Revista Española
de Educación Médica

Training environment and academic performance in kinesiology students during clinical internship: an evaluation from the student perspective.

Entorno formativo y desempeño académico en estudiantes de Kinesiología durante el internado clínico: una evaluación desde la percepción estudiantil.

Paula Tiemann-Hernández [1]*, Antonieta Herrera-Lillo [2], Gabriela P. Urrejola-Contreras [3].

[1] Kinesiology Degree, Faculty of Life Sciences , Viña del Mar University, Chile, ptiemann@uvm.cl , https://orcid.org/0000-0001-8293-9182 .
[2] Speech Therapy Program, Faculty of Life Sciences , Viña del Mar University, Chile, antonieta.herrera@uvm.cl , https://orcid.org/0000-0003-4438-7473 .
[3] Applied Sciences Unit, Faculty of Life Sciences , Viña del Mar University, Chile, gabriela.urrejola@uvm.cl , https://orcid.org/0000-0002-8370-4550 .
* Correspondence: email of the corresponding author

Received: 6/27/25k; Accepted: 9/10/25; Published: 9/11/25

Summary: Introduction: Clinical internship is a crucial and final stage in health sciences training; however, it can present difficulties linked to the Educational Environment (EA) that impact academic performance. This study sought to correlate the perception of EA with the academic performance of Kinesiology students during their clinical internships. **Methods**: An observational, cross-sectional, and correlational study was conducted with the entire cohort of fifth-year Kinesiology students (n=20) at Viña del Mar University, Chile. The perception of EA was measured using the validated PHEEM questionnaire (which assesses autonomy, teaching, and social support). Academic performance was assessed through the grades obtained in the resolution of authentic clinical cases in the musculoskeletal, cardiorespiratory, and neurorehabilitation areas. Statistical analysis determined the correlation between both variables. **Results:** The overall perception of EA was positive (Total PHEEM score: 116.3/160). Academic performance was satisfactory and passed in all areas (Average grades: Musculoskeletal: 5.1; Cardiorespiratory: 5.5; Neurorehabilitation: 5.3). However, a weak and non-significant correlation was found between the PHEEM score and academic performance (r=0.3). Only in the cardiorespiratory area was a moderate correlation identified (r=0.5). **Discussion:** Contrary to the initial hypothesis and much of the international literature, a strong association between the perception of EA and academic performance was not confirmed. The results suggest that performance during clinical internship is multifactorial and could be more strongly influenced by other variables not measured in this study, such as individual stress levels, resilience, or the quality of supervisory feedback. These findings highlight the need for a comprehensive approach to clinical training that considers these other determinants along with the educational environment.

Keywords: boarding school, academic performance, medical education, educational environment, vocational training, kinesiology

Abstract: Introduction: The clinical internship is a crucial final stage in health sciences training; However, it can present challenges linked to the Educational Environment (EE) that may impact academic performance. This study aimed to correlate the perception of the EE with the academic performance of Kinesiology students during their clinical internships. **Methods:** An observational, cross-sectional, correlational study was conducted with the entire cohort of fifth-year Kinesiology students (n=20) at the Universidad Viña del Mar, Chile. The perception of the EE was measured using the validated PHEEM questionnaire (assessing autonomy, teaching, and social support).

Academic performance was evaluated through the grades obtained from solving authentic clinical cases in musculoskeletal, cardiorespiratory, and neurorehabilitation areas. Statistical analysis determined the correlation between both variables. **Results:** The global perception of the EE was positive (Total PHEEM score: 116.3/160). Academic performance was satisfactory and passing in all areas (Average grades: Musculoskeletal: 5.1, Cardiorespiratory: 5.5, Neurorehabilitation: 5.3). However, a weak and generally non-significant overall correlation was found between the PHEEM score and academic performance (r=0.3). A moderate correlation was identified only in the cardiorespiratory area (r=0.5). **Discussion:** Contrary to the initial hypothesis and much of international literature, a robust association between the perception of the EE and academic performance was not confirmed. The results suggest that performance during clinical internships is multifactorial and may be more strongly influenced by other variables not measured in this study, such as individual stress levels, resilience, or the quality of supervisory feedback. These findings highlight the need for a comprehensive approach to clinical training that considers these other determinants alongside the educational environment.

Keywords: internship, academic performance, medical education, educational environmental, professional training, kinesiology

1. Introduction

Kinesiology training at Viña del Mar University is based on a competency-based curriculum. This model in higher education represents a consolidated initiative that seeks to fine-tune educational structures to train competent professionals capable of moving between different territories and performing work activities efficiently (1). Achieving successful training based on this competency-based model is characterized by the flexibility that allows adjusting the diverse ways of learning of students, through pragmatic education, mobilizing multiple cognitive resources in a conscious, rapid, pertinent and creative manner (2). To demonstrate the achievement of competencies, authentic assessment is used, consisting of evaluating the student's performance integrating knowledge, skills and attitudes (3).

