darah tepi pada subjek DNE positif (0,98) lebih tinggi daripada rerata kadar Pb darah tepi pada subjek DNE negatif (0,71) tetapi tidak bermakna secara statistik ($p = 0,280$). Uji normalitas Komolgorov-Smirnov mendapati kadar Pb darah tepi terdistribusi normal ($p = 0,117$) sedangkan skor DNE terdistribusi tidak normal ($p = 0,000$) sehingga digunakan uji korelasi Spearman dengan hasil tidak ada korelasi signifikan antara kadar Pb darah tepi dan skor DNE itu sendiri ($r = -0,056$, $p = 0,698$). Berdasarkan hasil tersebut, penelitian ini menyimpulkan tidak terdapat hubungan signifikan antara kadar Pb darah tepi dengan kejadian neuropati perifer pada pekerja sentra industri batik di Kecamatan Lendah, Kabupaten Kulonprogo.

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**Kata kunci:** Neuropati timbal, neuropati perifer, intoksikasi timbal, industri batik

# ASSOCIATION BETWEEN PERIPHERAL BLOOD LEAD (Pb) LEVEL AND PERIPHERAL NEUROPATHY IN BATIK INDUSTRY WORKERS IN LENDAH DISTRICT, KULONPROGO REGENCY

## ABSTRACT

Although known to provide many benefits, lead (Pb) has the potential to cause negative impacts on human health. One of the most sensitive targets for its toxic effects is the nervous system, including the peripheral nervous system (PNS). To this system, lead exposure can cause a disorder called peripheral neuropathy. The batik industry is among the business sectors prone to lead exposure. In the process of making this traditional textile product, lead can be found, among others, in its synthetic dyes.This study aims to determine the association between blood lead levels and peripheral neuropathy in batik industry workers. This study uses a cross-sectional study design. Subjects of this study are workers of 3 batik industry centers in Lendah Kulon Progo District. Association between peripheral blood Pb levels and the prevalence of peripheral neuropathy is analyzed using independent T-test, while correlation between peripheral blood Pb levels and DNE scores for peripheral neuropathy performed using the Pearson correlation formula if the data is normally distributed or the Spearman correlation formula if the data is not normally distributed. The results of statistical analysis are declared significant if $p < 0.05$. Sample collection in July-August 2018 obtained 51 subjects who met the inclusion and exclusion criteria of this study. Bivariate analysis with independent T-test shows that the mean peripheral blood lead level in positive DNE subjects (0.98) is higher than the mean peripheral blood lead level in negative DNE subjects (0.71) but not statistically significant ($p = 0.280$). Komolgorov-Smirnov normality test found that the peripheral blood lead level is normally distributed ($p = 0.117$) while the DNE score is not normally distributed ($p = 0.000$), so the Spearman correlation test was used with the result showing no significant correlation between peripheral blood Pb levels and the DNE score itself ($r = -0.056$, $p = 0.698$). Based on these results, this study concludes that there is no significant association between peripheral blood Pb levels and the prevalence of peripheral neuropathy in batik industry workers in Lendah District, Kulonprogo Regency.

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**Keywords:** Lead neuropathy, peripheral neuropathy, lead intoxication, batik industry