SISTEM PAKAR UNTUK DETEKSI DINI GANGGUAN PERKEMBANGAN ANAK MENGGUNAKAN METODE *CERTAINTY FACTOR* PADA POSYANDU DI PUSKESMAS PEULIMBANG KABUPATEN BIREUEN

ABSTRAK

Perkembangan teknologi di bidang kesehatan mendorong hadirnya sistem pendukung keputusan untuk membantu tenaga medis dalam skrining awal berbagai kondisi, termasuk gangguan perkembangan pada anak. Deteksi dini sangat penting dilakukan karena keterlambatan penanganan dapat berdampak jangka panjang. Di Puskesmas Peulimbang, skrining umumnya dilakukan menggunakan Kuesioner Pra Skrining Perkembangan (KPSP) yang hanya menentukan lulus atau tidak lulus tanpa mengidentifikasi jenis gangguan secara spesifik, sementara keterbatasan waktu dan tenaga ahli menjadi kendala pemeriksaan lanjutan.Penelitian ini bertujuan merancang sistem pakar berbasis web untuk deteksi dini gangguan perkembangan anak usia balita menggunakan metode *Certainty Factor*. Sistem ini mendeteksi beberapa gangguan spesifik seperti *Speech Delay*, *Autisme (ASD), ADHD, Cerebral Palsy, dan Down Syndrome* berdasarkan gejala yang disusun dari pedoman pemeriksaan perkembangan anak, dengan bobot nilai yang diperoleh dari konsultasi pakar.Pengembangan sistem menggunakan framework Laravel dengan bahasa pemrograman PHP, HTML, CSS, dan database MySQL. Hasil pengujian terhadap 19 anak menunjukkan tidak ada kategori rendah (CF $\leq$ 40%), 6 anak (26,32%) kategori sedang (CF 41–70%), dan 13 anak (73,68%) kategori tinggi (CF > 70%), dengan autisme menjadi gangguan terbanyak. Kesimpulan penelitian menunjukkan sistem mampu memberikan diagnosis awal secara cepat dan akurat, serta dapat menjadi alat skrining efektif bagi tenaga kesehatan di puskesmas.

Kata Kunci: Sistem Pakar, Certainty Factor, Gangguan Perkembangan, Deteksi Dini

EXPERT SYSTEM FOR EARLY DETECTION OF CHILD DEVELOPMENTAL DISORDERS USING THE CERTAINTY FACTOR METHOD AT POSYANDU IN PUSKESMAS PEULIMBANG, BIREUEN REGENCY

ABSTRACT

Advancements in healthcare technology have led to the development of decision support systems to assist medical personnel in the early screening of various conditions, including developmental disorders in children. Early detection is crucial, as delayed intervention can have long-term impacts. At Puskesmas Peulimbang, screening is generally conducted using the Developmental Pre-Screening Questionnaire (KPSP), which only determines whether a child passes or fails without identifying specific types of disorders, while limited time and specialist availability hinder further examinations.This study aims to design a web-based expert system for the early detection of developmental disorders in preschool-aged children using the Certainty Factor method. The system detects several specific disorders such as Speech Delay, Autism Spectrum Disorder (ASD), ADHD, Cerebral Palsy, and Down Syndrome based on symptoms derived from child development examination guidelines, with weight values obtained through expert consultation.The system was developed using the Laravel framework with PHP, HTML, CSS, and MySQL database. Testing on 19 children showed no cases in the low category (CF ≤ 40%), 6 children (26.32%) in the medium category (CF 41–70%), and 13 children (73.68%) in the high category (CF > 70%), with autism being the most frequently detected disorder. The study concludes that the system can provide fast and accurate early diagnoses and serves as an effective screening tool for healthcare workers at the community health center.

Keywords: *Expert System, Certainty Factor, Developmental Disorders, Early Detection*