The professional practice of Kinesiology students corresponds to the final stage of their training, called clinical internship, which takes place during the fifth year of the degree. This period lasts two academic semesters without interruptions, consisting of clinical rotations in which the student develops, exercises, puts into practice and deepens theoretical and practical skills in a clinical context in various areas related to their career. Although the clinical internship is expected to represent the last and most rewarding stage of training, for students this period often entails various difficulties linked to the educational environment (EA) (4). In this framework, the EA could be defined as everything that surrounds the student in the academy (5), among them the most common and described as: excessive workload and fatigue, stress and anxiety, lack of supervision and support, mistreatment and hostile environment, mental and emotional health problems, financial difficulties, exposure to occupational hazards, and problems reconciling personal and academic responsibilities, situations that lead to a decrease in academic performance (6).

At the international level, formative research has devoted time to studying EA, mainly in medical schools during the undergraduate training phase (7). In this sense, it is considered essential to identify and analyze the strengths and weaknesses of a clinical setting based on the perception of students. The information obtained constitutes a relevant source of empirical evidence to guide continuous improvement processes in professional training, which are closely linked to current quality standards and the criteria required in institutional accreditation processes (8-9). However, the evidence indicates that EA is a key modulating factor in performance during clinical internships, although its impact may be mediated by contextual and individual variables. The perception of autonomy, the quality of teaching, and social support emerge as consistent predictors of success. Systematic evaluation with validated tools such as the PHEEM (Postgraduate Hospital Education Environment Measure) and the DREEM (Dundee Ready Education Environment Measure) is essential to identify gaps for improvement and design specific interventions to

optimize clinical training (4, 10–12). To illustrate this, a recent review that evaluated L&E in dental students in different regions identified that the main problem areas for improvement were teaching methods used by instructors and academic stress (5). Similar experiences have been conducted in Chile in medical school; however, there are few approaches to studying L&E in clinical internships in other health sciences programs (13). Specifically, only one study in Chile was conducted in kinesiology, and it allowed for the collection of students' perceptions of L&E. Having this information was useful for guiding improvements in practical activities during clinical internships; however, there were no data regarding student performance (14). In the context of continuous improvement and the pursuit of academic excellence, the quality of the learning environment (LE) is an essential factor in the educational process and the curriculum. This not only affects the educational experience, but also significantly influences the way in which students face their training process and respond to the academic demands that it entails (15-16).

Based on the aforementioned context, it is necessary to analyze how the learning environment (LE) relates to academic performance during the clinical internship of kinesiology students, considering its direct impact on the training experience and the development of professional competencies. Therefore, the hypothesis guiding this study is: "There is a positive correlation between the total scores of the PHEEM scale and academic performance in kinesiology students at the Universidad Viña del Mar in Chile." Thus, the objective of this study was to correlate the perception of LE in kinesiology students during their clinical internship and its relationship with academic performance.

2. Methods

The study adopted a quantitative approach with an observational, cross-sectional, and correlational design. It was developed at Viña del Mar University, Chile, specifically in the Faculty of Life Sciences, in the Kinesiology program. The study population consisted of 20 Kinesiology students who were completing their first clinical internship in their fifth year of professional training. Given the small number of participants and with the aim of covering the entire cohort, no sample calculation was performed; the entire population was incorporated into the research. The PHEEM questionnaire was used to assess AE. The instrument already has content validity and high reliability (17), and has also been validated in Chile (18). The survey covers three domains: perception of autonomy, teaching, and social support. It consists of 40 items on a 0-4 point Likert scale with a maximum score of 160, providing a comprehensive measure of the quality of the educational environment. Interpretation is based on the partial scores obtained for each dimension and the total scores for the educational climate. Higher scores indicate a more positive perception of the educational environment. Conversely, lower scores indicate problems that may require adjustments or intervention strategies (Table 1).

Table 1. Scoring and interpretation of the PHEEM questionnaire.

Subdimension of Autonomy	Social Support Subdimension	Teaching Subdimension	Total Climate
0 to 14: very poor.	0 to 11: does not exist	0 to 15: very poor quality.	0 to 48: very poor
15 to 28: negative view of one's role.	12 to 22: It is not a pleasant place.	16 to 30: needs review.	41 to 80: with many problems.
29 to 42: more positive perception of one's role.	23 to 33: more pros than cons.	31 to 45: headed in the right direction.	81 to 120: more positive than negative, with room for improvement.
43 to 56: excellent perception.	34 to 44: well-supported environment.	46 to 60: model teachers.	121 to 160: excellent.

This questionnaire was administered digitally using a QR code, with each student completing the instrument individually and autonomously. To minimize potential bias, the following measures were implemented: evaluators had no face-to-face contact with the students during the response process, and the clinical center only had access to the questionnaire results after the end of the academic year. The instrument was administered to the students after completing each of the three clinical rotations of the professional internship in the musculoskeletal, cardiorespiratory, and neurorehabilitation areas. Data errors were managed in cases where students did not fully complete the questionnaire, and they were therefore eliminated from the study.

Regarding performance, the grades obtained in each of the clinical rotations during the internship period and in each area of knowledge were considered. The evaluation instrument was the resolution of a clinical case. In this instance, the student was assigned a clinical case and must solve it, considering evaluation, diagnosis, and treatment strategies. Grading is determined using an evaluation rubric, which considers the learning outcomes of the course and is based on indicators to demonstrate these (see Appendix 1). For all purposes, a 70% requirement scale was used, where the grading scale used to evaluate performance ranged from 1 to 7, with a grade ≥ 4.0 considered passing and a grade < 4.0 considered insufficient (Figure 1).

