

## Jam terbang total dan beberapa faktor lainnya terhadap risiko miopia ringan pada pilot sipil di Indonesia = Total flight hours and risk of mild myopia among civilian pilots in Indonesia

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### Abstrak

Latar belakang: Mata merupakan indera yang sangat penting dalam penerbangan. Salah satu fungsi untuk menentukan perkiraan jarak, sehingga diperlukan fungsi kedua mata yang baik. Tujuan penelitian ini adalah diketahuinya identifikasi pengaruh jam terbang total terhadap risiko miopia ringan pada pilot sipil di Indonesia.

Metode: Studi potong lintang dengan purposif sampel pada pilot sipil yang melakukan pemeriksaan kesehatan berkala di Balai Kesehatan Penerbangan dengan rentang waktu 27 April sampai dengan 13 Mei 2015. Definisi miopia ringan jika mata memerlukan koreksi penglihatan jauh dengan lensa < -3 dioptri. Data karakteristik demografi, pekerjaan, kebiasaan diperoleh dari kuesioner. Data tajam penglihatan dan kadar gula darah puasa didapatkan dari rekam medis Balai Kesehatan Penerbangan. Analisis menggunakan regresi Cox dengan waktu konstan.

Hasil: 690 pilot sipil yang melakukan pemeriksaan kesehatan di Balai Kesehatan Penerbangan, 428 subjek bersedia menjadi responden. Subjek terpilih untuk dianalisis berjumlah 413 pilot dan 15 pilot lainnya menderita miopia berat. Dari 413 pilot, 141(34,1%) miopia ringan dan 272 (65,8%) normal. Faktor-faktor yang mempengaruhi miopia ringan adalah ras, status perkawinan dan jam terbang total secara signifikan. Subjek dengan ras selain Asia dibandingkan dengan ras Asia berisiko 2,1 kali lipat lebih besar menderita miopia ringan [risiko relatif suaian (RRa)=2,19; p=0,030]. Dibandingkan dengan subjek tidak menikah, subjek yang menikah berisiko 3,8 kali lipat menderita miopia ringan (RRa=3,80; p=0,000). Selanjutnya, dibandingkan subjek dengan jam terbang total 16-194 jam, subjek dengan jam terbang total 195-30285 jam mempunyai risiko 4,5 kali lipat menderita miopia ringan (RRa=4,56; p=0,000).

Kesimpulan: Subjek yang menikah, ras non Asia dan yang memiliki 195 atau lebih jam terbang total mempunyai risiko lebih tinggi menderita miopia ringan di Indonesia.

*Background:* Eye is very important organ in aviation's operation. One of the functions is to estimate distance where both healthy eyes are needed. The purpose of this study was to identify the influence of total flight hours on the risk of mild myopia among civilian pilots in Indonesia.

*Methods:* Study design was cross-sectional with purposive sampling among pilots those who got medical examinations at Civil Aviation Medical Center on April 27th - May13th, 2015. Mild myopia is condition the eyes need negatif lens corection for distance visual acuity less than -3 diopters. Demographic characteristic, occupational characteristic, ranking characteristics, and habits were obtained from questionnaire. Visual acuity and fasting blood sugar levels data were obtained from medical records in Aviation Medical Board. Data were analysed with Cox regression.

*Resulted:* 690 civilian Indonesia's pilots who conducted medical examination, 428 subjects were willing to participate. Total subjects to be analyzed were 413 pilots and 15 pilots were not involved since severe myopia. Amongst of 413 pilots, 141 (34,1%) mild myopia and 272 (65,8%) normal. Factors influencing mild myopia were race, marital status and total flight hours. Non-Asian subject had 2.1-fold risk of mild

myopia compared to Asian race subject [adjusted relative risk (RRa)=2.19; p=0.030]. Subjects who were married had 3.8-fold risk of mild myopia compared with subjects who were not married (RRa=3.80; p=0.000). Subjects who had total flight hours 195-30285 hours had 4.5-fold risk to be mild myopia compared with subjects 194 or less total flight hours (RRa=4.56; p=0.000).

Conclusion: Married subject, non-Asian race and those who have 195 or more total flight hours constitute a higher risk of suffering mild myopia.</i>