

Original Article

## Exploring Group Dynamics and Clinical Learning Environment Components in Undergraduate Nursing Education: A Quantitative Approach

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### Abstract

**Background:** The clinical learning environment (CLE) is a key component of nursing education, playing a vital role in fostering students' clinical learning and professional development. While several components of the CLE have been studied individually, limited attention has been paid to how group dynamics interact with other CLE components and influence students' sense of belonging and experiential learning.

**Objective:** This study aimed to examine the relationships among four core dimensions of the CLE and explore how students' sociodemographic characteristics influence their perceptions, with a specific focus on group dynamics.

**Methodology:** A cross-sectional study was conducted with 211 undergraduate nursing students. Data were collected via an online survey assessing multiple CLE components, including group dynamics, nursing staff support, opportunities for clinical learning, and supervision by clinical instructors. Descriptive statistics and correlational analyses were performed to identify patterns and relationships among key variables.

**Results:** Supervision by clinical instructors was strongly associated with positive perceptions of group dynamics and emerged as its only significant predictor ( $\beta = .610, p < .001$ ). Perceptions of group dynamics varied significantly by nationality, clinical setting, year of study, and clinical group placements completed. Canadian and first-year students generally reported more favorable perceptions.

**Conclusions:** Supervision plays a pivotal role in fostering positive group dynamics, which in turn enhances the overall learning experience in clinical placements. These findings underscore the importance of inclusive supervisory practices efforts to strengthen group cohesion, particularly in multicultural and diverse clinical settings. Targeted educational strategies and further research are needed to support positive CLE and facilitate the integration of all students into clinical education.

**Keywords:** Clinical Learning Environment; Group Dynamics; Inclusive Education; Nursing Education; Sense of Belonging; Undergraduate Nursing Students

## **Introduction**

Clinical placements represent a cornerstone of undergraduate nursing education, providing students with essential opportunities for experiential learning, professional development, and the integration of theoretical knowledge into authentic care settings (Flott & Linden, 2016; Strandell-Laine et al., 2022). Within these contexts, the Clinical Learning Environment (CLE) plays a crucial role in shaping students' learning experiences, influencing not only clinical competencies, but also their sense of belonging and professional identity (Papastavrou et al., 2016).

The CLE is a multidimensional construct encompassing key elements such as the quality of clinical supervision, the availability of learning opportunities, support from nursing staff (Flott & Linden, 2016; Papastavrou et al., 2016; Sand-Jecklin, 2009), and group dynamics within student clinical groups (Dionne Merlin et al., 2023). In this study, group dynamics refer to the interpersonal and collective processes that shape students' experiences within clinical groups, including the quality of relationships, collaboration, psychological safety, and shared learning (Forsyth, 2019). Dimensions such as peer integration and group cohesion, which embody students' experiences of belonging, mutual support, and inclusion, are recognized as fundamental components of group dynamics (Dionne Merlin et al., 2025). When clinical groups foster a strong sense of belonging, students report increased confidence, engagement, and deeper experiential learning (Dionne Merlin et al., 2025; Sundler et al., 2014; Warne et al., 2010).

Adopting a caring perspective by fostering inclusion, kindness, and psychological

safety in clinical settings (Ferguson, 2011; McClintock et al., 2023) not only aligns with core nursing values and supports but also supports deeper, more meaningful learning. Clinical supervisors and staff who embody caring attitudes contribute to environments in which students feel respected, valued, and empowered to fully engage in learning activities (Henderson et al., 2012).

Although the significance of the CLE is well established, few studies have examined the interrelationships among its core components, particularly the links between group dynamics and other elements such as instructor supervision, nursing staff support, and learning opportunities. Moreover, limited evidence exists regarding the influence of student demographics, such as age, gender, year of study, nationality, and clinical setting, on perceptions of the CLE, with particular attention to group dynamics. This gap is especially relevant in multicultural cohorts, where diversity may influence experiences of group cohesion and peer integration (Andreassen et al., 2025; Edgecombe et al., 2013; O'Reilly & Milner, 2015).

