

# Does universal health insurance program against burden of catastrophic health expenditure in Indonesia? -Markov modelling with a lifespan perspective using IFLS 2007 and 2014-

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## ABSTRACT

**Introduction:** Indonesia started implementing national social health insurance program named Jaminan Kesehatan Nasional (JKN) since January 1, 2014 and aiming for universal health coverage by 2019. There is a lack of knowledge on the effectiveness of the JKN to reduce catastrophic health expenditure burden in Indonesia. The objectives of this study, therefore, were to examine the effect of the health insurance program in reducing the catastrophic health expenditure and examine the cost-effectiveness of health insurance in improving health. **Methods:** Regression analysis using multiple linear and logistic regression, IV regression, and fixed effect model were performed to investigate the effect of health insurance towards catastrophic health expenditure. A Markov model with four states of not a catastrophe, catastrophe, impoverishment, and death was built based on RAND Indonesian Family Life Survey (IFLS) to examine the cost-effectiveness of health insurance program. The outcome variable was defined as life years gained associated with providing health insurance to uninsured populations. The costs parameter were derived from the average costs in each state and the health insurance premium costs. Markov deterministic decision model was performed to calculate Incremental cost-effectiveness ratios (ICER). **Results:** Health insurance showed a protective effect against impoverishment but surprisingly increases the amount of out of pocket health expenditure by insured individuals. Expanding health insurance to 20-year-olds uninsured populations in Indonesia was cost-effective. The effectiveness varied between age-sex groups and socioeconomic status. Lower education status and low-income quintile group had the lower ICER compared to the higher education status and high-income quintile indicating to be more cost-effective target group of expanding health insurance. **Conclusion:** Providing health insurance to the uninsured was cost-effective in Indonesia. The government should continue to broaden the coverage of health insurance in general populations and pays attention to the more vulnerable group (lower socioeconomic status) on reaching the universal health coverage target.

Med J Malaysia Vol 72 Supplement 1 August 2017:A41

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# Dual burden of malnutrition, depression and anxiety: co-morbidities among adolescents studying in public schools of Delhi

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## ABSTRACT

**Background:** Research suggests that a poor quality diet that is lacking in nutrition may lead to deficiencies that is associated with mental health issues. Data on prevalence of mental health disorders indicates that 4.5% and 3% of the Indian population is suffering from depression and anxiety respectively (WHO, 2015). Depression is ranked by WHO as the single largest contributor to global disability, therefore there is a need to investigate the maturation patterns (gender specific) and relationship with food intake which impact overall health of an individual. **Objectives:** The present study was designed to explore the association of depression and anxiety with diet quality of adolescent boys and girls (aged 13-16 years) and to gather data on their food consumption patterns and anthropometric profiles. **Methods:** 300 adolescents (selected randomly from public schools of Delhi) participated in this cross-sectional study. For the assessment of depression and anxiety Child Behavior Checklist (CBCL; administered to the parents) and Early Adolescent Temperament Questionnaire (EATQ-R; self-report) were used. Diet Quality was assessed using Adolescent Micronutrient Quality Index (AMQI). Data was also collected on socio demographic profile, physical activity, dietary habits, food intake (24hr recall, Food Frequency Questionnaire), body image perception, locus of control, eating behaviour (TFEQ; self-report), and anthropometric (Weight, Height, BMI, Body fat %) profiles. **Results:** Anthropometric data revealed that 7% of the subjects were underweight, 5% were overweight and 12.5% were obese. 17% of the subjects were suffering from depression and anxiety. Data on other parameters are still being analysed and an effort is being made to find association between various parameters. **Conclusions:** The ongoing study will highlight the association of mental health disorders with nutritional status and diet quality of adolescents. It will also serve as a strategic approach for mental health prevention and management policies designed for adolescents.

Med J Malaysia Vol 72 Supplement 1 August 2017:A42