Malaysian Occupational Therapists' Perceptions on the Use of Artificial Intelligence in Occupational Therapy Practice: A Concept Paper

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Abstract:

The utilisation of artificial intelligence (AI) is increasingly garnering attention, owing to its several advantages, including practicality and accessibility. The potential application of AI in occupational therapy remains to be further explored. This cross-sectional survey study will examine Malaysian occupational therapists' perceptions of the utility of AI, its simplicity of use, and their intentions to incorporate it into daily practice. The questionnaire will be developed by the principles of the Technology Acceptance Model (TAM). The questionnaire will be subjected to a pilot study to evaluate the clarity and consistency of the questions. The questionnaire will thereafter be distributed to Malaysian occupational therapists, and the study's outcomes will address its objectives. Limitations and recommendations will be addressed for future research.

Keywords: artificial intelligence, AI, Malaysian occupational therapists

Introduction

Artificial intelligence (AI) is gaining more attention than ever in this era. AI is used in many sectors, especially in academics and in many other service sectors due to the availability and quality of data (ISO, 2022). Currently, AI has advanced well beyond just data collection and is already capable of generating audiovisual content, texts, and even development of software. The term AI is referred to as *"a technical and scientific field devoted to the engineered system that generates outputs such as content, forecasts, recommendations or decisions for a given set of human-defined objectives"* (ISO, 2022). The AI operates by systematically integrating and analyzing neural networks of data to achieve specified tasks. It subsequently discovers patterns and formulates recommendations based on the data it collects, which improves with time. Davenport and Kalakota (2024) identified several potential benefits of AI in healthcare, including diagnostics, treatment suggestions, client engagement and compliance as well as managerial functions.

In the field of occupational therapy, artificial intelligence can be utilized in several capacities, including evaluations, treatments, education, and daily administrative chores (CAOT, n.d.). As the utilization of AI escalates, it is essential to comprehend occupational therapists' perspectives on its use, including the advantages and obstacles associated with its integration in the planning and delivery of client services. Hood (2024) identified several problems regarding the use of AI in occupational therapy, including privacy and security, bias, information accuracy, and excessive dependency on AI in practice.

A Google Scholar search was performed on the knowledge, skills, and attitudes of healthcare professionals on artificial intelligence among occupational therapists from 2020 to the present. It produced almost 14,000 results, primarily examining the perceptions of individuals engaged in the medical profession. A thorough search, omitting the terms physician and student, revealed a paucity of studies concerning occupational therapists' perceptions of AI. A recent systematic review conducted by Mousavi Baigi et al. (2023) examined healthcare students' perspectives of AI. All 38 selected studies were conducted among medical, dentistry, radiology, ophthalmology, and nursing students. The perspectives of occupational therapy students have yet to be observed.

Due to the scarcity of information relating to occupational therapists' views on AI, this study's objectives would be to identify Malaysian occupational therapists perceived usefulness, ease of use and intention to use AI, such as the use of deep machine learning like ChatGPT. The study would identify the respondents' degree of agreeableness when considering AI such as ChatGPT as part of tools when devising a plan of treatment. The strengths and limitations of its use will also be determined through the study.

Finally, the study will help to understand Malaysian occupational therapist's perceptions of the use of AI in occupational therapy services. With this knowledge, necessary steps can be considered to overcome barriers and encourage the use of AI in ensuring that occupational therapy services utilizes current technology that can improve the standard of care for the clients.

Materials and Methods

This is a quantitative study, where a survey questionnaire will be conducted among Malaysian occupational therapists all over Malaysia. Common in social science, the data gathered are in numerical forms (Coghlan & Bryden-Miller, 2014) and its functions include looking into a particular phenomenon within a group of people (Allen, 2017), and in this case, Malaysian occupational therapists. The study plans for the purposive type of sampling that allows the choice of respondents who will yield responses that are suitable and valuable (Kelly, 2010). Inclusion criteria also include Malaysian occupational therapists in both academic and clinical settings whole practices all over Malaysia. In 2022, the World Federation of Occupational Therapists (WFOT) estimated that there are about 1,800 practicing occupational therapists in Malaysia. Thus, the study targets at least a 50% response rate, which will bring about 900 data to be included in this study.

Respondents' demographics will be obtained, these include age, place of practice, years of service, current position grade, field of specialty and previous experience with the use of AI. The questionnaire will then proceed to understand the aspects of knowledge, skills and attitudes of respondents with regards of AI. The next sections of the questionnaire will be based on the Technology Acceptance Model (TAM). According to Marikyan and Papagiannidis (2023), this model was developed by Davis (1989), and its basic premise includes understanding users' take on technology utilisation, and the beliefs that shape the use of the technology. Ultimately, TAM aims to determine users' behaviours about the use of technology.

Based on these stages of this model, the author will look into the users' degree of agreeableness on the perceived usefulness, ease of use and intentions to use the AI in occupational therapy practices. The statements will be presented on a Likert scale of 0 strongly disagree to 10, which is strongly agree. Instrument validation will then be carried out, where a pilot study of will be conducted among approximately 30 occupational therapists. This is to ensure that the questions are clear and consistent. The data in the pilot study will be excluded from the final analyses.

This study will go through the appropriate processes of ethical clearance by relevant agencies before it is conducted. Information leaflets about this survey will be disseminated among the participants of the study online and through relevant associations to ensure maximum input from occupational therapists. Consent from the participants is required before participants proceed with the survey. Google Forms will be used as the medium to collect the information needed for the survey.

The data will be analysed with statistical package software, where descriptive analyses will be conducted. Frequency, percentages and mean will be carried out to fulfill the objectives of the study. The analyses will also be done looking into the demographic data of the respondents, as well as their feedback on perceived usefulness, ease of use and intention to use AI as part of occupational therapy processes.

Result

In this section, the results from the questionnaire will be presented. A descriptive analysis will be done to identify the frequencies of the demographic data from the respondents. Subsequently, the data from the three sections of the questionnaires will be presented, where the degree of agreeableness between the respondents on the perceived usefulness, ease of use and intention to use AI in the practice of occupational therapy will be examined. Use of tables and charts will be implemented based on the suitability of the presented data. For data analysis, respondents' age, gender, years of service, field of expertise and prior use of AI will be obtained. Frequency in terms of percentages of perceived usefulness, ease of use and intention to use will also be gauged.

Discussion

At the end of the study, the conclusion will be made through the results obtained on Malaysian occupational therapists perceived use of AI in the provision of services. This section will also highlight the contrasts and similarities of results from this study with other studies and will discuss the potential reasons behind the gained outcome. It will then proceed to explain the implications of the practice of the occupational therapy profession and make suitable suggestions to address any found limitations in the study.

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