

# Post-pandemic Implications of the Nursing Students' Clinical Learning Environment and its Relationship to Academic Grit, Self-esteem, and Caring Behaviors: A Cross-sectional Study

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## ABSTRACT

**Background.** The clinical learning environment (CLE) significantly influenced the nursing students' learning experience. While clinical learning is the heart of nursing education, certain non-academic factors might be influenced by CLE. Consequently, CLE may be affected during a health crisis like the COVID-19 pandemic.

**Objective.** To determine the relationship between nursing students' CLE and their academic grit, self-esteem, and caring behaviors in the Central Philippines.

**Methods.** A descriptive cross-sectional study was conducted involving 462 nursing students enrolled during the COVID-19 pandemic. A purposive sampling technique was used to select the participants. Four self-report questionnaires were adopted to gather the data: a 42-item Clinical Learning Environment Inventory (CLEI) scale, short-form Grit (Grit-S) scale, Rosenberg's Self-Esteem (RSE) scale, and Caring Behavior Inventory (CBI-24) scale. Spearman rho and rank-biserial correlation tools were used to analyze the data.

**Results.** The results indicated that the clinical learning environment was positively associated with academic grit, self-esteem, and caring behavior. Some profiles of the participants, such as age, sex, year level, type of school, leadership experiences, clinical setting experience, and willingness to be a nurse, were significantly associated with the clinical learning environment, academic grit, self-esteem, and/or caring behavior.

**Conclusions.** Students' CLE influences their academic grit, self-esteem, and caring behavior. That is, students who reported a more positive perception of CLE, the higher their academic grit, self-esteem, and caring behaviors. Furthermore, some students' profile characteristics influence CLE, academic grit, self-esteem, and caring behavior. Enhancing CLE while promoting grit, self-esteem, and caring behaviors of nursing students affiliated with hospitals or any clinical learning settings and promoting alternative means of meeting CLE competencies when face-to-face interactions are restricted during a health crisis are recommended.

**Keywords:** care behavior, clinical practicum, grit, mental health, nursing education, self-esteem, clinical learning environment



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## INTRODUCTION

In every nation, the healthcare system needs competent professional nurses to provide nursing care to their patients. In the Philippines, nurses comprise the biggest pool of healthcare workers in hospitals and primary care settings.<sup>1</sup> During the COVID-19 pandemic, nurses were on the frontline, taking good care of sick individuals while, at the same time, providing preventive measures against its spread to other people.<sup>2</sup> Nurses work tirelessly to save lives, promote health, and protect other individuals in their communities. Thus, it is essential that nursing students, during their training period, strengthen their competencies, which will prepare them, when they become professional nurses, to address various health challenges in society, such as the emerging and re-emerging infectious diseases, aging population, and other demographic transitions, climate change, and the rise of non-communicable diseases.

The Philippine nursing education must ensure that nursing graduates acquire the necessary skills and knowledge to care for their patients. Clinical learning, coupled with classroom didactics, forms nursing education. Clinical learning is the heart and essence of nursing education.<sup>3</sup> The clinical learning setting is called the clinical learning environment (CLE). It includes hospital institutions, clinics, and nursing skills laboratories, which help hone students' professional development and emotional well-being and apparently expose them to the realities of their profession.<sup>3-5</sup> However, unlike the classroom setting, CLE is regarded as a complex learning setting with an unpredictable nature affected by various physical, psychological, and organizational factors.<sup>6</sup> In this study, the CLE includes hospitals, clinics, and nursing skills laboratories where nursing students were affiliated to gain clinical learning experiences. Moreover, the clinicals mentioned in this study include the hospitals and clinics affiliated with the students.

