

Implementation of COIL in mental health education: Outcomes of a collaboration between Spain and the United States nursing students

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Abstract

Collaborative International Online Learning (COIL) provides students meaningful and valuable engagement with students in another country to reach the goals of academic programs at the participating institutions. The strategy has demonstrated benefits for nursing students, including the acquisition of self-awareness, empathy, cultural humility, and leadership skills. The aim of this study was to share the results of the partnership in a COIL project using digital technology between a university in the United States and a university in Spain. The goals of this collaboration were twofold: to expose students in the U.S. and Spain to an international experience on mental health and to provide a comparative view of their respective health care systems. The chosen technique focuses on perceptions of mental health and how mental health care is delivered in clinical settings. A total of 166 students took part in this experience. The virtual exchange allowed students and faculty to share best practices in caring for people with mental illness. Nursing students providing care to COVID-19 patients reflected on lessons learned during the pandemic and its impact on community mental health. Small group activities such as icebreakers, homework assignments, and reflections were used to share and compare experiences. Students completed COIL surveys, which demonstrated that students from both countries perceived learning gains using evidence-based best practices related to key nursing concepts in a mutually respectful virtual exchange. The results show a perceived increase in the comprehension of mental health-related content and

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enhancement of clinical practice. Therefore, the COIL methodology is a feasible option as it allows for an intercultural exchange with an in-depth examination of content from the learners and teaching perspectives. In addition, it prepares students to work in international teams virtually.

Keywords: COIL, intercultural learning, health behaviors, mental health, nursing students

1. Introduction

The value of nursing students' engagement virtually using technology has been shown to promote valuable experience in academic learning activities and student engagement (Luo & Yang, 2018). It has already been established that to prepare nurses for employment in an ever-changing health care environment, online education is a prerequisite (Ellenbecker et al., 2017; Gubrud et al., 2017; Hofler & Thomas, 2016). Open and distance learning (ODL) places the emphasis on the quality of information taught and learned. The ODL method is based on a social-constructivist pedagogy in which there is an association between two-way communication technologies and social-constructivist theoretical framework (Anderson & Dron, 2011). This pedagogical approach focuses greatly on interactions between and among participants. Learning is a social process that engages others in learning (Anderson & Dron, 2011). There is a communication network surrounding each individual, so that as the student's learning grows, the institution of continuous learning within and around the individual student grows as well fostering and embedding that process (Aydemir et al., 2015). Online learning has implications for many aspects of student learning experience (Bond et al., 2020). Specific and meaningful online activities and connections that enhance student learning beyond the general proposition of online sharing is already recognized (Dixson, 2015), whereby the teaching and learning processes can be accelerated using technology that improves students' participation, involvement, and engagement (Bond et al., 2020). Currently, there is a lack of research regarding online learning experiences of nursing students, especially with respect to mental health. Understanding their expectations and perceptions of this methodology is necessary to close the gap.

Mental illness is the leading cause of disability worldwide (Whiteford et al., 2013). The global burden of many diseases associated with mental disorders is great, given that 70% of individuals who need mental health services do not have access to responsive care (Kohn et al., 2004). Nevertheless, mental health promotion and prevention can be done at the university level by encouraging students to learn how to care effectively for those with mental illness (World Health Organization, 2022). Mental

health-specific content for nursing education is lacking in COIL. Therefore our research is timely and needed.

Even though COIL has been in use for almost two decades (Rubin & Guth, 2015), there is a lack of research on COIL concerning student perspectives either from certain regions (e.g., Naicker et al., 2021) or in specific disciplines including nursing (e.g., Niitsu et al., 2022; Saftner & Ayebare, 2023). Based on existing literature about COIL and the lack of research on short-term online learning in nursing education, further investigation is warranted with the following research questions:

1. What are nursing students' expectations and experiences before and after COIL in terms of learning mental health knowledge and opportunities for professional development?
2. What are nursing students' perceptions of COIL following the co-learning experience?

To address these questions, nursing students were offered an opportunity to participate in COIL with digital content provided by the selected universities. Students completed the pre and post COIL surveys exploring their expectations and experiences before and after COIL, and their perceptions towards COIL. Findings indicated that students and faculty learned best practices for caring for those with mental illness as students provided nursing care for patients during COVID-19 and reflected on lessons learned during the pandemic and its effect on the mental health of the population. The opportunity to learn with international partners through digital technology using small groups and tasks was perceived to be invaluable.

