Original Article

Interprofessional education in nursing: The impact of collaboration between physical and mental health care professionals

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ABSTRACT

Objectives: Interprofessional collaboration in the training of nursing and psychology students helps provide students of both disciplines with the ability and competences they need to best attend to their patients. This study implemented and analyzed a method for developing the competences of each discipline in a scenario of joint clinical simulation that incorporates mental and physical health simultaneously, and measured the caring ability of the participating students.
Methods: Participants took a self-applied survey measuring their own caring ability. After, a clinical simulation was performed where nursing students performed clinical interviews on psychology students, who acted as standardized patients. Caring abilities were measured in the nursing students, and the psychology students implemented an intervention service measuring caring ability and brief - debrief simulation by coaching to nursing students.
Results: The results indicated that the self-applied questionnaire of caring ability resulted in scores significantly higher than what was measured by observers.
Conclusions: The results contribute to the development of protocols, training and collaborative work practices in interprofessional education, which allow the scaling of these competences.

What is known?

- Simulation as a learning technique for nursing has proven to be useful and massive.
- The simulation is useful to improve therapeutic skills for psychologists.
- Interprofessional coordination and collaboration affects the quality and safety of care.

What is new?

- A clinical simulation scenario was created involving nursing and psychology students.
- Nursing students gave clinical interviews to psychology students who acted as Standardized Patients (SP). Psychology students implemented an intervention service to nursing students.

The collaboration of these fields during training develops the most complete skillset.

1. Introduction

Students of both nursing and psychology have historically participated in clinical learning activities often referred to as practica, which involve the observation of an experienced professional while performing activities directly with patients, depending on the skills of their clinical facilitators [1,2]. Practica have interactive features that create opportunities for students to experience working in a clinical setting within a team. However, the permanent manner with which these opportunities are conducted and evaluated produces considerable levels of anxiety in students, teachers, facilitators, patients and the institution's staff [1].

There have been reports for decades regarding the benefits of de-institutionalizing people with mental illnesses, which decreases the number of people hospitalized in psychiatric facilities as well as the number of days they stay in the hospital [3–5]. This has also increased the use of community mental health resources [6]. However, while largely beneficial, this has also led to a limited

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number of opportunities for patient interaction for professionals in training.

Such situations tend to increase competition among facilitators to generate care opportunities in practica as interaction potential diminishes and learning opportunities become limited [5]. Within this context, active and innovative methodologies have been introduced in training, among which is the use of clinical simulations (SIM), a promising teaching method that is increasingly used in psychiatry, since it avoids high variability within student-patient interactions [5].

1.1. Clinical simulations and standardized patients

Among the strategies of SIM is the use of standardized patients (SP), understood as people who are trained to represent a specific disease and accurately repeat the characteristics of symptoms, epidemiology and other features that are determined with a degree of veracity and consistency [7]. The use of SPs is a valid, comparable, reliable and effective strategy that allows a transition process between the classroom and an encounter with a real patient. It does not replace direct clinical experience, but rather empowers it as an additional tool that enhances learning through a safe and controlled environment, allowing students to practice measurable clinical and communication skills and identifying strengths and weaknesses when facing clinical situations [8,9].

The benefits of using SPs can be divided into 3 components [1,5,9]: a) Practicum: real cases can be simulated with specific medical conditions. The situation, scenario, level of difficulty and exposure time are flexible and controllable according to the needs and objectives of the content. b) Curriculum: SPs facilitate the transition between the theoretical and the practical. They allow students to repeat or modify the scenario as many times as necessary, and feedback can be delivered on technical-relational aspects of therapeutic communication. This allows students to practice difficult clinical situations and to benefit from the experience in an intentional and standardized manner, while avoiding real world consequences that they would face in real clinical situations. c) Ethical aspects: the use of SPs avoids overexposure to individual patients with the consequence of violating their dignity and rights due to utilitarian aims, and avoids the tensions inherent in the possibility of making errors in clinical interactions.