At the height of the COVID-19 pandemic, colleges and universities around the globe were forced to shift their face-to-face learning environment into a remote learning set-up. Nursing education is not spared in this sudden transition. Typically, it takes several months to conceptualize and prepare online programs; however, because of COVID-19, there was a swift change to online where teachers and students seemed unfamiliar with the learning environment.<sup>7</sup> Consequently, the pandemic has dramatically affected the CLE, and for many months, the nursing students' face-to-face clinical affiliations and skills laboratory activities have been suspended. A face-to-face approach is integral in clinical courses.<sup>8</sup> During emergency remote teaching (ERT), nursing students demonstrated unsuccessfully in reaching the learning objectives and their learning outcomes for clinical courses.<sup>9</sup> Students expressed worries about poor clinical skills and abysmal clinical performance in critical situations.<sup>10,11</sup> A previous study demonstrated that some nursing students became unwilling to pursue nursing largely

because of unhappiness and frustrations related to poor clinical experiences.<sup>12</sup> Another study showed that hospital students felt morally pressured during the pandemic but gained unique learning experiences.<sup>13</sup>

With massive vaccination against COVID-19 and eventual control of the cases, the face-to-face CLE for nursing students was resumed in hospital settings with certain restrictions. These limitations gave the students a limited scope of practice but with ease of protection.<sup>14</sup> The CLE brought them new learning opportunities and professional development as they became part of the frontline team fighting COVID-19.<sup>15</sup> The learning experience was valuable as they recognized the benefits and significance of clinical practice.<sup>14</sup> On the contrary, some students experienced struggles adapting to the situation and disobedience in participating in CLE as manifested by demurrer on providing bedside care and patient marginalization.<sup>16</sup> Nevertheless, students are more optimistic about learning opportunities and have more favorable clinical experiences when supported by a personal supervisor.<sup>17</sup>

## Literature Review

Learning in a clinical environment has been explored and studied extensively, claiming that the clinical setting is a powerful place for learning.<sup>18-20</sup> Kolb's experiential learning theory holds that experience plays a significant role in the learning process.<sup>21</sup> As such, the clinical environment or the workplace affords learning experiences for nursing students in practice. Students apply practical skills, interact with their patients, apply learned theoretical concepts to real-life scenarios, and acquire professional development.<sup>4</sup> To be a real expert in working life, a student has to develop situation-specific types of competence, and this could be attained only in authentic situations such as the clinical environment.<sup>22</sup>

Literature demonstrated the clinical learning environment's value and challenges. CLE promotes learning and allows the students to apply theories learned in classrooms to practice, thereby molding them to become competent healthcare providers.<sup>4</sup> In addition, it is integral that nursing students feel welcomed and supported in the clinical environment. This helps them develop self-confidence, self-directed learning, and self-support, which may eventually help them develop leadership skills.<sup>23</sup> Furthermore, the CLE significantly influenced the nursing students' learning experience during the COVID-19 pandemic. While clinical learning is the heart of nursing education, certain aspects of the training and development of nursing students might be influenced by CLE, such as their academic grit, self-esteem, and caring behaviors.

Grit is an individual's critical protective psychological characteristic that facilitates overcoming obstacles in attaining one's goals. It is described as the enduring passion and persistence to achieve the individual's long-term goals.<sup>24</sup> A previous study showed that gritty individuals are optimistic,

resilient, focused, and committed to achieving long-term goals despite challenges and adversities, and have better outcomes toward success.<sup>25</sup> Grit reduces the negative influences on nursing students' experiential learning brought on by various personal and social difficulties.<sup>26</sup> Nursing students encounter immense stress in their studies, especially during clinical duties exacerbated by the COVID-19 pandemic. As such, grit is a significant factor in the nursing students' completion of the program with competence in clinical skills.

Self-esteem is an individual's perception and evaluation of self, examining the value or worth of self.<sup>27</sup> With the nature and characteristics of the training environment of the nursing students, they need to develop good self-esteem. Self-esteem depends on personal worth and competence; thus, a person must acquire both sufficiently to possess solid and healthy self-esteem, which results in healthy psychological and behavioral outcomes.<sup>28</sup> As professional competence and self-worth of nursing students can be developed in the clinical learning environment, this might significantly influence the development of the student's self-esteem.

