

# Kadar benzo(a)pyrene diol epoxide (bpde) protein adducts pada perempuan dewasa yang terpajan asap rokok di lingkungan rumah serta faktor-faktor yang mempengaruhi = Benzo(a)pyrene diol epoxide (bpde) adducts protein level and co expiration in women exposed to environmental tobacco smoke at home

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## Abstrak

### <b>ABSTRAK</b><br>

Latar Belakang : Benzo(a)pyrene (BaP) adalah hidrokarbon aromatik polisiklik sangat karsinogenik yang terdapat dalam asap rokok. Tidak hanya perokok yang perlu menjadi perhatian, namun bahaya yang ditimbulkan akibat asap rokok pada orang yang tidak merokok juga perlu diperhatikan.

Metode : Penelitian ini berjenis potong lintang pada 26 perempuan dewasa bukan perokok yang terpajan asap rokok dan 15 perempuan tidak terpajan asap rokok di rumahnya di kelurahan Palmeriam Kecamatan Matraman, Jakarta. Kadar BPDE-protein adducts diukur menggunakan metode ELISA. Kadar CO ekspirasi, informasi kebiasaan merokok anggota keluarga di rumah pada subjek penelitian dikumpulkan melalui kuesioner.

Hasil : Nilai BPDE-protein adducts <40 ng/ml sebanyak 16 orang (61,5%) dan nilai BPDE-protein adducts >40 ng/ml sebanyak 10 orang (38,5%), sedangkan pada kelompok perempuan tidak terpajan asap rokok di rumah, nilai BPDE-protein adducts <40 ng/ml sebanyak 11 orang (73,3%) dan nilai BPDE-protein adducts >40 ng/ml sebanyak 4 orang (26,7%), hasil analisis menunjukkan perbedaan yang tidak bermakna ( $p=0,443$ ). Pengukuran kadar CO ekspirasi pada penelitian ini memperoleh nilai tengah kadar CO ekspirasi pada kelompok perempuan yang terpajan asap rokok sebesar 5,5 ppm. Pada kelompok perempuan yang tidak terpajan asap rokok, rerata kadar CO ekspirasi sebesar 6 ppm, hasil analisis tidak menunjukkan adanya perbedaan yang bermakna ( $p=0,398$ ). Lama pajanan, jenis rokok, banyaknya jumlah rokok yang dihisap serta banyaknya jumlah perokok aktif dirumah tidak mempengaruhi kadar BPDE-protein adducts.

Kesimpulan : Nilai BPDE-protein adducts >40 ng/ml pada perempuan terpajan asap rokok lebih tinggi dibandingkan dengan perempuan yang tidak terpajan asap rokok di lingkungan rumah.

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### <b>ABSTRACT</b><br>

Background: Benzo(a)pyrene (BaP) is a polycyclic aromatic hydrocarbon contained in cigarette smoke. This highly carcinogenic substance is also found in Environmental Tobacco Smoke (ETS) which equally dangerous to the health of population and equally require attentions as much as cigarette smoke. This study observes level of BaP among those in risk of ETS exposure.

Methods: A cross-sectional study was performed involving 26 women exposed to ETS and 15 women unexposed to ETS in Palmeriam Matraman area, Jakarta, Indonesia. The BPDE (Benzo(a)pyrene Diol Epoxide) protein levels of adducts were measured using ELISA method. In addition, exhaled carbon-monoxide (CO) level during expiration was measured and family members smoking habits at home was obtained using questionnaire.

Results: The mean age of women exposed to ETS was  $35.8 \pm 6.5$  years and women unexposed to ETS was

41.7±7.5 years. In the ETS exposed women, the BPDE level of <40 ng/mL was found in 16 people (61.5%) and the BPDE level of >40 ng/mL was found in 10 people (38.5%). In the ETS unexposed women, the BPDE level of <40 ng/mL was found in 11 people (73.3%) and the BPDE level of >40 ng/mL was found in 4 people (26.7%). None of these results were significantly different (p=0.443). The median exhaled CO level of ETS exposed women was 5.5 ppm and of ETS unexposed women was 6.0 ppm. None of these results were significantly different (p=0.398). No correlation was found between length of ETS exposure, types of cigarettes, number of cigarettes smoked and number of active smokers at home and BPDE-protein adducts level.

Conclusion: The BPDE level of ETS exposed women was higher than of ETS unexposed women (>40 ng/mL and <40 ng/mL, respectively). The median exhaled CO level of ETS exposed women was lower than of ETS unexposed women (5.5 ppm and 6.0 ppm). However, none of these results were statistically significant.