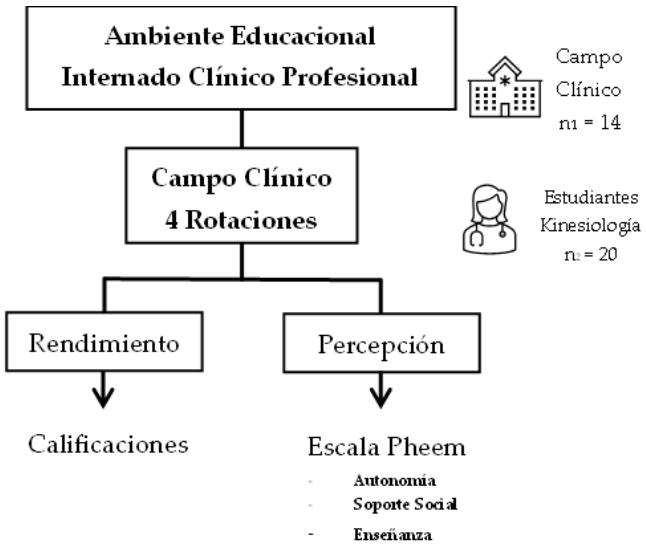

Figure 1. Methodological design.

Ethical considerations

The work followed all institutional protocols and informed consent was obtained from the students, in which the research methodology, their right to participate and voluntarily withdraw from the study, as well as the protection and confidentiality of the data, which would only be used for research purposes by the main author, were explained to them.

3. Results

The information collected shows that most clinical fields carry out their work through a homogeneous distribution. Work predominates in the private sector, where more than 70% of clinical centers operate. Regarding workload, the most common is a 44-hour workweek, which is the case in almost 8 out of 10 clinical centers. Most work during the day, and only a small portion work on a fourth-shift basis. Finally, clinical field agreements vary, although it is more common to find centers with a history of 11 to 15 years, which reflects established training ties (Table 2).

Table 2. Clinical field characterization.

	TOTAL	
PERFORMANCE AREA	**n**	**%**
CARDIORESPIRATORY	5	36%

MUSCULOSKELETAL	5	36%
NEUROREHABILITATION	4	29%
SECTOR		
PUBLIC	4	29%
PRIVATE	10	71%
DAY		
10 PM	3	21%
44 HOURS	11	79%
REGIME		
DIURNAL	13	93%
4TH SHIFT	1	7%
CLINICAL FIELD AGREEMENT (YEARS)		
0-5	5	36%
6-10	3	21%
11-15	6	43%

Each clinical field has a specific training capacity related to infrastructure, space, and the number of teaching professionals. A student-faculty ratio of one to one was evident in 71.5% of the clinical fields. The table shows the performance of students in different clinical fields, grouped by area of work. In the musculoskeletal area, the final averages ranged from 4.6 to 5.6, with clinical field 5 showing the best result and clinical field 4 as the most consistent, as it had very little variation between its evaluations. In the cardiorespiratory area, the results tend to be slightly higher, with the first and third clinical fields having the best averages; the latter is especially noteworthy because all evaluations were equal. In contrast, in clinical field 5, a wide gap was observed between students, reflecting greater diversity in performance. Finally, in neurorehabilitation, the results are more even, with averages between 4.9 and 5.3, with clinical field 4 standing out for its performance and clinical field 3 for the consistency of its evaluations. Overall, most clinical fields show stable performance, although some show greater diversity in ratings. The final averages by area are noteworthy: (neurorehabilitation: 5.3; cardiorespiratory: 5.5; musculoskeletal: 5.1) (Table 3).

In Figure 2, students' perceptions of their clinical experience were overwhelmingly positive. The majority favorably assessed the role of the mentor teacher, highlighting their professional fulfillment, although a smaller group indicated that this occurred only partially (Figure 2A). Social support was also highly evaluated, with a high percentage of students feeling supported throughout the process (Figure 2B). Regarding the formative and teaching-related role (Figure 2C), the vast majority considered it relevant and useful for their development, although some identified difficulties or areas for improvement. Regarding the clinical center, most opinions considered that there was room for improvement, although more consistent experiences were also evident, reflecting the diversity of experiences within the different contexts (Figure 2D).

Regarding the means obtained by subdimension and area of clinical performance, we found that, in the cardiorespiratory, musculoskeletal, and neurorehabilitation areas, they present similar scores; in the role of autonomy subdimension it is 39.9, 40.1, and 40.5 points respectively, which can be interpreted that the student perception is more positive than negative. Regarding the social support subdimension, it is 38.2, 37.5, and 39.9 points respectively, indicating that it is an environment with good support, and in the teaching subdimension, the scores are 38.3, 37.5, and 38.6 points respectively, which means that teachers are on the right track. Finally, the total climate presents an average of 116.3, 115.1, and 118.9 points respectively, perceiving the AE with more positive than negative elements, presenting spaces for improvement (see Annex 2).

