

## ORIGINAL RESEARCH

# Investigating dyads in nursing education

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## ABSTRACT

**Background:** Nursing education faces challenges due to a shortage of nurse educators and nurses in the workforce, prompting programs to expedite training, impacting student and nurse well-being. While standards are high, studies reveal many students feel unprepared. Self-confidence is crucial, affecting clinical performance, as is effective communication, which is pivotal for safe patient care. Dyadic education, involving pairs, is gaining traction for its potential to enhance teamwork and reduce stress.

**Methods:** This study explored dyadic teaching's impact on nursing students' self-confidence, communication, and clinical skills in the context of nursing practicums. A convenience sample of nineteen undergraduate nursing students participated in a survey assessing their experiences in dyads.

**Results/Conclusions:** Findings suggest dyadic teaching fosters greater confidence, reduces stress, and enhances communication. However, limitations, including small sample size and retrospective data collection, underscore the need for further research. Introducing dyadic approaches in nursing curriculums holds promise for optimizing student learning and patient care outcomes.

**Key Words:** Nursing, Education, Dyads, Clinical

## 1. INTRODUCTION

Nursing education currently grapples with a shortage of nurses. This prompts programs to fast-track training and employment, leading to assigning clinical tasks like high alert medication administration to inexperienced individuals, adding emotional and mental strain on both nurses and students.<sup>[1-3]</sup> Nursing students and new nurses are expected to meet high standards of professional competencies. However, several studies have found that many do not feel adequately prepared.<sup>[4,5]</sup> Self-confidence plays a crucial role for students and nurses in delivering safe patient care while meeting rigorous standards and expectations. It requires a profound awareness of one's abilities and significantly influences both academic and clinical performance among students.<sup>[6,7]</sup> Ef-

fective communication is another hallmark of safe and effective patient care. Poor interprofessional communication has been demonstrated to hinder staff morale and retention, leading to significant financial losses for healthcare systems.<sup>[8]</sup>

Within healthcare, dyads, referring to pairs of two, have been studied in the context of reforming leadership structures.<sup>[9]</sup> In recent years, there has been growing interest in dyadic education, hypothesized to improve teamwork, problem-solving, and self-confidence, while reducing anxiety and stress.<sup>[10-14]</sup> This study focused on exploring this collaborative teaching modality and its impacts on nursing students' self-confidence, interprofessional communication, and clinical skill acquisition compared to the traditional one student per patient assignment method.

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Several studies in recent years have investigated aspects of dyads on education within health professions. In a randomized control trial by Abbott et al.<sup>[10]</sup> involving 41 fourth-year medical students from Mayo Clinic School of Medicine, the impact of dyadic versus individual training modalities on psychological and performance outcomes in simulation-based training was investigated. The study hypothesized that students in dyads would experience reduced stress, anxiety, and cognitive load, leading to better performance compared to those trained individually. Findings indicate that learners in pairs reported lower stress and anxiety levels, suggesting that a dyadic approach offers emotional support and enhances emotional well-being during training. Austria et al.<sup>[11]</sup> conducted a qualitative inquiry interviewing eleven students and nine patients on an inpatient surgical oncology ward. Semi-structured interviews were conducted with all subjects. The main findings demonstrated that nursing dyads in clinical settings work to improve student learning, enhance peer collaboration, reduce student anxiety, increase confidence and task efficiency. This study works in favor of exploring new models of education for a rapidly changing workforce. Ott & Succheralli<sup>[13]</sup> conducted a retrospective cross-sectional survey comparing experiences of 26 nursing students' dyadic and individual placements. When paired in a dyad, 62% of the participating pupils reported having greater confidence, 74% of the respondents reported better teamwork and 58% of subjects identified have improved learning experiences. Findings report that a dyadic approach allowed nursing students to practice teamwork, taking direction from their peers, prioritization and delegation in a safe and structured learning environment and encouraged them to be accountable to their partner. Kamali et al.<sup>[12]</sup> investigated how dyadic practices impact nursing students' self-efficacy and empathy in the clinical setting through a randomized control trial involving 40 third-year nursing students. The authors discuss the correlation between empathy and self-efficacy, and how fostering self-efficacy in nursing education improves students' self-esteem, stress management, self-regulation and resilience. During their clinical placement, participants were arbitrarily assigned to either the control group where students cared for patients individually, or to the intervention group where pupils cared for patients in dyads. Results suggest that dyadic practices increase empathy in nursing students. Tousignant et al.<sup>[14]</sup> conducted a non-randomized pilot trial exploring feasibility of clinical education in dyads for twenty-four second-year nursing students. During their clinical placement, students were provided with one of two roles, dividing tasks and responsibilities during the clinical day. The student dyads created educational community, improved collaborative work, and improved patient and stu-

