MEASURING LEVEL OF DEPRESSION, ANXIETY AND STRESS IN NURSING STUDENTS WITH WEB-BASED EXPERT SYSTEM

Niken Sukesi*, Wahyuningsih
Nursing Study Program Undergraduate Program, Universitas Widya Husada Semarang, Jl. Subali
Raya No.12, Krapyak, Semarang Barat, Semarang, Jawa Tengah 50146, Indonesia
*nikensukesi2004@gmail.com

ABSTRACT
The development of information technology in the era of 5.0 which is increasingly rapidly demands the readiness to usecomputers in various fields, especially nursing. Nursing as .part of the health sciences in the face of the industrial era seeks to synergize in the provisionof nursing services by using the application of information technology to assist the service process by using an expert system. Expert system is an information system that contains the knowledge of one or more related human experts a specific area of knowledge. This expert system to help diagnose as well as the prevention and treatment of a disease. This expert system is used to assess the level of depression, anxiety and stress in nursing students. Assessment of the level of depression, anxiety and stress using DASS 42 (Depression Anxiety Stress Scale 42). This questionnaire is standard so it does not need to be tested. This expert system uses web and android-based linear regression methods. The purpose of this expert system is to help someone self-diagnose aspects of the level of depression, anxiety and stress suffered based on the symptoms they experience. The research method used is the literature study method, namely by obtaining data from application program books, journals on expert systems, other sources on the internet. Generates the output aspect of the selected symptom. This website application has been uploaded to the internet with the url address http://dass.uwhs.ac.id/ and android application https://files.appsgeyser.com/System%20DASS%2042_15411297.apk?utm_source=event_email&utm_medium=email&utm_campaign=download_your_app.

Keywords: anxiety; depression; expert system; stress level; web

INTRODUCTION

Drastic environmental changes, increasingly fierce competition and the level of need The higher the level of life, people are more vulnerable to stress, depression and anxiety worried. Stress, depression and anxiety are part of a person's reaction in dealing with theproblems experienced. This reaction is felt by humans when under pressure from outside (Chung Tung Li, Jiannong Chao, 2016). Stress, depression and anxiety are part of from problems of psychological needs that must be detected early and sought treatment so that it is not a protracted problem. The results of research conducted by Aulia (2019) that the majority of final year students of the Faculty of Nursing who are working on a thesis have a moderate stress level of 77 people (71.3%) and 16 students (14.8%) with severe stress levels (Aulia & Panjaitan, 2019). Academic stress levels for second year students to college students the last year was classified into moderate stress and severe stress (Elias et al., 2011). Level moderate or severe academic stress needs to be anticipated because it can cause more serious problems for physical, psychological and academic achievement (Franklin Glozah & David Pevalin,

2014). Stress can have other psychological effects such as impaired mental health, emotional instability, irritability and can even lead to depression. While heavy stress if it occurs too long can have a negative effect on a person's body, in the form of physical conditions such as heart disease, high blood pressure, and shortness of breath (Berman, A., Snyder, SJ, & Frandsen, 2016). Not only the physical and psychological conditions of students disturbed, but when students experience academic stress on moderate and severe stress levels, students will have better performance and results not doing well on exams or when completing academic assignments (Hamdan-Mansour et al., 2014).

The ability to find out early on the stress conditions experienced by students, visit an expert, namely a psychiatrist or psychologist. Counseling with experts in order to overcome the symptoms and causes that lead to stress (Simamora & Yoshinta, 2017). Visiting a psychiatrist of course incurs costs and views from society The negative is the mentally ill. This makes students need an expert system that can diagnose stress, depression and anxiety.

Expert systems can help people with problems to self-detect the level stress, depression and anxiety, then most likely can help himself to overcome the problem so that there is no need to suffer more (Simamora & Yoshinta, 2017). This system is called an expert system because of the duties and roles of an expert who must have knowledge (Herawan Hayadi, 2018). This expert system can help individuals who are having problems to measure levels of stress, depression and anxiety by answering a series of questions which will then provide information on the person concerned is how high the level of stress, depression and anxiety is facing at the moment. Questions to determine the level of stress, depression and anxiety were taken from the standardized DASS 42 (Depression Anxiety Stress Scale 42) questionnaire so it does not .need to be tested (Kusuma dewi & Wahyuningsih, 2020). The aim of this research is to create a web-based expert system that serves to measure the level of depression, anxiety and stress of nursing students.

METHOD

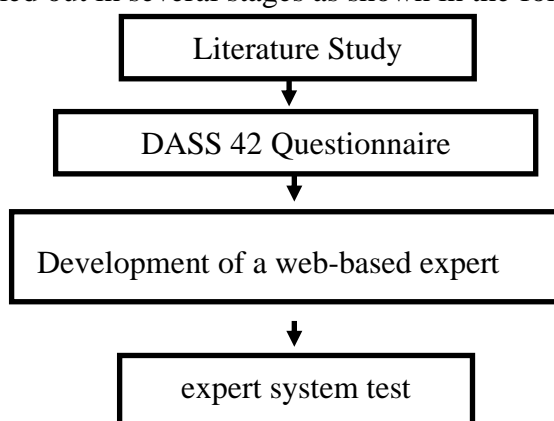This research was carried out in several stages as shown in the following figure

