



Medical Communications Exposure and Education Among Medical, Nursing, and Pharmacy Students

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ABSTRACT

Objective: Perception of the medical publication profession can be influenced by healthcare professionals' exposure to best practices in medical communications. We aimed to characterize this exposure from school curricula in students within healthcare professions, since understanding early exposure may be of interest.

Research design and methods: The top 25 ranked US doctor of medicine (research) (MD), doctor of nursing practice (DNP), and doctor of pharmacy (PharmD) schools were selected from the US News & World Report 2017 rankings. Curricula descriptions and syllabi were analyzed to determine the amount (number of courses) and extent (main focus of course vs component) of exposure students receive in medical communications.

Results: Of programs with published curricula (27/27 MD, 18/25 DNP, and 21/29 PharmD), we identified 65 (30 MD, 17 DNP, 18 PharmD) possibly-related medical communications courses from 27 MD, 17 DNP, and 13 PharmD programs. Twenty-eight courses (11, 14, and 3, respectively) were required and 37 (19, 3, and 15) were electives. Only 6 (1, 4, and 1; each from different programs) had medical communications as a main focus, while 32 (12, 4, and 16) contained some related component. Insufficient information was available for 27 courses.

Conclusions: Most top healthcare graduate programs in medicine, nursing, and pharmacy offer a medical communications-related course; however, it remains unclear if the courses reflect best practices. There appears to be very low exposure to medical communications-focused courses.

BACKGROUND

- A common misperception among researchers is that authors of scientific manuscripts do not require medical writing support¹
- However, creating a document that is publication-ready requires strong command of the English language, adherence to proper structure, the ability to craft a logical story flow, and familiarity with reporting guidelines and submission procedures. It also involves timeline management and coordination with co-authors
- Training in medical writing and best practices for manuscript preparation and submission should ideally begin during graduate school
- According to one study, some of the top reasons for manuscript rejection are easily avoidable technical elements such as:²
 - Picking the wrong journal
 - Incorrect submission format
 - Not following manuscript preparation guidelines
 - Poor writing
 - Inadequate reporting in the methods, results, and discussion
- This may reflect "insufficient training in the range of issues related to reporting of research, such as use of reporting guidelines, publication ethics, and research integrity"³
- To combat these problems, schools for health professionals have increasingly been adding courses on medical writing and communications to their curricula^{4,5}
- To our knowledge, there has been no systematic study to determine how many medical writing and communication courses exist and what forms they usually take
- We report on the curricula of the top medical, nursing, and pharmacy schools in the United States to determine the extent of medical communication and medical writing exposure among graduate students in the healthcare professions

