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Work climate in Mexican heamodialysis units. A cross-sectional study

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ABSTRACT

Introduction: The work climate (WC) affects the performance of service providers and impacts on the care provided. This is important in the case of conditions that affect the quality of life, as is the case of chronic kidney disease (CKD) treated with hemodialysis. In Mexico, the demand for care of CKD cases is increasing and the hemodialysis treatment offer is limited. The purpose of this study was to describe and compare the WC in public, private and social security hemodialysis units in Mexico, as well as to validate an instrument to measure WC in hemodialysis units (HU). ***Methods:*** 372 professionals from 84 HU in 27 states were Interviewed through a questionnaire. The questionnaire included questions about the WC, the quality of care, structure and organization of the HU. Variables were compared by type of institution and profession. ***Results:*** Significant correlations were observed between the WC and indicators of the quality of care. In nine of the fourteen variables there were significant differences by type of unit, with a better perception of WC in private units and a poorer perception on social security ones. ***Conclusion:*** The perception of WC relies on the organization and planning of institutions as well as on its infrastructure. In the case of the HU of the Social Security in Mexico it seems to be areas that require improvement to encourage a better work climate.

Key words: Hemodialysis. Work climate. Social security.

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El clima laboral en las unidades de hemodiálisis en México. Un estudio transversal

RESUMEN

Antecedentes: *El clima laboral (CL) afecta al desempeño de los prestadores de servicios e impacta sobre la atención que se brinda a los usuarios. Esto es importante en enfermedades que afectan a la calidad de vida, como la enfermedad renal crónica (ERC) tratada con hemodiálisis. En México, la demanda de atención de casos con ERC es creciente y la oferta de servicios de hemodiálisis es limitada. El objetivo del presente estudio fue describir y comparar el CL en unidades de hemodiálisis públicas, privadas y de la seguridad social en México, así como validar un instrumento para medir CL en unidades de hemodiálisis (UH).* ***Métodos:*** *Mediante un cuestionario se entrevistó a 372 profesionales de 84 UH en 27 Estados del país. El cuestionario incluyó preguntas sobre el CL, la calidad de la atención, la estructura y la organización de la UH. Se compararon las variables por tipo de institución y profesión.* ***Resultados:*** *El instrumento empleado mostró adecuadas propiedades psicométricas. Se observaron correlaciones significativas entre el CL y los indicadores de la calidad de la atención. En nueve de las 14 variables hubo diferencias significativas por tipo de unidad, con una mejor percepción del CL en las unidades privadas y una peor percepción en las unidades de seguridad social.* ***Conclusiones:*** *La percepción de CL descansa sobre la organización y diseño de las instituciones, así como en su infraestructura. En el caso de las UH de la seguridad social en México éstos parecen ser aspectos que requieren ser mejorados para que se favorezca un mejor CL.*

Palabras clave: *Hemodiálisis. Clima laboral. Seguridad social.*

INTRODUCTION

The expected growth of chronic kidney disease (CKD) in Mexico for the next few years is a cause of concern.[1] The challenge that this will present to the national health service requires, amongst other things, the availability of qualified

health professionals to undertake the care of this group of patients. However, as is the case with any other health problem, it is important that a caring service should be provided, bearing in mind the potential impact that CKD has on the quality of life of these patients, particulary those in the terminal stages of the disease. An aspect related to the quality of care in the area of nephrology that has recently been widely studied is the burnout.[2,3] It is a known fact that doctors and nurses working in HU can be prone to this condition, which affects their professional performance.

However, along with burnout, the work climate (WC), also known as organisational climate, is another factor that significantly affects the quality of this caring service. This arises from the human and physical environment where people perform their daily work. It also depends on the skill, experience and leadership of the managers, the behaviour of other individuals, the way they work and relate to each other, their dealings with the organisation or institution, the equipment or set of instruments used, and the activity of each member of the organisation. On this objective basis, the WC is the result of the perception of those involved in the caring process, which is affected by the activities, interactions and experiences of each one of them. For that reason, WC, together with the organisational structure and characteristics and their individuals, form an inter-dependent system that affects the results of the organisation, as well as the job satisfaction, and hence the productivity, which translates into a quality and caring health service.