dent outcomes. Overall, these studies suggest that dyadic approaches in clinical education alleviate stress, enhance confidence, and promote teamwork, despite some limitations, and further validate the importance of our studies purpose; to investigate the impact of using dyads in clinical placements on nursing students interprofessional communication clinical skills, and self-confidence.

## 2. METHOD

### 2.1 Study design

Data was gathered using an online survey that contained Likert and open-ended questions using the Qualtrics platform (Qualtrics, Povo, UT). The questionnaire consisted of eleven questions, which allowed the participants to reflect on their experiences during their nursing clinical practicums while working individually and in dyads. Qualitative data was obtained through a free-text question asking respondents to elaborate on their experiences or perceptions of working individually and in pairs during their clinical rotations. The comments and anecdotal evidence provided by participants were subsequently analyzed to identify recurrent themes.

### 2.2 Sampling method

The authors opted for a convenience sampling method. Those who had completed an undergraduate nursing degree or were currently enrolled in third or fourth year of a recognized nursing program were invited to participate in an online survey. The participants were recruited through a discussion forum at the University of Ottawa, and social media platforms Facebook (Meta Platforms Inc., Menlo Park, CA) and LinkedIn (LinkedIn Corporation, Sunnyvale, CA). Participants received a recruitment form outlining the project's goal, participation details, withdrawal options, and contact information for inquiries. A consent form was obtained and then a survey was sent electronically to each participant.

## 3. RESULTS

A total of 19 participants out of 21 persons who expressed interest, completed the survey. All 19 participants had completed an accredited undergraduate nursing program. Of these 19 participants, 16 (84.2%) had experienced working both individually and in a dyad during their nursing clinical practicums.

When asked to compare their clinical experiences, among the participants who had experience working in dyads and individually, 14/16 (87.5%) reported they felt more confident when paired with another student. All student participants who only worked alone during placements believed that dyads would have increased their self-confidence. When rating their experience, 14/16 (87.5%) of whom experienced

both modalities either agreed or strongly agreed that working in a dyad increased their self-confidence (see Table 1). Conversely, ratings from the entire sample show that 12/19 (63.1%) respondents agreed, to varying degrees, they felt

confident in the clinical setting when working independently (see Table 2).

**Table 1.** Nursing clinical practicum experience while working in a Dyad

| Rating        | STATEMENT  |       |         |   |       |         |   |       |         |   |       |         |  |       |         |
|---------------|--|-------|---------|---|-------|---------|---|-------|---------|---|-------|---------|--|-------|---------|
|               | I felt confident in the clinical setting while working with a partner. |       |         | I was not anxious while working with a partner in the clinical setting. |       |         | I felt free or unrestricted while working with a partner in the clinical setting. |       |         | I was efficient in the clinical setting while working with a partner. |       |         | Working with a partner in the clinical setting is stressful. |       |         |
|               | N  | %     | Valid % | N   | %     | Valid % | N   | %     | Valid % | N   | %     | Valid % | N  | %     | Valid % |
| 1             | 0  | 0     | 0       | 1   | 5.3   | 6.3     | 0   | 0     | 0       | 0   | 0     | 0       | 0  | 0     | 0       |
| 2             | 0  | 0     | 0       | 2   | 10.5  | 12.5    | 0   | 0     | 0       | 0   | 0     | 0       | 7  | 36.8  | 43.8    |
| 3             | 1  | 5.3   | 6.3     | 2   | 10.5  | 12.5    | 2   | 10.5  | 12.5    | 3   | 15.8  | 18.8    | 1  | 5.3   | 6.3     |
| 4             | 1  | 5.3   | 5.3     | 0   | 0     | 0       | 2   | 10.5  | 12.5    | 0   | 0     | 0       | 1  | 5.3   | 5.3     |
| 5             | 0  | 0     | 0       | 5   | 26.3  | 31.3    | 10  | 52.6  | 62.5    | 1   | 5.3   | 6.3     | 5  | 26.3  | 31.3    |
| 6             | 8  | 42.1  | 42.1    | 2   | 10.5  | 12.5    | 2   | 10.5  | 12.5    | 9   | 47.4  | 56.3    | 2  | 10.5  | 10.5    |
| 7             | 6  | 31.6  | 37.5    | 4   | 21.1  | 25.0    | 0   | 0     | 0       | 3   | 15.8  | 18.8    | 0  | 0     | 0       |
| Total         | 16   | 84.2  | 100.0   | 16  | 84.2  | 100.0   | 16  | 84.2  | 100.0   | 16  | 84.2  | 100.0   | 16   | 84.2  | 100.0   |
| Missing Data* | 3  | 15.8  |         | 3   | 15.8  |         | 3   | 15.8  |         | 3   | 15.8  |         | 3  | 15.8  |         |
| Total         | 19   | 100.0 | 100.0   | 19  | 100.0 | 100.0   | 19  | 100.0 | 100.0   | 19  | 100.0 | 100.0   | 19   | 100.0 | 100.0   |

