

# Implementation of Interprofessional Health Education-based Research Based on Discipline, Practice, Dissemination Trends and Research Design: A Literature Review

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## ABSTRACT

**Objective:** The World Health Organization (WHO) started a program in 2007 to promote Interprofessional Education (IPE) and its benefits for collaborative practice. Many IPE reviews have examined what has been done and how effective it is. This review aimed to investigate the methods and outcomes of IPE research.

**Methods:** IPE research examined the following: 1) disciplines involved; 2) writing patterns, 3) assessment focus, and 4) dissemination trends. Abstracts were screened prior to full-text screening, review, data extraction, analysis and audit. Categorical data were reported with frequencies and percentages while continuous data were reported with means and standard deviations. Chi-square analysis was used to test for differences between groups for categorical variables.

**Results:** Of the 359 articles that met the criteria, most were written by authors from medical, nursing, and pharmacy schools, using quantitative or mixed techniques. Most studies involved student disciplines with no authors from those disciplines. Most studies also measured student perceptions and knowledge, with a few measuring faculty perceptions. Research was mostly conducted in classrooms, simulations, and field experiences. IPE research was published in 98 journals, most of which were interdisciplinary journals, with the largest increase in publications in the last year of the review.

**Conclusions:** The field of IPE research has grown significantly in the last decade. It is important to explore different ways to conduct IPE research, plan ways to disseminate IPE results, and ensure that all disciplines of students involved in IPE are represented in authorship.

Keywords: Interprofessional Education (IPE), Literature Review, Authorship

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#### Introduction

The World Health Organization (WHO) started a program in 2007 to promote Interprofessional Education (IPE) and find out what makes interprofessional collaboration work.<sup>1</sup> When students from different health professions (such as medicine, dentistry, nursing, pharmacy, and so on) learn from each other in an interactive way, they create IPE opportunities. These opportunities help them work better together and provide better care for patients.<sup>2</sup> When healthcare professionals know each other's roles, they can communicate and work together better. This results in better care for patients, according to research.<sup>3–5</sup>

Many reviews have addressed the topic of IPE<sup>2,6–8</sup> In particular, researchers have focused on the relationships between different health professions such as nursing, medicine, or pharmacy<sup>6,8</sup> Some have delved into the subject matter of IPE<sup>2,7</sup> but few have examined the methodologies used to investigate its impact on student learning outcomes, or its overall effectiveness.

In studying the methodologies used in studying IPE, a multidisciplinary effects framework is utilized. This framework suggests that researchers construct their understanding through the unique perspectives, assumptions and paradigms inherent to their respective disciplinary backgrounds<sup>9</sup> Nonetheless, this complexity can increase in IPE initiatives, given that the research team is often comprised of individuals from different disciplines, each of whom adheres to different paradigms, ontologies, epistemologies, axiologies and methodologies.<sup>9</sup> As a consequence, these differences can influence the selection of research questions, the development of research designs and the choice of analytical methods used to gain a deeper understanding of IPE.<sup>10–14</sup> Defining the fundamental research components in the IPE literature can provide insight into the different approaches used to investigate this important initiative. To investigate the effects of multidisciplinary excellence, the aim of this study was to do just that.

## Methods

The search criteria used in this review centered on the terms "interprofessional education" and students. These terms were deliberately chosen to ensure a comprehensive collection of research articles on interprofessional education covering various health disciplines. Inclusion criteria for the study included the following aspects: involved student participants from the United States; were published in peer-reviewed journals; and featured interprofessional education opportunities in which students interacted, collaborated, participated, or exchanged ideas with peers from at least one different healthcare profession. In addition, studies published from 2008 onwards were included, as this marked the launch of the WHO Program on Interprofessional Education and Collaborative Practice.<sup>1</sup> The program serves as a catalyst to enhance research activities in the field of interprofessional education. Exclusion criteria were applied to studies that exclusively focused on literature review methods (e.g., meta-analysis, systematic review, literature review, etc.), studies that were not written in English, commentaries, book chapters, works that were not peer-reviewed (such as dissertations), or studies designed solely to validate measurement tools or instruments. These exclusion criteria

were applied to ensure that the selected studies met the specific criteria and objectives of the review.