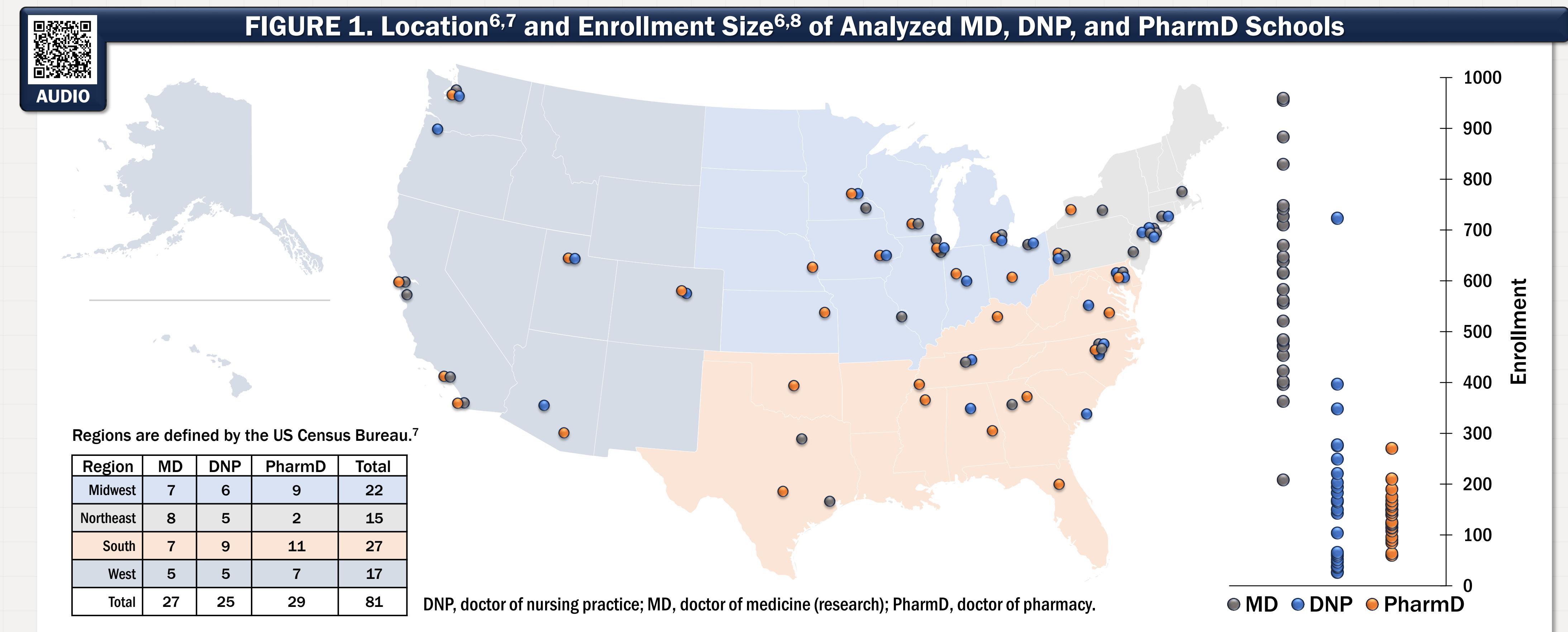
METHODS

- We selected the top 25 US doctor of medicine (research) (MD), doctor of nursing practice (DNP), and doctor of pharmacy (PharmD) schools according to US News & World Report 2017 rankings⁶
- We assessed the available curricula descriptions and syllabi of these schools to determine the amount (number of courses) and extent (main focus of course vs component) of exposure students receive in medical communications and medical writing
- Medical communications was defined as services provided to the pharmaceutical, biotechnology, and medical device industries to plan and develop medical documents and publications for various audiences, including healthcare providers, patients, and regulatory agencies
- Medical writing was defined as the writing of scientific documents, which include regulatory and research-related documents; disease- or drug-related educational and promotional literature; publications such as journal manuscripts, abstracts, and posters; and content for healthcare websites, health-related magazines, or news articles
- We identified and categorized which courses were "possibly medical communications-related" by the following criteria:
 - Focus of course:** any course that includes main course objectives and topics related to publication development (ie, writing/communications/publications courses that discuss how to write/publish)
 - Related component:** any course that includes, in the course description, requirements related to publication development (ie, research courses with writing requirements and/or publication opportunities)
 - Exposure unknown:** any course with a title or description that indicated a possible relation to medical communications without sufficient information to determine amount of exposure

ACKNOWLEDGEMENTS

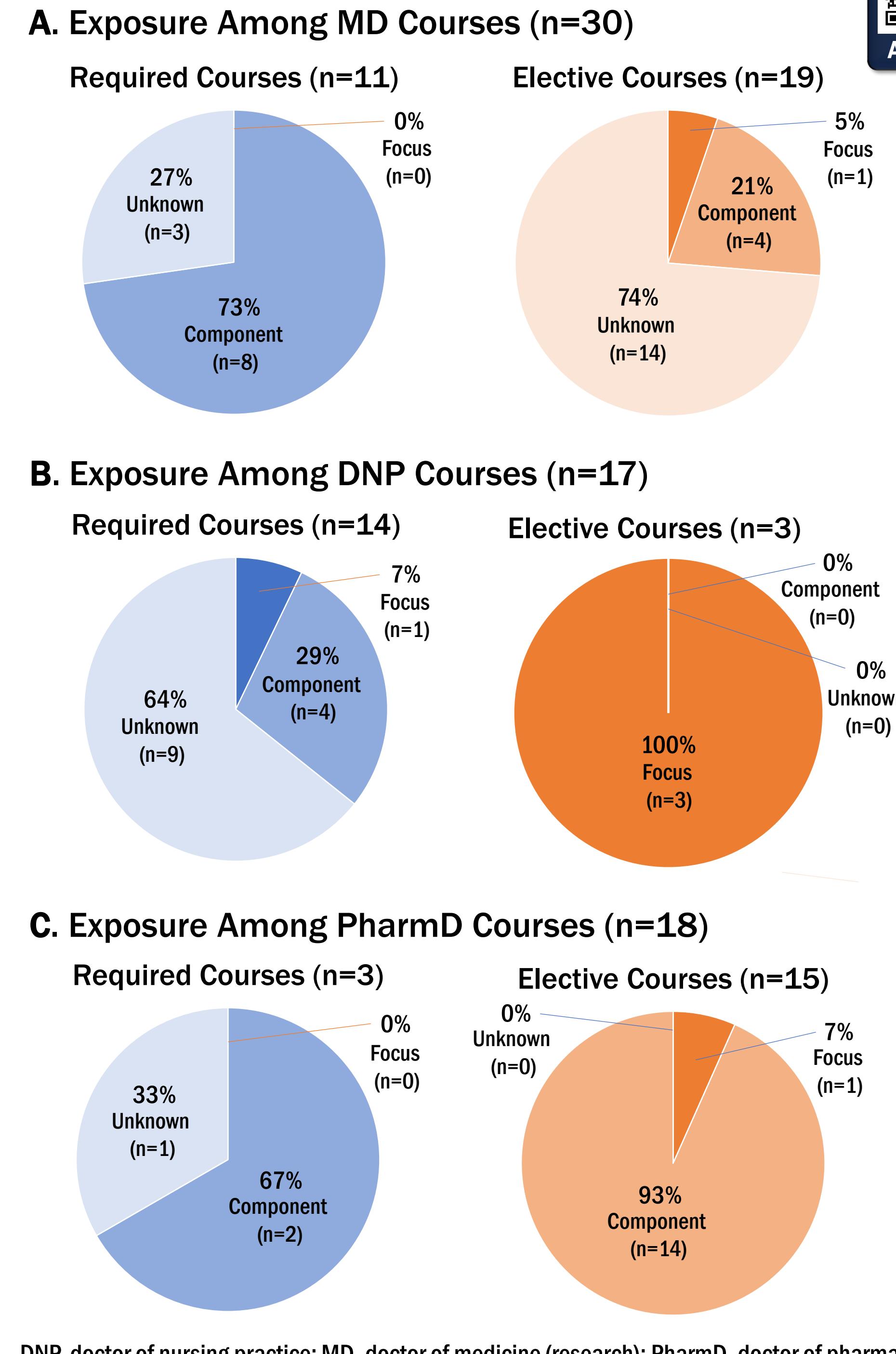
The authors thank Rosie Lynch and Lou Greco of MedVal Scientific Information Services, LLC, and PharmaWrite, LLC, Princeton, NJ for mentorship and guidance, Rosie Lynch for inspiring the research topic, and Diana Talag and Donald Fallon of MedVal Scientific Information Services, LLC, and PharmaWrite, LLC for editorial assistance. This research and editorial assistance was funded by MedVal Scientific Information Services, LLC, and PharmaWrite, LLC, Princeton, NJ.