By focusing on group dynamics, this study aims to clarify the needs of undergraduate nursing students in CLE. Specifically, it seeks to: (1) identify the conditions that foster positive peer integration and enhance the CLE; (2) examine the relationships between group dynamics and other core components of the CLE, including the roles of clinical supervisors, nursing staff, and characteristics of the clinical setting; and (3) explore how students' demographic characteristics influence their perceptions of the CLE, with a particular focus on group dynamics. Understanding these interconnections can inform the development of more inclusive and supportive CLE, ultimately enhancing

student engagement, satisfaction, and professional development. By identifying both relational and structural factors that contribute to a positive learning climate, nursing educators will be better equipped to tailor supervision practices and group configurations to meet the diverse needs of learners.

### **Methodology**

**Study Approach:** This descriptive cross-sectional study aimed to examine undergraduate nursing students' perceptions of the CLE, with a particular focus on group dynamics and their relationships with other CLE components. Data was collected using a structured online survey designed to capture students' experiences during clinical placements.

**Context and Participants:** The study was conducted at the Université de Moncton, a French-language university in New Brunswick, Canada, offering a four-year BScN program. Each semester includes clinical placements in small groups (6-8 students), lasting 3 to 6 weeks. Although group composition typically varies between placements, third-year students remain in the same groups across four consecutive rotations, allowing group dynamics to evolve through interpersonal diversity and collaborative demands. The accessible population consisted of 295 undergraduate nursing students who had completed at least one clinical placement. To capture diverse perspectives, maximum variation purposive sampling was used across all academic years and clinical settings, reflecting the heterogeneity of CLE group dynamics. Participants were recruited through convenience sampling. Using Dillman et al.'s (2014) formula, the minimum sample size was set at 167 to ensure statistical significance.

**Eligibility Criteria:** Participants were eligible if they: (1) were currently enrolled

in the undergraduate nursing program at the Université de Moncton, and (2) had completed at least one clinical placement as part of a student group.

**Recruitment Procedure:** Participants were recruited via posters in classrooms and common areas, institutional emails distributed by the research assistant, and a survey link provided in the invitation letter during clinical placements.

**Data Collection:** Data was collected using a structured, anonymous online survey hosted on a secure platform. Completion time was approximately 10 to 15 minutes. Participation was voluntary, and informed consent was implied by survey completion, as outlined on the introductory page.

The instrument used is a French-language adaptation of the original Student Evaluation of Clinical Education Environment (SECEE) created by Sand-Jecklin (2009). The adapted version of the instrument comprises four subscales: support from nursing staff, learning opportunities, instructor supervision, and group dynamics. The first three subscales were derived from the SECEE, while the fourth, group dynamics, was developed by Dionne Merlin et al. (2024) to more accurately reflect the interpersonal and collaborative dimensions of group-based clinical learning. The instrument has shown strong internal consistency and is suitable for use in nursing education research.

**Data Analysis:** Data were analyzed using SPSS Statistics 29®. Descriptive statistics summarized participant characteristics and CLE perceptions. Mann-Whitney U and Kruskal-Wallis tests assessed group differences, while Spearman's rho examined correlations among CLE components. Multiple linear regression identified predictors of perceived group dynamics. Assumptions for each test were verified using standard diagnostics.

**Ethical Considerations:** Ethical approval for this study was obtained from the University of Moncton's Research Ethics Board (File no. 2324-091). The research was conducted in accordance with the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2, 2022). Participation was voluntary as well as based on free, informed, and ongoing consent. Confidentiality was maintained throughout all phases of the research process.

## **Results**

### **Participant Characteristic**

The sample consisted of 211 nursing students (85% female; mean age = 23 years). All program years were represented, with third-year students most common (28%). Clinical placements occurred mainly in geriatric and rehabilitation settings (33%). Students had typically been part of either one (37%) or four or more groups (38%). Two-thirds identified as Canadian (67%). Participant characteristics are detailed in Table 1.

### **Internal Reliability Assessment of the Adapted EEAC Instrument in CLE Settings**

The adapted instrument demonstrated excellent internal consistency (Cronbach's  $\alpha = 0.898$  across 46 items). Subscale reliabilities were also strong: Nursing Staff Support ( $\alpha = 0.929$ ), Learning Opportunities ( $\alpha = 0.901$ ), Instructor Supervision ( $\alpha = 0.946$ ), and Group Dynamics ( $\alpha = 0.889$ ). All coefficients exceeded the 0.80 threshold, confirming the instrument's suitability for assessing CLE dimensions (Table 2).

