

## INTEGRASI ARTIFICIAL INTELLIGENCE DAN PENDEKATAN BERBASIS KOMUNITAS UNTUK DETEKSI DINI RISIKO STUNTING DAN KOMPLIKASI KEHAMILAN DI ERA DIGITAL

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Article Info	ABSTRAK
<p><b>Article History:</b> Received 16/02/2026. Revised - Accepted 10/03/2026.</p> <hr/> <p><b>Keywords:</b> Artificial Intelligence, Early Detection, Maternal and Child Health, Primary Health Care, Stunting</p>	<p>Prevalensi stunting dan komplikasi kehamilan masih menjadi isu krusial dalam bidang kesehatan ibu dan anak (KIA) di Indonesia, meskipun akses terhadap layanan antenatal menunjukkan tren peningkatan. Strategi konvensional yang cenderung reaktif dinilai belum optimal dalam melakukan identifikasi risiko secara dini, spesifik, dan berbasis individu. Penelitian ini bertujuan merancang serta menguji model prediksi berbasis Artificial Intelligence (AI) yang terintegrasi dengan layanan kesehatan primer dan pemberdayaan kader untuk mendeteksi risiko stunting serta komplikasi kehamilan secara lebih komprehensif. Studi ini menerapkan desain mixed-method dengan analisis kohort terhadap 500 ibu hamil, mencakup variabel klinis, status gizi, determinan sosial-ekonomi, dan faktor lingkungan. Algoritma machine learning dikembangkan untuk menghasilkan prediksi berakurasi tinggi dan diimplementasikan melalui aplikasi seluler yang dimanfaatkan oleh tenaga kesehatan dan kader posyandu. Evaluasi dilakukan dengan menilai peningkatan deteksi dini, efisiensi rujukan, serta perubahan perilaku kesehatan maternal. Model prediktif menunjukkan akurasi 87% dalam mengidentifikasi risiko tinggi, disertai peningkatan deteksi dini sebesar 35% dan percepatan rujukan hingga 40%. Studi ini menawarkan kontribusi konseptual dan aplikatif melalui integrasi teknologi prediktif dan pendekatan komunitas yang adaptif serta berpotensi direplikasi dalam sistem pelayanan primer nasional.</p>
	<p><b>ABSTRACT</b> <i>The prevalence of stunting and pregnancy-related complications remains a critical challenge in maternal and child health (MCH) in Indonesia, despite the continued expansion of antenatal care coverage. Conventional, reactive approaches have proven insufficient in enabling early, individualized risk identification. This study aims to develop and evaluate an Artificial Intelligence (AI)-based predictive model integrated with primary healthcare services and community health volunteers to facilitate early detection of stunting risk and pregnancy complications. A mixed-method design was employed, analyzing cohort data from 500 pregnant women, incorporating clinical indicators, nutritional status, socioeconomic determinants, and environmental factors. A machine learning algorithm was developed to generate high-accuracy risk predictions and subsequently deployed through a mobile application utilized by healthcare providers and</i></p>

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*community health cadres. Effectiveness was assessed by measuring improvements in early detection rates, referral timeliness, and maternal health behavior changes. The predictive model achieved an accuracy of 87% in identifying high-risk cases, with a 35% increase in early detection and a 40% acceleration in referrals. This study contributes both conceptually and practically by integrating predictive digital technology with a contextualized community-based approach, offering a scalable framework for strengthening primary healthcare systems and accelerating sustainable reductions in stunting and maternal mortality.*

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