RESULTS



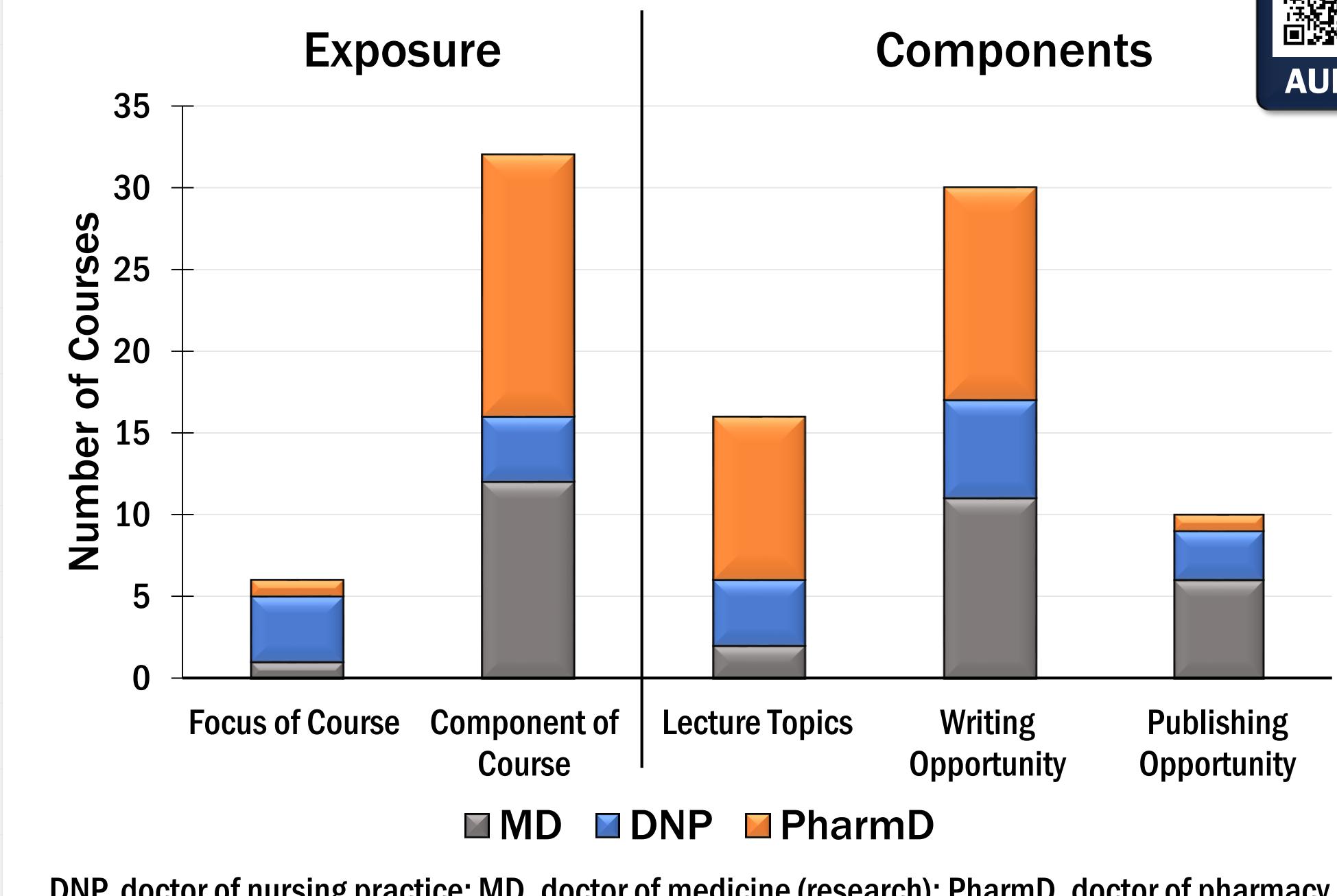
- There were 27 MD research schools, 25 DNP schools, and 29 PharmD schools with a rank of 25 or better, as shown in Figure 1
 - Of these, 27/27 MD, 18/25 DNP, and 21/29 PharmD schools had published curricula and 27 MD, 17 DNP, and 13 PharmD programs included at least one possibly-related medical communications course
- We identified a total of 65 (30 MD, 17 DNP, 18 PharmD) possibly-related medical communications courses
- Twenty-eight possibly-related medical communications courses (11 MD, 14 DNP, and 3 PharmD) were included as required courses in the curricula and 37 (19, 3, and 15, respectively) were provided as electives (Figure 2)

