ABSTRACT

Background: *In these past few years, automotive industrials are developed rapidly in Indonesia, which also given an impact on the employment of the workers. In the other hand, automotive industrials produce many pollutans such as benzene, lead, and carbon monoxide that can affect healthiness (of the human body) especially on the level of hemoglobin. Hemoglobin is the main compotition of blood contains a protein that compose the red blood cell. It transports most of the oxygen* (O_2)*, fractions of carbon dioxide* (CO_2)*, and maintain the normal pH. Automotive workers (mechanic workers) are having higher risk on the decreased level of hemoglobin hence the fact that they were exposed by more pollutans than the workers who work inside the building such as cleaning service. This research is needed to perceive the difference of the hemoglobin level between workers whos exposed to the pollutans and workers whos not exposed to pollutans.*

Purpose: *To to perceive the difference of the hemoglobin level between workers whos exposed to the pollutans and workers whos not exposed to pollutans.*

Methods*: This research is an analytic observational study with cross sectional design. This research was done by collected blood samples of workers whos exposed to pollutans (mechanic woorkers) at Bantul and workers whos not exposed to pollutans at Universitas Muhammadiyah Yogyakarta in the range of February until May in 2017. Hemoglobin levels were examined from the blood sample in Balai Laboratorium Yogyakarta. Total samples is 40 samples consisted of 20 workers whos exposed to pollutans and 20 workers whos exposed to pollutans. Data was analyzed by Independent Samples Test.*

Results and Discussion: *The average value of hemoglobin level of workers whos exposed to pollutans is 15.06 gr/dl and workers whos not exposed to pollutans is 15.74 gr/dl. So, it conclude that average value of hemoglobin level of workers whos exposed to pollutans is lower than workers whos not exposed to pollutans. There is a meaningful difference of hemoglobin level between workers whos exposed to pollutans and workers whos not exposed to pollutans. It can be proven from the result of Independent Samples Test which showed* $p < 0,05$ *(*$p = 0,021$*).*

Conclusion: *This research concluded that there is a difference of hemoglobin level between workers whos exposed to pollutans and workers whos not exposed to pollutans.*

Keyword*: Hemoglobin level, workers whos exposed to pollutans, workers whos not exposed to pollutans*

INTISARI

Latar belakang: Perkembangan industri beberapa tahun terakhir di Indonesia terutama industri otomotif semakin pesat. Industri yang berkembang pesat meningkatkan jumlah lapangan kerja. Di sisi lain, industri otomotif menghasilkan bermacam-macam polutan seperti benzene, timbal (Pb), dan karbon monoksida yang dapat mengganggu kesehatan tubuh terutama dapat mempengaruhi kadar hemoglobin dalam tubuh. Hemoglobin merupakan komponen utama berupa protein yang menyusun sel darah merah yang mengangkut sebagian besar oksigen (O_2), sebagian kecil fraksi karbon dioksida (CO_2), dan mempertahankan keadaan pH normal. Pekerja di bidang otomotif seperti pekerja bengkel mempunyai risiko terpajan polutan lebih tinggi dibanding dengan pekerja yang bekerja di dalam ruangan seperti pekerja *cleaning service*. Penelitian ini diperlukan untuk mengetahui perbedaan kadar hemoglobin antara pekerja terpajan polutan dengan pekerja tidak terpajan polutan.

Tujuan: Untuk mengetahui perbedaan kadar hemoglobin antara pekerja terpajan polutan dengan pekerja tidak terpajan polutan.

Metode penelitian: Penelitian ini merupakan penelitian observasional analitik dengan desain *cross sectional.* Penelitian ini dilakukan pengambilan sampel darah pada pekerja terpajan polutan (pekerja bengkel) di Bantul dan pekerja tidak terpajan polutan di Universitas Muhammadiyah Yogyakarta pada bulan Februari-Mei 2017. Semua sampel darah diperiksa kadar hemoglobin di Balai Laboratorium Yogyakarta. Besar sampel total yang digunakan adalah sebanyak 40 sampel yang terdiri dari 20 sampel pekerja terpajan polutan dan 20 sampel pekerja tidak terpajan. Data selanjutnya dianalisis dengan *Independent Samples Test.*

Hasil Penelitian: Nilai rata-rata kadar hemoglobin pada pekerja terpajan polutan, yaitu 15,06 gr/dl dan nilai rata-rata kadar hemoglobin pada pekerja tidak terpajan polutan, yaitu 15,74 gr/dl sehingga didapatkan nilai rata-rata kadar hemoglobin pada pekerja terpajan polutan lebih rendah daripada pekerja tidak terpajan polutan. Terdapat perbedaan bermakna kadar hemoglobin antara pekerja terpajan polutan dengan pekerja tidak terpajan polutan. Hal ini dapat dibuktikan dari hasil $p < 0,05$ ($p = 0,021$) dengan menggunakan *Independent Samples Test*.

Kesimpulan: Dari penelitian ini dapat disimpulkan bahwa ada perbedaan kadar hemoglobin antara pekerja terpajan polutan dengan pekerja tidak terpajan polutan.

Kata kunci: Kadar hemoglobin, pekerja terpajan polutan, pekerja tidak terpajan polutan.