This study used several databases, including PubMed, SCOPUS, PsychINFO, Excerpta Medica database (EMBASE), Medical Literature Analysis and Retrieval System Online (MEDLINE), and Education Resources Information Center (ERIC). Notably, PubMed, SCOPUS, EMBASE, and MEDLINE are databases that have been used extensively in previous Interprofessional Education (IPE) reviews, demonstrating their proven relevance in the field.<sup>2,6–8</sup> ERIC was specifically selected to identify additional educational articles, given its distinction as the world's largest educational database.<sup>15</sup> sycINFO was also selected to cover IPE research published in educational and social science journals. In addition to the database search, the researchers also conducted a manual search of the Journal of Interprofessional Care to ensure comprehensive coverage and capture articles that may have been missed. To facilitate the organization and management of the collected journal articles, they used Mendeley, a reference management software based in London, UK. These articles were then imported into Covidence, a software solution originating from Melbourne, Australia, which served for article screening, data abstraction, and quality assessment. The entire search process was initiated and successfully completed in October 2018, with further details available in Table 1.

Profession	The study written by N (%)	Study as first author, total N (%)	Study as last author , total N (%)	Study as the first author of the writing N (%)	Study as the last author of the writing N (%)	Total participation N (%)
More than 1 profession	310 (86,32%)	-	-	-	-	-
Nursing	195 (54,32%)	94 (26,18%)	72 (20,40%)	94 (48,21%)	72 (36,92%)	252 (70,19%)
Medicine	166 (46,24%)	68 (19,22%)	84 (24,40%)	69 (41,57%)	85 (51,20%)	227 (63, 23%)
Pharmacy	148 (41,23%)	68 (18,94%)	49 (13,88%)	68 (45,95%)	49 (33,11%)	187 (52,09%)
Non-health	111 (30,92%)	26 (7,24%)	43 (12,18%)	26 (23,42%)	43 (38,74%)	42 (11,70%)
Health Support	109 (30,36%)	33 (9,19%)	30 (8,50%)	33 (30,28%)	30 (27,52%)	135 (37,60%)
Physiotherapy	75 (20,89%)	26 (7,24%)	27 (7,65%)	26 (34,47%)	27 (36,00%)	135 (37,60%)
Occupational therapy	44 (12,26%)	13 (3,62%)	10 (2,83%)	13 (29,55%)	10 (22,73%)	79 (22,01%)
Dentist	33 (9,19%)	7 (1,94%)	8 (2,27%)	7 (21,21%)	8 (24,24%)	67 (18,66%)
Physician assistant	27 (7,52%)	2 (0,56%)	9 (2,55%)	2 (7,41%)	9 (33,33%)	59 (16,43%)
Audiology	22 (6,13%)	7 (1,94%)	7 (1,98%)	7 (31,82%)	7 (31,82%)	40 (11,14%)
Other health	21 (5,85%)	7 (1,94%	6 (1,70%)	7 (33,33%)	6 (28,57%)	47 (13,09)

Tabel 1 IPE study characteristics (N=359), by profession from 2008 to 2018

Profesi	Journal Focus N (%)	Journal Focus by Study N (%)		
More than 1 profession	15 (15.31%)	165 (45.96%)		
Nursing	19 (19.39%)	49 (13.65%)		
Medicine	31 (31.63%)	50 (13.93%)		
Pharmacy	7 (7.14%)	46 (12.81%)		
Health Support	11 (11.22%)	16 (4.46%)		
Non-Health	1 (1.02%)	1 (0.28%)		
Physiotherapy	2 (2.04%)	3 (0.84%)		
Occupational Therapy	2 (2.04%)	7 (1.95%)		
Dentist	2 (2.04%)	8 (2.22%)		
Physician Assistant	2 (2.04%)	3 (0.84%)		
Audiology	2 (2.04%)	3 (0.84%)		
Other Health	1 (1.02%)	1 (0.28%)		
Nutritionist	1 (1.02%)	3 (0.84%)		
Midwife	2 (2.04%)	4 (1.11%)		
Environmental Health	0 (0%)	0 (0%)		
Optometry	0 (0%)	0 (0%)		
Total	98	359		