### **Exploring Components of the CLE and the Impact of Sociodemographic Factors**

#### **Associations with Age**

Age was positively correlated with year of study ( $\rho = .41, p < .001$ ), number of clinical groups completed ( $\rho = .19, p = .005$ ), and nationality ( $\rho = .36, p < .001$ ), indicating that older students tended to be further along in their training and more likely to be non-Canadian. Conversely, age showed a negative correlation with perceptions of group dynamics ( $\rho = -.14, p = .043$ ), suggesting that older students may perceive interpersonal aspects of the CLE less favorably. This pattern could reflect shifts in expectations, differing interpersonal experiences, or increased exposure to challenging clinical realities as training progresses.

#### **Comparisons by Gender**

Mann-Whitney U tests showed no significant differences between male and female students across the four CLE domains. However, the strong gender imbalance (85% women, 14% men) limits statistical power and may mask distinct experiences. The small number of male respondents also restricts the diversity of perspectives within that subgroup.

#### **Comparisons by Year of Study**

Comparisons by year of study revealed significant differences in perceptions of the CLE, based on Kruskal-Wallis test results. First-year students reported more favorable ratings across all domains: group dynamics ( $H(3) = 10.19, p = .017$ ), instructor supervision ( $H(3) = 10.39, p = .016$ ), learning opportunities ( $H(3) = 17.49, p < .001$ ), and nursing staff support ( $H(3) = 17.32, p < .001$ ). Post hoc analyses indicated that first-year students rated group dynamics and instructor supervision significantly higher than second year and third year students. Fourth-year students expressed slightly more positive perceptions than those in the middle years of the program, although this trend was less

consistent. These findings suggest a possible decline in perceptions over time, potentially related to evolving expectations and increased autonomy.

### ***Comparisons by Clinical Settings***

Perceptions of the CLE varied significantly by clinical setting, as shown by Kruskal-Wallis test results. Group dynamics ( $H(4) = 26.36, p < .001$ ), instructor supervision ( $H(4) = 23.51, p < .001$ ), learning opportunities ( $H(4) = 14.53, p = .006$ ), and support from nursing staff ( $H(4) = 15.30, p = .004$ ) all showed statistically differences. Medical and surgical placements received the most positive ratings, while geriatric/rehabilitation and mental health settings were rated less favorably, particularly in relation to group dynamics and staff support. Interpretation of these findings is limited by uneven sample sizes and the grouping of certain specialties, which may have introduced heterogeneity.

### ***Comparisons Based on the Number of Clinical Groups Completed***

Students who completed their internships within a single clinical group reported significantly more positive perceptions of the CLE compared to those who participated in multiple groups. Statistically significant differences were observed for group dynamics ( $H(3) = 8.25, p = .041$ ), instructor supervision ( $H(3) = 12.73, p = .005$ ), learning opportunities ( $H(3) = 14.66, p = .002$ ), and support from nursing staff ( $H(3) = 8.91, p = .030$ ). Post hoc analyses confirmed that students with consistent group placement rated supervision and learning opportunities particularly higher. These findings suggest that continuity within clinical groups may enhance interpersonal relationships, foster a stronger sense of belonging, and provide more stable support throughout the learning experience.

### ***Participant Nationality on Perceptions of the CLE***

Non-Canadian students reported lower average scores across all domains of the CLE compared to their Canadian peers. The most pronounced difference was observed in perceptions of group dynamics, which was statistically significant according to ANOVA results ( $F(1, 209) = 10.57, p = .001$ , partial  $\eta^2 = .05$ ). Canadian students rated group dynamics with a mean score of 4.24 ( $SD = 0.60$ ), while non-Canadian students reported a mean of 3.92 ( $SD = 0.78$ ). Although slightly lower scores were also noted among non-Canadian students for support from nursing staff and instructor supervision, these differences were not statistically significant. These findings suggest that international students may face challenges related to integration and cohesion within clinical groups, highlighting the importance of fostering culturally safe and inclusive learning environments (Table 3).

