

Research Article

Evaluation of the Clinical Learning Environment in the Specialty of Family Medicine in Tijuana

Ruiz-Gonzalez G¹, Verdugo-Salazar JPN¹, Zepeda-Menchaca CA¹, Fuentes-Lopez MA¹, Camacho-Romo JJ¹ and Ramirez-Leyva DH^{2*}

¹Department of Family Medicine, Family Medicine Unit #27 (IMSS), Baja California Delegation, Mexico

²Department of Family Medicine, Family Medicine Unit #37 (IMSS), Sinaloa Delegation, Mexico

*Corresponding author: Ramirez-Leyva Diego Hazael, Department of Family Medicine, Family Medicine Unit #37 (IMSS), Sinaloa Delegation, México

Received: December 04, 2018; Accepted: January 21, 2019; Published: January 28, 2019

Abstract

Background: Clinical learning environments may be adequate to develop knowledge and are located in a range from expansive to restrictive. In the expansive, the inclusion of students in activities of the service to which it belongs is encouraged, the constant supervision of the clinical practice is favored, good relations are established and the search for knowledge, research and teamwork is stimulated. In the training of medical specialists in Mexico, the efforts made by educational institutions to incorporate elements of school education are faced to the working conditions of residents, this disfavors the learning and work environment, also harms the work conditions of students and teachers.

Aim: The purpose of this study is to evaluate the clinical learning environment of the specialty in Family Medicine of Tijuana, Mexico.

Design and Setting: Comparative cross-sectional study.

Methods: After authorization for the Local Research Committee, the residents of Family Medicine of the Family Medicine Unit #27 were invited to participate, all signed the informed consent and answered the validated instrument for the evaluation of the clinical learning environment of the Universidad Nacional Autonoma de Mexico (ACA-UNAM-MEX). Association was established by the Kruskal-Wallis H-test to compare the groups by academic degree and ANOVA to compare the final grade between groups and Tukey test as Post Hoc, with 95% confidence interval ($p < 0.05$).

Results: 61 residents were included, of which 21 are from third grade (R3), 20 from second grade (R2) and 20 from first grade (R1), 42 women and 19 men. 27.9% are in expansive clinical learning environments, 31.1% in intermediate learning clinical environments and 41% in restrictive environments. The overall rating of the residence was found at a midpoint (4.50). A statistically significant difference was found in relation to educational processes ($p = 0.009$) and institutional culture ($p = 0.004$); R1 perceiving a more expansive clinical learning environment and a better learning environment compared to R2 ($p = 0.001$).

Conclusion: The clinical learning environment perceived by the residents of the FMU27 is at a mid-point, R1 perceive a better learning environment in relation to R2 residents and none of the two grades (R1-R2) showed differences with the third grade group.

Keywords: Clinical learning environments; Residents; Specialty in Family Medicine

Introduction

Education, in its broad sense, refers to the set of influences exercised by society on the individual. In its narrow sense, it is the organized work of educators, aimed at the objective formation of qualities of the personality: convictions, attitudes, moral and character traits, ideals and modes of behavior. Instruction is the result of the assimilation of knowledge, habits and skills, is characterized by the level of development of the intellect and the creative capacities of man. It presupposes a certain level of preparation of the individual for his participation in different spheres of social activity [1]. Efforts are currently being made to combine the elements of school education and work activities within the training of medical specialists in Mexico, however, this situation affects the learning environments,

working conditions and promotes confusion among residents, which must study and work at the same time, facing the tension in the health units and sometimes receiving mistreatment, labor exploitation, depression, stress and Burnout syndrome [2].

The space, the instruments of practice and the rhythms of patient care are important aspects of the work environment. The design of the workspace, the positioning of the instruments and the pressure of time create frequent tensions; the environment creates many opportunities for interaction and therefore, for learning. Learning could be developed in response to tensions and promoting the awareness of health personnel about the opportunities offered by a learning environment [3]. In the United States (2012), the Clinical Learning Environment Review Program (CLER) is the first

Table 1: Interpersonal Relationships (IR).

Academic degree	Very Expansive	Expansive	Restrictive	Very Restrictive	Total
R1	4	7	5	4	20
R2	1	4	6	9	20
R3	4	5	6	6	21
Total	9	16	17	19	61

R1= first year resident, R2= second year resident, R3= Third year resident.

Table 2: Educational Processes (EP).

Academic degree	Very Expansive	Expansive	Restrictive	Very Restrictive	Total
R1	4	9	5	2	20
R2	0	7	4	9	20
R3	0	6	8	7	21
Total	4	22	17	18	61

R1= first year resident, R2= second year resident, R3= Third year resident.

component of the new accreditation system of the Accreditation Council for Postgraduate Medical Education to be implemented nationally, this program evaluates the efforts of teaching hospitals in the United States to involve residents in 6 areas: patient safety; quality of the medical attention; transitions in care; supervision; work hours, management and mitigation of fatigue and professionalism. The initial experience with CLER visits revealed numerous improvement projects and some efforts in the education and training of residents in the 6 focus areas. These visits revealed significant opportunities to improve medical education [4].

