

# Activity indicators over five years in a psychiatric emergency department of voluntary care from a Mexican psychiatric hospital

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## SUMMARY

### Background

The demand for Psychiatric Emergency Services (PES) has increased during recent years. There is little knowledge about the activity indicators of PES at Mexican psychiatric hospitals. It is necessary to study the activities of these PES, especially the ones which work through voluntary presentation for care and with no procedure to assess the severity of emergencies (triage) before consultation.

### Objective

To describe and compare the activity indicators of a PES within a psychiatric hospital in Mexico City over five years. This hospital offered only voluntary care with no triage procedure.

### Material and method

The database of all registered PES visits from January 1, 2004, through December 31, 2008, was analyzed. We determined the overall number of consultations and relative frequencies by quarter, semester, year and five years. After this, indicators were broken down using service variables and psychiatric diagnosis according to the ICD-10; they were then compared with each other.

### Results

A total of n=41 058 consultations were attended over five years, showing an increase of 14.8% in overall PES activity. We observed a significant increase in the proportion of patients with non-compliance to outpatient treatment as well as more night shift visitations, while the proportions of references and admission decreased by more than 4%. This suggests a progressive "snowball-like" increase of frequent PES patients with non-urgent conditions. We did not find any changes in the proportion of psychiatric diagnoses during the study, but there was a significant 9.69% increase in overall activity between the first semester compared with the second.

### Discussion

Voluntary care with no triage procedure tends to enhance the influx of frequent patients with non-urgent conditions, leading to PES overcrowding and placing urgent conditions at a disadvantage, especially during the first semester of each year.

**Key words:** Activity indicator, psychiatric emergency, triage, service use.

## RESUMEN

### Introducción

Los Servicios de Urgencias Psiquiátricas (SUP) han reportado incremento en su demanda en los últimos años. Se desconoce sobre los indicadores de actividad en SUP en hospitales psiquiátricos mexicanos. Se necesitan estudios que describan la actividad de estos servicios, especialmente los de atención voluntaria y sin procedimiento de valoración de la gravedad de las urgencias (*triage*) previo a la consulta.

### Objetivos

Describir y comparar los Indicadores de Actividad en un SUP de un hospital psiquiátrico de la Ciudad de México durante cinco años, en el que se ofreció atención voluntaria sin procedimiento de *triage*.

### Material y métodos

Se analizó una base de datos del SUP de todas las consultas otorgadas del 1o de enero de 2004 al 31 de diciembre de 2008. Se determinaron el total de consultas y las frecuencias relativas trimestral, semestral, anual y quinquenal desglosados por variables de utilización de servicio y diagnóstico psiquiátrico según la CIE-10.

### Resultados

Se atendieron un total de n=41 058 consultas durante el quinquenio, encontrando incremento de 14.8% en la actividad global en el periodo. Se observó un incremento significativo de la proporción de pacientes sin adherencia a consulta externa así como mayor afluencia en el turno nocturno, mientras que la proporción de referencias y hospitalizaciones disminuyó más del 4%, sugiriendo aumento "en bola de nieve" de usuarios frequentadores con condiciones no urgentes. No se encontraron cambios en la proporción de los diagnósticos psiquiátricos a lo largo del tiempo, pero hubo un aumento significativo del 9.69% en la actividad global en el primer semestre respecto del segundo.

### Discusión

La atención voluntaria sin procedimiento de *triage* tiende a generar mayor afluencia de pacientes frequentadores con condiciones no urgentes, sobrecargando el servicio y desfavoreciendo las condiciones urgentes, especialmente durante el primer semestre del año.