Felton and Wright [10] indicated that clinical simulation in mental health provides a realistic environment where students can develop skills and handle clinical situations autonomously without fear of being evaluated or making mistakes. Clinical simulation is a useful catalyst for the creation of discrepancies, which in turn leads the student to focus his or her learning on identifying skills and knowledge. The authenticity of clinical simulation sessions plays an important role in ensuring student participation, and can trigger unforeseen events that can create new and effective ways of relating. Interprofessional learning also allows teachers and students to avoid stereotypes and devaluation by understanding their role and those of others, which has been pointed out by authors from both disciplines [11,12].

A recent systematic review has noted declining empathy in nursing students over time, and that exposure to clinical SIM could improve these skills [13]. Studies demonstrate that clinical simulation has the advantage of developing empathy, self-confidence, knowledge, counseling skills, motivation, reflection and teamwork, but these advantages only exist to the extent that the simulation setting and representation is reliable and sensitive. The mental health field can be conflicting in this way because representation must be well achieved [14].

In the mental health field, the creation and representation of SPs allows practicing and perfecting communication skills, as well as allowing the SPs to act as evaluators of therapeutic communication, which is an act specific to the mental health discipline [15]. As this practice requires a working knowledge of theoretical foundations of disease, physiopathology and epidemiology, it overcomes other methodologies such as role play [14]. Psychology training places a strong emphasis on individual clinical intervention at the expense of areas that must be articulated with other disciplines [11]. Collaborative practice delivers quality of care by allowing health workers to engage any individual whose skills can help achieve local health goals [18].

1.2. Interprofessional care within nursing and mental health

Among the topics discussed by WHO in 2014 regarding Universal Health Coverage (UHC) was the need to implement interprofessional education as a strategy to generate collaborative and efficient health teams [16]. Interprofessional education promotes collaborative practice and improves teamwork, and has shown to have the most success when used in undergraduate training [17]. In 2016, the relevance of this type of training and the crucial nature of its implementation led to WHO launching the Regional Network of Interprofessional Education of the Americas (REIP) [18]. A report was presented that indicated clinical simulation as the most highly recommended educational methodology for this type of training [18]. This has also been proposed by other authors, and well-known manuals have since been published on this subject [19,20]. There is evidence regarding the effectiveness of this type of educational intervention in various disciplines of health care, but it is recommended as a complement to evaluations of clinical competences of students [21].

Having clarified the usefulness of interprofessional education and its development through clinical simulation, clinical competence should be defined through the lens of both disciplines. Thus, we defined it using the Cochrane Systematic Reviews (PEARLS: Practical Evidence about Real Life Situations).

Among mental illnesses, depression and anxiety are the most common. Counseling provided by nurses has shown to be useful, including methods such as motivational interviewing and brief intervention in topics related to mental and physical health (PEARL Jun.2014/434; Oct.2009/360; Jan.2014/416 - Cochrane) [22]. However, extensive training is required to develop this clinical competence. Counseling has proven to be a useful tool for influencing people to make better health decisions (PEARL Aug.2014/442 - Cochrane) [22]. Mental health patients describe a wide variety of health professionals as a necessity in supporting physical well-being. The predominance of the approaches of medical models that only treat mental health leads to neglected measures for physical health [23].

Within the processes of therapeutic relationships, the language of professionals can contribute to shaping a culture that emphasizes the understanding of the health-related needs of patients, which requires skills [24]. It is the implicit purpose of all activities in nursing training to generate the capacity to properly care, given that care is the *raison d'être* of nurses [13,25]. This care is framed in an explicit socio-sanitary context and results from an interpersonal and individualized care relationship between nurse and patient, so it is crucial to evaluate this skill in formative periods [26,27]. Also, psychologists who do not develop interpersonal skills in practical activities during training underestimate this competence [28]. There is evidence that these courses improve learning, but it is not known with certainty how they impact caring ability [5,21].

Caring abilities are also an inherent need within the mental health fields. In the context of Latin America, caring abilities are primarily measured in informal caregivers [29], according to the original instrument proposed by Nkongho [30]. This instrument, in

all its versions, is used to answer a series of propositions distributed on a Likert scale. Measurements of formal caregivers and nurses in the country are scarce [27,31].