Health organisations, institutions and professionals have not been excluded from the WC study.[4-6] WC is normally measured by the perception that each work group member has of their internal working environment. It is evaluated by the sum of all the individual perceptions. However, it is not only about views; the external environment and context in which those perceptions are created are also taken into account.[4]

WC is not defined by a universal set of characteristics, although its multidimensional nature is widely accepted.[7] The relevant measurements vary according to the organisation concerned, for example, Menárguez-Puche, et al[8] identified three relevant dimensions when they designed a scale to measure the organisational environment that included primary care professionals: teamwork, working together and compromise.

The definition of WC is helpful to explain the behaviour of organisations in the workplace. Therefore, its evaluation is essential to understand variations in group productivity. Those studies based on measuring the organisational aspects of health services enable the analysis of the work environment.[4]

The Mexican health service is organised on the basis of each individual's work situation. There is a service available for private employees, another for civil servants, and also some ministries and state-owned organisations have their own health service providers, for instance, the Ministry of National Defense, the Ministry of the Navy and the Petroleos Mexicanos company (PEMEX). People who are not covered by these services and do not have enough financial resources to pay for private medical care are looked after by the Ministry of Health. Finally, those who are able to pay, or have medical insurance as part of their employment benefits, receive private health care.

From a geographical perspective, different social, economic, education and health indicators separate inhabitants in the north of the country from those in the south, the latter being at a greater disadvantage with respect to the former.

Hence, the objective of this study was to identify the different characteristics and analyse the differences in WC throughout the heamodialysis units (HU) across Mexico according to their condition as private or public organisations, as well as their geographical distribution. Both dimentions, the public-private status and geographical distribution are relevant in countries where there are significant indicators of social inequality, which in the case of health, translate into different levels of access to these services.

METHOD

Participants and procedure

Between November and December 2008, a survey was conducted of a sample of 372 professional members of 84 HU in 27 of the 32 federal districts. The participation in the survey was voluntary and carried out within the normal working hours of those taking part, during a single session lasting approximately 20 minutes. Total confidentiality was guaranteed to all participants regarding the information provided.

Research tool

A questionnaire made up of 119 items, divided into 7 sections, was produced*. The first section gathered HU identification data, and the second asked for socio-demographic information and work history in the unit under

* The questionnaire was produced using the survey on quality of working life from the Spanish ministry of labour and social affairs, the organisational climate survey from the Mexican ministry of health (SSA) and the employee satisfaction survey from the American organisation Gallup.

study. Sections 3 and 6 included items relating to WC, 7 were dichotomous and 65 were multiple response questions using Likert scales. The fourth section had 14 questions relating to the perception of patient care in the HU. The fifth included 10 items on the organisational structure, organised in an 11-point visual analogue scale (from zero to ten). Part seven contained only one Likert item, which asked about the state of health of the person answering the questionnaire, with different options ranging from "poor" to "excellent". The questionnaires were completed by staff who had been previously trained by the research group.

Data analysis

The validity of the WC model, the perception of the quality of the care and the organisational structure were established by the analysis of exploratory factors to identify underlying dimensions. Only those factors that were conceptually congruent and showed factorial values higher than 0.4 were taken into account. For each factor identified under these criteria, the internal consistency was established using Cronbach's Alpha. The concurrent validity was measured by analysing the Spearman's correlation between those factors identified. Bivariate analyses of the factors by profession, type of unit (public or private) and geographical region were carried out. In order to do this, the different dimensions were divided into three groups, based on the terciles of each variable (except the personal attention, tolerance and resource availability variables, for which the criterion used was the median value), and they were compared using the chi-squared test. In the case of the analysis by institution, PEMEX was excluded due to the small number of individuals from this organisation taking part in the study. The results were analysed using the Statistical Package for the Social Sciences (SPSS, v.13)

RESULTS

Description of the sample

18% of those interviewed belonged to units located within the Federal District (DF), whilst 11% were from the State of Jalisco in the Centre-West region of the country. The remaining 71% was shared between the other 25 political districts, none of which represented more than 5%. 39% worked in private HU, 21% in Ministry of health units (*SSA*), 19% belonged to the Institute of safety and social services for civil servants (*ISSSTE*), 17% to the Mexican institute of social security (*IMSS*), while only 3% worked for PEMEX and 4 professionals worked in a university unit.