### ***Exploring the Interplay Between Group Dynamics and Experiential Learning Factors***

#### ***Descriptive Statistics of the Subscales***

Among the four components of the CLE, instructor supervision received the highest average score ( $M = 4.43, SD = 0.72$ ). Students described instructors as approachable, encouraging, and proactive in supporting learning and autonomy. In contrast, support from nursing staff received the lowest average score ( $M = 3.90, SD = 0.89$ ), suggesting variability in the quality of integration and mentorship provided by clinical staff. These results point to a potential area for targeted improvement in nursing education settings (Table 4).



### ***Interconnections Between Group Dynamics and Experiential Learning***

Strong correlations were observed between group dynamics to instructor supervision ( $r = .749, p < .001$ ), as well as between group dynamics and learning opportunities ( $r = .673, p < .001$ ). A moderate association was also found between group dynamics and support from nursing staff ( $r = .553, p < .001$ ). The strongest relationship emerged between instructor supervision and learning opportunities ( $r = .787$ ), suggesting that

effective supervision not only increases the quantity of learning experiences, but also enhances their quality.

A multiple regression analysis predicting group dynamics from the other three CLE components yielded a significant model ( $F(3, 207) = 129.68, p < .001$ ), explaining 65.3% of the variance (Table 5). Instructor supervision was the only significant predictor ( $\beta = .610, p < .001$ ), emphasizing its central role in fostering cohesive and supportive group environments.

**Table 1: Sociodemographic Characteristics of Participants (n=211)**

Characteristics	Full sample	
	<i>n</i>	%
Average age: 23 years		
Gender		
Female	180	85
Male	29	14
Prefer not to say	2	1
Year in the program		
First	56	27
Second	44	21
Third	59	28
Fourth	52	24
Clinical settings		
Medical/Surgical	53	25
Geriatric/Rehabilitation	69	33

Mental Health	13	6
Maternity and Pediatrics	8	4
More than one unit	68	32
Number of internships groups		
One group	78	37
Two groups	14	7
Three groups	39	18
Four or more groups	80	38
Nationalities		
Canadian	142	67
Others <sup>a</sup>	69	33

Note.  $N = 211$ . The average age of participants was 23 years ( $SD = 5.5$ ).

<sup>a</sup> Algerian, Cameroonian, Congolese, Ivory Coast, Guinean, Malagasy, Malian, Moroccan

**Table 2: Internal Consistency Reliability of the Adapted EEAC Instrument (n=211)**

Instrument / Subscale	Cronbach's Alpha	Number of Items
Full Instrument	0.898	46
<i>Subscales</i>		
Support from nursing staff	0.929	10
Learning opportunities	0.901	9
Instructor supervision	0.946	11
Group dynamics	0.889	16

**Table 3: Descriptive Statistics for the Nationality Variable (n=211)**

Variable	Canadian (n=142)	Non-Canadian (n=69)
	<i>M (SD)</i>	<i>M (SD)</i>
1. Support from nursing staff	4.49 (0.67)	4.31 (0.79)
2. Learning opportunities	4.19 (0.73)	4.15 (0.77)
3. Instructor supervision	3.95 (0.86)	3.79 (0.96)
4. Group dynamics	4.24 (0.60)	3.92 (0.78)

**Table 4: Descriptive Statistics and Correlations for the Instrument's Subscales**

Variable	<i>M</i>	<i>SD</i>	1	2	3
1. Support from nursing staff	3.90	0.89	—		
2. Learning opportunities	4.18	0.75	0.787*	—	
3. Instructor supervision	4.43	0.72	0.641*	0.772*	—
4. Group dynamics	4.14	0.68	0.553*	0.673*	0.749*

\*Significant correlation ( $p < .001$ )

**Table 5: 1Results of the Regression Model Examining the Effect of Three Predictors on Group Dynamics**

Subscales	<i>R</i> <sup>2</sup>	Adjusted <i>R</i> <sup>2</sup>	<i>F</i> Change	<i>p</i>
<b>Model</b>	0.653	0.648	129.682	< 0.001

**Predictors:**

Instructor supervision

Learning opportunities

Support from nursing staff

Dependent variable: Group dynamics 95% Confidence Level



## **Discussion**

The results highlight the central influence of group dynamics and supervision, with variations by age, nationality, and clinical setting pointing to both strengths and areas for improvement. Effective clinical education thus relies not only on technical instruction and resources, but also on fostering cohesion, inclusivity, and belonging. The discussion situates these results within existing literature on group cohesion, cultural and age-related factors, and supervisory practices shaping learning, confidence, and professional development.