The COIL content implemented in this research can be replicated for the benefit of other international partners to engage students and faculty in a multicultural learning environment. Our study is unique because both groups of students and faculty were undergraduate public health and nursing students, and they offered viewpoints from two different nursing universities where nurses need the knowledge and skills that addresses the current multifaceted needs of varied populations. COIL allows the opportunity to integrate a global learning experience where cultural beliefs and values are shared to enhance students' future clinical interactions with their patient populations.

2. Literature review

2.1. Purpose and benefits of COIL

Collaborative Online International Learning (COIL) is an interdisciplinary approach using web-based international learning that can be done at home. The concept of COIL was first introduced in 2004 at the State University of New York and has since emerged as a prominent model for networked higher education that emphasizes integration and dialogue between international institutions (Rubin & Guth, 2015). The COIL method offers students diverse, collegial collaboration using an inclusive learning experience connecting students remotely worldwide. There are increased awareness and opportunities for globally networked higher education learning environments (Cronin et al., 2016; Stark-Meyerring, 2010). COIL has been elevated to a common teaching method using digital technology to teach university courses in various countries without the cost and inconvenience of traveling (Marcillo-Gómez & Desilus, 2016). COIL provides students meaningful and valuable engagement with students in another country, to reach the goals of academic programs at the participating institutions (de Castro et al., 2019). Despite its growing popularity, there is limited empirical research on students' expectations and perspectives of COIL-based learning either from certain regions (e.g., Naicker et al., 2021) or in specific disciplines, such as nursing (Niitsu et al., 2022; Saftner & Ayebare, 2023). With the increase in internationalization that is encouraged in many higher education institutions, COIL has become popular among universities around the world (de Wit & Hunter, 2015; Institute for International Education, 2020).

Rubin (2017) argues that intercultural learning offers students enrichment by enabling them to address specific content and to collaborate to address issues of general relevance. Intercultural learning also builds relationships and enhances effective communication competencies between the students and teachers from different countries (Campinha-Bacote, 2002; Jenssen et al., 2023). Additionally, Holmberg's (1994) theory of distance education focuses on the dialogue between the learner and the teacher as the foundation of distance learning. Holmberg (1994) noted that remote education serves individual learners who cannot or do not choose to make use of face-to-face teaching. He argued that COIL promotes students' freedom of choice and independence, serves as an instrument for recurrent and lifelong learning, can provide freer access to learning opportunities, and promotes equity, personal relations, and empathy between students and teachers. COIL exemplifies the distance education theory in that COIL promotes the collaborative approach between the students and educators with online group assignments that do not necessarily involve synchronous meetings while students can still co-learn (Rubin, 2017; Rubin & Guth, 2015).

2.2. Benefits of COIL in cross-cultural learning in nursing

COIL is used as a teaching model to develop cross-cultural awareness in a shared multicultural learning environment (Rubin, 2017). Current research also validates COIL's effectiveness in increasing intercultural competence in college students (Hackett et al., 2023; Institute for International Education, 2020). COIL methodology is also successful in promoting global thinking skills and cultural competencies in nursing (Potter & Bragadóttir, 2019).

Short-term international cross-cultural learning experience has been shown to be a positive experience. Ferranto's (2015) study showed nursing students gained self-awareness, empathy, cultural humility, and leadership skills. The theoretical framework that was used to support these students' education was derived from the process of cultural competence for health care workers by Campinha-Bacote (2002). Campinha-Bacote theorized that cultural competence is an ongoing development for the health care worker in which the workers view themselves as continuing the process of continually *learning to become* culturally competent rather than *being* culturally competent. It contemplates that the learners would take into account value systems and cultural perspectives and encouraged to examine different cultural perspectives so that they can become culturally knowledgeable. Indeed, current research places heavy emphasis on continual learning of cultural knowledge and sensitivity and cross-cultural skills in order to interact successfully in an increasingly globalized world (Blankvoort et al., 2019; Ceo-DiFrancesco & Bender-Slack, 2016).

