Tinjauan Sistematis Faktor-Faktor Risiko Pajanan Timbal pada Anak di Sekitar Situs Daur Ulang Aki Bekas Informal di Indonesia = Systematic Review of Risk Factors for Lead Exposure in Children Around Informal Used Battery Recycling Sites in Indonesia

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Abstrak

Pajanan timbal lingkungan masih mengintai masyarakat dari kegiatan daur ulang aki bekas informal. Saat ini, kegiatan tersebut menjadi industri pencemar yang paling buruk dan menyebabkan DALYs sebesar 2.000.000-4.800.000 di negara berpendapatan menengah ke bawah. Mengingat daur ulang aki bekas informal masih banyak dilakukan di berbagai negara di dunia, termasuk Indonesia, dan anak-anak adalah kelompok paling rentan, maka dibutuhkan penelitian terkait faktor-faktor risiko yang berhubungan dengan pajanan timbal lingkungan pada anak di sekitar lokasi tersebut. Menggunakan desain systematic review dengan pendekatan kualitatif dan berpedoman pada PRISMA-P (Preferred Reporting Items for Systematic reviews and Meta-Analyse Protocols), sebanyak 10 artikel jurnal dan penelitian akademis ditinjau. Sampel diperoleh dari pangkalan data Google Scholar dan Perpustakaan Universitas Indonesia (UI) yang dipublikasikan dalam 10 tahun terakhir (2011-2021). Pada kelompok usia 1-5 tahun, 47% anak memiliki kadar timbal darah sebesar 5 µg/dL dan 9% sebesar 10 µg/dL dan anak usia sekolah sebesar 16,65±13,18 µg/dL. Kadar tersebut telah melebihi rekomendasi (<5 µg/dL). Rata-rata konsentrasi timbal lingkungan di udara dan tanah masing-masing sebesar 2,94±10,7 µg/m dan 2254,5±1925,25 mg/kg. Faktor risiko yang berhubungan diantaranya usia, status ekonomi, pendidikan orang tua, pekerjaan orang tua, sumber dan pola asupan nutrisi, kebiasaan dan perilaku anak, lokasi rumah, dan konsentrasi timbal di lingkungan.
.....Environmental lead exposure still lurking from the informal recycling of used lead-acid batteries (ULAB). Currently, it is the industry's worst polluter and causes DALYs of 2,000,000-4,800,000 in LMIC. Considering that informal ULAB recycling is still widely practiced in the world, including Indonesia, and children are the most vulnerable group, research is needed on risk factors associated with environmental lead exposure in children around these locations. Using a systematic review design with a qualitative approach and guided by PRISMA-P (Preferred Reporting Items for Systematic reviews and Meta-Analyse Protocols), 10 journal articles and academic research were reviewed. The sample was obtained from the Google Scholar and the University of Indonesia (UI) Library published in the last 10 years (2011-2021). In the age group 1-5 years, 47% of children had blood lead levels of 5 µg/dL and 9% of 10 µg/dL and school-age children have an average of 16.65±13.18 µg/dL. These levels have exceeded the recommendation (<5 g/dL). The average concentrations of environmental lead in the air and soil were 2.94±10.7 g/m and 2254.5±1925.25 mg/kg. The associated risk factors are age, economic status, parental education and occupation, sources and patterns of nutritional intake, children's habits and behavior, home location, and environmental lead concentrations.