### **The Central Role of Group Dynamics in Clinical Education**

Group dynamics emerged as the most sensitive and influential dimension of the CLE, showing strong correlations with instructor supervision, learning opportunities, and nursing staff support. Strong interpersonal cohesion within clinical groups appears foundational to students' perceptions of support, inclusion, and learning quality. When group dynamics are strong, students report more favorable experiences across all CLE dimensions, reinforcing the idea that relational stability enhances educational outcomes.

Clinical instructor supervision was the strongest predictor of positive group dynamics, which underscores the supervisor's role in fostering psychological safety, professional identity, and collaborative learning (Strandell-Laine et al., 2022; Sundler et al., 2014).

Supervisors who are accessible, encouraging, and skilled in group facilitation promote both individual learning and overall group functioning, supporting calls for training in leadership, interpersonal communication, and cultural competence. Our results are consistent with those reported in previous studies (Al-

Daken et al., 2024; Ferguson, 2011), which emphasize the importance of clinical supervision and the structure of the CLE. Our study introduces a distinct contribution by explicitly examining the role of group dynamics, a dimension that is not directly addressed in existing literature. This focus allows us to shed light on how interpersonal relationships and a sense of belonging within student groups significantly influence learning experiences and professional development.

The strong intercorrelations among the four CLE subscales indicate that the CLE operates as an integrated system. Enhancing supervision may expand learning opportunities and reinforce peer collaboration, while fostering inclusive and respectful group relationships can encourage knowledge sharing and reduce counterproductive competition (Henderson et al., 2012; Papastavrou et al., 2016).

These findings align with interprofessional education research demonstrating that team cohesiveness predicts collaboration outcomes through collective efficacy, with cohesive teams reporting greater confidence, satisfaction, and engagement (Chin et al., 2024; Li et al., 2020).

Although the CLE was positively rated overall, nursing staff received lower scores, particularly in role modeling and feedback. This gap represents a missed opportunity, as bedside nurses are key to linking theory and practice. Strengthening their involvement through mentorship training and clearer role expectations could enhance student learning.

These observations are consistent with the findings of Jack et al. (2017), who also emphasize the underutilized potential of nursing staff in supporting clinical education.

### **Impact of Cultural Diversity and Nationality on Group Cohesion**

Group dynamics was the only CLE domain to show statistically significant differences based on nationality, with Canadian students reporting more favorable perceptions than their non-Canadian peers. This disparity may reflect challenges in integration, communication, and cultural belonging experienced by international or minority-background students. Consistent with previous research, such students often report lower levels of inclusion and belonging in clinical settings, with negative consequences for learning and engagement (Cant et al., 2021; Grinberg et Nissim, 2025).

Cultural and linguistic differences can hinder peer interaction and supervisory relationships, particularly when students feel misunderstood or excluded. In settings where dominant cultural norms go unaddressed or inclusive practices are lacking, students may hesitate to ask questions, seek feedback, or admit uncertainty, behaviors that are essential to professional growth (Pirhofer et al., 2022; Shali et al., 2024). This study also found that older students and those from non-Canadian backgrounds tended to rate the CLE less favorably, suggesting that psychological safety is not experienced equally by all. Psychological safety is critical for effective clinical learning (Hardie et al., 2022). When it is lacking, students' confidence and motivation may decline, increasing the risk of disengagement or burnout (Adwa et al., 2024).

Belonging is central to active participation in clinical settings (Aker & Şahin, 2022). Students who feel accepted and valued are more likely to take risks while learning, seek feedback, and contribute to group

functioning (Rae et al., 2024; Squire et al., 2024). In contrast, those who feel marginalized may withdraw, especially in groups where cultural or linguistic diversity is not recognized or supported. The « non-Canadian » category in this study included a heterogeneous mix of identities, highlighting that factors such as length of residence, cultural adaptation, and language fluency may shape students' perceptions of the CLE. These findings underscore the importance of creating inclusive environments where all students feel respected, safe, and empowered to participate fully. This responsibility falls not only on supervisors, but also on nursing staff as well as peers.