Table 1 shows socio-demographic data, as well as its distribution by unit type. It can be observed that the majority of professionals were female, from private HU and the majority had only worked in the unit where they were interviewed.

Factor analysis

Table 2 shows the factors identified by the exploratory factor analysis of the different sections of the questionnaire. The Kaiser-Meyer-Olkin (K-M-O) measures of sampling adequacy, the Bartlett's sphericity test and the variance percentage of each analysis are also shown. In addition, the

Table 1. Socio-demographic data from the study sample

Average age (years)	37.6 ± 9.6	
Gender[a]	**N**	**%**
Female	215	58
Male	156	42
Profession		
Doctor	168	45
Nursing	161	43
Administration	37	10
Not specified	6	1
Civil status		
Single	112	30
Married	220	59
Widow/er	7	2
Divorced	3	0.8
Separated	7	1.6
Living together	23	6
Institution		
SSA	77	21
ISSSTE	71	19
IMSS	62	17
PEMEX	11	3
Private	147	39
Other	4	1
Geographical region		
North	87	23
Central	124	33
South	95	26
D.F.	66	18
Previous experience in another HU		
No	218	59

[a] One participant did not state their gender.

Table 2. Factors identified by the different sections of the evaluation tool

Region/Factors	K-M-O	Barlett's Test(χ^2)	Explained variance (%)	Cronbach's Alpha
WORK CLIMATE 1				
(Items in Likert's scale)	0.88	2,274.53[a]	60.3	
1. Relationship with more senior staff (e.g. "Do you ask your boss about work related issues?")				0.87
2. Work environment (e.g. "How would you describe your relationship with work colleagues?")				0.77
3. Openness to change (e.g. "If it was up to you, would you do things differently from your boss?")				0.73
(Dichotomous items)	0.80	392.97[a]	38.3	
1. Work satisfaction (e.g. "Do you think that other HU treat their staff better than this one?")				0.75
PATIENT CARE	0.85	1,694.41[a]	44.3	
1. Quality of care in the HU (e.g. "How is the HU organised in terms of patient care?")				0.85
2. Quality of personal care (e.g. "How do you feel about the care you provide to patients?")				0.75
ORGANISATIONAL STRUCTURE	0.88	1,109.99[a]	45.4	
1. Organisation efficiency (e.g. "How does the way the HU is organised facilitate or hinder your work performance?")				0.88
WORK CLIMATE 2	0.86	7,532.48[a]	47.4	
1. Recognition by more senior staff (e.g. "My boss listens to my suggestions and comments")				0.855
2. Tolerance (e.g. "In my workplace there is discrimination for disability")				0.934
3. Communication and support (e.g. "I know what is expected from me in my job")				0.803
4. Training opportunities (e.g. "The training I receive allows my professional development)				0.777
5. Flexible working hours (e.g. "My job enables me to carry out other activities outside working hours")				0.785
6. Satisfaction with employment benefits (e.g. "When I am ill, I am entitled to receive health care)"				0.733
7. Availability of resources (e.g. "I have all the resources I need to do my job")				0.811
8. Work stress (e.g. "My work causes me stress")				0.567

[a] P <0.00; K-M-O: Kaiser-Meyer-Olkin measurement.

internal consistency indices (Cronbach's Alpha) for each of the established factors are also indicated. According to the criteria normally applied to this type of analyis, both the K-M-O and the Bartlett's tests produced values of >.7 and *P*<.05 respectively, and demonstrated the relevance of the factor analyses carried out. With the exception of the "work stress" factor, the internal consistency indices were appropriate, which demonstrates the reliability of the factors identified.

