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Assessing Indonesian Health Professions Students on Collaborative and Readiness Aspects of Interprofessional Online Learning

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ABSTRACT

Interprofessional online learning (IOL) is reported to increase students' competency, yet a crucial concern revolves around the potential negative impact of ineffective online learning on education. Therefore, this study investigated the correlation and comparison between students' readiness in health professions and collaborative competency attainment on IOL. This study used proportionate random sampling with 99 undergraduate health profession students. Students' readiness and collaborative competency were assessed by adopting a validated and reliable Readiness for Interprofessional Learning Scale (RIPLS) and Interprofessional Collaborative Competency Attainment Scale (ICCAS) through an online survey by Google Forms. In addition, the implementation of IOL coincided with the three months following the initial global outbreak of COVID-19. The results showed that students' interprofessional education (IPE) experience correlated with collaborative competency with a *p*-value of 0.020 (< 0.05) and *r*-value of 0.841. Readiness and collaboration also showed a significant correlation with a *p*-value of 0.006 (< 0.05) and *r*-value of 0.275. However, there was no significant difference between the two variables among the professions, with *p*-values of 0.37 and 0.84 ($p > 0.05$). To sum up, this study adds significant understanding to the relationship and contrast between healthcare students taking part in the IOL, their readiness for interprofessional learning, and their attainment of collaborative competency. Additional research is necessary to examine the long-term impacts of interprofessional learning experiences on the development of collaborative competence and to assess how well novel pedagogical strategies might foster interprofessional collaboration among health profession students.

Keywords: *Interprofessional online learning, Interprofessional education, Competency readiness, Collaborative competency, Health professions students*

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INTRODUCTION

Interprofessional education (IPE) is a programme designed to help students acquire collaborative competence. This competence includes skills such as effective communication, collaboration, understanding roles and responsibilities, adopting a patient-family-centred approach, managing and resolving conflicts and working efficiently within a team. These skills can enhance students' performance and prepare them to work with other professions (1). As a result, students have shown significant improvements in their ability to reflect on their work and be flexible in their professional roles (2, 3).

Some literature proves that interprofessional online learning (IOL) models support students' competence (4, 5). James et al. (4) has investigated the delivery of IOL using the Vx tools model. The tool is a learning management system used in online-based teaching and assessment related to real-life settings. The study stated that students understand the roles of other professions, develop self-reflection skills and prepare for the clinical environment. In addition, another IOL uses five IPE competence modules, with quizzes and discussions through Zoom, to discuss a scenario case of COVID-19. The competence modules include the introduction of participants, critical concepts in the field of IPE, quality and safety related to COVID-19, the roles and responsibilities of the team, the importance of communication and teamwork. With this model, the IOL increased awareness of interprofessional teams and provided good patient service (5).

However, health students prefer face-to-face learning to improve their skills (6). The pandemic has necessitated a shift in academic programmes from face-to-face learning to online methods. This sudden and significant change demands various supporting facilities and infrastructure to fulfill learning tasks (7). Research indicates that students perceive online learning as needing to be more balanced, evidence-based and organised than in-person sessions (7).

In a previous study, some students felt isolated and disconnected from their teammates when conducting IOL. The phenomenon is known as "losing the human touch", and this leads to a lack of interest in learning (7). Some students reported feeling less engaged and connected to their peers due to the difficulty of communicating in IOL. The significant challenges experienced were contacting groups and holding difficult technical meetings due to poor internet connection. Furthermore, online classes made students' studies busier, presenting numerous challenges in using online media (8, 9). Moreover, some teachers need to be more skilled in delivering the subject through online education (8), which is the primary way to socialise and continue learning. The situation presents a problem where teachers are required to use and explore the possibilities of online education. Due to the lack of knowledge and expertise in delivering online education, as well as high levels of stress among students, there are concerns that poor implementation can cause long-term negative impacts (10).

The Faculty of Health Science (FHS) at Universitas Muhammadiyah Surakarta (UMS) has been conducting IPE in a community-based setting since 2018 under the name Kuliah Kerja Nyata-Interprofessional Education-Al-Islam dan Kemuhammadiyahan (KKN-IPE-AIK). This programme involves nursing, physiotherapy, nutrition and public health students who work directly with the community to identify health problems and provide solutions by creating collaborative educational programmes. However, in 2020, FHS UMS implemented online IPE for the first time, and evaluating collaborative skills became an essential part of the programme.

