Open Artificial Intelligence Use to Generate Patient Cases and Improve Pharmacists' Patient Care Process Skills

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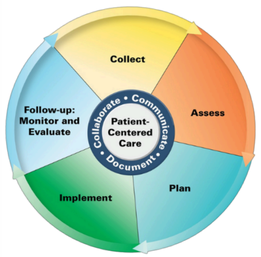
Background

- The **Pharmacists' Patient Care Process (PPCP)** provides a standardized and comprehensive approach to patient-centered care.[1]



  - Case-based activities using the PPCP model including drug-related problems (DRPs), care plans and SOAP notes are implemented throughout the Doctor of Pharmacy program beginning in the first professional year (P1).

- The ability to independently **identify** and **assess** drug-related problems to make recommendations is an essential skill that student pharmacists are expected to perform proficiently prior to graduating.
- One challenge is fostering an environment for students to **work independently** on these assignments to formulate their own evidence-based therapeutic decisions without help from their peers.
- An expanding area of opportunity in pharmacy education includes utilizing artificial intelligence (AI) to generate clinical course material. [2]
- ChatGPT, a form of AI, has proven to be a resource for schools to create diverse patient cases, **individualized** for each student to ensure that students are working independently to develop stronger clinical assessment skills.

Objective

- To assess the impact of ChatGPT to create unique cases and to evaluate how they impact first-year student pharmacists' independent patient care process (PPCP) confidence level and their perception of the open artificial intelligence activity.

Methods

- First-year student pharmacists enrolled in an **online** (n=59) or **in-person** (n=22) nonprescription pharmacotherapeutics course (3 credits) utilized **ChatGPT to generate cases** to independently complete their third patient care plan assignment of the trimester.
- The course instructor developed a template that required students to choose from a **bank of options** for each of the six prompts of the patient case.

ChatGPT

  - Prompts included patient age, acute disease states, comorbidities, previous treatment and significant subjective and objective data (social, family, substance use and surgical history).

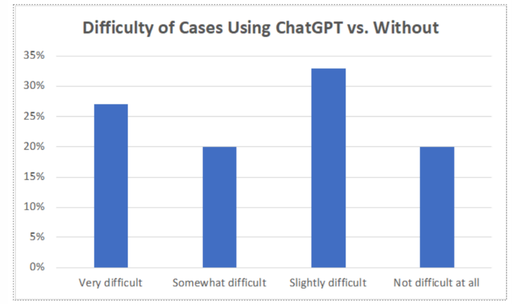
- The instructional designer developed detailed Canvas assignment instructions, where students were shown how to use ChatGPT and the prompts to create their unique patient case.
- Following course completion students were invited to complete an **anonymous, voluntary Qualtrics® survey** containing 19 questions regarding the impact of the ChatGPT assignment on improving their independent PPCP skills, and attitudes on the AI platform.
  - A four-point Likert scale was used for student responses ("not at all", "slightly", "somewhat", "very")
- Data regarding case characteristics were retrieved from Canvas and descriptive statistics were utilized to assess study data.

Results

- Surveys were completed by 16.9% of online, and 36.4% of in-person students.
- Identifying DRPs:
  - **60% decrease** in the number of students who reported feeling **"slightly confident"** after the assignment leading to a **33% increase** in being **"somewhat confident".**
  - Students who were **"not confident at all" decreased by two-thirds**.

Results (continued)

- Assessing DRPs:
  - **79% decrease** in the number of students who reported being only **"slightly confident"** after the assignment leading to the students who felt **"somewhat confident" doubling**.
  - Students who were **"not confident at all" decreased by half.**
- **22%** of the students were "**not confident at all"** in their **use of ChatGPT** before the assignment, compared to **0%** after the assignment completion.
- **85%** of the **cases generated were unique**.
- The student perception of the difficulty of the ChatGPT derived cases were widespread from very difficult to not difficult at all.



Discussion

- ChatGPT was shown to **generate unique cases** of **varying difficulty levels**.
- Students showed an **overall increase in confidence** in both **identifying** and **assessing DRPs** after the assignment.
- The assignment **eliminated any lack of confidence using ChatGPT** students presented with prior to the assignment.

Conclusion

- The use of open AI created unique patient cases and students reported their confidence level in their Pharmacists' Patient Care Process (PPCP) skills improved.

References: 1. Joint Commission of Pharmacy Practitioners. Pharmacists' Patient Care Process. May 29, 2014. Available at: https://jcpp.net/wp-content/uploads/2016/03/PatientCareProcess-with-supporting-organizations.pdf.
2. Abdel Aziz MH, Rowe C, Southwood R, Nogid A, Berman S, Gustafson K. A scoping review of artificial intelligence within pharmacy education. Am J Pharm Educ. 2024;88(1):100615. doi:10.1016/j.ajpe.2023.100615