Harnessing AI and Large Language Models in Psychiatry Medical Education

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Introduction

- Artificial intelligence (AI) and large language models (LLMs) are rapidly transforming multiple industries, including health care.
- In medical education, particularly in psychiatry, AI-driven tools have the potential to enhance learning experiences for medical students, residents, and physicians.
- This project explores the current utilization, perceptions, and policies surrounding the use of AI and LLMs in psychiatry education.

Methods and Materials

- A 27-question national survey was conducted among 380 psychiatry residency program directors and 192 Directors of Medical Education at LCME-accredited medical schools.
- The survey assessed program demographics, AI policies, current applications, and attitudes toward AI in medical education.
- Data were collected via REDCap and analyzed using R statistical software with a significance level of 0.05.
- AI and technology use were compared between regions, class sizes, and number of campuses using Fisher's Exact Test.
- Graduate and undergraduate programs were analyzed separately.

Table 1: P-values for Tests of Associations between AI Use by Graduate Programs and Region, Class Size, and Number of Campuses

AI Use	Region	Class Size	Number of Campuses
Grading	>0.999	>0.999	>0.999
Letter of Recommendation writing	0.318	0.828	0.369
Research	0.077	0.016	0.684
Content development for pre-clinical course work	>0.999	0.273	>0.999
Content development for clerkship work	0.089	0.024	0.572
Clinical documentation for patients	>0.999	>0.999	>0.999
Literature review	0.318	>0.999	>0.999
Formulating diagnoses	>0.999	0.406	>0.999
Other use of AI	>0.999	>0.999	>0.999

Figure 1: The Uses of AI in the Undergraduate and Graduate Settings

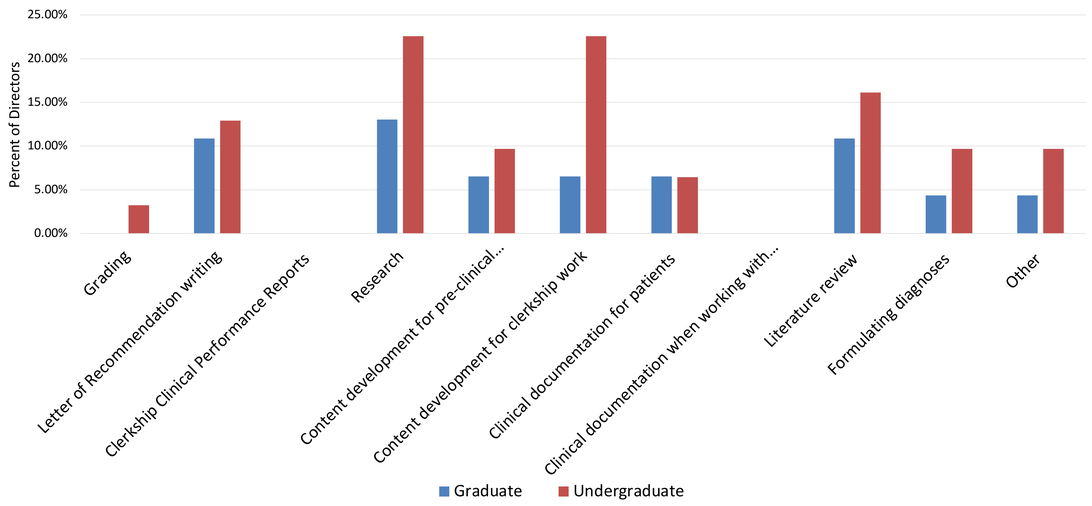

Table 2: Graduate and Undergraduate Director Perception of AI Policy

Policy FACULTY use of AI for education	Graduate	Policy FACULTY use of AI for education	Undergraduate
No	14 (82.4%)	No	12 (63.2%)
Yes	3 (17.6%)	Yes	7 (36.8%)
Unknown	29	Unknown	12
Specify FACULTY policy		**Specify FACULTY policy**	
Allowed flexible	1 (33.3%)	Allowed flexible	4 (66.7%)
Allowed not flexible	2 (66.7%)	Allowed not flexible	2 (33.3%)
Prohibited	0 (0.0%)	Prohibited	0 (0.0%)
Unknown	43	Unknown	25
Perception of FACULTY policy		**Perception of FACULTY policy**	
Too strict	0 (0.0%)	Too strict	0 (0.0%)
Appropriate	2 (66.7%)	Appropriate	4 (57.1%)
Not strict enough	0 (0.0%)	Not strict enough	1 (14.3%)
Need more information	1 (33.3%)	Need more information	2 (28.6%)
Other	0 (0.0%)	Other	0 (0.0%)
Unknown	43	Unknown	24

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Results

- 46 of 380 (12%) Psychiatry Residency Programs and 31 of 160 (19%) Medical Schools responded to the AI portion of the survey.
- About one in four residency directors (27.9%) and one in three undergraduate directors (35.5%) reported using AI assistance in their work. Figure 1 shows the distribution of how AI was utilized.
- The majority of Psychiatry Residency Programs (82.4%) and Medical Schools (63.2%) reported not having a policy on director use of AI for education (Table 2). Among programs that did have a policy, directors responded that they felt the policy was appropriate.
- In graduate programs, AI use for research ($p = 0.016$) and for clerkship content development ($p = 0.024$) differed significantly between programs with different class sizes (Table 1). For instance, Residency directors of programs with the largest class sizes, and with > 1 campus, were more likely to respond that they used AI for each of these tasks, respectively. However, no significant differences were found between regions or programs with different numbers of campuses.

Conclusions

- About one-third of directors reported using AI in Psychiatry Residency and Undergraduate Medical Education, with the most common applications being for research, content development, letter of recommendation writing, and literature reviews.
- Few institutions have established policies for AI use, highlighting a gap in regulation and governance.
- There is an opportunity for the development of policies to guide both directors and students.
- Limitations in the survey design include a low response rate and non-response bias due to many questions not being answered by all respondents.

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