Tabel 1
IPE study characteristics (N=359), by profession from 2008 to 2018

Some studies cover a wide range of occupations, resulting in percentages that may exceed 100%; the category "More than 1 Profession" is not included in the total.

The percentage of studies from the entire set of studies related to that occupation is denoted by "i.e. Studies Listed in Table 1."

The percentage of studies from all studies involving student participants from that occupation is denoted by "i.e. Student Participants in Table 1. Student Participants in Table 1."

Percentages were calculated based on the total number of studies included in this review (N = 359).

- a. "Health Support" pertains to professions that provide support in the health field (e.g., social work, clinical psychology), whereas "Non-health" includes fields unrelated to health (e.g., educational researchers, statisticians). "Other health" includes professionals such as respiratory therapists.
- b. Percentages are calculated based on all studies related to the profession (i.e. authored studies).
- C. Percentages were calculated based on the total number of studies included in this review with more than one author (N=352).

The main variables of this study include: authors' areas of expertise, students' disciplines, research approach chosen, key areas of evaluation (such as student perspectives, faculty viewpoints, and student understanding), research environment, and publication category (e.g. interdisciplinary or discipline-specific journals). Author position was scrutinized because, in

health professions research, early authors are often considered the main contributors, while late or senior authors usually play an important role in guiding the research team. Therefore, author position has significance in clinical disciplines.<sup>16</sup> Authors were categorized based on their qualifications (e.g. PharmD, MD, etc.), their university affiliation, their university biographical information, and/or their Google Scholar or ResearchGate profile. In addition, the disciplines of the authors and students were categorized according to the classification established by the World Health Organization (WHO). The term "health support" is used to cover professions such as social work or clinical psychology, while "other health" includes respiratory therapists. In contrast, "non-health" is a category for non-health-related fields such as educational researchers and statisticians. Additionally, each category includes all individuals who hold a relevant degree in a particular domain. For example, the medicine category includes individuals who hold qualifications as Medical Doctors (MD), Doctors of Osteopathic Medicine (DO), or Doctors of Philosophy (PhD) working in medical schools. It is important to note that the classification names for health professionals are taken directly from the WHO and the International Standard Classification of Occupations.<sup>17</sup>

Data extraction from the articles was divided between two individuals, A.O. and J.Y., with each responsible for half of the articles. In addition, C.L.B. conducted an independent review of 15% of randomly selected articles, which resulted in an outstanding agreement rate of over 95% across the variables of interest. Presentation of findings used frequencies (percentages) for categorical data and mean values with standard deviation ( $\pm$ SD) for continuous data. To investigate differences between groups regarding categorical variables, Chi-square analysis was used. A significance level of p < 0.05 was used to indicate statistical significance.

## **Results and Discussion**

As illustrated in Table 1, a total of 3,058 articles were initially included for screening. After removing duplicate entries, the research team conducted a review of 1,518 abstracts, a task performed by A.O. and J.Y. Of these, 680 articles were selected for full-text screening. Disagreements regarding the inclusion of articles in the study were resolved through the involvement of a third reviewer, J.M. Ultimately, 359 articles met the inclusion criteria and were included in the review.