The most suitable instrument for the purpose of the present study is the one developed by Bustos, Rivera and Pérez [26]. This team presented a 27-item instrument that proved to be adequate in measuring caring ability in Chilean nursing students, which is why it is presented as reliable. It measures all the students of the program only once and simultaneously. The reasoning for this is that clinical experiences greatly improve caring ability. It is important to note that the practices are in themselves multiprofessional, which can be mediated in interprofessional education with progressive levels of complexity. This study considers self-application; however, since this is a skill it should be measurable or triangulated by a third party. Also, this method only mentions traditional practices as a reason for change, but it could be considered that alternatives such as SIM can impact caring ability, given that knowledge, satisfaction, and self-evaluation of caring ability are constructs which require complementary measurements [9]. The above, along with communication and autonomy, are components of care ability that can be improved in interprofessional education [12,26].

The use of SPs changes the usual power dynamics in the therapeutic relationship as there is no pressure for diagnosis, intervention and treatment as there is when treating a real patient. It is a useful space for the development of one's own disciplinary competences, favoring interdependence and integration in the healthcare team. It is also useful for the development of empathy, given that it is anchored in actions that may be superficial, but that generate psychosocial support. Behavioral empathy is sufficient in initiating the establishment of a therapeutic link and providing support in coping with mental health problems [13,15]. It is crucial that psychologists are prepared to perform multidisciplinary interventions; thus, the present interdisciplinary study can be viewed as a starting point for future studies regarding primary care [3].

This study therefore analyzes an interprofessional teaching-learning strategy through clinical simulation that allows innovation in the development of disciplinary competences in two different human services-related university programs: nursing and psychology.

1.3. Objectives

The objective of this study was to develop a collaborative practice that recognizes the principles of shared decision making and best practices in communication across professional boundaries, thus maintaining and promoting the disciplinary competencies of psychology and nursing.

This work is an opportunity to review the institutional curriculum structure within interprofessional education.

2. Methodology

2.1. Design and participants

Design: mixed, descriptive, transversal and correlational approach.

Participants' inclusion criteria: students over 18 who belong to the disciplines of psychology in the university's 5th level and nursing in its 3rd level, who voluntarily agreed to participate in the study and signed a letter of informed consent that was approved by the university's Ethics Committee. The sample was divided into sub-studies.

(1) 140 nursing students from the Universidad Central de Chile in Santiago, Chile applied the Caring Ability Inventory (CAI) in March (pre) and 108 in July (post) 2018.
(2) 8 randomized nursing students participated in clinical simulation scenarios with 16 psychology students, practicing SP and non-SP observers, performing a clinical interview according to two scenarios created between both disciplines (specifically related to suicidal ideation and problematic alcohol consumption in preventive medicine controls) in August 2018.
(3) 16 psychology students were distributed to participate as SPs according to the scenarios described, implementing an intervention service to nursing students, before SIM as coaching, during SIM as SP and observer and after SIM in debriefing.
(4) Both groups responded to an online perception questionnaire about the simulation experience.
(5) A nurse who graduated from the same university as the 8 nursing students performed evaluations as a participant observer using the CAI.

Two scenarios were designed. Informed consent was obtained for the instruments and recordings. The SIM with SPs were video recorded. Interprofessional scenario details are shown in Table 1.

2.2. Instruments and variables

The CAI was validated in Chile for nursing students. Two guidelines for guided observation were designed by the research team: the Perception of Simulation-Based Learning Questionnaire (online for both groups) and the Observation Guide of Effective Communication Skills were applied by the psychology students to the nursing students during the SIM.

Main variables of this study included variables referring to the CAI, the Perception of Simulation-Based Learning and the Observation Guide of Effective Communication Skills. Other variables included age, sex, gender, years completed at university, previous academic experience, work experience and background in care-related experience.

2.3. Procedure

The primary research team was responsible for the identification of students and data protection. The collaborators informed participants in clear language of the objectives of the study, their voluntary participation and the possibility of abandoning it if they wish, ensuring anonymity and the protection of the information received, before asking the participants to sign the consent form and answer the questionnaires. The principal researcher had a list with the ID number of each student, their name and surname, and the signed consent form. These data were not shared with the rest of the research team.

