

ABSTRACT

Lead is widely used, such as in industry, metal foundry, painting industry, mining and metallurgy, radio repair, and another industries with lead exposure. Using of Pb in industry have an impact on the increasing the blood pressure. The purpose of this study is analyzing the effect of Pb levels on the blood pressure in Pb-exposed workers through a literature review.

The type of research is a systematic literature review with a meta-analysis method. The research on literature review using quantitative research with a publication year between 2015 until 2020 and using indonesian and english language. The research method uses Preferred Reporting Items for Systematic Reviews and Meta-Analyzes (PRISMA) by using databases from Scopus, ScienceDirect, PubMed, ProQuest, and Google Scholars.

The results of 21 studies showed that Pb exposure in the work environment occurred in the battery industry (38,08% of research), paint and painting industry (14,29% of research), and other industries (47,61% of research). Pb exposure in the work environment has an influence on blood lead levels (BLL) (19,05% of research). Workers' BLL can be influenced by characteristics such as tenure (19,05% of research) and length of work (4,76% of research) and behaviour such as smoking (33,33% of research). Workers' blood pressure can be influenced by characteristics such as age (14,28% of research) and smoking behaviour (9,52% of research). Furthermore, BLL can effect the blood pressure of workers (71,43% of research).

The conclusion from this literature review is Pb exposure in the work environment can affect blood lead levels. It will affect on workers' blood pressure. The owner of industry and governments need to decrease the impact on workers' health by routine reports on environmental and worker health. In addition, workers need to comply the using of PPE, wash their hands before eating, and avoid alcoholic drinks and smoking habits.

Keywords: lead (Pb) in the environment, blood lead (Pb), blood pressure

ABSTRAK

Timbal banyak dipergunakan dalam kehidupan sehari-hari, salah satunya adalah dalam kegiatan industri (seperti industri timbal, pengecoran logam, industri cat dan pengecatan, pertambangan dan metalurgi, perbaikan radio, dan industri dengan paparan timbal lainnya). Penggunaan Pb di industri dapat menimbulkan pengaruh terhadap kesehatan pekerja seperti peningkatan terhadap tekanan darah pekerja pada pekerja terpajan Pb. Tujuan penelitian ini adalah untuk menganalisis pengaruh kadar Pb dalam darah terhadap tekanan darah pada pekerja terpajan Pb melalui *literature review*.

Jenis penelitian yang dilakukan adalah *literature review* secara sistematis dengan metode *meta-analysis*. Penelitian pada referensi *literature review* dibatasi pada penelitian kuantitatif dengan tahun publikasi antara 2015 hingga 2020 serta dalam Bahasa Indonesia dan Bahasa Inggris. Metode pencarian artikel menggunakan *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) dengan database pencarian Scopus, ScienceDirect, PubMed, ProQuest, dan Google Scholars. Total artikel yang sesuai dengan kriteria untuk dianalisis adalah 21 penelitian.

Hasil dari 21 penelitian menunjukkan bahwa paparan Pb di lingkungan kerja terjadi di industri baterai (38,08% penelitian), industri cat dan pengecatan (14,29% penelitian), dan industri lainnya (47,61% penelitian). Paparan Pb di lingkungan kerja memiliki pengaruh terhadap kadar Pb darah (19,05% penelitian). Kadar Pb darah pekerja dapat dipengaruhi oleh karakteristik seperti masa kerja (19,05% penelitian) dan lama kerja (4,76% penelitian) serta perilaku seperti merokok (33,33% penelitian). Tekanan darah pekerja dapat dipengaruhi oleh karakteristik seperti usia (14,28% penelitian) serta perilaku merokok (9,52% penelitian). Selanjutnya, kadar Pb darah dapat mempengaruhi tekanan darah pekerja (71,43% penelitian).

Kesimpulan dari *literature review* ini adalah paparan Pb di lingkungan kerja dapat mempengaruhi kadar Pb darah, yang selanjutnya mampu mempengaruhi tekanan darah pekerja. Pemilik industri dan pemerintah di Negara terkait perlu meminimalisir dampak terhadap kesehatan pekerja berupa adanya pelaporan berkala tentang kesehatan lingkungan dan kesehatan pekerja. Selain itu, pekerja perlu mematuhi penggunaan APD, membiasakan cuci tangan sebelum makan, serta menghindari minum-minuman beralkohol dan kebiasaan merokok.

Kata Kunci: timbal (Pb) di lingkungan, timbal (Pb) darah, tekanan darah