The clinical learning environment can be measured through the ACA-UNAM-MEX instrument developed and validated in Mexico (2013) by Hamui-Sutton ($\alpha=0.96$). It consists of 28 items on a Likert scale of four options: almost always, regularly, some occasions and almost never, the items are distributed in four dimensions: interpersonal relationships (IR), educational processes (EP), institutional culture (IC) and service dynamics (SD) [5]. Within the clinical learning environment, there are differences between the perspective of residents and directors of educational programs on the well-being of physicians and the impact on their learning. These problems increase with each year of training and may be more common in community programs. It is essential to update the national regulations regarding the training of medical specialists and to establish a greater link between universities and health institutions. It is necessary to consider the efforts and resources that education institutions and health institutions can offer to achieve their common objective: the quality training of the medical specialists that Mexico requires [6]. Based on the above, the main objective of this research is to evaluate the clinical learning environment of the specialty in Family Medicine of Tijuana, Mexico.

Materials and Methods

A comparative cross-sectional study was carried out in the Family Medicine Unit #27 (FMU-27), of the Instituto Mexicano del Seguro Social (IMSS), located in Tijuana, Baja California, Mexico, in medical residents (MR) of Family Medicine that met the following inclusion criteria: medical residents of Family Medicine in FMU-27, any age, that accepted and signed the informed consent; MR with psychiatric illness were not included and eliminated those who did

Table 3: Institutional Culture (IC).

Academic degree	Very Expansive	Expansive	Restrictive	Very Restrictive	Total
R1	9	6	3	2	20
R2	1	7	4	8	20
R3	8	7	4	2	21
Total	18	20	11	12	61

R1= first year resident, R2= second year resident, R3= Third year resident.

Table 4: Service dynamics (SD).

Academic degree	Very Expansive	Expansive	Restrictive	Very Restrictive	Total
R1	4	7	8	1	20
R2	1	7	6	6	20
R3	2	6	8	5	21
Total	7	20	22	12	61

R1= first year resident, R2= second year resident, R3= Third year resident.

not complete the survey. The following data were obtained directly from the MR or medical records: age, gender, marital status, clinical learning environment and grade of residence. The procedure for the data collection was as follows: age was calculated in years according to the year of birth, sex was determined by the phenotype characteristics of each individual, marital status was expressed by each patient, university of origin and grade of residence was determined by asking directly to MR, clinical learning environment was evaluated according to ACA-UNAM-MEX instrument developed and validated in Mexico (2013) by Hamui-Sutton ($\alpha=0.96$), this instrument has 28 questions on Likert scale distributed in four dimensions: interpersonal relationships (IR), educational processes (EP), institutional culture (IC) and service dynamics (SD). The result of the test is interpreted as follows: ≤ 1.20 very expansive; 1.21-2.67 expansive; 2.68-4.75 middle point; 4.76-7.48 restrictive; ≥ 7.49 very restrictive.

The recollected data was integrated into data collection sheets and analyzed using the SPSS program version 20 in Spanish, where we applied descriptive statistics; for qualitative variables, frequencies and percentages were used and for quantitative variables, mean and standard deviation were used. For the bivariate analysis, Kruskal-Wallis H-test and ANOVA was used to determinate statistically significant differences between the groups with Tukey test as Post Hoc. The Kolmogorov-Smirnoff test was used to establish the normality of the data. It was considered a $p < 0.05$ as statistically significant, with a 95% confidence interval. The Protocol was authorized by the Local Committee of Research and Ethics in Health Research from the Family Medicine Unit #27, where this study took place.

Results

Of the 62 questionnaires applied to MR, one was incomplete so it was eliminated from the study. Of the 61 correctly filled out questionnaires, 21 correspond to residents of third grade (R3), 20 of second grade (R2) and 20 of first grade (R1). Of the total MR interviewed, 67.2% (41) were women and 32.8% (19) were men. The age distribution was from 25 to 45 years, with a mean of 30.48 ± 4.1 . According to the university of origin: 35 MR are graduates of the Autonomous University of Baja California (UABC), 17 of the Center for University Studies Xochicalco (CEUX), 6 of the Autonomous University of Sinaloa, 1 of the Autonomous University

Table 5: Overall Rating.

Academic degree	Quantile	Interpretation
R1	3.01	Middle point
R2	5.81	Restrictive
R3	4.69	Middle point
Mean	4.50	Middle point

R1= first year resident, R2= second year resident, R3= Third year resident.

Table 6: Comparison of dimensions evaluated by academic degree.

	Interpersonal Relationships	Educational Processes	Institutional Culture	Service Dynamics
Kruskal-Wallis Test	4.577	9.480	11.251	3.673
FD	2	2	2	2
p	.101	.009	.004	.159

p= Kruskal-Wallis test, FD= Freedom Degrees.

Table 7: Comparison of total grade per person according to the academic degree (HSD Tukey).

