

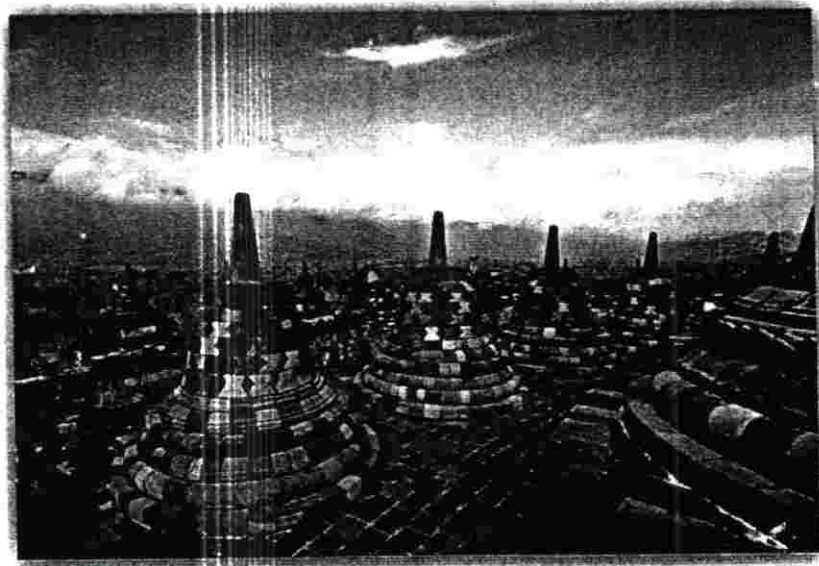


PROCEEDING

INTERNATIONAL CONFERENCE ON PUBLIC HEALTH

ACCELERATING THE ACHIEVEMENT OF SUSTAINABLE  
DEVELOPMENT GOALS FOR THE IMPROVEMENT  
AND EQUITABLE DISTRIBUTION  
OF POPULATION HEALTH

SEBELAS MARET UNIVERSITIIY



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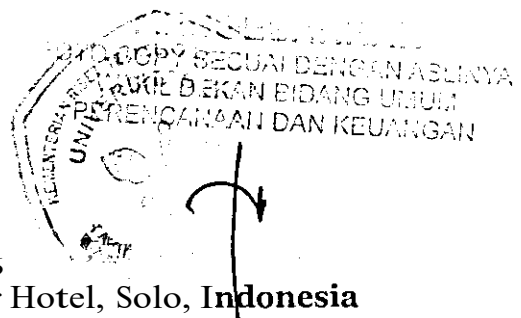
"ACCELERATING THE ACHIEVEMENT OF  
SUSTAINABLE DEVELOPMENT GOALS FOR THE  
IMPROVEMENT AND EQUITABLE DISTRIBUTION  
OF POPULATION HEALTH"

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A NEW ALTERNATIVE QUAC-STICK TO PREDICT  
THE RISK OF CHRONIC ENERGY DEFICIENCY  
IN MALAY INDONESIAN WOMEN (18-49 YEARS)

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ABSTRACT

**BACKGROUND:** Indicators to assess the nutritional status in women of reproductive age (WRA) in particular to identify chronic energy deficiency (CED) were still limited. Upper arm circumference (MUAC) and the Body Mass Index (BMI) had been used to assess the status of CED, but it still has its limitations. This study aimed to develop a new indicator QUAC-Stick (the ratio of MUAC to Upper Arm Length (UAL)) for the risk assessment of CED on WRA in Malay Indonesia women (18-49 years).

**SUBJECT AND METHODS:** The cross sectional study design, used a part of data from National Basic Health Research (Riskesdas) 2013 and primary collecting data among 1009 WRA aged 18-49 years (not pregnant) in Makassar and Tana Toraja, South Sulawesi Province. Analysis used the ROC to get the optimal formula and the cut off point using BMI as the gold standard.

**Results:** MUAC/UAL (named UMMI index) with a cut-off point  $< 4.25$  to detect the risk of CED, had better validity (Sn=80% (95% CI=70.8 to 87.3 ); Sp= 84% (95% CI = 81.4 to 86.3); PPV = 35% (95% CI = 29.2 to 42.0); NPV = 97% (95% CI = 96.1 to 98.4; ROC = 82% (95% CI = 80.0 to 86.1) compared to MUAC  $< 23.5$  with the gold standard was BMI  $< 18.5$ . Prevalence of CED on WRA 9.9% (BMI  $< 18.5$ ); 22.4% (MUAC/UAL  $< 4.25$ ). The validity of MUAC  $< 23.5$  was good (Sn = 76%, Sp = 87.2%), but the optimal cut-off point for screening was MUAC  $\leq 24.0$  cm (Sn = 90%, Sp= 77%). The correlation (r) between MUAC-weight = 0.82; UAL-Height = 0.45; MUAC-BMI = 0.82 and MUAC/UAL to BMI = 0.80 (P = 0.000).

**Conclusion:** The new alternative indicator was MUAC/UAL  $< 4.25$  to assess the risk of CED on WRA in Malay Indonesia women (18-49 years). Further revalidation study is needed to be able applying the indicator to the wider population.

**Keywords:** Ratio, MUAC, Women of reproductive, CED, Arm Length