**Palabras clave:** Indicador de actividad, urgencia psiquiátrica, *triage*, utilización de servicios.

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## INTRODUCTION

Emergency Psychiatry has become extremely important in recent decades. In the United States, through deinstitutionalization and the move to reincorporate psychiatric patients into the community, thousands of acute mental disorders are currently sent to general hospitals, and emergency services are the first point of entry for such patients.<sup>1</sup> It is estimated that up to 30% of users who make first contact with mental health services attend an emergency service, and an increase of up to 130% has been seen in the total of appointments in Psychiatric Emergency Services (PES) in recent years.<sup>2</sup>

PES have multiple functions, not just with the patient, but also with the community, given that they frequently collaborate with other emergency service providers such as doctors, paramedics, and nurses, as well as community mental health services, courts, and schools at all levels.<sup>3</sup> The importance of PES and their participation in complex emergencies and disasters<sup>4</sup> has been recalculated by academia and research.<sup>5</sup> The decision to admit or refer a psychiatric patient within an emergency room has far-reaching medical and economic implications.<sup>6</sup> Furthermore, it has been seen that when consistent programs of crisis intervention for depressed patients are implemented in PES, there is a significant reduction in psychiatric hospitalizations<sup>7</sup> as well as a reduced individual, community, and governmental cost.<sup>8</sup> PES are sometimes the only chance to estimate adherence to treatment, a social support network, and the prognosis of users demanding appointments,<sup>9,10</sup> which can present an opportunity to provide psychoeducation, reinforce compliance with treatment, or validate a previous medical opinion.<sup>11</sup>

Although many authors around the world have published papers around emergency services and mental health, there are few studies related to PES in the particular case of Mexico. Some studies have reported prevalences of psychiatric disorders in the emergency services of general hospitals.<sup>12</sup> An important number of Mexican studies have focused on the role played by alcohol in reasons for attending emergency services,<sup>13-15</sup> the prevalence of suicidal ideation in users,<sup>16</sup> and the ethnography of treatment in patients who abuse alcohol in an emergency service.<sup>17</sup> Some emergency services in Mexican general hospitals have participated in multi-centric studies which have described the prevalence of mental disorders in a population using the emergency services of general hospitals.<sup>18-20</sup> Although these studies are extremely valuable, the results obtained from emergency services of general hospitals cannot be interpreted in the same way as those in emergency services of psychiatric hospitals, as the perception of mental illness is completely different in both types of hospital among patients, families, and health service providers.<sup>21,22</sup>

In order to quantify the use of a health service, including an emergency service, the most widely-used method is based on indicators, which in the area of health can be one of

two types: activity and quality.<sup>23</sup> The indicators that quantitatively describe the use of a service by unit of time are activity indicators which express the total care provided to a specific population during a period of time. Activity indicators can be represented in two forms: a) number of consultations per unit of time and b) relative frequency per unit of time (generally years). The first reflects the sum of all the consultations throughout a determined period; the second reflects the number of consultations per determined time in relation to a covered population according to censuses or referrals.<sup>24</sup>

Activity indicators can reflect an increase or decrease in the demand for services when compared between themselves over a period of time. They can be considered an indirect representation of the impact of existing mental health program services,<sup>25</sup> as attending emergency services and adherence to outpatient services are very often complimentary activities. This is due to the demand for emergency services very often depending on the cover or implementation of mental health services at a community level.<sup>26,27</sup>

One frequent procedure in mental health services is *triage*. The term *triage* is an Anglicism of the French word "trier" which means to choose, pick out, or categorize. It is a procedure to categorize the severity of emergencies with the aim of prioritizing the most serious.<sup>28</sup> Little is known about the effects of its use (or lack of) in a psychiatric emergency service, especially when considering that the activity of one service or another can be extremely variable.<sup>29</sup>

Bearing in mind the lack of studies into the use of emergency services in Mexican psychiatric hospitals, the present work was carried out with the aim of describing and comparing activity indicators for different periods in a Mexican psychiatric emergency service between 2004 and 2008. There had not been any procedure implemented for classifying psychiatric emergencies (*triage*), and the only treatment criteria was the users' voluntarily requesting care that was considered to merit an emergency consultation during the study period.