Previously, nursing students have participated in IPE with medical and pharmacy students in a classroom setting, completing case scenarios using a seven-jump tutorial (11). Seven-jump tutorial IPE was an IPE activity using a tutorial to discuss a scenario. Students are involved in several activities. On the first day, students completed a five-step tutorial. They started with a reading scenario and defining difficult words, then moved on to problem identification, brainstorming, systematically inventorying problems and formulating learning objectives for the case scenario. After the first day, each small group was tasked with independent learning outside the session to gather new information. Following this, they reconvened on the second day to report, discuss and reorganise the new information. In the final session, facilitators confirmed that the learning objectives across programmes had been met. Meanwhile, nutrition, physiotherapy and public health students have never experienced the seven-jump IPE tutorial (11).

In implementing IOL, the core Interprofessional Education for Collaborative (IPEC) competencies for health professions students should be achieved, including team and teamwork, collaboration, roles and responsibilities, interprofessional communication, ethics and values (12). The text discusses competency readiness and collaborative competence in IPE or interprofessional learning. Competency readiness is a set of skills and behaviours vital for health professionals, including teamwork and collaboration, professional identity, roles and responsibility. On the other hand, collaborative competence is about working with others to achieve common goals, such as communication, conflict management, collaboration, patient-family-centered care and team functioning.

This study aims to determine the correlation between competency readiness and collaborative competence in IOL based on students' perceptions. The objectives are to analyse the mean of competency readiness and collaborative competence, to examine the correlation between gender and competency readiness and collaborative competence in IOL, to investigate the correlation between age and readiness and collaborative competence in the IOL, and to compare competency readiness and collaborative competence of health profession students.

METHODS

The Design

This descriptive quantitative study was conducted using correlational and comparative design. The IOL was implemented from May to June 2020, coinciding with the three months after the first outbreak of COVID-19, and data were collected one semester after the implementation.

The Sample

The sample was selected using a proportionate random sampling method, which included four undergraduate health professionals. Participants included 99 students (99/562) who completed IOL at FHS UMS. The participants comprised 22 (nursing), 18 (physiotherapy), 33 (nutrition) and 26 (public health students). The inclusion criteria were students who had participated and completed a month of the IOL and used WhatsApp accounts for sharing Google Forms.

Interprofessional Online Learning

Due to COVID-19 pandemic, the implementation of IOL at FHS UMS in 2020 differed from the previous year. Before the pandemic, the IOL was conducted in a community based-setting, where students were required to find existing problems in a village and provide interventions through interprofessional learning. However, the IOL 2020 was carried out using an online method and before the implementation, the committee gave students two hours of socialisation through Zoom in the first week. The committee consists of lecturers and administrative staff from the four departments in one faculty who manage the running of the IOL. The socialisation allowed students to work in teams, problem-solve community needs related to chronic disease, create a relevant plan, provide health education for patient's chronic disease management and adapt to the new era of the COVID-19 pandemic.

Students were divided into 50 groups of 11 to 12 and were facilitated by two lecturers from different professions. The assessments of a community were conducted under the facilitators' supervision. This assessment identifies existing problems related to the lack of information media for the self-management of chronic diseases. The community leaders, Muhammadiyah Foundation figures, and health centre staff were contacted to investigate community problems. Muhammadiyah Foundation is one of the largest non-governmental Islamic organisations with several business charities known as Muhammadiyah Business Charities (Amal Usaha Muhammadiyah [AUM]). AUM operates in education, health, economics, and religion sectors (13).

Based on the community needs assessment, students discuss the counselling programme to be provided. Collaborative efforts were carried out to prepare the health education, including compiling material from various professions and creating online media content. Online facilities such as WhatsApp groups or Skype were used during interactions and discussions. Next, students participated in planning health education, needs assessment, outcome evaluation and preparation protocol. Meanwhile, students submitted posters and videos as health education media posted on YouTube. The student's activeness discussion on WhatsApp, health education media such as videos and posters, and reports at the end of the activity were assessed. The grading was performed through the schoology learning management system, an asynchronous online learning management system introduced for students. The features provided include taught material, attendance records, grades, exams and assignments.