Caring is regarded as the foundation of the nursing profession, and nursing students are expected to demonstrate the necessary care and concern for their patients. Caring behaviors demonstrate genuine concern for a patient's well-being, such as compassion, honesty, comfort, active listening, respectfulness, sensitivity, and nonjudgmental acceptance.<sup>29</sup> Nursing students can successfully develop caring depending on the quality of the mentor-mentee relationships and the nursing education.<sup>30</sup>

The CLE has been regarded as an avenue for the student's decision to quit or continue nursing.<sup>31</sup> The dynamics of the learning environment and the events' complexities create tension for the learners. Students may encounter challenges and issues while on clinical duties, which could significantly affect their learning experiences.<sup>31</sup> However, the CLE is the essence of nursing education, and nursing students need to be immersed in this training environment to become competent professional nurses. Furthermore, it is essential to investigate certain aspects of nursing students, such as their academic grit, self-esteem, and caring behaviors, that CLE could influence. Consequently, the COVID-19 pandemic placed the CLE a particular purpose for the nursing students' extraordinary learning experience, which could further affect their academic grit, self-esteem, and caring behaviors. The findings of this study might have significant implications and insights for nursing education after the COVID-19 pandemic in crafting policies and strategies that will improve the clinical learning environment of the students, especially during times of health crises like the pandemic when the face-to-face teaching-learning environment is altered, and the student's clinical learning might be compromised. Likewise, the study's findings may provide insights into enhancing students' academic grit, self-esteem, and caring behaviors.

## OBJECTIVES

This study aims to determine the relationship between nursing students' clinical learning environment and their academic grit, self-esteem, and caring behaviors. Specifically, the researchers tested the following hypotheses:

- H<sub>1</sub>: There is a significant relationship between the nursing students' profile and their clinical learning environment, academic grit, self-esteem, and caring behaviors.
- H<sub>2</sub>: There is a significant relationship between the nursing students' clinical learning environment and their academic grit, self-esteem, and caring behaviors.

## METHODS

### Research Design

A descriptive cross-sectional design was employed in this study to determine the relationship between the variables of interest. The STROBE checklist was used as a guide to ensure a quality presentation of the manuscript.

### Participants and Settings of the Study

Students enrolled in the Bachelor of Science in Nursing (BSN) program from twelve (12) government and private higher education institutions (HEIs) in the Central Philippines were involved in this study. Furthermore, the HEIs must be recognized as regulated, deregulated, or autonomous status by the Commission on Higher Education (CHED), the country's regulatory body for HEIs. For better access to the participants during the pandemic, they were selected through purposive sampling. They must be enrolled in the program during the COVID-19 pandemic, taking courses in skills laboratory, clinicals, or both. Furthermore, they must consent to participate in the study. Those nursing students who did not have clinical courses in times of pandemic restrictions, were on leave of absence, were sick, and were difficult to reach because of connectivity issues on the internet were excluded from this study. The connectivity issue was also an exclusion criterion because the data gathering was conducted online.

Using the Raosoft online sample size calculator, the estimated sample was 377. This was revealed with a margin of error of 5%, 95% confidence level, 50% response distribution (as the most conservative assumption), and a target population size of 20,000. This study had no definite target population, but the literature has cited that the sample size does not change much for populations of more than 20,000.<sup>32</sup>

### Research Instrument

A self-report questionnaire was used in this survey. This was composed of five parts. The first part was a checklist that assessed the participants' age, sex, year level in the BSN program, type of school, leadership experience, experience in the clinicals, views on the pandemic that made nurses

honorable, or students' unwillingness to be a nurse, willingness to be a nurse, duration of the internship in the clinicals, and average daily working hours during the internship.