Academic degree (I)	Academic degree (J)	Mean Differences (I-J)	p	95% confidence interval	
				Lower limit	Upper limit
R1	R2	-2.791350	.001	-4.53802	-1.04468
	R3	-1.671850	.060	-3.39761	.05391
R2	R1	2.791350	.001	1.04468	4.53802
	R3	1.119500	.271	-.60626	2.84526
R3	R1	1.671850	.060	-.05391	3.39761
	R2	-1.119500	.271	-2.84526	.60626

p= Tukey test, R1= first year resident, R2= second year resident, R3= Third year resident.

of Nayarit (UAN), 1 of the Northwestern University (UNE), 1 of the Autonomous University of Guadalajara (UAG). In relation to marital status, 38 were single, 18 married, 3 in free union and 2 divorced.

The result of the ACA-UNAM-MEX test was divided by categories, the category of interpersonal relationships were evaluated with the first six items, of the 61 residents interviewed: 9 residents were in a very expansive environment (4 R1, 1 R2 and 4 R3), 16 in an expansive environment (7 R1, 4 R2 and 5 R3), 17 in a restrictive environment (5 R1, 6 R2 and 6 R3) and 19 in a very restrictive environment (4 R1, 9 R2 and 6 R3) (Table 1). The educational processes was evaluated with the items 7 to 15, of the 61 residents interviewed: 4 residents were in a very expansive environment (4 R1), 22 in an expansive environment (9 R1, 7 R2 and 6 R3), 17 in a restrictive environment (5 R1, 4 R2 and 8 R3) and 18 in a very restrictive environment (2 R1, 9 R2 and 7 R3) (Table 2).

The institutional culture was evaluated with items 16 to 21, of the 61 residents interviewed: 18 residents were in a very expansive environment (9 R1, 1 R2 and 8 R3), 20 in an expansive environment (6 R1, 7 R2 and 7 R3), 11 in a restrictive environment (3 R1, 4 R2 and 4 R3) and 12 in a very restrictive environment (2 R1, 8 R2 and 2 R3) (Table 3). The dynamics of service were evaluated with items 22 to 28, of the 61 residents interviewed: 7 residents were in a very expansive

environment (4 R1, 1 R2 and 2 R3), 20 in an expansive environment (7 R1, 7 R2 and 6 R3), 22 in a restrictive environment (8 R1, 6 R2 and 8 R3) and 12 in a very restrictive environment (1 R1, 6 R2 and 5 R3) (Table 4). The final grade obtained according to the academic degree was as follows: 3.01 (midpoint) for the first year group (R1), 5.81 (restrictive) for the second year (R2) and 4.69 (midpoint) for the third year (R3). The overall rating of the residence was found in quantile 4.50 (Table 5).

After comparing the dimensions evaluated by the academic degree of the specialty, a statistically significant difference was found in the dimensions of educational processes and institutional culture (Table 6). After checking the homogeneity of variances of the total score, the groups formed by the academic degrees and performing the ANOVA test with the Tukey test as Post Hoc found a statistically significant difference between the groups of R1 and R2, the rest of the comparisons without significance statistics (Table 7).

Discussion and Conclusion

Of the total of MR surveyed, 27.9% of MR are in expansive clinical learning environments, 31.1% in intermediate clinical learning environments and 41% of MR surveyed are in restrictive environments. The clinical learning environment perceived by first-year MR is at a mid-point, without a tendency to be restrictive or expansive. The clinical learning environment perceived by the second-year MR is in the quantile corresponding to restrictive, they are not in an appropriate environment that promotes the search for knowledge, research and teamwork, being the educational processes and interpersonal relationships the dimensions more affected. The clinical learning environment perceived by third-year MR is at a mid-point. First-year MR have a more positive perception of educational processes, while second-year residents have a more negative perception of the institutional culture. The final overall score of the clinical learning environment of the specialty in Family Medicine is at a midpoint between the expansive and restrictive.

References

- Serra-Valdés MA, Viera-García M. Consideraciones sobre la enseñanza de la Semiología, la Propedéutica y el proceso diagnóstico en la práctica clínica. *Educación Médica Superior*. 2014; 28: 163-174.
- Vázquez-Martínez FD. La teoría de la evolución educativa y la formación de médicos especialistas. *Investigación educ médica*. 2016; 5: 121-127.
- Sheehan D, Jowsey T, Parwaiz M. Clinical learning environments: place, artefacts and rhythm. *Medical Education*. 2017; 51: 1049-1060.
- Weiss KB, Bagian JP, Nasca TJ. The Clinical Learning Environment. *JAMA*. 2013; 309: 1687-1688.
- Jennings ML, Slavin SJ. Resident wellness matters: Optimizing resident education and wellness through the learning environment. *Academic Medicine*. 2015; 90: 1246-1250.
- Vázquez-Martínez FD, Delgado-Domínguez C, Quiroz-Hernández FJ. Razones de incumplimiento de los médicos residentes con los cursos universitarios virtuales. *Investigación educ médica*. 2017; 6: 88-95.