The authors of the articles reviewed represented 14 diverse disciplines, which included audiology, dentistry, dietetics, environmental health, health support, medicine, midwifery, non-health, nursing, occupational therapy, other health disciplines, pharmacy, physician assistant, and physiotherapy (as detailed in Table 1). On average, each article featured 5.19 authors, with an average of 2.73 different disciplines represented per article, indicating a prominent interdisciplinary character. The maximum number of authors in a single article was 14, while a minority of articles (1.95%, totaling 7 articles) had only one author. Most articles, comprising 86.35% of the sample (N=310), had authors from different disciplines. Specifically, articles written by pharmacists showed an average of 6.12 authors and covered an average of 3.30 different disciplines. Medical practitioners, on the other hand, had an average of 6.06 authors per article,

with an average of 3.59 different disciplines represented. Nursing professionals contributed to articles with an average of 5.55 authors and 3.10 different disciplines per article, further emphasizing the multidisciplinary nature of the study.

As depicted in Table 1, nursing professionals took the lead as authors in 195 articles, which constituted 54.32% of the total articles, followed by medical practitioners (N = 166, 46.24%), and pharmacists (N = 148, 41.23%). Authors from non-health fields (N = 111, 30.92%), such as statisticians and educational researchers, and health support fields (N = 109, 30.36%), including social work and psychology, represented the fourth and fifth largest groups, respectively. In terms of first authorship, nursing professionals were the most frequent, with 94 cases (26.18%), followed by medical practitioners (N=69, 19.22%), and pharmacists (N=68, 18.94%). Among studies that featured nursing professionals as authors (N = 195), a nurse was the first author in 48.21% (N = 94), followed by pharmacists in 45.95% (N = 68 of 148 articles), and medical practitioners in 41.57% (N = 69 of 166 articles). In contrast, physician assistants had the lowest percentage of first authorship in articles related to their profession, at only 7.41% (N = 2 out of 27 articles).

Medical practitioners were most often the last author, contributing to 85 out of 166 articles (51.20%). Authors from non-health and nursing professions were the last author for 38.74% (N = 43 of 111 articles) and 36.92% (N = 72 of 195 articles), respectively. In contrast, occupational therapy showed the lowest occurrence of last authorship in articles written by professionals in the field, at 22.72% (N = 10 out of 44 articles). The chi-square test showed a significant association between discipline and author position (both first and last) for the five most frequently occurring disciplines (nursing, medicine, pharmacy, health support, and nonhealth), as these categories had a large enough sample size to analyze (p = 0.01). The analysis showed that nursing professionals and pharmacists were more likely to be first authors, while medical practitioners and authors from non-health professions were more likely to be last authors.

In the entire study, a total of fifteen different student disciplines participated in Interprofessional Education (IPE), with an average of  $3.91 \pm 2.45$  disciplines represented in each article. The most involved student discipline was nursing, with 252 cases (70.19%), followed by medical students (N = 227, 63.23%), pharmacy students (N = 187, 52.09%), health support students (N = 135, 37.60%), and physiotherapy students (N = 119, 33.15%). This finding demonstrates the diverse disciplines of students involved in IPE across studies..

When examining the alignment between student and author disciplines, it was clear that most articles displayed a mismatch, where student disciplines were included in studies without corresponding authors from those disciplines (N = 190, 53.92%). In fact, twelve different disciplines had more studies involving student participants than studies with authors from the same discipline. For example, in studies involving medical students, there were no authors from the field of medicine in 31.44% of cases (N = 72 out of 229 articles). Similarly, for pharmacy and nursing, this difference was seen in 25.13% (N = 47 of 187 articles) and 24.60% (N = 62 of 252 articles). Physiotherapy students were involved in 33.15% of studies, but authors with a

physiotherapy background were only involved in 20.89% of studies. In contrast, authors from environmental health and non-health disciplines wrote more studies than the number of students they had as participants. For example, professionals in non-health fields wrote 30.92% of articles (N = 111 articles), while non-health students were involved in only 11.70% of articles (N = 42 articles). This difference highlights the variation in disciplinary alignment between authors and students across studies.

