

Determinant of Fertility in Indonesia: Analysis of 2015 Intercensal Population Survey

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ABSTRACT

INTRODUCTION: With the success of reducing the Total Fertility Rate (TFR) from 5.8 to 2.6 and increasing the Contraceptive Prevalence Rate (CPR) from 25.4% to 57.9% in the period of 1970-2012 (IDHS 2012), there was a change of population pyramid structure in Indonesia. Government of Indonesia is targeting to achieve a replacement level fertility of 2.1 in order to extend the window of opportunity of demographic dividend. The analysis of CPR and TFR is used in the implementation of Family Planning (FP) programs, which are divided into four quadrants of relation between TFR and CPR. The purpose of this study is to analyse the determinants of fertility in Indonesia with the variation of four quadrants. **METHODS:** The study population is 405,508 women of reproductive age 15-49 years old, from the 2015 Intercensal Population Survey data. Analysis is using Cox Regression analysis. **RESULTS:** From the study, it was found that fertility was influenced by first marriage age, first birthing age, and unmet need for FP, with p-value 0.001, after controlled by influential variables. The risk of early age of first marriage and the age of first delivery to high fertility is highest in Quadrant IV followed by quadrants I, III and II. While the risk of unmet need to high fertility is highest in quadrant II, followed by quadrant III, IV and I.

KEYWORDS: Fertility, CPR, TFR, Quadrant, Family Planning

DNA Damage and Heavy Metals (Cd, As and Hg) in Hair of Malay Women

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ABSTRACT

INTRODUCTION: Environmental exposure damages the DNA. Alarmingly, some environmental toxins are carcinogenic. Thus, this study aimed to associate DNA damage and concentration of heavy metals (HMs) namely Arsenic (As), Cadmium (Cd) and Mercury (Hg) in hair samples of Malay women. **METHODS:** A cross-sectional study was conducted among Malay women aged 18 to 45 years old. Anthropometric measurements and sociodemographic data were collected. Concentration of HMs was quantified using inductively coupled plasma mass spectrometry (ICP-MS). Meanwhile, degree of DNA damage was detected using Comet assay. Minimum 50 cells were randomly selected and scored using online software (TriTek CometScore 2.0). Levels of the DNA damage was expressed in % Tail DNA, tail moment, tail olive moment and tail intensity. Data analysis was performed using IBM SPSS Statistics 23. **RESULTS:** Ninety participants with mean age 29.66±5.96 years and no prior occupational exposure to HMs were recruited. Mean concentrations quantified were As (0.15±0.40) µg/kg, Hg (1.25±4.93) and Cd (7.25±4.67). The basal level of DNA strand breaks was 11.31±5.54 (%DNA in tail mean±SD). Participants of 20-23 years old had significantly higher concentration of Cd (p<0.05). Moreover, higher Cd concentration was significantly associated with higher DNA damage among those 24-27 years old (p<0.05). **DISCUSSION:** Higher concentration of Cd have been evidently reported among cancer patients in previous studies. Thus, postulating higher incidences of cancer among young age group. Focus attention should be given to identify possible source of HMs contamination among young Malay women.

KEYWORDS: DNA Damage, Heavy Metals; Hair Scalp