Digital Health and Informatics Innovations for Sustainable Health Care Systems
J. Mantas et al. (Eds.)

doi:10.3233/SHTI240545

Enhancing Healthcare Efficiency: Integrating ChatGPT in Nursing Documentation

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Abstract. Our study at Chi Mei Medical Center introduced "A+ Nurse," a ChatGPT-based LLM tool, into the nursing documentation process to enhance efficiency and accuracy. The tool offers optimized recording and critical reminders, reducing documentation time from 15 to 5 minutes per patient while maintaining record quality. Nurses appreciated the tool's intuitive design and its effectiveness in improving documentation. This successful integration of AI-generated content in healthcare illustrates the potential of AI to streamline processes and improve patient care, setting a precedent for future AI-driven healthcare innovations.

Keywords. Large Language Models (LLM), AI-Generated Content (AIGC), ChatGPT, Artificial Intelligence, Prompt Design, Nursing Documentation, Nursing Handover.

1. Introduction

The Chi Mei Medical Center in Taiwan has addressed the global nursing shortage and the demanding nature of nursing documentation by adopting ChatGPT, a Large Language Model (LLM), into their nursing information system (NIS), thereby improving record efficiency and quality [1]. Utilizing the Microsoft Azure OpenAI ChatGPT platform, "A+ Nurse" ensures secure data handling [2]. The system introduces improved documentation and a shift handover alert system [3], leveraging ChatGPT's ability to process vast datasets, enhancing diagnostics and nursing education [4]. By mitigating LLM-generated inaccuracies through meticulous prompt design [5], this initiative represents a crucial advancement in integrating AI into healthcare.

2. Methods

We first identified A+ Nurse's specific needs and requirements from experienced nurses. We then designed nursing-specific prompts that would elicit the necessary information or responses from ChatGPT. We ensured that the prompts were carefully designed to

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avoid raising hallucinations. Third, we developed and validated a prototype to test its functionality and accuracy. Finally, based on the prototype, we launched the official "A+ Nurse" application integrating the existing NIS. Initial usage feedback was also collected.

3. Results

The introduction of "A+ Nurse," leveraging ChatGPT, in both an ICU and a general ward, significantly enhanced nursing documentation efficiency and quality, cutting down documentation time from 15 to about 5 minutes per patient without sacrificing quality. Nurses reported improved workflow, accuracy, and a reduction in errors. Moreover, all ChatGPT-assisted documentation undergoes thorough review and finalization by nurses, ensuring record accuracy and upholding high standards of patient care.

4. Discussion

The incorporation of ChatGPT into nursing practices demonstrates the model's suitability for healthcare applications. The original chaotic records were significantly structured, and even possible ambiguities, omissions, or patient precautions could be identified by ChatGPT. A key focus of our study was on preventing the generation of unfounded information, ensuring the reliability and relevance of the AI-generated content. Our study highlights ChatGPT's potential to enhance healthcare services, indicating its future contribution to reducing nursing workloads and enhancing the efficiency of patient care.

5. Conclusion

This study showcases how ChatGPT integrates into nursing, reducing administrative burdens and allowing more time for patient care. The positive outcomes support expanding LLM use across healthcare professions, such as physicians and pharmacists indicating a transformative impact on healthcare delivery.

Acknowledgement: This study was partial supported by the NSTC Taiwan (112-2410-H-384-001-MY2)

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