Regarding the analytical methods used in studying Interprofessional Education (IPE), 150 studies (41.78%) used mixed methods, 147 studies (40.95%) used quantitative approaches, and 62 studies (17.27%) used qualitative methods. In terms of quantitative and mixed methods studies, 279 (93.94%) focused on assessing student perceptions, 25 (8.42%) examined faculty perceptions, and 78 (27.96%) examined student knowledge. It should be noted that these categories are not mutually exclusive, meaning that one study may assess multiple aspects, such as student and faculty perceptions, for example. Additionally, the settings for IPE research varied and included simulations (N = 119, 33%), classroom settings (N = 112, 31%), experiential learning experiences (N = 86, 24%), other settings include activities such as student orientation, workshop training, or specifically planned IPE events. These diverse research settings highlight the multifaceted nature of the IPE research methodology.

Over the course of a decade, the number of Interprofessional Education (IPE) studies has shown a remarkable increase longitudinally, jumping more than 2000% from just 4 articles in 2008 to 90 articles in 2018, as documented in Table 2. This increase has been fairly consistent, with the exception of a slight decrease from 2015 (N=57) to 2016 (N=55), which amounted to 3.51%. However, in all other years, the number of IPE studies continued to increase. Significant spikes in the number of IPE publications are evident in some periods. For example, there was a significant increase from 2011 (N=7) to 2012 (N=17), which marked a jump of 142.86%. Likewise, from 2013 (N = 23) to 2014 (N = 35), there was an increase of 52.17%, and from 2014 (N = 35) to 2015 (N = 57), the number of publications increased by 62.86%. More recently, IPE publications saw a substantial increase of 52.54%, rising from 59 in 2017 to 90 in 2018. In terms of authorship, there was a notable increase from 2008 to 2018. Nursing authorship jumped from 2 articles to 49, pharmacy authorship increased from 1 to 46, and medical practitioner authorship increased from 1 to 50 over this ten-year period (2008-2018). In addition, occupational therapists began contributing to IPE publications in 2009, followed by dentists and physician assistants in 2012, further diversifying the group of authors in this field.

Year	Disciplines (Total)	Nursing	Medicine	Pharmacy	Health Support	Non-Health
2008	4	2	1	1	1	4
2009	6	4	5	3	2	3
2010	6	3	3	3	1	2

 Tabel 2

 Number of IPE publications, by year for disciplines where first author is most frequent

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2011	7	3	5	2	2	1
2012	17	5	6	7	7	6
2013	23	15	9	12	8	7
2014	35	15	19	14	12	15
2015	57	32	34	20	13	23
2016	55	33	24	28	18	11
2017	59	32	24	16	15	20
2018	90	52	35	38	28	19
Total	359	196	165	144	107	111

## Discussion

Conducting Interprofessional Education (IPE) is critical in preparing future healthcare professionals for the intricacies and realities of collaborative healthcare.<sup>18</sup> Recent studies have shown that IPE can facilitate the acquisition of knowledge and skills essential for teamwork in healthcare and is often used to improve healthcare practice models and services.<sup>19</sup> his study builds on previous research on IPE by investigating the interdisciplinary impact and defining key research components in the published IPE literature, aiming to gain deeper insights into the methods and contributors involved in studying and publishing IPE.<sup>9</sup> Specifically, the research team explored the academic backgrounds of the authors and students involved in IPE, as well as the research methodology and characteristics of the journals in which this research was published.