## MATERIAL AND METHODS

### Subjects

All records were considered of users who voluntarily requested a consultation in the Emergency Service of the National Institute of Psychiatry Ramón de la Fuente Muñiz (INPRFM) in the period comprising January 1 2004 through December 31 2008. Records for users who did not complete the emergency consultation, rejected it, or did not give their consent for their data to be used for bio-statistical purposes were excluded. An institutional database was then prepared with Microsoft Excel based on the emergency service's daily statistical census, which were obtained directly from each patient's medical assessment notes.

## Institution

The INPRFM forms part of the National Health Institutes. The designated area for emergency services was established in March 2000; it consists of an area approximately 1,184 square feet which includes: an observation room with two beds, a nursing module, two bathrooms (one for staff and one for patients), four consulting rooms, and one office for the doctor assigned to the service. It has a waiting room situated outside the service on a corridor that connects Outpatients with Inpatients. The number of consulting rooms increased from just one in 2000, to two in 2002, three in 2004, four in 2006, and five in 2008. This was done by redistributing the space, with the general service area remaining the same.

## Treatment procedure

The users who attended the emergency service during the years 2004-2008 presented themselves to the service voluntarily. Each user was sent by the Monitoring Module to the Patient Registry Module, where they were electronically registered and the cost of their consultation paid as applicable. If there was no means of payment available, the social service authorized for it to be delayed, ensuring that financing was not a barrier to care. Each user came to the service and a nurse took their vital signs. They then had to wait for consultation for a variable length of time, the only criteria for prioritization and waiting time being the current level of demand, the saturation of the service, and the availability of the doctors at the time of seeking treatment. No procedure for classifying severity of psychiatric emergencies (*triage*) was applied through the last quarter of 2008, and therefore all conditions were assessed according to the subjective need of each user to receive immediate emergency treatment and according to the human resources available at different times.

## Activity indicators

These were calculated according to the following criteria: a) Total consultations (number of consultations granted per period of time) and b) relative frequency (quotient of number of consultations per period of time between the benchmark of the population covered by the service, per 100 000 inhabitants). The benchmark of covered population was considered as the average between 2005 and 2010 of the total population reported by the National Institute of Statistics, Geography, and History of the States of Mexico, Morelos, and the Federal District, representing the benchmark estimate of cover for this study as the sum of 25 072 740 inhabitants.<sup>30</sup>

## Use of service and psychiatric diagnosis

The records for the database were broken down according to two groups of variables recorded in the database: a) Ser-

vice usage and b) Psychiatric diagnosis. The variables of service usage were; first or subsequent institutional contact, attendance of outpatient appointments, user's reasons leading to consultation, and reference or derivation. The psychiatric diagnoses were captured by code according to the Tenth Edition of the International Classification of Diseases (ICD-10). The database used for this study did not have variables of gender, age, or suicide risk.

## Changes to indicators over time

In order to confirm the observations in the literature that the influx of psychiatric emergency services and certain psychiatric diagnoses can have a cyclical pattern of seasonality or increase in demand,<sup>31</sup> the activity indicators were studied annually, quarterly (four quarters per year, for five years), and six-monthly (two six month periods, or semesters, in a year, for five years). Inter-quarter, inter-semester, and inter-quarter-semesters were compared. The percentage changes were calculated per semester for each variable in order to detect any change in usage patterns of the services or the prevalence of psychiatric diagnoses over different periods of time.

## Ethical considerations

The principles of the Helsinki Declaration were considered regarding research on human beings.<sup>32</sup> The records for this study were obtained retrospectively from files holding information on medical notes taken after treating emergency service users. The users gave their informed consent as part of the procedure, which as well as authorizing voluntary care, authorized that the information could be used anonymously for bio-statistical purposes. Users' confidentiality and privacy was safeguarded using numeric-type variables in such a way that made identification impossible.