Regarding the correlation between the perception assessed through the PHEEM scale and the performance obtained in the evaluation of the clinical case during the internship period in the three areas of knowledge, Figure 3 shows that the correlation is weak, except in the cardiorespiratory area where it is moderate (cardiorespiratory r = 0.5, musculoskeletal r = 0.2, neurorehabilitation r =

0.1, global performance r = 0.3) (19). Regarding the variability of the variables, this tends to be low, except in the cardiorespiratory area (cardiorespiratory r^2 = 28%, musculoskeletal r^2 = 3%, neurorehabilitation r^2 = 2%, global performance r^2 = 11%). Regarding the probability of obtaining a correlation, we can see diverse performance by area (cardiorespiratory p = 0.01, musculoskeletal p = 0.45, neurorehabilitation p = 0.57, global performance p = 0.009).

Table 3. Average Clinical Internship Grades – Kinesiology

	Ratings		
	Average	**DS**	**Coef Variance**
Musculoskeletal	5.1	0.42	0.08
	5.5	0.88	0.16
	4.6	0.24	0.05
	4.6	0.11	0.02
	5.6	0.47	0.08
Cardiorespiratory	5.7	0.00	0.00
	4.9	0.79	0.16
	5.8	0.54	0.09
	5.4	0.42	0.08
	5.5	1.22	0.22
Neurorehabilitation	5.1	0.67	0.13
	5.0	0.18	0.04
	4.9	0.41	0.08
	5.3	0.61	0.11

4. Discussion

The results obtained indicate that, in general, the overall perception of kinesiology students regarding their clinical fields is positive in the valued dimensions of autonomy, teaching, and social support, similar to that determined by other studies (1-3). Considering the Chilean context, these findings agree with the evidence of the only study in this field that examined EA in clinical internships in the Kinesiology program (14). Regarding academic performance in each area, it was approved without significant differences between the musculoskeletal, cardiorespiratory, and neurorehabilitation areas of knowledge.

Regarding the results obtained, a weak overall correlation (r = 0.3) and non-significant correlation was found in two of the three specific clinical areas between the perceived educational environment and academic performance. This finding contradicts the hypothesis and differs from that reported in the literature, which indicates a stronger positive association between these variables (4, 11, 20). This discrepancy suggests that the influence of a favorable educational environment on academic assessment performance could be influenced by other factors in the context of the kinesiology internship. The PHEEM perception assessment scale is effective in measuring the subjective perception of autonomy, teaching, and social support (17-18). It is possible that the final academic performance, quantified through the resolution of clinical cases, is determined by individual variables not measured in this study, such as stress or burnout levels (6, 13, 21), prior preparation strategies, or knowledge of the clinical field (22-23). Therefore, the results of this study indicate that a positive perceived environment, fundamental to student well-being (24-25), is not a sufficient predictor of success in clinical internship and is possibly related to other factors.

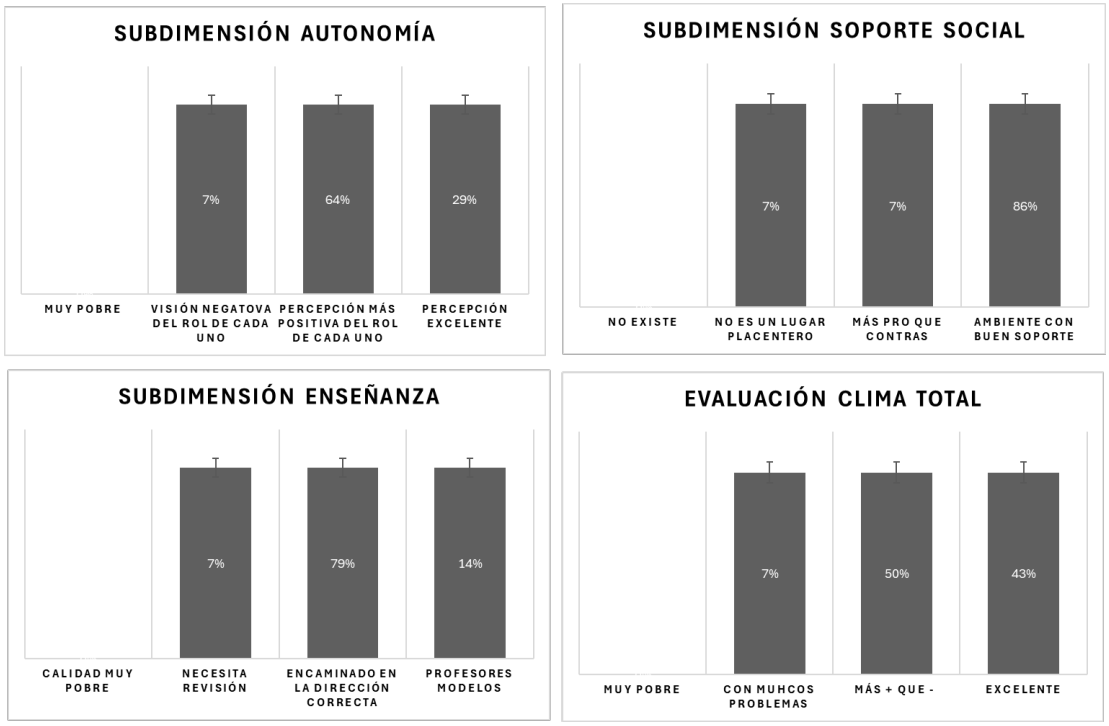

Figure 2. Average perception of the educational environment in the clinical field according to the Pheem scale.