2.4. Statistics analysis

In the CAI, psychometric properties were investigated with descriptive statistics in addition to detecting significant value changes of baseline scores and follow-up scores, starting with percentile ranges (sample sensitive to change), and an analysis of baseline and re-test scores, from what was evaluated in March to what was evaluated in July 2018. These were expressed as the average difference. In addition to the other variables analyzed, descriptive and correlation statistics were used. The videos of the SIM were analyzed to evaluate associations with the variables described, in order to advance the codification and eventually the conceptualization of the visual data.

Table 1
Interprofessional scenario details.

Professor Team	Students
Preparation of scene algorithm and role interpretation	Students execute the simulation in a one-way mirror observation room
	Psychology students play the standardized patient
	Nursing students play the health personnel (nurse)
Observation takes place through a one-way mirror room using a guide prepared and supervised during SIM by a psychology professor	Psychology student evaluates the clinical interview conducted by the nursing student
Observation through the one-way mirror room	The nurse (graduate) evaluates the performance through the Caring Ability Inventory
Feedback	Psychology students perform countertransference of what is perceived by the nursing student.
	The psychology professor and the nursing graduate act as moderators during the intervention.

3. Results and analysis

During the first semester of 2018, 140 nursing students participated in the first measurement (March) of the. Thirty-two did not attend the second measurement for reasons beyond control, leaving 108 students to participate in the second semester (retest/July). Eight nursing students and 16 psychology students participated in two SP scenarios during the SIM (August).

Although it had been planned to include all participants who were in their 5th level of psychology and the 3rd level of nursing in the SIM, it was not possible for reasons beyond control.

3.1. Participants' level of caring ability

Participant profile: 82.9% pre and 84.3% post were women. Participants' ages fluctuated between 19/20 and 50 years, with an average of 23.5 ($SD = 3.9$)/23.4 ($SD = 3.7$). The reliability of the questionnaire was evaluated through an analysis of its internal consistency by calculating the Cronbach's α coefficient, which is considered satisfactory if equal to or greater than 0.70. The dimensions presented by Bustos, Rivera and Pérez [26] were maintained: disposition of care, appreciation for the experience of the other and self-confidence. A question was eliminated during the analysis due to a lack of relevance, with 26 items remaining, with a maximum value of 104 points and an α $0.766 - α 0.790$ pre and post, respectively. The small size of the sample did not meet the 10:1 ratio criterion for number of variables and no factorial analysis was performed, which was also not necessary given that the instrument used was validated. The minimum sufficient score of the instrument is 73 of 104 points (70%). The lowest score was 66 of 104 points (63.4%). The maximum was 101 points in pre and 100 points in post (97%/96%), with average of 85.8 in pre and 86 in post (See Table 2).

The KS normality tests showed that the distribution of the data is not normal, using nonparametric testing. When evaluating the correlation between the dimensions by Spearman's Rho, we found direct and statistically significant correlations between dimensions, conserved from the original instrument.

Among the participants, 41.4% take part time job and study which was the case for 61.8% of women vs 41.5% of men. For 70% of the sample, this is their first degree program. 50.4% have daily classes, while the number of years of staying within the program ranges from 3 years to 7 years, average 3.65($SD = 0.93$). Only 24.3% have never cared for anyone previously, 59.3% have cared for people for free and 16.4% get payment of this job, 10.7% are family caregivers.

When performing the independence test, the variables were presented as independent. No correlation was found by Spearman's Rho between the caring ability level and the variables of sex, age, work-study coexistence and previous care experiences.

3.2. Pilot clinical simulation with standardized patients: measurement of effective communication skills

During the SIM pilot measurement as a participant observer, the scores of 26-item CAI ranged from 70 to 84, with an average of 76 ($SD = 2$). With respect to what was observed regarding effective communication (psychology students evaluating nursing students), it stands out that 100% presented a gentle and professional disposition. The students detected 50%−75% of the total clinical history of the simulated patients. In 62% of the SIM, students managed to identify the main problem (suicidal ideation and problematic alcohol consumption). Students recognized the protective factors of the case in 55% of the SIM. The psychology students only detected displays of empathy and willingness to agree regarding the actions to be followed by the patient and health personnel in 25% of the SIM. The nursing student corroborated that the SP understood the indications of the case in only one simulation. The accompanying intervention designed by psychologists allowed a critical reflection by the students of both disciplines for the development of the interpersonal skills necessary for both teamwork and mental health care (See Table 1).

