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# Expert system for predicting the early pregnancy with disorders using artificial neural network

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Dian Sa'adillah Maylawati ;    Muhammad Ali Ramdhani ;    Wildan Budiawan Zulfikar ;    Ichsan Taufik ;    Wahyudin Darmalaksana          View All Authors

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**Abstract:**
Pregnancy is an important moment of growth of the human being. In many case women do not know that she is being pregnant, this is one of the causes of miscarriage. For healthy pregnancy also need to be guarded by knowing abnormalities early in pregnancy. There are several early pregnancy disorder among others hyperemesis gravidarum, pre-eclampsia and eclampsia, hydatidiform mole, and ectopic pregnancy. In this research, we propose an expert system using Artificial Neural Network (ANN) and Back Propagation algorithm for predicting the pregnancy with disorders early. We used 172 medical records of patient with 17 input parameters and 5 output classes, among others normal early pregnancy, and 4 classes for pregnancy disorders. The experiment with training and testing process showed that ANN could be applied to predict the disorders pregnancy with percentage of accuracy around 78,248%. The percentage is got by 0,1 of learning rate value, 17 of neuron input layers, 50 of neuron hidden layers, 5 of neuron output layers, and 0,01 of error value.

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**I. Introduction**
Getting the health baby is the hope of all couples. Every women has a uniqueness experiences that is different between each others during pregnancy. Before doing testpack and going to a gynecologist, the pregnancy can predict through a period of fertile and several factors. Not only for predicting the pregnancy, but also for predicting the disorders of early pregnancy. Because the disorders can be predicted base on phisical symptoms. To help determine the prediction of pregnancy and disorders, expert system is needed that can provide predictions, recommendations and solutions that are appropriate and accurate.

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## Keywords

**IEEE Keywords**
Pregnancy, Artificial neural networks, Neurons, Expert systems, Pain, Prediction algorithms, Blood pressure

**INSPEC: Controlled Indexing**
backpropagation, expert systems, learning (artificial intelligence), neural nets, obstetrics, patient diagnosis

**INSPEC: Non-Controlled Indexing**
expert system, artificial neural network, healthy pregnancy, hydatidiform mole, ectopic pregnancy, normal early pregnancy, early pregnancy disorders, ANN, Back Propagation algorithm, hyperemesis gravidarum, pre-eclampsia, patient medical records

**Author Keywords**
artificial neural network, back propagation, expert system, predicting, pregnancy disorders

## Authors

Dian Sa'adillah Maylawati
Department of Informatics, UIN Sunan Gunung Djati Bandung

Muhammad Ali Ramdhani
Department of Informatics, UIN Sunan Gunung Djati Bandung

Wildan Budiawan Zulfikar
Department of Informatics, UIN Sunan Gunung Djati Bandung

Ichsan Taufik
Department of Informatics, UIN Sunan Gunung Djati Bandung

Wahyudin Darmalaksana
Research Center, UIN Sunan Gunung Djati Bandung

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