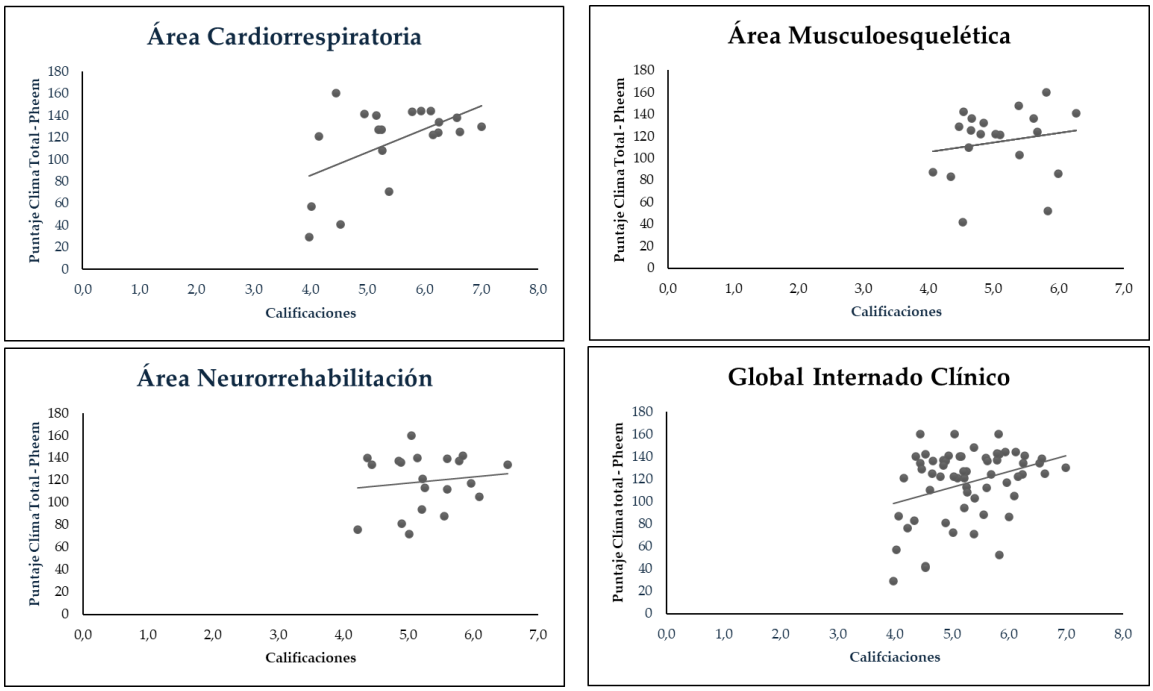

Figure 3. Correlation between perception of educational environment (Pheem Scale) and performance in clinical internship according to areas of knowledge.

The analysis of explained variance (R^2) reinforces the idea that the educational environment contributes to academic performance, but is not a determining factor. However, in the cardiorespiratory area, an association is observed ($r = 0.5$); only 28% of the variability in grades can be explained through the PHEEM scores. This is not possible to demonstrate in the musculoskeletal

and neurorehabilitation areas (2-3%). Therefore, the results reaffirm that academic performance is influenced by other factors not evaluated in this study. A review of the literature indicates that intrinsic variables such as resilience, motivation, and learning strategies (2,3), together with extrinsic factors such as workload and stress specific to each clinical field (6,13), feedback mechanisms (23), and, fundamentally, the connection with the teacher (22, 26) could be predominant factors in relation to performance, more than the perception of the EA.

When analyzing the disparity found in the three clinical areas, it is suggested that the nature of the latter could have implications in the relationship between the variables studied. The clinical environment, standardized protocols, and decision-making that characterize the area (4) develop a context in which the AE, in relation to support and teaching, based on direct and clear supervision (23), allows to observe a competent performance of the student, reflected in their grades (17). In the musculoskeletal and neurorehabilitation areas, which, due to the nature of the therapeutic interventions, present specific and individualized approaches, one could consider more subjective evaluations from a student perspective. Therefore, the result obtained shows us that the educational environments are different and the particularities of the discipline can impact the educational environment.

The results obtained differ substantially from what the literature indicates, according to studies by Kassab et al. (11) and Huang et al. (20) who indicate a positive correlation between the educational environment and academic performance. Evidence indicates that having a good EA in the clinical field enhances reflective thinking, shapes safe practice in relation to patients and promotes professional identity (27). Following this line, studies carried out in the nursing area revealed that both the positive perception of the educational environment and the academic level of the students can constitute a significant predictor of academic adaptability (25). Another large-scale research in China in the area of medicine concluded that students who perceived a positive learning environment also showed greater commitment to study, suggesting that the educational environment in turn can influence academic performance (20). The results of our study show that, despite a positive assessment of the educational environment in all clinical fields evaluated by students, the association with performance was weak, similar to that found by other authors despite a positive educational environment (25, 28-29). These results could be attributed to methodological determinants such as the small size of the sample, which limits the statistical correlation, as well as contextual factors specific to the Chilean healthcare system and cultural aspects in the training of healthcare professionals. The high rate of healthcare demand in the country (13, 30) could be a stressor specific to the student body that overlaps the positive educational environment measured by the PHEEM scale, as well as the adaptability that students may have versus their perception of the environment. Therefore, it is not possible to transfer the international findings on the educational environment to clinical fields in kinesiology.