The field of IPE (Interprofessional Education) and related research has experienced considerable growth since the inception of the WHO Program on Interprofessional Education and Collaborative Practice in 2007<sup>20</sup> Although the call for collaborative practice has been around for more than 30 years<sup>18,20</sup>, recent studies have shown a significant surge in IPE research in the past decade. Several factors may explain this, including greater adoption of the term "interprofessional education", the expansion of IPE integration into various health professions, the increased diversity of professions participating in IPE, the expansion of health professions schools and their staff, and the growing number of educators dedicated to the Scholarship of Teaching and Learning (SoTL) in this area.<sup>21</sup>

The main focus of IPE research between 2008 and 2018 has largely involved authors and students from nursing, medicine and pharmacy. These professions are the oldest in healthcare and are more likely to interact due to proximity and overlapping job responsibilities, especially in inpatient medical settings.<sup>22,23</sup> In addition, logistical barriers associated with scheduling IPE activities and the challenges posed by different academic calendars across different health professions schools were recognized. These barriers are less common in nursing, medicine, and pharmacy professions that work closely together, thus facilitating the implementation of IPE and related research. To engage other professions in IPE, deliberate efforts are needed to minimize barriers to interprofessional interactions among the various professions and their learners..

The discovery of gaps between the disciplines of authors and students, as revealed in this review, was somewhat unexpected. The most frequent and potentially worrisome mismatch occurs when students from a particular discipline are included in research without the presence of authors from the same discipline. Given that healthcare professionals are educated in traditions appropriate to their respective professional responsibilities,<sup>24,25</sup> A study that lacks authorship representation may suffer from limited interpretation and subsequent impact. In simpler terms, IPE research that lacks authorship representation in a particular discipline may not be able to adequately assess, interpret, or discuss the implications of IPE outcomes for that discipline or for healthcare as a whole. This raises the question of whether IPE activities adequately address and consider the needs of students from a particular profession when there are no contributions from authors in the same profession. However, it is important to note that the absence of authors from a particular discipline in the curriculum does not necessarily mean that there are no faculty members or students who want to or have contributed substantial work that would qualify as authors for the manuscript. Additionally, while certain disciplines may be underrepresented in IPE authorship, there are many reasons for this occurrence, including but not limited to disciplinary differences and school expectations, varying levels of availability of mentorship, especially for underrepresented disciplines, and varying levels of institutional focus on IPE scholarship.

In further explaining the identified gap between the authors' disciplines and students, it is possible that certain professions such as occupational therapy or dentistry are less actively engaged in this research due to factors such as fewer schools and students in these fields or fewer requirements for scholarly contributions as part of their academic role.<sup>26</sup> Encouraging educators to participate in the Scholarship of Teaching and Learning (SoTL) and share their IPE findings publicly could be an important strategy to increase engagement in IPE research.<sup>27</sup> In addition, educators have responded to WHO efforts to improve IPE by forming collaborative committees and allocating resources to prioritize interprofessional collaboration.<sup>23</sup> This underscores the importance of international and national advocacy efforts aimed at encouraging different health professions to engage in IPE and IPE research.

In collaborative IPE research projects, medical practitioners more often hold the position of last author. This may indicate medicine's leading role in advancing IPE and related research. Alternatively, it may reflect the perception that physicians have primary responsibility within the healthcare team and are thus designated as senior authors.<sup>28</sup> This is in line with a well-documented problem in dissemination known as authorship prizes.<sup>16,29</sup> If this is the case, improving transparency and integrity in IPE research requires assigning authorship based on contributions made during the study, addressing authorship issues from the outset to ensure clarity among all participants. Authors should also clearly describe their role in the article, so that readers can see each individual's specific contribution to the IPE initiative and related research, as is currently required by some journals (though not all).<sup>16</sup>

What's more, most of the research conducted uses mixed methods or quantitative, rather than qualitative. Although each design has its advantages, there is an opportunity to increase the quantity of qualitative studies in IPE research. Qualitative studies are better suited to capturing human experiences and exploring open-ended questions. Moreover, among the quantitative and qualitative studies, almost all of them examined student perspectives, with some of them also investigating faculty viewpoints. While understanding student sentiments and attitudes towards IPE is important, it is imperative to shift the focus towards assessing the effectiveness of IPE. This becomes especially important when considering the multidisciplinary effect, as students must understand not only their own discipline but also other disciplines in order for the healthcare system to thrive. Without evaluating the effectiveness of IPE, it may be difficult to fully harness the transformative potential that arises from collaboration with individuals from different disciplines, a fundamental element necessary for realizing the multidisciplinary effect.