Instruments

The validated IPE assessment tools used were Readiness for Interprofessional Learning Scale (RIPLS) (14) and Interprofessional Collaborative Competency Attainment Scale (ICCAS) (15). The original RIPLS was valid and reliable at 0.81 and 0.90 (14), and the survey were translated into the Indonesian language. Furthermore, the translated RIPLS was valid and reliable at 0.87 and 0.73, respectively (16). This tool comprises 19 items, a five-point Likert scale, and four domains to assess teamwork and collaboration, professional identity, roles and responsibilities. Students' competency readiness is assessed based on the total score, where a higher score shows a greater level of competency readiness in IOL. ICCAS is a self-reported competency survey comprising 20 items on a 7-point scale. A total of six subscales (domains) measure communication, collaboration, roles and responsibilities, collaborative/family methods, conflict management and team functioning. The ICCAS is an instrument that can be easily used to assess the development of students' interprofessional collaboration competencies from the time they enter the programme until they graduate. The ICCAS is

useful in understanding health professional development by forming a longitudinal narrative regarding the development of competencies throughout an individual's education (17). The original ICCAS was valid and reliable at 0.72 and 0.96 (15). The RIPLS and ICCAS were tested and found to be valid through assessments conducted with 20 students at UMS. A Pearson product-moment test was conducted with *r* count > *r* table, and the mean of corrected items was 0.72 (RIPLS) and 0.71 (ICCAS). In addition, the reliability test resulted in the RIPLS and ICCAS being reliable with Cronbach's alpha of 0.93 and 0.96 ($\alpha > 0.05$), respectively.

Data Collection

Surveys were distributed online through Google Forms one semester after the completion of IOL training. WhatsApp chat was used to share the link to Google Forms, where participants were asked for their consent. Participation in this activity was voluntary and did not affect students' grades. Additionally, participants opted to click on the "I agree to be a respondent" button that directed them to navigate the survey instruction page.

Data Analysis

The study was analysed to obtain the mean (M) and standard deviation (SD) for all variables and subscales. The gender of the participants and the frequency of inclusion in the IPE were analysed with the Chi-square test. The Spearman-rank correlation test analysed the correlation between readiness and collaborative competency scores. A one-way ANOVA test examined the difference in readiness and collaborative competency among professions. To accurately compare the effects of the post-hoc test, Duncan's Multiple Range Test (DMRT) was used with a significant level of 5%.

RESULTS

Characteristics of Participants

Participants in this study were seventh-semester students from FHS UMS. Most participants were female (n = 91.91%) who had an average of 24 years of age and had at least experienced one IPE. However, only 22.2% of nursing students had the opportunity to participate in IPE on two separate occasions. They previously engaged in a face-to-face IPE with medical and pharmacy students, discussing a case scenario in a seven-jump tutorial developed by the faculties. Over two-thirds of the participants used WhatsApp and Google Meet groups as online learning platforms, as seen in Table 1.

Table 1: Characteristics of respondents (n = 99)

Characteristics	Frequency (n)	%
Academic programme		
Nutrition	33	33.3
Public health	26	26.3
Physiotherapy	18	18.3
Nursing	22	22.2
Gender		
Male	8	8.1
Female	91	91.9
Age (years old)		
< 24	98	99.0
≥ 24	1	1.0
IPE experience		
Once	77	77.7
Twice	22	22.3
Synchronised online platform		
Google Meet	90	90.9
Zoom	8	8.1
Skype	1	1.0
Asynchronised online platform		
WhatsApp group	84	84.8
Schoology LMS	15	15.2
Total	99	100

Students' Readiness for IOL

All participants have an average RIPLS score of over two-thirds of the maximum score. Nursing students had the highest average of total RIPLS compared to other professions with 75.41 (SD±5.78), followed by students of public health, physiotherapy and nutrition with 74.42 (SD±4.62), 74.22 (SD±3.92), 73.06 (SD±5.02). Based on the subscale, nursing also had a higher average score for professional identity and roles and responsibility, with 35.1 (SD±0.51) and 3.52 (SD±0.52), respectively.

This study also indicated no significant relationship between gender (sex) and RIPLS, with a *p*-value of 0.903, as shown in Table 2. Gender (sex) refers to biological characteristics in humans associated with physical and physiological characteristics. This was shown through Chi-square analysis with two categories, "ready" (> 70) and "not ready" (< 70). The Spearman rank correlation test showed no significant correlation between IPE experiences and the variables under consideration. Furthermore, RIPLS had a *p*-value and *r*-value of 0.541 ($p > 0.05$) and 0.062, as shown in Table 3.

