

## An expert system for diagnosing psychiatric illnesses

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Psychiatric illnesses are diagnosed in our country, according to the diagnostic criteria given in International Classification of Diseases (ICD –10). The objective of this research work was to develop an expert system tool to assist the psychiatrist in the process of arriving at a diagnosis. .

The system includes a database of psychiatric symptoms and diagnostic rules, which were formulated after studying the ICD –10 manual and literature on psychiatry. Each rule has a set of symptoms, and a diagnosis. This diagnosis can be made if those symptoms in the rule can be elicited from a patient. The inference engine was designed by studying the mental process of psychiatrists when arriving at a diagnosis. The human computer interface presents a set of symptoms at a time, in a form of questions, which has to be answered by the user by marking whether those symptoms were elicited from a patient or not. The inference engine uses the diagnostic rules and symptoms to decide on the next set of questions that has to be presented by considering answers given to the previous set of questions. This process will be repeated until all the symptoms, which are related to a set of differential diagnosis, are presented. At the end of this process, the symptoms, which were elicited, are matched against the diagnostic rules, and diagnosis is made.

We evaluated this system at mental hospital Angoda, by calculating the specificity and sensitivity of this tool with regard to each category of illness. High specificity of this tool, revealed by the results can eliminate the incidence of false diagnosis and thereby the unnecessary social stigma of falsely labeling a patient with a serious psychiatric illness. Sensitivity of this tool with regard to a category of illness was revealed to be proportionate to the adequate number of rules available for that particular group of illness. This suggests that sensitivity of this tool can be improved by creating adequate number of rules. This tool can be easily customized for use in other medical specialties as well.