In turn, one might think that an EA perceived as adequate is sufficient to sustain student well-being (24, 27), but does not imply excellent academic performance. Therefore, it is possible to think that there is a minimum quality score in terms of EA without negatively interfering with performance (6, 21). And when scores are categorically high, they are related to excellent performance. Another analysis may indicate that, although grades and the educational environment are related, they operate independently, because performance indicators are associated with procedural and cognitive skills (3), while indicators of perception of the educational environment are of a psychosocial nature.

The role of autonomy in clinical practice fosters professional identity processes and a sense of belonging, aspects that are related to the safe and compassionate care of users (31). This entails an understanding of professional duties and the ability to make autonomous decisions (32). However, this may not be reflected in outstanding academic performance. On the contrary, negative aspects of clinical practice, such as workload overload in clinical settings and the lack of feedback from teachers, minimize students' perception of autonomy (22). For this reason, negative perceptions in clinical practice may influence burnout syndromes associated with a lack of supervision, inadequate resources, and a lack of an individualized approach to teaching, limiting independence in the clinical field (33). In this sense, understanding the role of clinical teachers in the development

of autonomy directly impacts how the clinical practice of future health professionals is structured and managed (34-35).

A second reflection lies in the perception of teaching, a dimension in which the greatest gap for improvement is evident. According to the above, the role played by clinical teachers in the last stage of academic training of health professionals is key, being they a role model in clinical practice (23), highlighting aspects of quality, consistency and feedback (17, 23). An example of this shows that, in nursing teaching in Europe in the clinical area, rotations that include more than 7 weeks were positively valued by students, highlighting the relationship and figure of the guide teachers (26), therefore, it is possible to think that an important variable in academic performance is the quality of teaching and feedback from the teacher (23, 26).

In this sense, it is essential to clearly and precisely define the roles of teacher guides to improve teaching in clinical practice (36). This approach is also reinforced through studies conducted in India in which medical students have pointed out that the most problematic areas correspond to the figure of the teacher who commonly bases teaching centered on himself and commonly mediated by authoritarianism (37). In accordance with the above, experiences in Chile in the clinical field in the faculties of Dentistry, indicated that the areas with the greatest difficulties derived from academic stress were the relationship with teachers and the teaching methods used (5). Therefore, the development of friendlier learning spaces by teachers would enhance learning mechanisms safeguarding the mental health of students (11).

Social support and student well-being have been explored in other research, showing that a greater presence of students increases their resilience, and rates of anxiety and depression decrease (5). Along these lines, the mental health of health students is highly stressed during periods of clinical practice or professional internships (35). It is possible to think that if the student has adequate social support mechanisms during the teaching process, these will positively impact performance, favoring the learning experience (24, 38). On the other hand, studies indicate that stress-mediated SA in the clinical environment negatively interferes with patient care, relationships with teachers, and ultimately, the culture of the medical profession (21). Furthermore, having a system of counseling and psychoemotional support for students in instances of greater stress could be an effective and timely tool for the development of health professionals (30).

Regarding the limitations of this study, they focus on recognizing, firstly, that only one cohort with a small sample size (n=20) was evaluated, which makes it difficult to generalize the results and the statistical power is limited, as is the probability of type II error. Secondly, the homogeneity in the grades in the study prevents establishing a causal relationship; although we measured the perception of the environment and performance, it is not possible to determine whether students with better performance tend to perceive their environment more positively (29). These limitations should be addressed in future research that considers larger samples and longitudinal and mixed designs that allow analyzing the causality of performance in a more robust way.

Finally, the implications of this study point to recognizing the impact of EA on the training of students and health professionals. However, identifying and assessing extrinsic and intrinsic factors, such as workload, burnout, resilience, anxiety, and stress levels, among others (21-22, 26), that explain clinical internship performance will guide interventions that can be developed in medical education to improve the quality of teaching in clinical settings.

5. Conclusions

- The results of this study indicate that no strong association was found between the perception of the educational environment and academic performance in the cohort of Kinesiology students at the University of Viña del Mar, Chile, which precludes validation of the initial hypothesis. However, a significant trend was identified in the cardiorespiratory area, suggesting that the relationship between the educational environment and academic performance may depend on specific clinical contexts, which warrants future research focused on these areas.

- Overall, the findings reinforce the idea that academic performance during a clinical internship in Kinesiology is determined by a multitude of factors. This underscores the need to adopt a comprehensive approach to clinical training, one that considers not only the conditions of the educational environment but also the specific characteristics and demands of each area of professional practice.

Funding: No funding has been provided.

Declaration of conflict of interest: The authors declare that they have no conflict of interest.

Author contributions: PT: Study design, data collection, interpretation and analysis of data and results. Critical review of the study and approval of the final version of the manuscript. AH: Contribution to methodological development, writing of the manuscript, editing of the manuscript, and approval of the final version. GU: Study design, contribution to writing the initial draft. Critical review of the study, editing, and proofreading of the text. Final approval of the manuscript.