Note. N is the number of participants selecting a rating for a statement. The table summarizes how participants rated statements based on their nursing clinical experiences. Ratings were based on a Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). \*Missing data was recorded for respondents who selected "I have never been in a dyad during a clinical placement."

**Table 2.** Nursing clinical practicum experience while working individually

| Rating | STATEMENTS  |       |         |   |       |         |   |       |         |   |       |         |  |       |         |
|--------|---|-------|---------|---|-------|---------|---|-------|---------|---|-------|---------|--|-------|---------|
|        | I felt confident in the clinical setting while working individually |       |         | I was not anxious while working individually in the clinical setting. |       |         | I felt free or unrestricted while working individually in the clinical setting. |       |         | I was efficient in the clinical setting while working individually. |       |         | Working individually in the clinical setting is stressful. |       |         |
|        | N   | %     | Valid % | N   | %     | Valid % | N   | %     | Valid % | N   | %     | Valid % | N  | %     | Valid % |
| 1      | 0   | 0     | 0       | 2   | 10.5  | 10.5    | 0   | 0     | 0       | 0   | 0     | 0       | 0  | 0     | 0       |
| 2      | 1   | 5.3   | 5.3     | 10  | 52.6  | 52.6    | 1   | 5.3   | 5.3     | 0   | 0     | 0       | 0  | 0     | 0       |
| 3      | 4   | 21.1  | 21.1    | 2   | 10.5  | 10.5    | 2   | 10.5  | 10.5    | 1   | 5.3   | 5.3     | 1  | 5.3   | 5.3     |
| 4      | 2   | 10.5  | 10.5    | 0   | 0     | 0       | 2   | 10.5  | 10.5    | 0   | 0     | 0       | 1  | 5.3   | 5.3     |
| 5      | 7   | 36.8  | 36.8    | 3   | 15.8  | 15.8    | 8   | 42.1  | 42.1    | 9   | 47.4  | 47.4    | 8  | 42.1  | 42.1    |
| 6      | 5   | 26.3  | 26.3    | 2   | 10.5  | 10.5    | 6   | 31.6  | 31.6    | 8   | 42.1  | 42.1    | 7  | 36.8  | 36.8    |
| 7      | 0   | 0     | 0       | 0   | 0     | 0       | 0   | 0     | 0       | 1   | 5.3   | 5.3     | 2  | 10.5  | 10.5    |
| Total  | 19  | 100.0 | 100.0   | 19  | 100.0 | 100.0   | 19  | 100.0 | 100.0   | 19  | 100.0 | 100.0   | 19   | 100.0 | 100.0   |

Note. N is the number of participants that select the rating for a statement. The table presents a summary of the ratings provided by participants on how they associated statements with their nursing clinical experiences in pairs. The ratings were based on a Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Further analysis showed that 12/16 (75%) participants who had experienced both modalities reported feeling less stress and anxiety when paired. Similarly, of the participants who had not worked in a dyad during their rotations, two-thirds (66.7%) believed that being paired with another student would have lowered their anxiety and stress. When rating experiences with stress and anxiety during clinical practicums, 11/16 (68.7%) participants who encountered both modalities agreed to varying degrees that they did not feel anxious in the clinical setting when working with a peer (see Table 1). However, to various extents, 14/19 (73.6%) of the respondents disagreed with not feeling anxious when working individually during practicums (see Table 2). Responses showed that 7/16 (43.7%) participants who experienced both modal-

ities agreed to varying degrees that working with a partner was stressful (see Table 1). However, 17/19 (89.4%) participants agreed, to varying degrees, that working independently during clinical rotations was stressful (see Table 2).