The second part assessed positive learning in the clinical environment of the nursing students using the 42-item Clinical Learning Environment Inventory (CLEI) developed by Chan.<sup>33</sup> Many international researchers widely use this standard tool, and it implies international utility. It investigates nursing students' perceptions of their clinical learning environment.<sup>34</sup> Participants were asked about their perception of clinical learning placement. The instrument has six subscales: 1) Innovation, 2) Student Involvement, 3) Personalization, 4) Satisfaction, 5) Individualization, and 6) Task Orientation. Innovation is the clinical educator's ability to provide an engaging learning experience to the students. Student involvement measures how students actively participate in various clinical learning activities. Personalization is the individual student's interaction with clinical educators. Satisfaction measures how the students were satisfied with their clinical experiences. Individualization gauges the extent to which nursing students' preferences affect their studies and interests. Task orientation appraises the instructional organization of the clinical activities.<sup>33</sup> Participants rated each item on a four-point Likert scale ranging from 1 = strongly disagree to 4 = strongly agree. Scores of negative items were reversed so that all items on the scale were in the same direction. High scores indicate positive views and perceptions about their clinical learning environment. For this study, the scores of the overall subscales were considered. The internal consistency reliability of the scale was demonstrated with a Cronbach's alpha ranging from 0.73 to 0.84.<sup>32,35</sup>

The third part examined the academic grit of the nursing students using the Short-form Grit Scale (Grit-S) developed by Duckworth & Quinn.<sup>36</sup> The instrument has eight-item questions distributed into two subscales: Consistency of Interest, or the consistency of the student's interest over time, and Perseverance of Effort, or the sustaining effort of the student despite adversity. Students rated each item on a five-point Likert scale ranging from 1 = Not at all like me to 5 = Very much like me. Negative items also had their scores reversed for one directionality of the tool. High scores indicate high grit. The internal consistency reliability of the scale was demonstrated by Li et al., with a Cronbach's alpha for scores of the overall Grit-S of 0.80.<sup>37</sup>

The fourth part of the questionnaire examined the participants' self-esteem using Rosenberg's Self-Esteem Scale (RSE).<sup>38</sup> A widely used tool that has been used in a variety of groups, from high-school students to adult groups, this scale has ten statements, with five negatively worded statements (recoded to come up with a single score) and five positively worded statements. The participants rate each item on a four-point Likert scale ranging from 1 = strongly disagree to 4 = strongly agree. After reverse-scoring the negative items, the total scores range from 10 to 50 (low to high self-

esteem). The internal consistency reliability of the scale was demonstrated by Reynoso-González et al., with a Cronbach's alpha of 0.87.<sup>39</sup>

The fifth questionnaire examined the caring behaviors of the participants using the 24-item Caring Behaviors Inventory (CBI-24) developed by Wu et al.<sup>40</sup> This tool has four subscales: 1. Assurance subscale (8 items), which means being readily available to the student to the patient's security and needs; 2. Knowledge and Skill subscale (5 items), denoting student's conscience and competence; 3. Respectful subscale (6 items), paying attention to the patient's dignity, and 4. Connectedness subscale (5 items), the provision of constant assistance to the patient with readiness. For this study, the overall score was considered, indicating the students' caring behaviors in the clinical learning environment. The participants rated the items on a six-point Likert scale ranging from 1=Never to 6=always. The internal consistency reliability of the scale was demonstrated by Akman & Ozturk, with a Cronbach's alpha of 0.91.<sup>41</sup>

### Data Collection Process

Permission letters to conduct the study were secured from the Presidents of the HEIs through the Deans of the Colleges of Nursing. Upon approval, coordination was made with the department heads, program coordinators, and class advisers for the selection of the participants. The selection was facilitated by requesting the names of the nursing students, their contact numbers, and their email addresses from the department heads, coordinators, and class advisers. Actual recruitment was made with the researchers only. Written informed consent and cover letters of the questionnaire were secured from every participant. The survey was conducted online through the utilization of Google Forms. Participants were given opportunities to ask questions and clarifications before the actual survey. Answering the online survey questionnaire signifies their consent to participate in the study. The survey questionnaires were all given in English. The email addresses of the participants were collected for validation purposes. Answering the questionnaire lasted for 15-20 minutes. After the survey, a message of gratitude was given to every participant. This also signifies that the survey questionnaire was completed accurately. The survey entries were generated in a tallied form through MS Excel and linked with Google Forms. The data collection period was from April to June 2022.