6. References.

1. Coy Castiblanco DC, Cuchia Galindo EA. Competencias en la educación superior para el desarrollo global apoyados en teorías de aprendizaje contemporáneas. *Investig Innov*, **2023**, 7(3). https://doi.org/10.37811/cl_rcm.v7i3.6761
2. Velasco Forero MJ. La formación por competencias en educación superior. *Rev Boletín Redipe*, **2019**, 8(3), 193–9. https://doi.org/10.14483/25905449.15481
3. Barriga Arceo FD. Estrategias para el desarrollo de competencias en educación superior. *El Currículo Por Competencias en la Educación Superior*. 1ra ed. Perú: Ediciones Nova Print SAC; **2015**, p. 150. https://cdn02.pucp.education/academico/2015/09/01094909/curriculo_competencias.pdf#page=38
4. García-Montalvo IA, Vargas Benítez P, González Rosales S. Percepción del ambiente educativo en médicos internos de pregrado de la facultad de medicina y cirugía, URSE. *Rev Educ Desarro*, **2020**, 5(10), 1067–61. https://doi.org/10.19230/jonnpr.3626
5. Ibarrola-Núñez G, Bermúdez-Oyarzún M, Molina-Castro P. Áreas problemáticas del ambiente educacional en estudiantes de Odontología según el cuestionario DREEM: una revisión bibliográfica. *Int J Odontostomat*, **2022**, 25(3), 127–35. https://dx.doi.org/10.33588/fem.253.1195
6. Bynum W, Varpio L, Lagoo J, Teunissen P. I'm unworthy of being in this space: The origins of shame in medical students. *Med Educ*, **2021**, 55(2), 185–97. https://doi.org/10.1111/medu.14354
7. Roine I, Molina Y, Cáneo M. A psychometric appraisal of the Dundee Ready Education Environment Measure in a medical school in Chile. *Rev Med Chil*, **2018**, 146(3), 348–54. doi: 10.4103/efh.EfH_17_18.
8. Torres L, Blanco-Gómez A. Ambiente educativo en la escuela de medicina de una Universidad pública: diagnóstico basal. *Rev Fac Med*, **2018**, 66(4), 342–9. https://doi.org/10.18273/revsal.v50n4-2018007
9. Riquelme Pérez A, Fuentes G, Jeria A, Méndez I, Aranís C, Lario G. Ambiente educacional y calidad de la docencia en la escuela de medicina. *Rev Méd Chile*, **2007**, 135(2), 95–106. https://doi.org/10.11565/arsmed.v36i2.149
10. Aguayo-Albasini JL, Atucha NM, García-Estañ J. Las unidades de educación médica en las facultades de Medicina y de Ciencias de la Salud en España: ¿Son necesarias? *Educ Méd*, **2021**, 22(1), 48–54. https://doi.org/10.1016/j.edumed.2020.09.001 van a dejar
11. Kassab S, Rathan R, Taylor D. The impact of the educational environment on student engagement and academic performance in health professions education. *BMC Med Educ*, **2024**, 24(1), 1278. https://doi.org/10.1186/s12909-024-06270-9
12. Quispe Morales D, Quispe Gonzales JF, Newball Noriega E, Zumacc Centeno Huacre M. Análisis comparativo del ambiente educacional en internos de medicina de hospitales públicos y clínicas del Perú. *Acta Méd Peru*, **2022**, 39(2), 123–30. https://doi.org/10.47993/gmb.v45i2.60
13. Freixenet C, Ponce P, Villalobos C. Burnout académico y desempeño de los docentes clínicos en los médicos residentes de una universidad chilena. *Rev Méd Chile*, **2023**, 151(2), 45–52. http://dx.doi.org/10.4067/S0034-98872019000400510
14. Córdova-León K, Fernández-Huerta L, Rojas-Vargas M. Perception of clinical educational environment by student of physiotherapy based on the Postgraduate Hospital Educational

Environment Measurement Questionnaire in Chile. *Fisioterapia*, **2019**, 41(4), 210–5. https://doi.org/10.3352/jeehp.2019.16.16