Literature Study

↓

DASS 42 Questionnaire

↓

Development of a web-based expert

↓

expert system test

Figure 1 Research Methodology
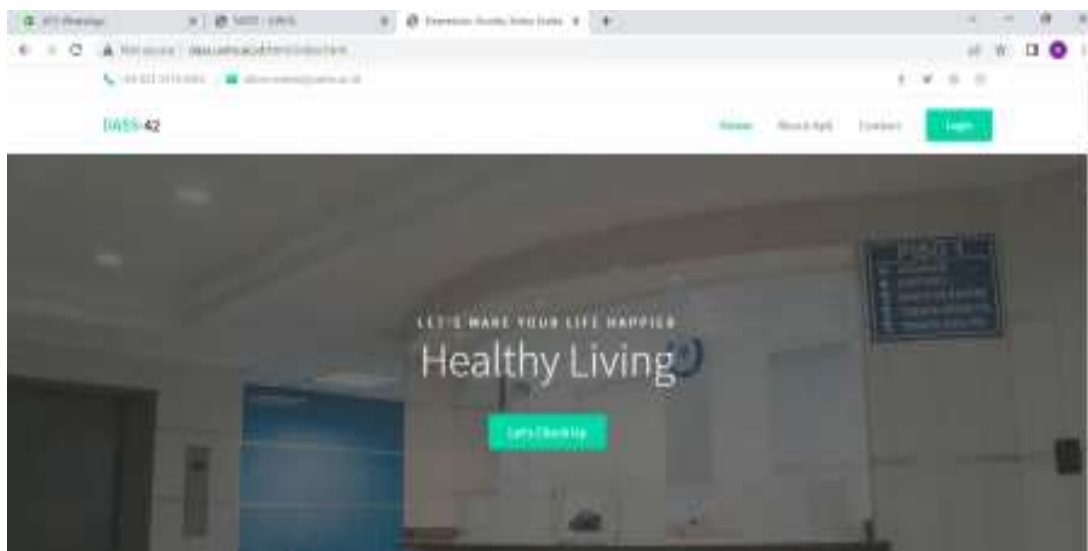
RESULTS

1. Display of the main menu

Figure 2 Display of the Main Menu

In the main display there are several main menus, please click Let's Check up to go to the second page.

2. Second page
    The second page is a page for filling in the identity and description of filling out the self-assessment by filling in a value of 0: does not occur, 1: rarely occurs, 2: sometimes occursor 3: often occurs in each symptom item.

Figure 3 Filling in Identity

Figure 4 Self-Assessment Instructions

3. Third to fifth pages
This page contains questions/symptoms experienced by individuals. Individuals are asked to give a value according to what is experienced. There are 42 questions or symptoms in total, all of which must be answered.

Figure 5 Questions or Symptoms

4. Last Page
The last page contains answers that have been filled in by students so that the results will appear in the form of levels of depression, anxiety and stress.

Figure 6 Data is being processed

Figure 7 Results of Levels of Depression, Anxiety and Stress

DISCUSSION

The data collection process was carried out by distributing research instruments to 31 students as respondents. Previously, the 31 students had been given prior training on how to use the expert system software that had been designed. In addition to testing the use of the Dass expert system, researchers also distributed questionnaires to assess student satisfaction with using this expert system. Questionnaire questions related to satisfaction were taken from (AR et al., 2022) covering usability (5 questions), information (5 questions), Interaction (5 questions), and Satisfaction (3 questions). The results of the validity test on the questionnaire are r count above 0.325 while the reliability test is 0.630..

Figure 1 Graph of Student Satisfaction Level

Figure 1 shows that the usability question is intended to see the quality of the software being developed to get good results. Expert system software is of very good quality and quality for users and has features that are easy to learn and understand, easy to use, and attractive and designed for users. Usability includes expert system websites that are easy to learn, expert system website interactions clear and easy to understand, expert system website designs according to the type of site, expert system websites are easy to use and expert system website views are interesting.

Information is intended to see the accuracy of the data presented by the developed software rated very well. information has information accuracy at a perfect level for users and can provide accurate information about symptoms and diagnoses (AR et al., 2022). This information includes accurate expert system website information, reliable expert system website information, relevant expert system website information, expert system website information that is easy to understand, and expert system website information by expectations.

Interaction is intended to see the quality and the quality of the interaction provided by the software to users is considered very good. The expert system software has very good quality and quality of interaction with users. That is, the expert system software can give a positive impression to users because users feel safe when operating it and can attract user interest and attention to use it (AR et al., 2022). This interaction includes the Expert System website having a good reputation, a sense of security in transactions with the expert system website, personalization space provided by the expert system website 14 Expert system website services according to what is presented, the Expert System website makes it easy to attract interest and attention.

Satisfaction is intended to see the level of user satisfaction in interacting with expert system software at a very good value. Expert system software for symptoms of depression, stress, and anxiety disorders that are designed to be very good at providing a sense of satisfaction for users, both in terms of the quality of the interaction, the quality of the information produced, and also the quality of the interaction of the expert system software with users (AR et al., 2022). Satisfaction includes satisfaction with the quality of use on the expert system website, satisfaction with the quality of information on the expert system website, and satisfaction with the quality of interaction/service on the expert system website

CONCLUSION
The web-based expert system that is designed can provide additional precautions and efforts that can be made by the user, so that the expert system can continue to develop. This expert system can help users to understand the level of stress, anxiety and depression, symptoms, and reactions in a shorter time. The results of levels of depression, anxiety and stress can be displayed and calculated automatically by the application system, so that users can find out the level of depression, anxiety and stress experienced.

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