Table 2: Correlation between gender and RIPLS and ICCAS

Gender	RIPLS		Total N (%)	*p*	ICCAS		Total N (%)	*p*
	Ready n (%)	Not ready n (%)			Competent n (%)	Not competent n (%)		
Male	7 (7.1)	7 (7.1)	14 (14.1)	0.903	11 (11.1)	3 (3.0)	14 (14.1)	0.051
Female	41 (41.4)	44 (44.4)	85 (85.9)		43 (43.4)	42 (42.4)	85 (85.9)	
Total	48 (48.5)	51 (51.5)	99 (100)		54 (54.5)	45 (45.5)	99 (100)	

Note: Chi-square test, $p < 0.05$ = significant.

Table 3: Correlation between IPE experience and RIPLS and ICCAS

Experience	RIPLS			ICCAS		
	n (%)	*r*	*p*	n (%)	*r*	*p*
Once	77 (77.7)	0.062	0.541	77 (77.7)	0.841	0.020
Twice	22 (22.3)			22 (22.3)		
Total	99 (100)			99 (100)		

Note: Chi-square test, $p < 0.05$ = significant.

Students' Collaborative Competency Attainments of IOL

The professions also have an average ICCAS score of over two-thirds of the maximum score. Public health students had the best average score (102.12; SD±12.8), followed by nursing, physiotherapy and nutrition students at 99.14 (SD±24.47), 98.67 (SD±22.64), and 97.58 (SD±19.09). However, nutrition students had the highest mean on the "conflict management" and "patient-family centred care" competency. Even though public health students had the highest mean on communication, physiotherapy students had the highest mean on "roles and responsibilities" and "role functioning". Meanwhile, nursing students had the highest mean on "collaboration" competency, as shown in Table 4.

Table 4: Comparison of readiness and collaborative competency attainment among professions

Variables	Nutrition [a]M (SD)	Public health [a]M (SD)	Physiotherapy [a]M (SD)	Nursing [a]M (SD)	df; F; *p*-value
Total [b]RIPLS	73.06 (5.02)	74.42 (4.62)	74.22 (3.92)	75.41 (5.78)	3; 1.046; 0.376
[b]RIPLS subscales					
Teamwork and collaboration	4.43 (0.40)	4.58 (0.37)	4.43 (0.41)	4.48 (0.39)	3; 0.832; 0.480
Professional identity	3.24 (0.22)	3.25 (0.28)	3.40 (0.33)	3.51 (0.51)	3; 3.535; 0.018*
Roles and responsibility	3.51 (0.40)	3.47 (0.40)	3.52 (0.35)	3.52 (0.52)	3; 0.054; 0.983

(*Continued on next page*)

Table 4: (*Continued*)

Variables	Nutrition [a]M (SD)	Public health [a]M (SD)	Physiotherapy [a]M (SD)	Nursing [a]M (SD)	df; F; *p*-value
Total [c]ICCAS	97.58 (19.09)	102.12 (12.8)	98.67 (22.64)	99.14 (24.47)	3; 0.266; 0.849
[c]ICCAS subscales					
Communication	4.70 (1.44)	5.32 (0.95)	4.41 (1.74)	4.95 (1.31)	3; 1.839; 0.145
Conflict management	5.03 (1.54)	4.72 (1.37)	4.54 (1.61)	4.55 (1.36)	3; 0.670; 0.573
Collaboration	4.56 (1.75)	4.64 (1.37)	4.87 (1.45)	4.86 (1.38)	3; 0.266; 0.850
Roles and responsibility	5.21 (1.83)	5.76 (0.76)	5.93 (0.95)	5.76 (1.29)	3; 1.487; 0.223
Patient-family centred care	4.59 (0.91)	4.55 (0.84)	4.56 (1.08)	4.36 (1.27)	3; 0.237; 0.871
Team functioning	5.68 (1.10)	5.92 (0.50)	6.03 (1.50)	5.76 (1.11)	3; 1.147; 0.334

Note: : [a]M (SD) = Mean (standard deviation); [b]RIPLS = Readiness for Inter-Professional Learning Scale; [c]ICCAS = Interprofessional Collaborative Competency Attainment Scale; *n = 99; CI = 95%; F count > F table; $p < 0.05$.

Chi-square analysis showed no correlation between gender (sex) and ICCAS, with a *p*-value of 0.051 (see Table 2). However, there was a robust correlation between experience and ICCAS, with a *p*-value and an *r*-value of 0.020 (< 0.05) and 0.841. A positive correlation implies that students with more experience in IPE are more likely to achieve higher scores on the ICCAS.