However, there is limited research on using COIL with students in health. Ambrose et al. (2017) completed a successful pilot study with online peer groups teaching global health with medical students. Opportunities to foster an international perspective are encouraged as part of a vital foundation to nursing education (de Castro et al., 2019; Dorri et al., 2020; Shishani et al., 2012). Our study expands on this research by focusing solely on mental health with undergraduate public health and nursing students using COIL techniques described in section 3.

3. Methodology

3.1. The current study

In this research, COIL was used as a vehicle to understand cultures, backgrounds, experiences, and critical analysis of health information that integrates a global perspective in learning about care for mental health patients. The COIL model that was implemented was based on structured participation

between faculty members teaching similar or related courses at the university level. The model was adapted from Niitsu et al. (2022) with an emphasis on mental health. There is a recognized need to reduce anxiety and depression among young adults, a population particularly sensitive to the amount and quality of social interaction. The need for this study was magnified by COVID-19-related interruptions that destabilize normal social interaction (Olson et al., 2021; Racine et al., 2020). Additionally, COIL is relatively new to nursing students, especially a COIL project that centers around the multicultural health care environment that impacts the training of current nursing students as future health care professionals (Dorri et al., 2020). A key goal was to encourage students to develop global critical thinking by interacting with students and faculty of a university from another country. By developing critical thinking, international learning occurs with students co-learning, co-creating, and co-teaching (Appiah-Kubi & Annan, 2020).

3.1.1. Participants and research site

Instructors were from their respective Schools of Nursing. Faculty from both universities communicated synchronously online using Zoom to co-construct course content, manage responsibilities, and share knowledge and research. Students used asynchronous tools such as Google docs and Google forms for their collaborative work. Fifteen out of 22 U.S. students volunteered to participate in COIL. At the Spanish University, with two large nursing courses, 151 students chose to participate. The faculty at the Spanish university randomly grouped their students into 15 groups. Given the small percentage of students from the University in the USA, and in order for all students to benefit from the internationalization experience, at least one American student was included in each working group. Despite the large difference in student ratios between the two universities, no issues arose. Because many of the U.S. students were first-generation in the U.S., with financial limitations, they were grateful to have the opportunity to engage and co-learn with students from Spain. There were two Spanish professors and one professor from the U.S. This ratio worked out well because there were many more students from Spain, who also had in-class meetings for their course.

Table 1. Student age and sex distribution

Age	Frequency (%)
20 years or less	125 (75.3)
21-25 years	25 (15.1)
26-30 years	4 (2.4)
Over 30 years	12 (7.2)

Sex	Frequency (%)
Female	137 (82.5)
Male	28 (16.9)
Prefered not to say	1 (0.6)

The cities where the universities are located are suburban. Most of the students (75.3%) were 18-20 years old (see [Table 1](#)). A total of 137 students (82.5%) were female, 28 (16.9%) were male and one (0.6%) preferred not to say. Both universities made participation voluntary. Ethical standards that protected students' privacy were followed according to the Federal Educational Rights Protection Act (FERPA), the highest standards in students' privacy rights in the U.S.

Although there were more students from Spain, the instructors chose to teach the program in English only. This allowed students to engage in one common language and allowed students from Spain to practice their English as well.

3.1.2. COIL procedure

The foundation of adopting COIL in the current study involved integration of research aims and review of COIL literature, including the theoretical framework mentioned in the introduction and literature review (e.g., [Campinha-Bacote, 2002](#)). The aims were to (1) remotely introduce students in the U.S. and Spain to an intercultural experience concerning mental health, and (2) co-learn about the U.S. and Spanish health care systems with emphasis on how mental health is perceived and how mental health care is delivered in a hospital setting. The first goal was achieved using online introductions, ice breakers, and students connecting online using Google form and emails. Students exchanged information about themselves as well as their personal definitions of mental health and the patients they encounter in their nursing practice. The second goal related to sharing, co-learning and co-teaching of the two health care systems, health care delivery, and how mental health is culturally perceived and institutionally treated in the two countries.

Planning took about ten months, starting with introducing faculty from the U.S. and Spanish universities. Faculty met on Zoom monthly and used emails to collaborate and exchange ideas on the project. The partnership between the American and Spanish universities was established with an introduction from the Spanish university's newly created COIL partnership with the U.S. university. A working group constituting teaching staff, administration and services staff and students from the project team was created. Through monthly meetings, the contents of the activity were formed, for which feedback and information from all members was required.

