

ABSTRACT

COMBINATION OF FORWARD CHAINING AND CERTAINTY FACTOR METHODS IN EXPERT SYSTEM FOR CHILDREN'S MENTAL HEALTH WITH ACCURACY COMPARISON OF STRENGTHS AND DIFFICULTIES QUESTIONNAIRE

By

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Abstract This study aims to analyze the prevalence and distribution of emotional and behavioral difficulties among children aged 11-17 years using the Strengths and Difficulties Questionnaire (SDQ) dataset consisting of 500 individuals. The results indicate that the majority of respondents have low scores across most SDQ scales, reflecting relatively low levels of difficulties. However, a significant group was identified with high scores on the Emotional Symptoms and Conduct Problems scales, indicating potential clinical issues, highlighting the importance of further monitoring for individuals with high scores in these dimensions.

The expert system developed in this study demonstrated good performance with an overall accuracy of 90 percent. The system successfully identified individuals with "Normal" and "Abnormal" statuses with high accuracy but faced challenges in classifying cases with "Borderline" status. This underscores the need for more precise model development to address borderline cases.

The analysis of key factors revealed that total scores on the Emotional Symptoms (E), Conduct Problems (C), Hyperactivity (H), Peer Problems (P), and Prosocial Behavior (PR) scales are significant predictors of an individual's overall status

(Normal, Borderline, Abnormal). Higher scores on the E, C, H, and P scales, and lower scores on the PR scale, were correlated with an increased risk of being classified as "Borderline" or "Abnormal." These findings align with the literature emphasizing the importance of these factors in children's mental health.

Keywords: *expert system, child mental health, SDQ, forward chaining, certainty factor, classification*