3.3. Pilot clinical simulation with standardized patients: measurement of perception of satisfaction with the activity

Nursing students rated it as a contribution to their professional performance with 100% agreement, but only 33% of psychology students rated it in the same way. Of both groups, 55% considered that the infrastructure of the facilities made the experience pleasant. Of both groups, 80% considered that it contributed to their personal development. The nursing students agreed 100% with the participation of a psychology professor and the nursing graduate, while the psychology students agreed on this execution by 80%. The achievement of their own performance was qualified around 50% for the nursing students, whereas it was qualified around 70% for psychology students. 100% of the nursing students would recommend the experience and believed it created new learning experiences, while only 50% of the psychology students agreed. Of both groups, 50% stated that recording the session was useful, and 80% indicated that interacting with students from another degree program contributed to their professional performance.

Table 2
The frequency distribution of nursing students' scores of 26-item Caring Ability Inventory.

Scoring range	Pre-Test ($n = 140$)		Post-Test ($n = 108$)	
	Frequency	Percent	Frequency	Percent
≥90%	18	12.9	14	13.0
80%−89%	71	50.7	56	51.9
70%−79%	43	30.7	30	27.8
Insufficient	8	5.7	8	7.4

3.4. Thematic analysis

When analyzing the recordings, the topics of inter-professionalism, communication skills and clinical skills were emphasized. These subjects were persistently discussed by the participating nursing students. Regarding interprofessionalism, they stated that the psychology students' feedback was very important, given that they recognize psychology as having students with the most highly developed skills for performing clinical interviews. The psychology students did not have the same perception of utility as the nursing students, mainly because they perceive that the most valuable work was the representation of the SP, although they recognize that they were interpreting their professional role by offering feedback to nursing students and through participant observation. The documents used in the interview were based on real Primary Care documents for preventive medicine (physical and mental), which made it difficult to analyze the data but generated a better perception of authenticity in both groups. The simulation was perceived as realistic and generated nervousness in the nursing students. The simulation required active participation of the psychology professor and the nursing graduate, who in one case even had to enter the simulation area to assist a very anxious nursing student. It should be noted that as this was a pilot, all participants were volunteers, so anxious emotions are not qualifiable.

4. Discussion

The results of this study are consistent with the literature review, which shows that students perceive it as a highly significant contribution to their personal development.

The CAI showed adequate reliability, while the three dimensions corresponded to the Caring Ability measurement as a whole. Although an item was withdrawn and cannot be categorized in levels due to the absence of scales, there was a notable decrease of 9 points in the averages from the self-evaluation to the hetero evaluation; thus, it is possible to compare this decrease with the results of the effective communication skills that were evaluated.

The CAI supported the comparison between what is perceived and what is influenced by the academic load itself, where the nursing participants acted as controls, and demonstrated the tendency to overestimate their abilities at the beginning and end of the semester. This result is different from what was observed by other authors who revealed that self-perception was high at first and then subsequently diminished [32]. We must also point out that the pilot was revealing as a case analysis, given that the third party observation by the graduate nurse and the psychologists in training delimited expectations better than self-perception- a result that was very well received by all the participants.

Studies with teams of mental health professionals demonstrate that collaborative practice is limited without the participation of an expert in each field [2], which is an aspect that our study indicates as fundamental for the scaling of this type of learning. We consider that the professional characteristics of each role is what should be prepared and simulated in order to be positioned in a team before simulating the team in clinical care, at least in this stage of training. From this perspective, one could appreciate the potentialities that emerge from interprofessional work, which, beyond emphasizing specific aspects of clinical care, can be complemented from a collaborative perspective at this stage. The intervention of nursing psychology before, during and after the SIM facilitated the reception and generated support, allowing the exploration of a relationship framework that differed from the student-teaching hierarchy, and focusing on disciplinary skills oriented towards physical and mental health.