The project was designed to closely fit the students and faculty of both universities. The students were in similar departments, most were of the same or close to same year in school and shared an interest in providing care in a health care setting. The asynchronous model was selected due to time difference, to allow for maximum freedom from when students from both universities should sign on. It allows open communications between the students on how they should meet, and the frequency of remote meetings. Also, the time difference between the two countries made it efficient to meet asynchronously.

The COIL project began with an ice breaker activity where students from both universities shared their favorite food and hobby. This activity allows the students to begin to get to know their peers in the working group and thus generate an atmosphere of trust that allows them to carry out the COIL activity, which is a necessary basis for it to work. The first assignment entails examples of hypothetical cases of patient care and their content was addressed with all students online, and the students in Spain also had in-person discussion because they were already on campus to attend their other courses. Another topic discussed during the COIL period includes students' perspectives when they hear the words "mental health", and some examples of how mental health is used in the media in their respective country. Other content presented and discussions held covered topics such as trauma informed care, co-occurring mental illness and physical illnesses such as diabetes and heart disease, and various health care setting scenarios in writing and video formats for students to provide their perspectives and discussions.

To better understand the different health systems in the different countries and to establish an exchange of contents related to nursing and mental health, the following activities were established: First, there was a presentation and a reflection on the concepts of mental and behavioral health. Some questions included: Is this subject discussed in your area? What is said? What are some examples of audiovisual media and networks, and expectations of this activity? The second activity involved a detailed study of depression and agitation through the viewing of simulation videos of patients with those symptoms. This was followed by activities related to reflection and nursing practice. The third activity focused on mental health and COVID-19, nursing ethics, and advance directives. As a fourth activity, we explored the concepts of anxiety, stress, dementia, mental health, mental disorders, and nursing care.

In each of the tasks outlined above, the topics were addressed through exercises focused on reviewing previously experienced audiovisual material related to nursing practice. Students read and discussed content from official websites and articles related to each case. The delivery of each activity was undertaken weekly through the Moodle from the Spanish University and Canvas from the U.S.

university platforms, although, to monitor each group, all teachers involved had access to the students' work document on the Google Docs platform.

3.1.3. Ethical considerations

Students from both universities agreed to participate and each completed a consent form evidencing their agreement to participate in the COIL project. Also, students gave permission for their data to be shared and collected. The data was to remain confidential, in keeping with the Organic Law 3/2018, of 5 December, on Personal Data Protection and the guarantee of digital rights. The prior approval of each university's Governing Council appeared in the Memorandum of Understanding between the two universities.

3.2. Data collection

During the 2021-2022 academic year, the U.S. university and the Spanish university offered a COIL course titled "International Collaborative Learning in Nursing Students in Mental Health". The COIL component of the course was a five-week collaboration between the two universities. Students spent approximately four hours a week communicating and interacting with their group-mates and completing the weekly online written assignment. For the U.S. university, the COIL component of the course was voluntary but counted towards the mental health module in their course. For the Spanish university, the course was part of an optional, complementary feature of their existing module on mental health nursing. This innovative experience was implemented during the practical hours of the course.

For evaluation, using Google form, we administered a pre-survey before the start of the COIL course, and a post-survey after the completion of the course. Both surveys were carried out in English, as were the weekly assignments. Socio-demographic data and prior expectations were collected. Participants were asked about their satisfaction and the fulfillment of their expectations with the COIL experience. The survey was tailored after a validated instrument by Santos-Pastor et al. (2020). This questionnaire was originally designed to evaluate the views of university students on service learning in physical activity and sports. We revised it to apply to service learning with nursing students. It consists of Likert-type response items (1 = strongly agree to 5 = strongly disagree). For this research, we have selected 18 of these items and adapted them to our intervention. Of these, ten items correspond to general perceptions, which we administered both before and after the COIL experience to check for changes. The remaining eight items, relating to perceptions after the COIL experience, were administered only in the post-intervention. The post-survey also contained one qualitative question inviting any additional comments regarding the COIL experience.

3.2.1. *Data analysis*

Statistical analyses were conducted using SPSS v. 26. Quantitative data were reported as means and standard deviations. To determine the existence of significant differences with respect to the data compared in the pre- and post-intervention, a T-test was carried out. A p-value of <0.05 was considered statistically significant. Items relating to perceptions were reported as frequencies and percentages.