There was a general tendency to qualify the responses in a positive or favourable manner. However, this

Table 3. Correlation coeficients (Spearman's Rho) of work climate factors, organisational structure and the care provided in heamodialysis units

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Relationship with more senior staff	1.00													
2. Work environment	0.63[a]	1.00												
3. Openness to change	–0.48[a]	–0.30[a]	1.00											
4. Work satisfaction	0.53[a]	0.41[a]	–0.55[a]	1.00										
5. Quality of service in the HU	0.57[a]	0.63[a]	–0.38[a]	0.46[a]	1.00									
6. Quality of personal service	0.28[a]	0.38[a]	–0.15[a]	0.16[a]	0.44[a]	1.00								
7. Efficiency	0.52[a]	0.50[a]	–0.33[a]	0.47[a]	0.54[a]	0.23[a]	1.00							
8. Recognition of senior staff	0.70[a]	0.43[a]	–0.45[a]	0.50[a]	0.47[a]	0.19[a]	0.58[a]	1.00						
9. Tolerance	–0.21[a]	–0.09	0.19[a]	–0.14[a]	–0.15[a]	–0.03	–0.14[a]	–0.18[a]	1.00					
10. Communication and support	0.56[a]	0.54[a]	–0.33[a]	0.42[a]	0.53[a]	0.30[a]	0.57[a]	0.66[a]	–0.19[a]	1.00				
11. Training opportunities	0.49[a]	0.39[a]	–0.39[a]	0.58[a]	0.42[a]	0.17[a]	0.52[a]	0.62[a]	–0.13	0.59[a]	1.00			
12. Flexible working hours	0.27[a]	0.32[a]	–0.09	0.20[a]	0.33[a]	0.15[a]	0.32[a]	0.37[a]	–0.05	0.54[a]	0.38[a]	1.00		
13. Satisfaction with benefits	0.33[a]	0.33[a]	–0.23[a]	0.37[a]	0.34[a]	0.22[a]	0.41[a]	0.52[a]	–0.09	0.59[a]	0.59[a]	0.47[a]	1.00	
14. Availability of resources	0.53[a]	0.40[a]	–0.42[a]	0.51[a]	0.49v	0.20[a]	0.61[a]	0.66[a]	–0.16[a]	0.56[a]	0.55[a]	0.30[a]	0.47[a]	1.00
15. Work stress	–0.23[a]	–0.15[a]	0.28[a]	–0.33[a]	–0.21[a]	–0.02	–0.28[a]	–0.29[a]	0.29[a]	–0.24[a]	–0.28[a]	–0.09	–0.18[a]	–0.27[a]

[a] P <0.00

seems to be a common reaction to this type of evaluation.[9]

Table 3 shows the correlation matrix of all factors identified in the questionnaire. Significant relationships were observed between the expected trends of the majority of the dimensions identified, which indicates a suitable concurrent validity. The relationships between the perception of efficiency and the rest of the variables were quite remarkable, since they all point towards the fact that, if the correct WC is perceived, there is also greater efficiency.

Table 4 shows the analyses by profession, unit type and geographical region. Significant differences by unit type were observed in 9 out of the 14 variables. A tendency towards the perception of a better WC was noticed in private units in comparison with public ones. In addition, a worse perception of the work environment was noticeable in *IMSS* units.

Only six of the variables showed differences in perception between medicine and nursing. Medical professionals perceived a better working relationship with more senior employees, enjoyed greater job satisfaction and believed their units were more efficient. However, nursing staff felt they had greater flexibility in their working hours, more stress at work and a better personal service.

The analysis by region only showed significant links in two of the variables: their relationship with more senior employees and work environment, with a tendency towards a better perception in units located in the north of the country. Due to space limitation, Table 4 only includes data relating to these two variables by geographical region.

In relation to the perception about their health, 95% of participants felt their health was "good" or "very good". There were no differences by unit type. The analysis by profession showed that medical staff perceived their health as "very good" more frequently than nursing staff (χ^2=17.9; *P*=.00).