### Data Analysis

All tallied data in the spreadsheet were entered into the R, a free statistical analysis software, version 4.3.3.<sup>42</sup> Descriptive statistics include frequency counts, percentages, mean, and standard deviations. Rank-biserial correlation was used to determine the relationship between dichotomous nominal data and ordinal data. This statistical treatment was used for participants' sex, type of school, leadership experience, clinical setting experience, and pandemic made honorable



with their clinical learning environment, academic grit, self-esteem, and caring behaviors. On the other hand, Spearman rho was used to determine the relationship between two ordinal, interval, or ratio scales. Spearman rho was used to determine the relationship between the participants' profiles, such as age, year level, and willingness to be a nurse, and their clinical learning environment, academic grit, self-esteem, and caring behaviors. Likewise, this tool determined the relationship between the clinical learning environment and academic grit, self-esteem, and caring behaviors. The significance level was set at  $<0.05$ .

### Ethical Considerations

The local research ethics board approved ethics clearance to conduct the study involving human participants (RES-CON-F2022-01). Likewise, administrative clearance to conduct the study was secured from every HEI's President through the Dean of the College of Nursing. Written informed consent was secured from every participant. This reflects that no coercion is involved in their participation. Likewise, they were allowed to ask for clarifications before answering the online survey. The purpose of the study, possible benefits,

harm, and risks of participating were given prior to the survey. Potential risks include a breach of confidentiality and the consequences of such a breach. As such, confidentiality and anonymity of the participants were maintained throughout the study. Only the researchers had access to the raw data. Raw data were kept and secured, were used only for this study, and were discarded after the study. They were not paid nor given tokens to participate. The researchers declared no conflict of interest over the participants. The findings will be disseminated through publication in a reputable journal.

### RESULTS

A total of 462 nursing students participated in the study. The majority of them were within the age range of 21-30 years old (63.85%), female individuals (80.09%), and second-year level (36.58%) in government nursing schools (73.16%). Most had leadership (62.55%) and clinical experiences (72.51%). Moreover, the majority of them reported that the pandemic made nurses honorable (93.72%) and that the pandemic made students not unwilling to be nurses (92.21%). Thus, they rated 91.88% of themselves as willing to become nurses. Table 1 summarizes the profile of the participants.

In testing hypothesis 1, Spearman rho and rank-biserial correlation coefficients were used (Table 2). The participants' age was significantly and positively correlated with their clinical learning environment ( $r_s=0.1034$ ,  $P=0.0263$ ), academic grit ( $r_s=0.1066$ ,  $P=0.0220$ ), and self-esteem ( $r_s=0.2257$ ,  $P<0.0001$ ). Sex and year level were positively and significantly correlated with self-esteem ( $r_{rb}=0.1237$ ,  $P=0.0078$ ;  $r_s=0.1215$ ,  $P=0.0089$ , respectively). Type of school was negatively and significantly correlated with clinical learning environment ( $r_{rb}=-0.1125$ ,  $P=0.0155$ ) and caring behavior ( $r_{rb}=-0.1112$ ,  $P=0.0168$ ). Leadership experience was positively and significantly correlated with academic grit ( $r_{rb}=0.1199$ ,  $P=0.0099$ ), self-esteem ( $r_{rb}=0.1066$ ,  $P=0.0219$ ), and caring behavior ( $r_{rb}=0.1521$ ,  $P=0.0010$ ). The clinical setting experience was positively and significantly correlated with clinical learning environment ( $r_{rb}=0.1813$ ,  $P=0.0001$ ), self-esteem ( $r_{rb}=0.1711$ ,  $P=0.0002$ ), and caring behavior ( $r_{rb}=0.1169$ ,  $P=0.0119$ ). Finally, willingness to be a nurse was positively and significantly correlated with clinical learning environment ( $r_s=0.2718$ ,  $P<0.0001$ ), academic grit ( $r_s=0.3487$ ,  $P<0.0001$ ), self-esteem ( $r_s=0.2783$ ,  $P<0.0001$ ), and caring behavior ( $r_s=0.3013$ ,  $P<0.0001$ ). Thus, hypothesis 1 was partially supported.

