

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/ \sqrt 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/ \sqrt 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 ≤ 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/ \sqrt UAL to BMI = 0.80 (P = 0.000).

Conclusion: The new alternative indicator was MUAC/ \sqrt 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