Tabla 4. Percentage of participants by work climate variables percentile, organisational structure and patient care

	Terciles			
Variable	**1**	**2**	**3**	**p**
RELATIONSHIP WITH MORE SENIOR STAFF				
Institution				0.00
SSA	37.6	27.3	35.0	
ISSSTE	47.1	34.3	18.6	
IMSS	61.3	29.0	9.7	
Private	28.1	30.8	41.1	
Profession				0.03
Doctor	34.7	31.7	33.5	
Nursing	48.4	28.6	23.0	
Region				0.01
North	30.0	22.5	48.0	
Central	42.9	31.1	26.0	
South	40.4	36.0	24.0	
D.F.	48.3	28.3	23.0	
WORK ENVIRONMENT				
Institution				0.14
SSA	35.0	26.0	39.0	
ISSSTE	51.4	24.3	24.3	
IMSS	56.5	24.2	19.3	
Private	42.9	25.2	32.0	
Profession				0.23
Doctor	41.9	28.1	29.9	
Nursing	50.3	21.1	28.6	
Region				0.00
North	28.8	21.3	50.0	
Central	47.9	25.2	27.0	
South	53.3	24.4	22.0	
D.F.	50.0	31.7	18.0	
OPENNESS TO CHANGE				
Institution				0.00
SSA	27.3	58.4	14.3	
ISSSTE	28.6	47.1	24.3	
IMSS	9.7	41.9	48.4	
Private	49.6	38.6	11.7	
Profession				0.21
Doctor	35.9	42.5	21.6	
Nursing	26.9	48.7	24.4	
Region				
North	40.0	45.0	15.0	
Central	28.8	47.5	24.0	
South	38.2	43.8	18.0	
D.F.	30.0	40.0	30.0	
WORK SATISFACTION				
Institution				0.00
SSA	39.5	44.7	15.8	
ISSSTE	4.3	38.6	17.1	
IMSS	67.2	29.5	3.3	
Private	16.7	40.3	43.0	
Profession				0.01
Doctor	32.5	38.5	28.9	
Nursing	44.3	39.2	16.4	
QUALITY OF CARE IN THE HU				
Institution				0.00
SSA	31.2	28.6	40.3	
ISSSTE	45.7	30.0	24.3	
IMSS	61.3	22.6	16.1	
Private	33.3	30.6	36.1	
Profession				0.68
Doctor	43.1	28.1	28.7	
Nursing	38.7	28.8	32.5	
EFFICIENCY				
Institution				0.00
SSA	29.7	33.8	36.5	
ISSSTE	50.0	34.9	15.1	
IMSS	50.9	29.8	19.3	
Private	21.1	33.1	48.8	
Profession				0.01
Doctor	27.3	38.5	34.1	
Nursing	43.1	30.1	26.8	
COMMUNICATION AND SUPPORT				
Institution				0.00
SSA	44.1	32.5	23.4	
ISSSTE	55.7	31.4	12.9	
IMSS	32.3	51.6	16.1	
Private	29.5	32.9	37.7	
Profession				0.11
Doctor	40.7	31.7	27.5	
Nursing	36.2	42.5	21.2	
TRAINING OPPORTUNITIES				
Institution				0.00
SSA	32.5	44.1	23.4	
ISSSTE	43.7	39.4	16.9	
IMSS	48.4	30.6	21.0	
Private	26.0	38.4	35.6	
Profession				0.45
Doctor	34.7	40.1	25.1	
Nursing	39.8	33.5	26.7	
FLEXIBLE WORKING HOURS				
Institution				**0.10**
SSA	41.3	29.3	29.3	
ISSSTE	57.7	21.1	21.1	
IMSS	30.6	33.9	35.5	
Private	41.0	29.5	29.5	
Profession				0.01
Doctor	49.7	28.1	22.1	
Nursing	35.2	30.2	34.6	

To be continued table 4. Percentage of participants by work climate variables percentile, organisational structure and patient care