Table 3 presents the relationship between the clinical learning environment and students' academic grit, self-esteem, and caring behaviors. The clinical learning environment was positively and significantly correlated with academic grit ( $r_s=0.3760$ ,  $P<0.0001$ ), self-esteem ( $r_s=0.3307$ ,  $P<0.0001$ ), and caring behavior ( $r_s=0.3583$ ,  $P<0.0001$ ). Hence, hypothesis 2 was fully supported.

**Table 1.** Profile of the Participants (n=462)

Factor	Category	Count	Percentage
<b>Age (years)</b> Mean=21.69264 Standard Deviation=2.956795	18-20	156	33.77
	21-30	295	63.85
	≥31	11	2.38
<b>Sex</b>	Female	370	80.09
	Male	92	19.91
<b>Year level</b>	First year	34	7.36
	Second year	169	36.58
	Third year	145	31.39
	Fourth year	114	24.68
<b>Type of school</b>	Government	338	73.16
	Private	124	26.84
<b>Leadership experience</b>	No	173	37.45
	Yes	289	62.55
<b>Experience in clinicals</b>	No	127	27.49
	Yes	335	72.51
<b>Pandemic made nurses honorable</b>	No	29	6.28
	Yes	433	93.72
<b>Pandemic made students unwilling to be a nurse</b>	No	426	92.21
	Yes	36	7.79
<b>Willingness to be a nurse</b> Mean=91.88 Standard Deviation=14.42	0-10%	5	1.08
	11-20%	0	0.00
	21-30%	0	0.00
	31-40%	1	0.22
	41-50%	12	2.60
	51-60%	4	0.87
	61-70%	11	2.38
	71-80%	49	10.61
	81-90%	74	16.02
	91-100%	306	66.23

**Table 2.** Relationship between Participants' Profile and their Clinical Learning Environment, Academic Grit, Self-esteem, and Caring Behaviors

Profile	Clinical Learning Environment		Academic Grit		Self-esteem		Caring Behavior	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Age <sup>1</sup>	0.1034*	0.0263	0.1066*	0.0220	0.2257***	<0.0001	0.0717	0.1238
Sex <sup>2</sup>	-0.0817	0.0794	-0.0211	0.6515	0.1237**	0.0078	-0.0449	0.3352
Year Level <sup>1</sup>	0.0062	0.8945	-0.0221	0.6360	0.1215**	0.0089	-0.0194	0.6781
Type of School <sup>2</sup>	-0.1125*	0.0155	0.0150	0.7481	-0.0104	0.8243	-0.1112*	0.0168
Leadership Experience <sup>2</sup>	0.0475	0.3080	0.1199**	0.0099	0.1066*	0.0219	0.1521**	0.0010
Clinical Setting Experience <sup>2</sup>	0.1813***	0.0001	0.0531	0.2548	0.1711***	0.0002	0.1169*	0.0119
Pandemic Made Nurses Honorable <sup>2</sup>	0.0661	0.1561	0.0429	0.3572	0.0912	0.0502	0.0726	0.1193
Pandemic Made Students Unwilling to be a Nurse <sup>2</sup>	-0.0781	0.0935	-0.0455	0.3292	-0.0190	0.6841	-0.0543	0.2443
Willingness to be a Nurse <sup>1</sup>	0.2718***	<0.0001	0.3487***	<0.0001	0.2783***	<0.0001	0.3013***	<0.0001

1 – Correlation coefficient estimated using Spearman's rho method (rs); 2 – Correlation coefficient estimated using Rank-Biserial method (rrb)

\*Significant at 0.05 level; \*\*Significant at 0.01 level; \*\*\*Significant at 0.0001 level

**Table 3.** Relationship between Clinical Learning Environment and the Student's Academic Grit, Self-esteem and Caring Behaviors

Variable	Clinical Learning Environment	
	Coefficient (rs)	p-value
Academic Grit	0.3760***	<0.0001
Self-esteem	0.3307***	<0.0001
Caring Behavior	0.3583***	<0.0001

\*\*\*Significant at 0.0001 level

## DISCUSSION

The primary objective of this study was to determine the relationship between clinical learning environment and academic grit, self-esteem, and caring behaviors among students enrolled in government and private nursing schools in the Central Philippines.