3.2.2. *Reliability and validity*

We were unable to test the consistency of the results across a long period of time because our pilot project only lasted five weeks. However, we were able to collect pre- and post-survey data shown in the Results below.

Regarding validity, our project is the first of its kind to collect data from nursing students remotely in Spain and in the U.S. Therefore, we were unable to compare it to any existing studies. Our study best represents predictive validity where some of operationalized variables were associated with the measures of the same construct after the completion of the COIL experience (Table 2).

4. Results

4.1. Comparison of students' experiences and cultures

Students satisfactorily fulfilled the assessment criteria for the work done. After data on expectations before and after the COIL experience was gathered, a T-test was performed to see if there were differences in the items of the questionnaire. The results of these analyses can be seen in Table 2. It has been observed that the COIL activity has beneficial effects, showing statistically significant differences. The data shows a statistically significant increase in the items related to perceived understanding content associated with mental health, being beneficial for the care of their future patients, improving their clinical practice, and helping them explore their professional options. Similarly, students consider social skills and relationships in the context of international collaboration for clinical practice to be important. On the other hand, it has been observed that in the pre-intervention, the belief that the COIL activity would help them understand concepts related to mental health was higher than in the post-intervention. This result may be due to the high expectations that the students had with the activity, but which have not actually been fulfilled. After the COIL activity, students perceived that this experience would help them in future patient treatment and management. Moreover, there was an increase in the post-intervention item related to the experience, enabling them to act judiciously in clinical practice and explore their academic options. Similarly, it has been

noted that young individuals have found this experience valuable for their work with patients and problem-solving in the workplace. They have developed skills to interact effectively with patients and respond to any issues that may arise in working with them. Finally, the intervention has yielded improvements in expectations and perceptions. The intervention enables planning and adapts to future contexts while also considering essential social and relationship skills for international collaboration in clinical practice.

Table 2. Student expectations and experiences before and after the COIL experience

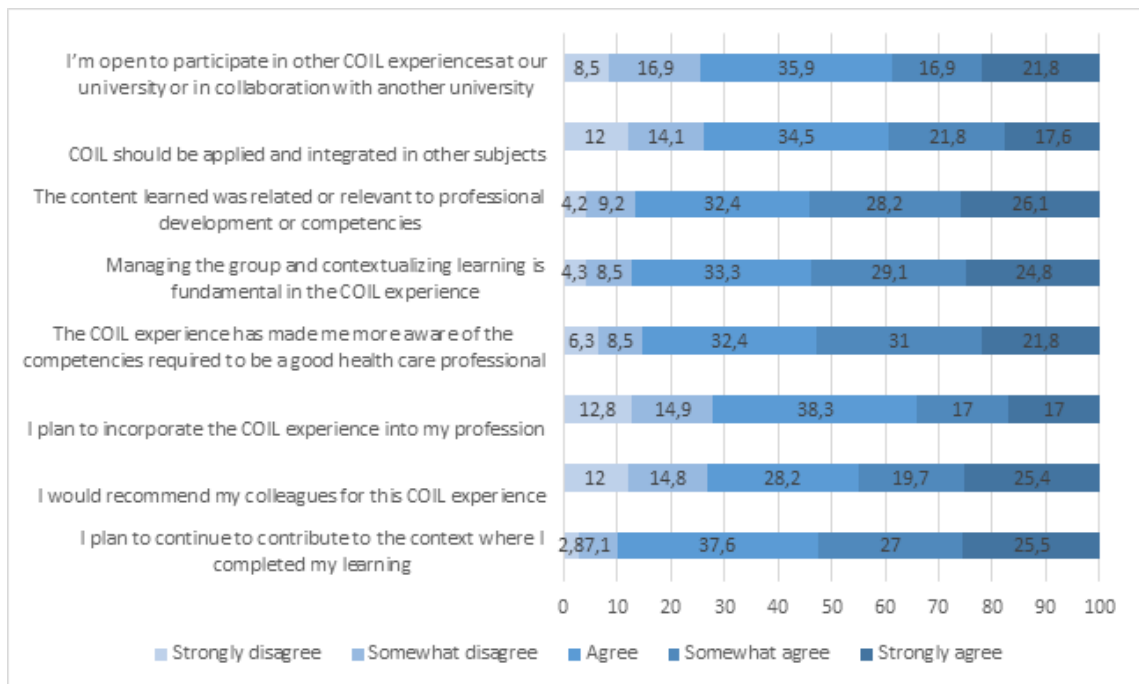
Item		Mean	SD	p
By participating in this course, I will gain some understanding of contents in working with patients with mental health issues?	PRE	3.95	.869	0.051
	POST	3.73	1.131	
Participating in this COIL experience will help me to understand the contents about mental health	PRE	3.97	.880	0.011
	POST	3.66	1.194	
Participating in the COIL experience will help me experience the contents of the subject.	PRE	3.98	.900	0.000
	POST	3.51	1.156	
I believe my experience will/have benefitted future patients I will work with.	PRE	2.48	1.297	0.000
	POST	3.75	1.050	
This experience will/have allowed me to act appropriately in a professional clinical practice or setting.	PRE	2.61	1.230	0.000
	POST	3.38	1.177	
I believe this experience will help me to explore my career choices.	PRE	2.74	1.247	0.000
	POST	3.48	1.070	
By participating in this experience, I believe it will help focus my professional future with regard to working and interacting with patients.	PRE	2.66	1.286	0.000
	POST	3.55	1.176	
This experience will help me to solve real situations similar to those I will encounter in my health profession in the future.	PRE	2.62	1.231	0.000
	POST	3.43	1.242	
This experience will allow me to know how to plan the intervention and adapt it to the needs of a future context.	PRE	2.62	1.249	0.000
	POST	3.46	1.128	
I consider it important to have social and relational skills in international collaboration context to clinical practice.	PRE	2.45	1.512	0.000
	POST	3.94	1.044	