In addition, where researchers submit and publish their research can also affect its visibility and reach. About half of the IPE articles in this review were disseminated through interdisciplinary journals, which suggests that individuals who prioritize reading discipline-specific journals are likely to miss findings from relevant IPE initiatives. This is particularly important for professionals in medicine, nursing, and pharmacy, as less than 15% of IPE articles are published in each of these field-specific journals, despite these disciplines generating more than 50% of IPE research. In contrast, IPE journals build capacity to publicize IPE findings and expand opportunities for IPE scholars to disseminate their findings.

The findings of this study demonstrate the continued expansion of IPE research, leading to several questions that may improve our understanding of IPE as the field develops and as more reviews are conducted. One such question is what factors determine the order of authors and authorship in IPE research, and why do certain professions appear less frequently as first or last authors? As each discipline has its own customs and expectations when it comes to the order of authorship,16 the interdisciplinary nature of IPE research presents its own challenges in terms of authorship. Some may argue that the people responsible for analysis and writing may be related to who needs the manuscript for career advancement, rather than those who actively encourage or contribute to IPE in some way.<sup>30</sup> Another point to consider is under what circumstances and why would students from a particular discipline participate in a study when no authors from the same discipline are involved? In addition, what incentives are available to promote IPE research within and between different health professions? Related to this, to what extent are faculty members motivated to engage in scholarship of teaching and learning (SoTL) in IPE, and what factors influence their engagement as scholars in this area? Finally, how effectively do IPE studies reach relevant stakeholders, given the current publication practices in IPE?

## Limitations

As with any systematic review, the research team recognizes that this study had several constraints. First, the search used domain-specific databases, which could potentially lead to

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missing relevant articles. To mitigate this risk, multiple databases from the fields of education and health professions were used. Second, the review concentrated on studies that used the term "interprofessional education", which may have excluded articles that used similar concepts. Third, publication bias may have influenced the inclusion of IPE initiatives, as studies with statistically significant findings are more likely to be published and cited in the literature.<sup>31</sup> Although addressing limitations related to publication bias was beyond the scope of this study, the authors advocate for greater transparency in IPE, including the dissemination of studies that provide negative or non-significant results. Fourth, changes in health professions curricula are often influenced by accreditation priorities, potentially affecting research outcomes. Finally, this study did not assess the nature of the research reported, specifically whether it was a program evaluation or a self-reported evaluation by students.

Despite these limitations, this review provides valuable insights into the current state of IPE research, illustrates opportunities for future research efforts, and provides guidelines for the development of an IPE research agenda for health education. Further investigation is needed to gain a deeper understanding of the effectiveness and applicability of diverse research methods in IPE, how incentives and implementation (e.g., authorship) of IPE research are structured, and the influence of these methods on the understanding of the impact of IPE on learners by researchers and practitioners. Promoting the utilization, assessment, and dissemination of IPE initiatives and increasing transparency in IPE research are important steps to advance collaborative care models in an evolving healthcare system.

## Conclusion

Research in the field of IPE (Interprofessional Education) can provide insight into methods to promote the development of skills necessary for students to thrive in a rapidly evolving and highly collaborative healthcare system.<sup>32</sup> Since the World Health Organization (WHO) established IPE as a priority in 2007, health professions have generally increased their involvement in IPE. However, differences in the way various professions approach IPE research, the apparent mismatch between authors and disciplines, and varying publication practices raise several questions about IPE research practices. Based on the findings of this study, health professions should strive for inclusive and adaptable IPE research that welcomes scholars from different professions, encourages collaboration between traditional and emerging health disciplines, and prepares students for success in a collaborative health environment.

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