The results of this study showed that the clinical learning environment was correlated with participants' age, type of school, clinical setting experience, and willingness to be a nurse. As nursing students increase their age, their perception of the clinical learning environment tends to be more positively affected. Accordingly, as they age, their clinical experiences become rich and could positively affect their likelihood of becoming a nurse. Providing a sufficient and appropriate clinical learning environment could contribute to having an affirmative perception and willingness to become a nurse.<sup>43</sup> A previous study demonstrated similar findings on the correlation between the clinical learning environment and students' age and willingness to be a nurse.<sup>44,45</sup> Consequently, age and willingness to become a nurse are related to students' self-esteem. Self-esteem shapes nursing students' knowledge, skills, and attitudes toward becoming a professional nurse, which, in turn, could be enhanced as they age and by clinical learning experiences.<sup>46</sup> Clinical learning experiences provide opportunities for leadership experiences, which could further

develop self-esteem.<sup>47</sup> In addition, the current study showed a significant relationship between students' sex and self-esteem. A previous study also showed similar findings and claimed that self-esteem is impacted by sex.<sup>28</sup>

Surprisingly, the type of school is negatively associated with the clinical learning environment and caring behavior. This finding contrasts with a previous study, which showed no significant influence on the type of school or university.<sup>48</sup> The type of school may affect the students' perception of the clinical learning environment and caring behaviors. Our study further showed that most participants were studying at government nursing schools. The study findings may indicate that students in government schools may report a low level of perceived clinical learning environment and caring behaviors. The country's regulatory body in nursing education recognized each school involved in this study. However, most government nursing schools affiliate their students with government-owned hospitals. Government hospitals in the country may have some issues and concerns about the nature and degree of workload like nurse-to-patient ratio and degree of care the patients need, nurses' high job burnout and low work engagement levels, or the characteristics of the nurse practice environment, which may contribute to the student's actual and perceived clinical learning experiences including their degree of care and concern towards the patients.<sup>49-52</sup> Nevertheless, each school is unique and may have various resources, opportunities, and challenges to provide nursing students with an appropriate clinical learning environment, including enhancing students' caring behaviors. As such, it is interesting to explore further how the type of nursing school may influence the kind of clinical learning environment the students were affiliated with.

Age was positively correlated with students' academic grit. Leadership experience and willingness to be a nurse were positively associated with grit and caring behaviors. Previous studies demonstrated that as individuals age, their grit increases.<sup>53,54</sup> Through age, individuals gain more life

experiences, persevere for longer-term goals, and become persistent and diligent toward long-term success.<sup>55</sup> In the context of the nursing students, their willingness to become a nurse and their leadership experience fuel their academic grit and caring behaviors. Leadership experiences anchored by a respectful, supportive, and demanding learning environment foster students' grit and caring behaviors in clinical settings.<sup>56,57</sup>

Our study revealed that the clinical learning environment was positively associated with academic grit, self-esteem, and caring behavior. The clinical learning environment is dynamic, challenging, and often stressful, especially during the height of the COVID-19 pandemic, where various factors shape and influence the learning and competencies of nursing students.<sup>58</sup> Congruent to our study, a previous study also revealed the relationship between the clinical learning environment and students' self-esteem.<sup>59</sup> Self-esteem can help students identify specific factors affecting their clinical learning, which could eventually influence their caring behavior and psychological well-being.<sup>60</sup> Consistent with self-esteem, a clinical learning environment strengthens students' academic grit, making grit essential for professional development. Grit serves as an avenue for achieving success and graduating from the nursing program in the long run.<sup>25</sup> Moreover, the clinical learning experience significantly enhances the students' desirable caring behaviors.<sup>61</sup> The clinical settings provide opportunities for the students to experience actual care for patients by understanding their physical and psychological needs. Their interaction with the patients establishes a trusting and empathetic relationship, a desirable element for any caring behavior.<sup>29</sup> Nursing holds caring as a professional value. Students' clinical experiences help them better understand and reflect on their professional and personal values, which offers opportunities for enhancing self-esteem and self-discovery.<sup>57</sup>