SD: Standard deviation

As some questions could only be administered after the COIL had been conducted, their data cannot be compared. Therefore, descriptive data for these items are shown in [Figure 1](#). The data indicates

a significant majority of students answered with agree to strongly agree, demonstrating that the activity was perceived as a valuable supplement to their clinical training. Figure 1 illustrates the students' perceptions post-COIL with each item's results categorized using five response options to indicate the strength of disagreement/agreement. The positive perception of the students after the intervention is evident because they agree on all items addressed. 74.8% of students agreed they would participate again in a COIL experience, with 73.9% suggesting that COIL should be applied to other subjects. Furthermore, 86.7% indicated that what they learned was relevant to their professional development, while 87.2% of young individuals stated that group management and contextualizing learning is fundamental in a COIL experience. The COIL experience has been found to increase awareness of the competencies necessary for health care professionals. Additionally, 72.3% of students plan to incorporate practices they learned into their future professional endeavors. Specifically, 85.2% of participants reported this benefit. Furthermore, over 73.3% of students recommend COIL as a valuable learning experience. Lastly, 90.1% of participating students expressed a willingness to contribute to the community where they completed their learning.

Figure 1. Students' perceptions after participating in the COIL activity



5. Discussion

U.S. nursing programs' requirements leave little room for traveling abroad. Nursing students in the U.S. also have restricted financial resources, personal obligations, including family and work. Thus, there remains a need for short-term remote COIL programs. Research supports the positive results of Collaborative Online International Learning regardless of the length of the study (Ferranto, 2015). Additionally, the topic of mental health is imperative for nurses as they must have the skills and knowledge to address mental illness in their patient populations (Dorri et al., 2020; Naicker et al., 2021).

This research reported on the outcomes of a COIL experience sought to introduce students from an University in the U.S. and Spain to a cross-cultural experience in the study of mental health. The objectives of COIL were to learn the differences between health care systems and increase the depth of their perceptions of mental health as a condition that does not respect national borders. We focused on the social-constructivist pedagogy with heavy emphasis on interactions between nursing students via a socially engaged process (Anderson & Dron, 2011).

Students from both countries were able to compare cultures, health care systems, and experiences with mental health. Our first research question regarding the value of co-learning about mental health remotely was a success; a majority of students saw the activities and interactions with each other as a valuable supplement to their nursing training. Mental health knowledge, promotion and prevention are critical to nursing curricula at the university level, given that mental illness is one of the leading causes of disability worldwide (World Health Organization, 2022; Whiteford et al., 2013).