The Correlation and Comparison between RIPLS and ICCAS

The correlation between RIPLS and ICCAS was measured using the Spearman-rank test at 95% CI. This showed a significant correlation with a *p*-value and an *r*-value of 0.006 (< 0.05) and 0.275, indicating a moderate correlation between RIPLS and ICCAS scores. However, analysis of variance (one-way ANOVA) tests found no significant difference among professions regarding the total RIPLS and ICCAS with a *p*-value of 0.376 and 0.849, respectively. Based on the subscales, only professional identity readiness significantly differs among professions with a *p*-value of 0.018 ($p < 0.05$).

DISCUSSION

Students' IOL Readiness

According to the results, students from all professions have a comparatively high degree of IOL preparation, as seen by average RIPLS scores that are higher than two-thirds of the maximum possible score. It was noteworthy that nursing students had the highest average overall RIPLS score, suggesting a strong propensity for interprofessional learning and collaboration. Nursing students displayed the highest average overall RIPLS scores, which could be attributed to a number of factors.

According to the RIPLS subscale results, nursing students performed better than their peers in the areas of professional identity, and roles and responsibilities, demonstrating a strong sense of who they are as professionals and a clear understanding of their roles in interprofessional settings. Interprofessional collaboration and learning are most likely influenced by a variety of factors, including curriculum design, clinical experiences, professional culture, educational efforts, teacher influence and personal incentives.

Education and training: Professional identification and role clarity are frequently prioritised heavily in nursing education programmes. The ethical norms, ideals and guidelines of the nursing profession are often taught in great detail to nursing students. Antoniou et al. (18) conducted an integrative literature review on professional values in student nurse education, emphasising the significance of internalising professional values during undergraduate nursing education for the development of professional role identity which underscores the role of education in shaping the values and identities of nursing students. Strong professional identities and a clear understanding of their duties and responsibilities in interprofessional contexts may result from this nursing education (19).

Clinical experience: Throughout their education, nursing students usually participate in clinical assignments in a variety of healthcare settings. Students can interact with patients, families and other healthcare professionals during these clinical encounters, which can help them define their professional identities and roles within the healthcare team. The studies by Wang et al. (20) and Fitzgerald et al. (21) offer valuable insights into how nursing students form their professional identities through clinical experiences. These experiences not only deepen students' commitment to the nursing profession but also significantly contribute to their development as competent and compassionate nurses (22).

Professional culture: The nursing field has a unique culture that places a strong emphasis on advocacy (23) teamwork (24) and patient-centred care (25). A strong sense of professional identity and clarity about their tasks and responsibilities in interprofessional contexts are fostered by this professional culture, which most nursing students may be socialised into during their education (26).

Initiatives for interprofessional education: A lot of nursing schools take part in these programmes, which bring together students from other healthcare specialties to engage in cooperative learning. Nursing students may find it easier to comprehend their roles in interprofessional teams if these initiatives incorporate activities that foster an understanding of professional roles and responsibilities (26). As a result of nursing's innately supportive attitude and principles, nursing is, in fact, synonymous with interprofessional learning readiness. This helps to explain why nursing students routinely receive high scores on the RIPLS (22).

Furthermore, the lack of a significant relationship between IPE experience and ready scores highlights the necessity of complete strategies that go beyond simply providing exposure to interprofessional experiences in order to build interprofessional preparedness. Teachers and curriculum designers want to think about incorporating focused interventions that are intended to improve students' preparedness for IOL. These interventions should include both formal educational programmes that emphasise skill development and mindset cultivation, as well as opportunities for experiential learning.

All things considered; this study offers insightful information about how prepared students are for IOL in a variety of healthcare fields. The identification of factors that impact readiness and the identification of areas that require improvement provide valuable insights

for the development and execution of IPE programmes that effectively equip students for collaborative practice in the ever-changing healthcare environment. Subsequent investigations may probe more deeply into the particular elements impacting preparedness and investigate novel pedagogical strategies to improve interprofessional preparedness among medical students.

Students' Achievement of IOL in Collaborative Competence

Understanding students' readiness for teamwork and interdisciplinary collaboration in healthcare settings requires evaluating their collaborative competency achievement within the framework of IOL. This study investigates potential factors impacting students' scores on the ICCAS and looks at the collaborative competence attained by students in a variety of healthcare professions.

The results show that students across the board have a high degree of collaborative competency; on average, their ICCAS scores are higher than two-thirds of the highest possible score. With the highest average ICCAS score, public health students demonstrated a good mastery of the collaborative abilities necessary for productive teamwork. The aforementioned outcome highlights the importance of public health education in fostering the collaborative skills required to tackle intricate health issues using multidisciplinary methods.

