

ANTHROPOMETRIC DESCRIPTION MID-UPPER ARM CIRCUMFERENCE (MUAC) IN ADOLESCENT GIRLS IN KULON PROGO REGENCY

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ABSTRACT

Background: Adolescent girls are highly vulnerable to nutritional problems, particularly Chronic Deficiency (CED). Mid-Upper Arm Circumference (MUAC) is a practical and sensitive anthropometric indicator for detecting CED risk. The prevalence of CED among non-pregnant women aged 15-19 years in Indonesia reached 41,9% based on the 2023 Indonesia Health Survey, while in DIY province it was 21,2%. Kulon Progo Regency has the highest poverty rate in DIY (15,62%), making it critical to assess the nutritional status of adolescent girls through MUAC measurement as a basis for appropriate nutrition intervention programs.

Objective: To obtain an anthropometric description of MUAC in adolescent girls in Kulon Progo Regency, including mean and standard deviation, data distribution tendency, correlation between MUAC and BMI-for-Age (BAZ), determinant of CED risk cut-off using ROC curve analysis and Youden Index, and percentage of adolescent girls at risk of CED.

Methods: This was a descriptive quantitative study with a cross-sectional approach using secondary data from the Nutrition Program Planning (PPG) 2026. A total of 593 adolescent girls 10-19 years in Kulon Progo Regency were selected using purposive sampling. Data analysis included Spearman correlation test, ROC curve analysis, and Youden Index.

Results: The mean MUAC was 23,35 cm (SD=3,429), with a minimum of 15 cm and maximum of 42 cm. The MUAC data distribution was right-skewed (skewness=1,202). Spearman correlation showed a strong and significant relationship between MUAC and BAZ ($r=0,711$; $p<0,001$). ROC analysis yielded an optimal MUAC cut-off 21,1 cm (sensitivity 78,9%; specificity 76,9%). A total of adolescent girls (28,5%) were at risk of CED based on MUAC <21,1 cm.

Conclusion: MUAC demonstrated good accuracy as a CED risk screening tool in adolescent girls in Kulon Progo Regency, with an optimal cut-off of 21,1 cm. Nearly three out of ten adolescent girls (28,5%) were at risk of CED, necessitating targeted nutrition screening and intervention programs.

Keywords: Mid-Upper Arm Circumference, Adolescent Girls, CED, BMI-for-age, Kulon Progo.

GAMBARAN ANTROPOMETRI LINGKAR LENGAN ATAS (LILA) PADA REMAJA PUTRI DI KABUPATEN KULON PROGO

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ABSTRAK

Latar Belakang: Remaja putri merupakan kelompok yang sangat rentan terhadap masalah gizi, khususnya Kekurangan Energi Kronis (KEK). Lingkar Lengan Atas (LILA) merupakan indikator antropometri yang praktis dan sensitif dalam mendeteksi risiko KEK. Prevalensi KEK pada perempuan tidak hamil usia 15-19 tahun di Indonesia mencapai 41,9% berdasarkan Survei Kesehatan Indonesia 2023, sementara di provinsi DIY (15,62%), sehingga diperlukan gambaran status gizi yang tepat.

Tujuan: Memperoleh gambaran antropometri LILA pada remaja putri di Kabupaten Kulon Progo meliputi nilai rata-rata dan standar deviasi, kemencengan distribusi data, korelasi LILA dengan IMT/U, penentuan *cut-off* risiko KEK menggunakan analisis ROC, *Youden Index*, serta persentase remaja putri yang berisiko KEK.

Metode: Penelitian ini merupakan penelitian deskriptif kuantitatif dengan pendekatan *cross-sectional* menggunakan data sekunder dari Perencanaan Program Gizi (PPG) tahun 2026. Sampel berjumlah 593 remaja putri usia 10-19 tahun di Kabupaten Kulon Progo yang dipilih menggunakan *purposive sampling*. Analisis data meliputi uji korelasi *Spearman*, analisis kurva ROC, dan *Youden Index*.

Hasil: Nilai rata-rata LILA sebesar 23,35 cm (SD=3,429) dengan nilai minimum 15 cm dan maksimum 42 cm. Distribusi data LILA bersifat menceng ke kanan (*right-skewed*) dengan nilai *skewness* 1,202. Uji korelasi *Spearman* menunjukkan hubungan yang kuat dan bermakna antara LILA dengan IMT/U ($r=0,711$; $p<0,001$). Analisis ROC menghasilkan AUC sebesar 0,860 (95% CI: 0,813-0,906; $p<0,001$), dan *Youden Index* menetapkan *cut-off* LILA sebesar 21,1 cm (sensitivitas 78,9%; spesifisitas 76,9%). Sebanyak 169 remaja putri (28,5%) berisiko KEK berdasarkan nilai LILA $<21,1$ cm.

Kesimpulan: LILA memiliki akurasi yang baik sebagai alat skrining risiko KEK pada remaja putri di Kabupaten Kulon Progo dengan *cut-off* optimal 21,1 cm. Hampir tiga dari sepuluh remaja putri (28,5%) berisiko KEK, sehingga diperlukan program skrining dan intervensi terarah.

Kata Kunci: Lingkar Lengan Atas, Remaja Putri, KEK, IMT/U, Kulon Progo.