Our study aligned with several published studies which indicate that COIL has the potential to make cultural understanding more accessible and innovative in the field of health education via virtual engagement (Ambrose et al., 2017; Hammonds & Newman, 2023; Niitsu et al., 2022). This particular teaching methodology is becoming increasingly important for nursing students. Implementing virtual simulation systems in COIL has also been proposed but results are not yet available (Kiegaldie et al., 2022). It is worth noting that organizing experiences for student nurses, including studying abroad, is a complex task with potential participation barriers (Kulbok et al., 2012). To overcome the barriers, COIL presents a potentially more viable solution for facilitating such experiences. Furthermore, our study corroborates Holmberg's (1994) proposition regarding distance learning, whereby the interaction between students and educators heightens the personal learning encounters of students.

Intercultural sensitivity in nursing students increases significantly following international courses and enhances interaction and communication among individuals with diverse cultural backgrounds in English (Hua et al., 2023). Intercultural exposure fosters understanding of essential cultural framework among students, encouraging them to interact and communicate effectively with each other (Campinha-Bacote, 2002). Feedback from our students indicates an overall increase in intercultural competence and humility, as well as positive collaboration between the two universities. This statement is in line with previous studies that support how COIL enhanced students' intercultural competence development and intercultural interaction skills (Ambrose et al., 2017; Hackett et al., 2023; Liu & Shirley, 2021; Rubin, 2017). Not only did the students perceive the virtual model of online learning to be effective, but they also bore only minimal costs as students and faculty did not have to travel to and learn in a different country.

Our results showed a perceived benefit for students when caring for patients, especially those with mental health concerns. In response to our first research question about expectation and experience before and after the COIL, students showed satisfaction according to the criteria and the work performed. A high level of commitment to the activity and a perception of its benefits in their professional practice and patient management tends to yield statistically significant differences. This is supported by Swartz et al.'s (2020) study, which showed virtual work groups allow for the development of skills and increase in students' motivation. Overall, it has been observed that student satisfaction with COIL experiences is high among nursing students, as in a COIL project involving students in the United States and Uganda (Saftner & Ayebare, 2023).

Our second research question related to the students' perceptions of COIL after the joint learning experience. Our students were highly satisfied with innovative strategies used. They found these activities to be engaging and valuable. The COIL activity proved valuable to the students' clinical training, with many indicating their willingness to participate in a similar experience again and expand it to other subjects. The COIL experience has been shown to increase awareness of the competencies needed for health care professionals.

There were some limitations to our project. First, there were more students from the university in Spain than from the university in the U.S., which may have affected the data. Second, the nine-hour time difference between the two countries did not allow for simultaneous interactions and could have yielded different results if interactions were synchronous, and certainly prevented the immediacy of the students' international experience. Third, we did not measure English or Spanish proficiency, which could contribute to a different experience for students. Furthermore, it is important to acknowledge the constraints of the selected measuring tool that has been tailored to conform with

the goals of our research. Lastly, the project lasted five weeks which could affect how students viewed the content learned compared with a longer learning opportunity.

6. Conclusion and implications

COIL is an innovative method to provide nursing and public health students an opportunity to develop cross-cultural awareness with numerous advantages. The COIL program is flexible, cost-effective without the need to travel, and feasible where students can learn online in their own time. There has been a lack of published studies concerning COIL methodology in health sciences, especially in nursing. Despite this limitation, the COIL methodology was a feasible option that allowed for an in-depth discussion of the comparison of the two countries' health care systems and how mental health was perceived and treated. Through an asynchronous COIL experience, a flexible intervention was achieved using new technologies. Also, students' communication skills improved, and cultural knowledge was gained, as demonstrated by the results. COIL collaborations offer faculty and students the opportunity for international education and exposure to experiences that may otherwise be difficult to obtain. The possibility of continuing with lines of collaboration to involve all students enrolled in different subjects should be considered. For the future, COIL option should be considered in higher education, not just in health care courses, but also other courses that require a cross-interdisciplinary mode of learning from different perspectives. Our project allows for an opportunity for intercultural exchange of ideas and mental health knowledge. Also, though not central to the project, our project may have encouraged students to practice and improve proficiency in the two of the most widely spoken languages in the world: Spanish and English.

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