The Philippines has been known to be the largest exporter of nurses in the world.<sup>62</sup> As such, the quality of nursing education and training in the country must be scaled up, maintained, and monitored regularly to equip graduates with the necessary skills and competencies to provide quality patient care. One of the critical elements in achieving quality nursing education is the provision of relevant clinical learning experiences to the students in a conducive clinical learning environment. The clinical learning environment provides an opportunity for nursing students to apply theory to practice, gaining experiential learning about skills, attitudes, and even decision-making abilities that are necessary for them to become competent nurses in the future.<sup>4</sup>

### Post-pandemic Implications in Nursing Education

This study presents several practical implications for nursing education leaders, school administrators and educators, training hospitals, and counselors dealing with nursing students. Primarily, the school administrators and nurse educators may gain insights into formulating

effective clinical teaching strategies and activities that can be realistically implemented according to the actual environment, available facilities, and the kind of patients the hospitals and other clinics have. Second, the regulatory body in nursing education and the nurse leaders can craft a structured clinical preceptorship model for both nursing students and clinical preceptors, including in emergency health situations like the COVID-19 pandemic. Several alternatives can be implemented when face-to-face clinical affiliation is not allowed due to health crises like the COVID-19 pandemic. For example, the institution of simulation-based education has been recommended and has made educational outcomes comparable to those of face-to-face interactions.<sup>63,64</sup> When social distancing is a concern in simulation-based education, schools might have innovative designs, such as expanding their simulation facilities in bigger and wider areas like a gymnasium.<sup>64,65</sup> Telehealth services have been included in the health system, and the schools may adopt promoting a greater number of contact hours to allow more telehealth experiences for students.<sup>66</sup> Furthermore, certain activities and programs can be designed to focus on developing self-esteem and caring behaviors, and boost the students' academic grit, further improving their clinical performance while promoting mental health and psychological well-being even during a health crisis. This has been exemplified in the country's promotion and implementation of flexible or blended learning.<sup>67</sup> Literature demonstrated that blended learning in nursing education enhances students' knowledge and skills while positively impacting their mental health.<sup>68</sup>

### Limitations of the Study

This study recognizes some limitations. First, the data were gathered through a self-report questionnaire and may not reflect the actual clinical learning environment and non-academic factors affecting the students' learning. Actual clinical learning environment experiences and these factors affecting students' learning should be investigated by other means, such as actual observation or a longitudinal study. They may include not only the students but also the clinical educators, as they might have different lenses. Second, the results of the study may not be generalizable to all nursing students in the Philippines as the samples were drawn through purposive sampling from only 12 nursing schools in the Central Philippines. Moreover, the study recognizes possible recruitment and selection of participant bias, especially those students with poor or no internet access during data gathering. Third, the research design employed in this study focused only on the relationships between the variables of interest and not the causality. Further studies are recommended involving broader scope and coverage, which will give more generalizable results and help confirm or refute the findings of the current study. Nevertheless, the study's findings pose a significant contribution to the literature.



## CONCLUSIONS

The clinical learning environment was significantly associated with the nursing students' academic grit, self-esteem, and caring behavior. This means that students who reported a more positive perception of CLE have higher academic grit, self-esteem, and caring behaviors. Furthermore, the student's specific demographic and personal profiles were significantly associated with their clinical learning environment, academic grit, self-esteem, and caring behavior. The present study suggests enhancing the clinical learning environment of nursing students in hospitals or any clinical learning settings and promoting alternative means of meeting CLE competencies when face-to-face activities are restricted during a health crisis like COVID-19 pandemic. Likewise, this study recommends further strategies to develop the students' grit, self-esteem, and caring behaviors with consideration in the kind of innovative learning modalities.

## Statement of Authorship

All authors certified fulfillment of ICMJE authorship criteria.

## Author Disclosure

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