	Terciles			
Variable	**1**	**2**	**3**	**P**
SATISFACTION WITH EMPLOYMENT BENEFITS				
Institution				0.00
SSA	45.5	32.5	22.1	
ISSSTE	53.5	33.8	12.7	
IMSS	37.1	37.1	25.8	
Private	34.9	26.0	39.0	
Profession				
Doctor	47.3	28.1	24.5	
Nursing	41.0	32.3	26.7	0.51
WORK STRESS				
Institution				0.38
SSA	48.0	32.5	19.5	
ISSSTE	40.8	39.4	19.7	
IMSS	33.9	35.5	30.6	
Private	48.6	30.1	21.2	
Profession				0.00
Doctor	48.8	33.9	17.2	
Nursing	34.4	35.0	30.6	

	Below the median	Above the median	P
QUALITY OF PERSONAL ATTENTION			
Institution			0.40
SSA	55.0	36.1	
ISSSTE	61.4	38.6	
IMSS	50.0	50.0	
Private	50.0	50.0	
Profession			0.02
Doctor	57.0	43.0	
Nursing	45.0	55.0	
TOLERANCE			
Institution			0.15
SSA	51.3	48.7	
ISSSTE	50.7	49.3	
IMSS	50.0	50.0	
Private	63.0	37.0	
Profession			0.24
Doctor	59.5	40.5	
Nursing	53.1	46.9	
AVAILABILITY OF RESOURCES			
Institution			0.00
SSA	64.9	35.1	
ISSSTE	81.7	18.3	
IMSS	85.5	14.5	
Private	40.4	59.6	
Profession			0.42
Doctor	61.3	38.7	
Nursing	65.6	34,4	

DISCUSSION

The quality of the health service depends on different factors, including the WC in which the service is provided. This study has confidently shown the CW characteristics of the HU in Mexico.

Although there is no consensus regarding the number and definition of the dimensions that constitute the WC,[7] the factors identified in this study reproduce several of the dimensions described in the field of organisational climate. Despite having observed a tendency towards the positive qualification of the various aspects evaluated, it was possible to identify relationships between the factors in theoretical congruent trends. This means that, in addition to the validity of the model, the majority of factors identified showed an appropriate concurrent validity and a good internal consistency.

There is a general tendency towards a better WC in the HU belonging to the private sector. The availability of a better infrastructure and resources, together with better training opportunities, could be the key of this positive impression, alongside the perception of greater efficiency. In general, differences between private and public units were explained by worse perceptions of WC in social security units. Some of the data from these units (e.g. the lack of resources) coincide with results from other surveys.[10] This suggests the presence of organisational or planning factors which make more difficult the care of patients suffering from terminal CKD in these units.

On the other hand, there is a remarkable tendency in Mexican national health service units to perceive their WC as similar to those of private units, despite their clear disadvantage in terms of infrastructure.[1]

The differences by profession are also worth mentioning. Doctors felt that they had a better working relationships with more senior staff, greater work satisfaction and that the operation of their HU was more efficient. This data coincides with the reference made by Salinas-Oviedo et al,[6] who also found that there was greater job satisfaction in the health service of Mexico City amongst medical professionals compared to the paramedic staff, including nurses. Nursing staff showed greater satisfaction with their working hours as this allowed them to carry out other non-work related activities. However, nurses felt more stressed, which corresponds with a slight disadvantage in the perception of their health when compared to the medical staff. They also felt more satisfied with the personal attention they give to patients. This data is comparable to that reported by Thomas-Hawkins et al,[11] who highlighted the importance of nurses in the care of patients suffering from CKD, as well as the need to provide them with more work and personal support, particularly with regards to suitable stress management, because of the risk that this represents in the appearance of the burnout syndrome.[2,3,12,13]

Although the sample included professionals from 27 federal districts and different public institutions, the mayority of participants in the study were from two of the most developed regions in the country: the Federal District and Jalisco, as well as private HU.

Experts in this field have pointed out the need that Mexico has to be able to rely on a larger number of nephrologists to face the increasing demands from CKD's patients.[1] It is clear that this data also demonstrate that it is necessary to resolve infrastructure problems and improve organisation and planning within public sector HU.

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