### **Continuity and Stability as Facilitators of Cohesion**

Findings emphasize the value of continuity in clinical group composition. Stable groups foster trust, familiarity, and belonging, strengthening group dynamics, which is consistent with literature on trust and psychological safety in learning. In contrast, frequent reshuffling, though intended to diversify clinical exposure, can disrupt cohesion. Balancing curricular diversity with sustained peer relationships appears key to enhancing group dynamics and the overall CLE. Emotionally safe and civil learning environments emerge when interpersonal relationships are intentionally nurtured through respectful interactions and shared norms (Benner, 2012). Thus, maintaining continuity within clinical groups not only supports learning but also serves as a protective factor against the stress and complexity inherent to clinical practice.

### **Implications for Inclusive and Relational Pedagogy**

This study highlights the value of relational and inclusive pedagogies in clinical

education. Given the central role of group dynamics, educators should foster connection, cultural responsiveness, and psychological safety through strategies such as co-creating group norms, inclusive language, and recognition of diverse identities (Grinberg et Nissim, 2025; Shali et al., 2024). Addressing disparities among international and older students further requires embedding diversity, equity, and inclusion into supervisor training, peer support, and placement designs that promote continuity and belonging (Cant et al., 2021; Chin et al., 2024).

These findings align with Kolb's Experiential Learning Model (1984), where learning progresses through experience, reflection, conceptualization, and experimentation. Strong supervisor support facilitated reflection, feedback, and autonomy fostering clinical judgment and skill development. In contrast, weaker support from nursing staff and group dynamics may disrupt early experiential stages, limiting feedback and hindering growth (Hardie et al., 2022). This underscores the interdependence of CLE dimensions: weaknesses in one area can impede learning, while strengthening another can generate positive ripple effects across the cycle.

### **Strengths and Limitations**

This study's strengths include a robust sample size ( $N = 211$ ) and balanced nationality representation, ensuring sufficient statistical power. The use of multivariate general linear modeling enhanced validity by controlling confounders. It also offers a novel contribution by deepening understanding of nursing students' relational needs and emphasizing the role of group dynamics in the CLE.

However, limitations must be noted. Cross-sectional design restricts the ability to establish causal relationships between variables. Broad categorization of « non-Canadian » students may have masked ethnocultural nuances. Self-reported data are subject to bias, and the single-institution context may limit generalizability.

### **Implications for Education and Practice**

This study underscores the central role of clinical supervision in fostering group cohesion and supporting students' relational as well as clinical needs. Cohesion, psychological safety, and respectful communication are essential to a supportive CLE. Institutions should adopt inclusive, relationship-centered practices, such as mentorship for minority students, intercultural communication training, and structured group-building activities. Culturally responsive approaches are key to promoting confidence, engagement, and professional development, thereby strengthening outcomes and workforce readiness.

### **Directions for Future Research**

Future work should further examine how demographics, cultural adaptation, and interpersonal dynamics shape CLE experiences. Given the sensitivity of the group dynamics subscale to these factors, developing a standalone instrument that includes items on cultural safety, inclusion, and belonging would allow for a more nuanced assessment of interpersonal and intercultural dimensions. Longitudinal designs are also recommended to capture how group dynamics and learning evolve over time.

**Conclusion:** This study reaffirms the central role of group dynamics in the CLE, closely intertwined with supervision, inclusivity, and placement continuity.

Disparities related to nationality, age, and cultural background underscore the need for equity-focused strategies. By acknowledging the diverse realities of nursing students, educators can foster clinical environments that are safe, inclusive, and conducive to both learning and well-being. Strengthening group cohesion emerges as a powerful lever for enhancing the CLE and preparing students to thrive in diverse healthcare contexts.

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### **Declaration of Generative AI and AI-assisted technologies in the writing process**

Given that English is not the native language of the research team, we employed artificial intelligence tools to support the rephrasing and lexical refinement of certain passages, ensuring clarity, and precision in word choice.

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