Public health students, however, showed the highest level of total collaborative competence; yet, differences in particular competency categories were noted throughout other professions. For example, students studying nutrition demonstrated the highest mean scores in the competences of conflict management and patient-family centred care, indicating a special aptitude for resolving interpersonal problems and placing a high value on patient-centred care concepts. These results demonstrate the special skills and abilities that students from many healthcare disciplines bring to collaborative practice environments.

Furthermore, differences in the level of proficiency in areas like duties and responsibilities, communication, role functioning, and teamwork throughout various professions were apparent. For example, physiotherapy students performed better in roles and responsibilities and role functioning than public health students did in communication, suggesting that the former had a deeper comprehension of professional roles and could effectively carry them out in interprofessional teams. Conversely, nursing students demonstrated the greatest mean score in collaboration competency, highlighting their ability to build cooperative connections and function as a team.

This study offers insightful information about the collaborative competence attained by students taking part in IOL across several healthcare professions. It provides information for the development of focused educational interventions meant to improve future healthcare professionals' interdisciplinary collaboration and teamwork skills by highlighting strengths, areas for growth and factors impacting collaborative competence. Subsequent studies may examine the long-term impacts of IPE experiences on the development of collaborative competence and study cutting-edge pedagogical strategies for enhancing collaborative learning in virtual settings.

The Comparison and Correlation of ICCAS and RIPLS

The relationship between interprofessional collaboration readiness and actual collaborative skills among health profession students is largely explained by the correlation and comparison between readiness for RIPLS and ICCAS. The relationships between RIPLS and ICCAS scores, as well as variations in these scores throughout healthcare professions, were investigated in this study using statistical analysis.

A noteworthy moderate correlation has been observed between RIPLS and ICCAS scores, suggesting that students who are more prepared for interprofessional learning are also more likely to have higher levels of collaborative competence. This shows that students' actual collaborative skills in interprofessional practice situations may be accurately predicted by their preparation for interprofessional collaboration as assessed by RIPLS. When creating interventions to improve health profession students' collaborative competency and preparedness for interprofessional learning, educators and curriculum authors need to keep these ideas in mind.

The total RIPLS and ICCAS scores did not significantly differ within professions, despite the fact that there was a significant link between the two measures. This indicates that students with varying backgrounds in healthcare exhibit similar levels of collaborative competency, even though preparedness varies within professions. However, given the notable variation in the professional identity readiness subscale between professions, it is imperative to recognise the subtle differences in interprofessional learning readiness and collaborative competence within certain disciplinary contexts.

Limitation

It is important to take into account the study's limitations when interpreting the results. The very small sample size and the study's lack of generalisability, which stem from the sample being taken from a single university, may limit how far the findings may be applied. It is also important to highlight the use of self-reported instruments and possible memory bias related to administering the questionnaire a semester after IOL was put into place. It is recommended that future research endeavours incorporate mixed-methods approaches, such as qualitative investigations, in order to have a thorough comprehension of students' viewpoints regarding interprofessional learning and collaboration.

Notwithstanding these drawbacks, the results highlight how crucial it is to incorporate collaborative competency development and interprofessional learning preparation into healthcare curricula. The COVID-19 epidemic has made it necessary to implement online learning modalities like IOL, which offer special potential and obstacles for promoting interprofessional collaboration. Online communication techniques help students become more adept at working collaboratively, but they also bring challenges like poor internet connectivity and a lack of genuine connections that can sabotage teamwork. However, students from various healthcare professions can engage in collaborative learning and learning because of the flexibility and accessibility provided by online collaboration platforms.

CONCLUSION

To sum up, this study adds significant understanding to the relationship and contrast between health profession students taking part in IOL and their readiness for interprofessional learning and their accomplishment of collaborative competency. It contributes to the development of effective strategies for preparing upcoming healthcare professionals for interdisciplinary collaboration in the changing healthcare landscape by recognising the unique challenges and opportunities presented by online learning environments and by identifying the associations between readiness and actual collaborative skills. It is necessary to do additional research to examine the long-term impacts of interprofessional learning experiences on the development of collaborative competence and to assess how well novel pedagogical strategies might foster interprofessional collaboration among health profession students.

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ETHICAL APPROVAL

The ethical clearance approved by Ethics Commissions of School of Medicine Universitas Muhammadiyah Surakarta Indonesia, number: 3544/B.2/KEPK-FKUMA/IV/2021.

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