Moreover, the study revealed that out of the individuals who had undergone both teaching modalities, 10/16 (62.5%) stated that working in pairs enabled them to acquire more clinical skills. Additionally, 2/3 (66.7%) participants who had not experienced dyads believed that dyads would have allowed them to learn more clinical skills. Most participants 14/19 (73.7%) agreed, to various degrees, that they felt unrestricted while working alone in the clinical setting (see Table 2). In comparison, 12/16 (75%) of those who experienced both modalities agreed, to varying degrees, they felt unre-

stricted while working with a peer (see Table 1). Almost all participants (94.8%) believed to varying degrees that they were efficient during practicums where they worked individually (see Table 2). However, 81.4% of the respondents who experienced both modalities believed, to varying extents, that they were efficient while collaborating with another nursing student during their practicum (see Table 1).

Lastly, 11/16 (68.8%) participants who had experienced both teaching modalities during their nursing clinical placements reported that working in dyads helped them develop interprofessional communication skills in the clinical setting. Furthermore, 2/3 (66.7%) participants who did not experience dyads believed that being paired with another nursing student would have helped improve their interprofessional communication skills.

During thematic analysis, participants from dyads expressed positive sentiments regarding belonging, confidence, and teamwork. They highlighted increased self-confidence due to having emotional support and problem-solving resources readily available. However, concerns about task allocation and transitioning to independent practice were common, with some participants finding dyadic work stressful relating to task allocation.

#### 4. DISCUSSION

This study highlights the effectiveness of dyadic teaching in nursing clinical practicums for enhancing clinical skills and self-confidence. While one participant preferred individual practice for skill refinement, dyadic approaches are shown to offer comparable efficacy in teaching clinical and psychomotor skills.<sup>[10,15]</sup> However, challenges such as equitable skill allocation and transitioning from dyadic to individual models exist.<sup>[11]</sup> Strategies like additional teaching sessions for facilitators to learn how to best manage dyad pairs can address these challenges. Despite concerns about transitioning, dyadic learning fosters confidence and autonomy through teamwork and collaboration, albeit with mixed effects on autonomy.<sup>[13]</sup>

This study's results suggest that having nursing students work in pairs on a patient assignment increases self-confidence during clinical practicums. Findings revealed that nursing students working in dyads during a clinical practicum were more likely to experience less stress or feel less anxious than those who experienced the traditional individual teaching method. Participants in this study reported that working in dyads facilitated interprofessional communication, active problem-solving, information-sharing, and the creation of interprofessional care plans. Several respondents reported that working in a dyad created a sense of familiarity and commu-

nity as they were able to relate to their partner throughout the placement. Participants who reported feeling anxious when paired during their practicum discussed challenges related to interpersonal conflict and task allocation.

#### 4.1 Limitations

The study's limitations include limited feedback from current nursing students, and convenience sampling method, which restrict the generalizability of findings and introduces biases. Since the data is retrospective rather than prospective, it could entrap nurses who favor dyadic education, thus influencing results positively. Additionally, retrospective data collection and absence of background demographics of participants undermine the study's application. While survey questions gauge participants' perceptions of acquired clinical skills, the lack of objective measurement of their performance highlights the need for assessment during clinical placements.

#### 4.2 Implications for nursing clinical education

The study findings indicate that a dyadic teaching approach in clinical practicums enhances nursing students' self-confidence, clinical skills, and interprofessional communication and collaboration compared to traditional individual teaching methods. However, further research is needed to assess its impact on students' transition to independent practice. Introducing dyadic work during initial clinical rotations could alleviate stress, build confidence, and foster teamwork skills, with a potential transition to individual work as students gain experience. Combining traditional and dyadic approaches in nursing curriculums warrants exploration for optimizing student learning, patient outcomes, and faculty resources.

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#### AUTHORS CONTRIBUTIONS

TMB and ESJ wrote the main manuscript. TMB, ESJ, DB, DTS edited the manuscript, and all authors reviewed the final version.

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#### CONFLICTS OF INTEREST DISCLOSURE

The authors do not have any competing interests to declare.

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**DATA AVAILABILITY STATEMENT**

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

**DATA SHARING STATEMENT**

No additional data are available.

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