While the students exchanged in ideas, the nursing professionals pointed out physical health aspects more than conventional therapeutic aspects of mental health, and vice versa. This discussion contributed to the interests of the patient, which has been discussed by some authors [23], especially because the variety of needs of these patients is rarely discussed in relation to the physical health of people with mental illnesses.

The psychology students did not appear to have the same motivation as the nursing students, likely because they did not have previous experience in simulation and did not perceive this to be a learning gap in the same way as the nursing students, which has also been discussed by some authors [33].

It is also important to point out that a range of emotions can be experienced during this type of activity, including fear of failure and insecurity, mainly due to the different levels of familiarity that exists between the students of both degree programs. This finding coincides with a recent study [34] where emotion management is a potential skill to be developed during these instances.

It is noteworthy that the feedback was highly valued by the nursing students, since it demonstrates the value of an interprofessional team in action (dupla graduated nurse and the psychology professor), which has also been indicated in other studies [35]. Feedback is a fundamental axis to implement in interprofessional education, considering that within the domains of learning, reflective practice gives the necessary complexity for learning various fields of specialization and new forms of collaborative work, as in the case of nursing and psychology. Indeed, one of the challenges of interprofessional education is that learning should be distributive; that is, it should not be around professional hierarchies, but rather a problem that must be solved, which requires adding formal learning to the learning workplace, resulting in the incorporation of interprofessional reflective practice with greater formalization in feedback [18].

Some authors have pointed out that this type of teaching and learning has important challenges, such as possessing a clear knowledge of intra and interprofessional dynamics, defining which teams should be associated and what content should be measured, along with the need to generate solid theories that justify how this contributes to the practice of health care worldwide [36].

Since this was only a pilot, more time is required to make students aware of the gaps in their knowledge during this type of experience. Recent studies indicate that this type of activity is more highly valued at initial levels of professional training, but that there is still progress missing in the development of measurements for each field [37].

In this case, the measurement through the CAI allows systematizing the self-esteem behind abilities by detecting the influence of the program design, which was reflected in the measurement at the beginning and at the end of the course. This measurement can guide the creation and design of programs intended to develop disciplinary skills and recognize them in interprofessional programs. The properties of the CAI were included during the course and in the SIM by the psychology intervention design. The recordings allow the detection of care abilities and the effective measurement of psychological communication skills when solving the simulated case.

5. Conclusion

The innovation described in the present study must continue to be performed, since it has shown to be a scalar contribution in interprofessional learning.

The socialization of the students' own professional identity through the development of their skills in interprofessional work increases their confidence within their discipline. It also better

improves their role in a healthcare team and their ability to work collaboratively in patient-oriented scenarios during training.

This data is only observational in nature, however. Thus, in-depth interviews with the facilitating agents, both professionals and students, could offer a better understanding of the experience, along with follow-ups of the participants to verify how this learning has persisted over time.

A practical implication of our study is that the SIM are performed along with mental health consultations.

The development and scaling of interdisciplinary competence is an aspect in which this study can contribute to protocol development, training and interprofessional work practices. It is likely that the perceived weaknesses in interprofessional learning are due to the scarcity and incipient of studies similar to ours. Its design and implementation are demanding tasks. The programming and adaptation of the course content, as well as the interest of teachers to create content that is useful for both disciplines requires an institutional culture of valuing shared learning between teachers and students. Policies also must be in place that facilitate sharing, or at least adapting, course credits between disciplines.

Interprofessional teaching must adopt a broader vision regarding medical care to also consider physical and general well-being. Our study can also be adapted in other universities within nursing and psychology programs.

Author statement

Cristina Amparo Muñoz-Rubilar: Conceptualization, Methodology, Writing-Review and Editing, Supervision. **Carolina Pezoa Carrillos:** Methodology, Validation, Data curation, Writing-Original draft. **Claudio Barrales Díaz:** Resources, Methodology, Formal analysis.

Declaration of competing interest

The authors declare no conflicts of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijnss.2020.06.003.

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