

Poster Presentation: Expert System for Diagnosing Psychological Disorder

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Introduction

An expert system is a program that performs tasks normally handled by people with vast knowledge in a certain area. There are many areas outside the computer field that utilize computer technology in the field of health, physical infrastructure, psychology, communications, Virtual Reality, Modelling and many other areas. Psychological disorder [1] is a disease that may be experienced by some people due to various factors such as trauma, stress, environmental conditions and hereditary diseases.

Psychological Disorder Expert System:

Expert system are widely used for medical field. The objective is to diagnosis and treatment of diseases. Psychological disorders are comparatively different from other human disease. A psychological disorder expert system is made up of program and clinical psychological knowledge base. The information obtained from psychological disorder expert system is similar to the information given by psychiatrist. the user is asked to answer with YES or NO to find a particular symptom appears or not. In the end, based on user's answer the name of the disorder is displayed on the screen. A limitation of the psychological disorder expert system is that it only diagnoses on symptoms entered by the programmer in the knowledge base. It does not learn by itself. So, the knowledge base can be updated in time to time with new symptoms and disorders.

Type of Psychological Disorders:



Working Principle of the System:

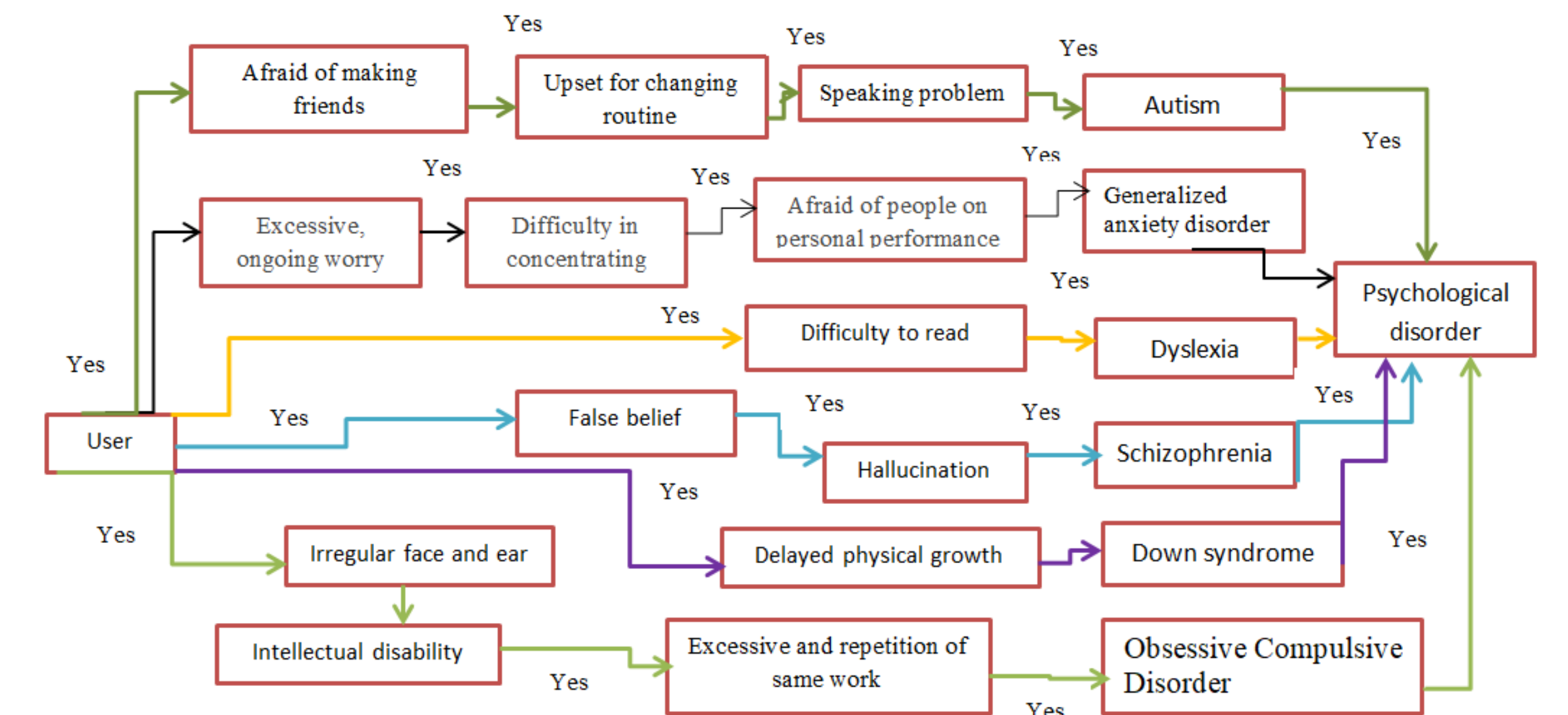


Figure 1. Working of the program

Seriousness:



Results:

The prolog expert system is successfully implemented and result are taken. It is applied on many patients and its results are about 90% correct. For example, Sadia is a mental disorder patient whose symptoms are hallucination and false belief. She imagines her surrounding in a new way which is completely different with actual . She sees, hears, smells, tastes, or feels things that are not actually there. She has ways of thinking that are unusual or illogical. In this expert system, the patient or user is asked to answer with YES(y) or NO(n). If a particular symptoms are found means the yes gives y as answers of every required symptoms question. Finally, based on user's answer, the name of disorder displayed on the screen with treatment and doctor recommendations. For sadia's case, it is Schizophrenia. So the expert system display the information available for Schizophrenia case.

Conclusion:

The medical system shows diagnosis of psychological disorders using intelligent system. Expert system with Rule-Based Reasoning method can be applied well for cases of psychological disorders. The proposed expert system was presented for helping Psychologist in diagnosing patients with different symptoms possible psychological disorder. Psychologist and depression patients can get the diagnosis faster and more accurate than the traditional diagnosis. This expert system does not need intensive training to be used. This system also has some limitation. We only consider some case in our system. Human mind working is the most complicated thing to observe. So, it is possible there are other possible psychological disorders that are not considered in the system's knowledge base. Si, this knowledge base is incomplete but can be updated with times with new symptom and disorders. Besides, symptoms that are available are not hundred percent correct because of different law of mind, different human mind working, different life experience, different opinions and there are anomalies in psychology.

References

- [1] Reny Retnowati and Ardi Pujiyanta. Implementasi case base reasoning pada sistem pakar dalam menentukan jenis gangguan kejiwaan. *Jurnal Sarjana Teknik Informatika*, 1(1), 6 2013.

Objectives:

- To build a psychological disorder expert system for psychiatrist or learner with the advantage of boosting their ability, minimizing the error and cost for diagnosing and developing their clinical knowledge.
- To design a model for diagnosis the several psychological disorder to provide stronger information for mind therapist and patients.
- To design a model to recommend a specialist of a particular disorder to a patient.

Methodology:

An expert system has the following components:

- **Knowledge base:** It contain information of six psychological disorder represented as a set of if-then production rule
- **Inference Engine:** It carries out the reasoning by linking the rules with facts and deducing new facts.
- **User Interface:** It is used to communicated between expert system and user.
- **Developer Interface:** It is used to update and modify the knowledge.
- **Knowledge acquisition and learning module:** This component functions to allow the expert systems to acquire more data from various sources and store it in the knowledge base.

Way of Recovery:

