



A Comprehensible Artificial Intelligence-Based Decision Support System for Evaluating Geriatric Syndromes Related to Nutrition

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ABSTRACT

The application of artificial intelligence in geriatrics is particularly important and promising since diagnosing a geriatric patient is a difficult, time-consuming, experience-based procedure that requires a number of questionnaires and patient responses that are sometimes erroneous and subjective. In order to assess nutrition-related factors and determine the likelihood of geriatric patient health risks associated with four syndromes malnutrition, oropharyngeal dysphagia, dehydration, and eating disorders in dementia—this paper proposes an explainable artificial intelligence-based clinical decision support system. The prototype of the suggested system was put to the test in actual clinical settings at the Kaunas Hospital of the Lithuanian University of Health Sciences.

Keywords: Geriatric Psychiatry; Health; Critical gerontology

INTRODUCTION

The diagnosis made by the doctors using accepted evaluation techniques were contrasted with the assessments of the nutritional status and symptoms of the patients supplied. The findings demonstrate that the suggested may accurately detect eating issues in dementia patients and dehydration in cases. The research supports the effectiveness of the suggested tool in assessing nutrition-related health risk factors and their dependencies, and in certain circumstances, it can produce decisions that are even more accurate than those made by less experienced doctors. Since they must consider several connected symptoms when diagnosing illnesses and syndromes, geriatricians are continually challenged with the issue of determining the health condition of their patients (health risk factors. As in any other area of medicine, a doctor's expertise and capacity to conduct a complete evaluation of the patient's health state directly affect the accuracy of a patient's diagnosis. This issue is significant in geriatrics because the generally accepted methods for determining a patient's health status rely on a wide range of assessment tools, such as a daily activity evaluation, a depression and dementia screening, an initial malnutrition screening, a risk assessment for bedsores, a risk assessment for falls, a somnolence assessment, a swallowing disorder assessment, etc. As a result, the less experienced geriatrician must decide which evaluation to perform.

DISCUSSION

The relationship between nutritional status and health issues is reciprocal because once an illness manifests, it can also alter nutritional status. On the other hand, medical practitioners pay insufficient attention to nutritional status and even lack the expertise needed to identify and manage. The doctor conducts an interview with the patient as part of the nutritional status assessment to try and ascertain what typical symptoms are pertinent to that person. Then, using standardised assessment rules, the doctor makes an attempt to predict which diseases or syndromes correspond to those symptoms. The fact that in certain circumstances the same symptoms are used to diagnose many illnesses or syndromes adds complexity to the diagnostic procedure [1].

As a result, it's important to evaluate the symptom's level of severity, which is difficult to gauge in most circumstances. Additionally, the syndromes interact and impact one another, making it challenging for a young resident or other inexperienced doctor to determine which condition or combination of diseases is more particular to the patient. This suggests that using computerised questionnaires alone to identify geriatric syndromes is insufficient since these questionnaires rely on unreliable and subjective symptom estimations. It is not sufficient to merely estimate the questionnaires in order to make the diagnosis as accurate as feasible; rather, a clinical decision support system is required to evaluate the interdependencies [2].

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Participants were asked to complete a variety of stress tests in order to ensure that different levels of stress existed during the data collection. Even though there were many different formal stress tests, the majority of them followed this format a controlled period of rest, an intense activity to cause stress, a controlled period of rest and recovery Data were gathered, processed, and categorised based on participant stress levels after collection. The accuracy was then compared to a There was only that discussed the use of wearables to identify suicidal behaviour [3].

Medical data management and processing are commonly done using computer-based systems at medical facilities. Medical professionals can use some of these technologies, such as clinical decision support systems, to automate decision-making and more accurately identify a range of health conditions Is frequently used in the diagnosis of heart disease, kidney disease, cancer, and Alzheimer's disease. It is also applied in the field of geriatrics, where it is successfully used to evaluate depressive symptoms with an average accuracy of and diagnose dementia with a balanced accuracy of with an accuracy ranging from for different cases as presented in Every study we examine makes use of different artificial intelligence approaches, such neural networks [4].

The authors of showed that their suggested fuzzy DSS performed better than doctors in identifying kidney infections and kidney stones, with accuracy, respectively, compared to doctors' 7% and 65% accuracy in the same circumstances. To identify the severity of celiac disease, the authors of suggested an automatic computer-aided diagnosis method based on a fuzzy cognitive map. They attained a classification accuracy of According to fuzzy modelling; there is enormous potential for the creation of sophisticated explainable AI systems, where the outcomes of the solution are understandable to humans. Allows for the creation of rules for making decisions based on the expertise of medical specialists and has the ability to evaluate erroneous and subjective input data. Decision assistance systems based on are appropriate [5].

CONCLUSION

As a result, even when the doctor has a different first judgement, they may be certain that the conclusion the system suggests is the best one. The study that is described in this article makes a contribution to the field of artificial intelligence in systems. In order to detect geriatric disorders and syndromes associated with malnutrition, explainable artificial intelligence is applied in this work. Except for our initial study, which suggests a theoretically based decision support model for nutrition-related geriatric disorders, studies related to the diagnosis of nutritional disorders and the identification of related syndromes using artificial intelligence are not found in the scientific literature.

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CONFLICT OF INTEREST

None.

REFERENCES

1. Oparil, S. New approaches in the treatment of hypertension. *Circ. Res.* 2015;116; 1074-1095.
2. Mills KT. Global disparities of hypertension prevalence and control: a systematic analysis of population-based studies from 90 countries. *Circulation.* 2016; 134; 441-450.
3. Baker-SC. Diagnosis, evaluation, and management of high blood pressure in children and adolescents. *Pediatrics.* 2018;1;142-143.
4. Bulow RD. Extracellular matrix in kidney fibrosis: More than just a scaffold. *J Histochem Cytochem.*2019; 67; 643-61.
5. Taherkhani A. A. Chronic kidney disease: A review of proteomic and metabolomic approaches to membranous glomerulonephritis, focal segmental glomerulosclerosis, and IgA nephropathy biomarkers. *Proteome Sci.*2019;17:1-8.