FIGURE 2. Exposure to Medical Communications



- Only 6 courses (1, 4, and 1, respectively; each from different programs) had a main focus on medical communications-related topics, while 32 contained some related component (Figure 3)
- A list of courses that focused on medical communications-related topics is provided in Table 1
- 16 courses (2, 4, and 10, respectively) included lectures related to medical communications, 30 courses (11, 6, and 13, respectively) offered writing opportunities, and 10 courses (6, 3, and 1, respectively) offered publishing opportunities (Figure 3)
- Insufficient information was available for 27 courses (17, 9, and 1, respectively)

FIGURE 3. Type of Exposure to Medical Communications



- 8 courses (indicated with stars in Table 1) described discussions of more advanced topics related to publication practices, including journal publication decisions, journal and audience selection, authorship guidelines, writing challenges, critiquing one's own and others' writing, plagiarism, and professional standards
- Based on available course descriptions, they did not seem to follow any standard format or publication practice guidelines

TABLE 1. Courses with Focus or Advanced Topics in Medical Communications

	Course Name	School
★ F	ME 670.0: Understanding the Peer-Reviewed Literature	Harvard University
★ F	DNP Programs	
★ F	NR 110.832: Writing for Publication	Johns Hopkins University
★ F	N9150: Scholarly Writing and Dissemination I	Columbia University
★ F	NUR 3052: Research Practicum 3 - Manuscript Development	University of Pittsburgh
★ F	NURS704: Scientific Writing	University of North Carolina - Chapel Hill
★ F	PharmD Programs	
★ C	PHR 7460 - Regulatory Strategy, Writing, and Leadership	Ohio State University
★ C	Research Seminar in Social & Administrative Pharmacy (S&A PHM 732-911)	University of Wisconsin - Madison
★ C	LAI 648 Graduate Research Ethics	University at Buffalo - SUNY
F	SPPS 284: Scientific Writing	University of California - San Diego

★ Includes discussion of advanced topics related to publication practices.
 C, course contains a component related to medical communications; DNP, doctor of nursing practice; F, focus of course is related to medical communications; MD, doctor of medicine (research); PharmD, doctor of pharmacy.

- Limitations of this analysis must be taken into consideration:
 - We only included the top 25 ranked schools for each degree type, which were ranked based on criteria unrelated to medical communications. This sample may not be representative of all schools and programs
 - Our analysis was based only on curricula and descriptions published on each school's website
 - Due to the use of only published course descriptions, and a lack of availability of course syllabi, we were unable to determine the extent to which best practices in medical communications and medical publications are discussed in the courses and how closely they adhere to publication practice guidelines

CONCLUSIONS

- Most top healthcare graduate programs in medicine, nursing, and pharmacy offer a medical communications-related course although very few include medical communications as a main focus
- A small number of courses discuss advanced topics in publication practices, including journal publication decisions, journal and audience selection, authorship guidelines, writing challenges, critiquing one's own and others' writing, plagiarism, and professional standards
- Our data suggest that until graduate schools incorporate more courses with standardized education in medical writing, communications, and publication practices, authors may still require medical writing support to face real-world challenges

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