15. Sanchez J. El ambiente educativo en los contextos de formación médica. *Rev Méd Clin Condes*, **2019**, 30(5), 304–8. https://doi.org/10.1016/j.edumed.2019.07.001
16. Lafuente J, Escanero J, Manso J, Mora S, Miranda T, Castillo M, et al. El diseño curricular por competencias en educación médica: impacto en la formación profesional. *Educ Méd*, **2007**, 10(2), 86–92. ISSN 1575-1813
17. Chan C, Sum M, Lim W, Chew N, Samarasekera D, Sim K. Adoption and correlates of Postgraduate Hospital Educational Environment Measure (PHEEM) in the evaluation of learning environments: A systematic review. *Med Teach*, **2016**, 38(12), 1248–55. DOI: 10.1080/0142159X.2016.1210108
18. Gastelo-Salazar K, Rojas-Ramos A, Díaz-Vélez C, Maldonado-Gómez W. Clima educativo hospitalario y síndrome de burnout en internos de medicina. *An Fac Med*, **2020**, 81(4), 237–46. https://doi.org/10.1016/j.edumed.2018.09.004
19. Schober P, Boer C, Schwarte LA. Coeficientes de correlación: uso e interpretación adecuados. *Anesth Analg*, **2018**, 126(5), 1763–8. DOI: 10.1213/ANE.0000000000002864
20. Huang R, Li Y, Gong M, Zhang W, Xian S, Tang J, et al. Good learning environment of medical schools is an independent predictor for medical students' study engagement. *Front Psychol*, **2024**, 11, 1299805. https://doi.org/10.3389/fmed.2024.1299805
21. Dyrbye LN, Thomas MR, Shanafelt TD. Medical Student Distress: Causes, Consequences, and Proposed Solutions. *Mayo Clin Proc*, **2005**, 80(12), 1613–22. DOI: 10.4065/80.12.1613
22. Hong Y, Chen M, Chen C. Abusive supervision and nursing students' intention to leave the nursing profession: a moderated mediation model of emotional exhaustion and the nurse-patient relationship. *BMC Nurs*, **2024**, 23(1), 361. https://doi.org/10.1186/s12912-024-02025-5
23. Song J, Wei G, Cheng H. Establishing a set of qualities for clinical teaching faculty in undergraduate medical internship. *BMC Med Educ*, **2025**, 25(1), 29. https://doi.org/10.1186/s12909-025-06868-7
24. Hoferichter S, Kulakow F, Raufelder D. How teacher and classmate support relate to students' stress and academic achievement. *Front Psychol*, **2022**, 13, 992497. https://doi.org/10.3389/fpsyg.2022.992497
25. Karimi Mirzanezam A, Ghahramanian A, Ghafourifard M. Nursing students' perception of the clinical learning environment and its impact on academic adjustment: a cross-sectional descriptive study. *BMC Nurs*, **2024**, 23(1), 1543. https://doi.org/10.1186/s12909-024-06562-0
26. González-García A, Díez-Fernández A, Leino-Kilpi H, Martínez-Vizcaíno V, Strandell-Laine C. The relationship between clinical placement duration and students' satisfaction with the quality of supervision and learning environment: a mediation analysis. *Nurse Educ Today*, **2021**, 98, 688–97.
27. DOI: 10.1111/nhs.12855
28. Sarraf-Yazdi S. Office of Education, Duke-NUS Medical School: Perks, Processes, and Pitfalls. *Acad Med*, **2021**, 96(7), 796. DOI: 10.1097/ACM.0000000000003864
29. Ayenew T, Tadesse A, Fikru T. Satisfaction of medical and health science students with their clinical learning environment and its determinant factors at Debre Markos University, northwest Ethiopia. *Med Educ*, **2024**, 24, 1113. https://doi.org/10.1186/s12909-024-06114-6
30. Rojas-Bolivar D, Bardalez-Garcia B, Bravo-Vasquez M, Arroyo-Ramirez FA, Yon-Leau F, Yon-Leau C. Percepción del ambiente educacional y rendimiento académico en una escuela de medicina de Lima: un estudio longitudinal. *Rev Peru Med Exp Salud Publica*, **2021**, 38(2), 409–13. https://dx.doi.org/10.33588/fem.242.1119
31. González C, Ahtamon A, Brokering W, Budge M, Cadagan MJ, Jofre P, et al. Percepción del ambiente educacional de postgrado en residentes de especialidades médicas de universidades chilenas. *Rev Méd Chile*, **2022**, 150(3), 381–90. http://dx.doi.org/10.4067/S0034-98872022000300381
32. Allen MM, Gawad, Park L, Raîche I. The Educational Role of Autonomy in Medical Training: A Scoping Review. *J Med Educ Curric Dev*, **2019**, 6, 1–16. DOI: 10.1016/j.jss.2019.02.034
33. Ghasemi S, Nasiriani K. The effect of student professional responsibilities training in the process of clinical education in nursing students. *BMC Nurs*, **2025**, 24(1), 426. https://doi.org/10.1186/s12912-025-03055-3

34. Smith R, Jones L. Clinical workload, feedback, and nursing student autonomy: a correlational study. *J Nurs Educ*, **2021**, 60(5), 256–62. https://doi.org/10.3928/01484834-20210414-05
35. Kjær L, Strand P, Christensen M. Making room for student autonomy: an ethnographic study of student participation in clinical work. *Adv Health Sci Educ Theory Pract*, **2022**, 27(4), 1067–94. https://doi.org/10.1007/s10459-022-10131-9
36. Sudi R, Chang W, Arshad N, Zainal Abidin S, Suderman U, Woon L. Perception of current educational environment, clinical competency, and depression among Malaysian medical students in clinical clerkship: a cross-sectional study. *Int J Environ Res Public Health*, **2022**, 19(5), 2870. https://doi.org/10.3390/ijerph192316274
37. Al-Daken L, Lazarus E, Al Sabei S, Alharrasi M, Al Qadire M. Perception of Nursing Students About Effective Clinical Teaching Environments: A Multi-Country Study. *SAGE Open Nurs*, **2024**, 10, 1–10. DOI: 10.1177/23779608241233146
38. Patil AA, Chaudhari VL. Students' perception of the educational environment in medical college: a study based on DREEM questionnaire. *Korean J Med Educ*, **2016**, 28(3), 281–8. https://doi.org/10.3946/kjme.2016.32
39. Chen YC, Bian F, Zhu Y. The relationship between social support and academic engagement among university students: the chain mediating effects of life satisfaction and academic motivation. *BMC Psychol*, **2023**, 23, 2368. https://doi.org/10.1186/s12889-023-17301-3