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**Infeksi Soil-transmitted Helminths sebagai Beban Tambahan pada Anak Pra-Sekolah dengan Malnutrisi
dan Anemia: Studi di Kabupaten Sumba Barat, Provinsi Nusa Tenggara Timur**
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ABSTRAK

Latar Belakang: *Soil-transmitted Helminths* (*STHs*) merupakan kelompok cacing parasit yang masuk ke dalam kelompok penyakit terabaikan karena bersifat kronis dan tidak mematikan. Infeksi kecacingan akibat STHs dan malnutrisi (kekurangan gizi) disertai anemia saling berpengaruh satu dengan yang lain. Asupan nutrisi buruk dapat rentan terhadap penyakit parasit dan sebaliknya infeksi dapat berakibat malnutrisi.

Tujuan: Menganalisis pengaruh dengan membangun pemodelan kasus infeksi untuk mengidentifikasi faktor risiko terjadinya penyakit kecacingan *Soil-Transmitted Helminths (STHs)* sebagai beban tambahan terhadap malnutrisi (kekurangan gizi) dan anemia pada anak usia pra-sekolah.

Metode Penelitian: Jenis penelitian menggunakan observasional analitik dengan rancangan *cross-sectional* dan subjeknya 444 anak usia pra-sekolah. Pengambilan sampel berada pada posyandu di puskesmas di Sumba Barat, Nusa Tenggara Timur. Tahapan penelitian dimulai dengan pengambilan data wawancara, sampel feses dan sampel darah. Semua sampel diperiksa secara mikroskopis dan molekuler di laboratorium. Data hasil wawancara dianalisis dan dirancang model faktor risiko kejadian infeksi dan kasus di wilayah tersebut.

Hasil: Penelitian pada anak pra-sekolah di Kabupaten Sumba Barat menunjukkan "beban bertumpuk tiga" antara infeksi STH, malnutrisi dan anemia. Sepertiga anak *stunting* dan lebih dari separuh anemia. Infeksi STHs ditemukan pada ±32,4% anak, didominasi oleh *Trichuris trichiura* dan *Ascaris lumbricoides* yang berintensitas ringan-sedang. STH terkumpul di beberapa *hotspot,* terutama di Kota Waikabubak. Proporsi *stunting* 34,24%, *underweight* 17,78%, *wasting* 8,11%, LiKa (tidak normal) 66,89%, dan LiLA (gizi buruk dan kurang) 6,53% serta kejadian anemia sebanyak 52,48% (didominasi anemia ringan). Pemodelan *stunting*, infeksi *A. lumbricoides* (AOR 3,45; 95%CI 1,16–7,38; p=0,001) dan infeksi campuran STH (AOR 2,88; 95%CI 1,39–5,96; p=0,004) tetap bermakna setelah penyesuaian kovariat, sedangkan hubungan STH dengan *wasting*, *underweight* dan anemia tidak konsisten. Sebagian luaran malnutrisi menunjukkan keterkaitan dengan kombinasi faktor infeksi STH tertentu dan faktor pengasuhan/sosial-ekonomi, seperti pemberian ASI eksklusif dan penghasilan orang tua, sedangkan luaran lain menunjukkan keterkaitan yang lebih menonjol dengan faktor usia anak dan kondisi sosial-ekonomi keluarga.

Simpulan: Secara keseluruhan, model yang dihasilkan menunjukkan bahwa infeksi STH, karakteristik anak, perilaku-pengasuhan, serta faktor sosiodemografi-lingkungan berkaitan secara simultan dengan kasus malnutrisi dan anemia pada anak pra-sekolah di Kabupaten Sumba Barat. Model risiko yang dihasilkan dapat menjadi dasar awal untuk mengidentifikasi kelompok anak berisiko tinggi dan mendukung perencanaan intervensi terintegrasi gizi–kecacingan–*WASH* di daerah endemis.

Kata kunci: *Soil-transmitted Helminths* (*STHs*), Malnutrisi, Anemia, Anak Pra-Sekolah, Pemodelan Statistik

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ABSTRACT

Background: *Soil-transmitted helminths (STHs) are a group of parasitic worms classified as neglected tropical diseases because they commonly cause chronic morbidity rather than acute mortality. STHs infection, malnutrition, and anaemia are closely interconnected and can reinforce each other. Poor dietary intake may increase susceptibility to parasitic infections, while infection can contribute to impaired nutritional status.*

Objective: *Analyzing the impact by developing infection case modelling to identify risk factors for Soil-Transmitted Helminths (STHs) as an additional burden on malnutrition and anaemia among preschool-aged children.*

Methods: *This observational analytic study used a cross-sectional design and included 444 preschool-aged children. Sampling was conducted through community health posts (posyandu) within primary health care centres in West Sumba, East Nusa Tenggara, Indonesia. Data collection included caregiver interviews, stool and blood samples. All specimens were examined using microscopic and molecular methods in the laboratory. Interview data were analyzed to construct risk factor models for infection occurrence and case distribution in the study area.*

Results: *Research on preschool-age children in West Sumba District revealed a "triple burden" involving STH infection, malnutrition, and anaemia. Approximately one-third of children were stunted, and more than half were anaemic. STH infection was identified in about 32.4% of children, predominantly caused by* Trichuris trichiura *and* Ascaris lumbricoides*, with mild-to-moderate intensity. Spatial clustering suggested several hotspots, particularly in Kota Waikabubak. The prevalence of stunting was 34.24%, underweight 17.78%, wasting 8.11%, abnormal head circumference (LiKa) 66.89%, and low/poor mid-upper arm circumference (LiLA) 6.53%. Anaemia affected 52.48% of children, mainly mild anaemia. In the stunting model,* A. lumbricoides *infection (AOR 3.45; 95% CI 1.16–7.38; p=0.001) and mixed STH infection (AOR 2.88; 95% CI 1.39–5.96; p=0.004) remained significant after covariate adjustment, whereas associations between STH and wasting, underweight, and anaemia were not consistent. Most malnutrition outcomes appeared to reflect a combined influence of specific STH infections and caregiving/socioeconomic factors (notably exclusive breastfeeding and parental income), while other prominent patterns were driven by child age and household socioeconomic conditions.*

Conclusion: *Overall, the developed models indicate that STH infection interacts with child characteristics, caregiving-related behaviours, and socio-demographic and environmental factors to simultaneously explain malnutrition and anaemia among preschool children in West Sumba District. These risk models can support identification of high-risk children and inform integrated nutrition–deworming–WASH interventions in endemic settings.*

Keywords: *Soil-transmitted Helminths (STHs), Malnutrition, Anaemia, Preschool-age Children, Statistical Modelling*