

## Pajanan debu dengan kejadian gangguan pernafasan (studi terhadap bayi dan balita yang tinggal di jalur transportasi batubara di Kecamatan Mataraman Kabupaten Banjar, Kalimantan Selatan)

Hamidi, author

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### Abstrak

Polusi debu particulate matter 10 mikron (PM10) di Kabupaten Banjar Kalimantan Selatan menunjukkan peningkatan. Meningkatnya kadar PM10 merupakan isu signifikan yang menimbulkan gangguan pernafasan. Pada tahun 2000 prevalensinya sebesar 36,9 %, sedangkan 2001 menjadi 40,92 %. Studi cross sectional ini bertujuan untuk mengetahui hubungan kadar debu PM10 rumah dan PM10 ambien dengan kejadian gangguan pernafasan pada bayi dan balita. Pengukuran PM10 dilakukan di dalam rumah yaitu ruang dapur, ruang tidur, dan ruang tamu, sedangkan di luar rumah pengukurannya dilakukan sejauh lima meter dan pintu depan.

Dari 384 responden ditemukan 202 rumah dengan kadar debu PM10 lebih dari 70  $\mu\text{g}/\text{m}^3$  dan 182 rumah kurang dari 70  $\mu\text{g}/\text{m}^3$ . Terhadap rumah yang kadar debu PM10 lebih dari 70  $\mu\text{g}/\text{m}^3$ , ditemukan 111 bayi dan balita (55%) mengalami gangguan pernafasan. Sedangkan terhadap rumah yang kandungan PM10 kurang dari 70  $\mu\text{g}/\text{m}^3$  hanya ditemukan 51 bayi dan balita (28%) mengalami gangguan pernafasan. Bayi dan balita tinggal di dalam rumah dengan kadar debu PM10 nya lebih dari 70  $\mu\text{g}/\text{m}^3$  (OR = 4,75; p value = 0,0005) mempunyai risiko mengalami gangguan pernafasan sebesar 4,75 kali dibandingkan dengan kadar debu PM10 rumah kurang dari 70  $\mu\text{g}/\text{m}^3$  setelah dikontrol oleh kadar debu PM10 ambien dan kelembaban? (abstrak tidak lengkap ter-scan).

*Dust Exposure in Relation with Respiratory Health Effects (Study on Baby And Children Aged Less Than Five Years Inhabiting The Coal Transportation Lane at Subdistrict Mataraman in District Banjar, South Borneo)* Dust pollution of Particulate Matter 10 micron (PM10) in Banjar District, South Borneo increases. This is a significant issue causing respiratory health effects. Its prevalence is 36,9 % in 2000 and 40,92 % in 2001. This cross sectional study is aimed at finding the relationship between indoor dust concentration PM<sub>10</sub> and PM10 ambient and the respiratory effects on baby and children aged less than five years. PM<sub>10</sub> measurement is done indoors such as in kitchen, bedroom and visiting room. On the other hand, outdoor measurement is conducted on space as far as 5 metres of the front door.

From 384 respondents, it is found that there are 202 households with concentration PM10 more than 70  $\text{Mg}/\text{m}^3$  and 182 households with concentration less than 70  $\text{Mg}/\text{m}^3$ . To the household with concentration PM10 more than 70  $\text{Mg}/\text{m}^3$ , it is found that 111 (55%) baby and children aged less than five years infected by respiratory health effects. On the other hand, to the household with concentration PM10 less than 70  $\text{Mg}/\text{m}^3$ , it is found that only 51 babies and children aged less than five years (28 %). Baby and children aged less than five years inhabiting the home under concentration PM10 more than 70  $\text{Mg}/\text{m}^3$  (OR = 4,75; p value = 0,0005) is mostly probable to be infected by respiratory health effects as much as 4,75 times compared with concentration PM10 less than 70  $\text{Mg}/\text{m}^3$  after being controlled by dust concentration PM10 ambient and indoor humidity and the interaction between dust concentration PM10 home and dust concentration

PM<sub>10</sub> ambient, and the interaction between home ventilation and dust concentration PM<sub>10</sub> ambient. Dust concentration PM<sub>10</sub> indoor is related with respiratory health effects to baby and children aged less than five years. PM<sub>10</sub> home is influenced by PM<sub>10</sub> ambient. The more PM<sub>10</sub> ambient is, the more dust concentration PM<sub>10</sub> home will be. The influential variables in this research are ventilation, humidity and PM<sub>10</sub> ambient. To reduce dust concentration PM<sub>10</sub> ambient influence to dust concentration PM<sub>10</sub> home in coal transportation lane, it is suggested that inhabitant plant many trees beside the lane or their yards.</i>