## Statistical analysis

Central tendency methods, percentage, dispersion, and five year sum totals were used for the descriptive analysis of the annual activity indicators. The *chi*-squared test was used for the comparative analysis between activity indicators and service usage. The *t*-test and the one way ANOVA test were used for the analysis of changes between psychiatric diagnoses per quarter, semester, and five-year period. Version 22.0 of the SPSS statistical package was used.

## RESULTS

### Total annual and five-yearly number of emergency consultations

A total of n=41 160 emergency consultations were given over the course of five years, in which n=102 people refused

**Table 1.** Breakdown of annual and five-yearly activity indicators (number of consultations) in relation to service usage variables for the Psychiatric Emergency Service (PES)

Type of PES use	Usage variable for PES	2004	2005	2006	2007	2008	Σ	Mean	S.D.	Diff. % FRQ.	χ <sup>2</sup>	gl.	P
Institutional care	First time	2467	2658	2697	2861	2733	13416	2683.2	142.88	-0.77	3,027	4	0.553
	Subsequent	5052	5358	5560	5874	5708	27552	5510.4	319.01	-0.28			
Attendance of OP	Attends OP appointments	2645	2239	2196	2475	2314	11869	2373.8	185.17	-11.82	248,085	4	<0.0001**
	Does not attend OP appointments	2382	3077	3306	3368	3466	15699	3139.8	458.13	+15.32			
Consultation reason	First time assessment	2467	2658	2697	2861	2733	13416	2683.2	142.88	-0.77	933,710	36	<0.0001**
	Exacerbation of symptoms	3865	3842	4154	4995	4916	21772	4354.4	563.03	+6.22			
	Suicide Risk	215	197	158	184	92	846	169.2	47.89	-1.78			
	Psychopharmacological SE	119	183	102	123	83	610	122.0	37.58	-0.61			
	Substance intoxication	18	49	37	29	31	164	32.8	11.36	+0.12			
	Poor adherence to OP	274	378	374	89	67	1182	236.4	150.68	-2.86			
	OP Doctor reassignment	152	154	318	80	238	942	188.4	91.53	+0.77			
	Non-psych medical symptoms	150	241	144	80	238	858	171.6	39.65	-0.05			
	Prescription request	83	101	95	85	90	454	90.8	7.36	-0.05			
	Other	176	213	178	132	115	814	162.8	39.23	-0.99			
Sent to/referred	OP/preconsultation	5552	6105	6723	6798	6643	31371	6274.2	490.04	+4.03	536,830	12	0.01*
	Hospitalization	403	376	415	451	399	2044	408.8	27.49	-0.68			
	Referred to another unit	1564	1535	1569	1483	1489	7640	1528.0	40.53	-3.35			
Shift assessed	Morning (08:00 - 13:59)	3027	3798	3995	4224	3878	18922	3784.4	452.82	+5.20	1066,460	8	<0.0001**
	Afternoon (14:00 - 19:59)	3792	2529	2568	2788	3006	14683	2936.6	514.93	-15.20			
	Night (20:00 - 07:59)	700	1689	1694	1723	1647	7453	1490.6	442.79	+10.00			
Total	7519	8016	8257	8735	8531	41058	8211.6	473.28	+14.81	267,385	4	<0.0001**	

The sum, mean, and Standard Deviation correspond to the five year period. The percentage corresponds to the five-year prevalence of each subgroup of activity indicators by users' attendance, reason for consultation, referral, and shift for treatment. OP = Outpatients. PES = Psychiatric Emergency Service. SE = Secondary Effects. Dif % FRQ: Percentage difference of Relative Frequency at the start and end of the five year period.

voluntary care, resulting in an analyzed sample of n=41 058 consultations. The year 2007 was the time of most activity in the five year period, with some n=8,735 consultations. The five-year mean was 8,211.6 ± 473.28 consultations. A progressive increase was observed in emergency consultations from 2004 through 2007, with an annual increase of 6.61% in 2005, 3.01% in 2006, and 5.79% in 2007 with respect to the previous year, whereas in 2008, there was a decrease of 2.33% compared to 2007. There was a global five-year increase of 14.81%.

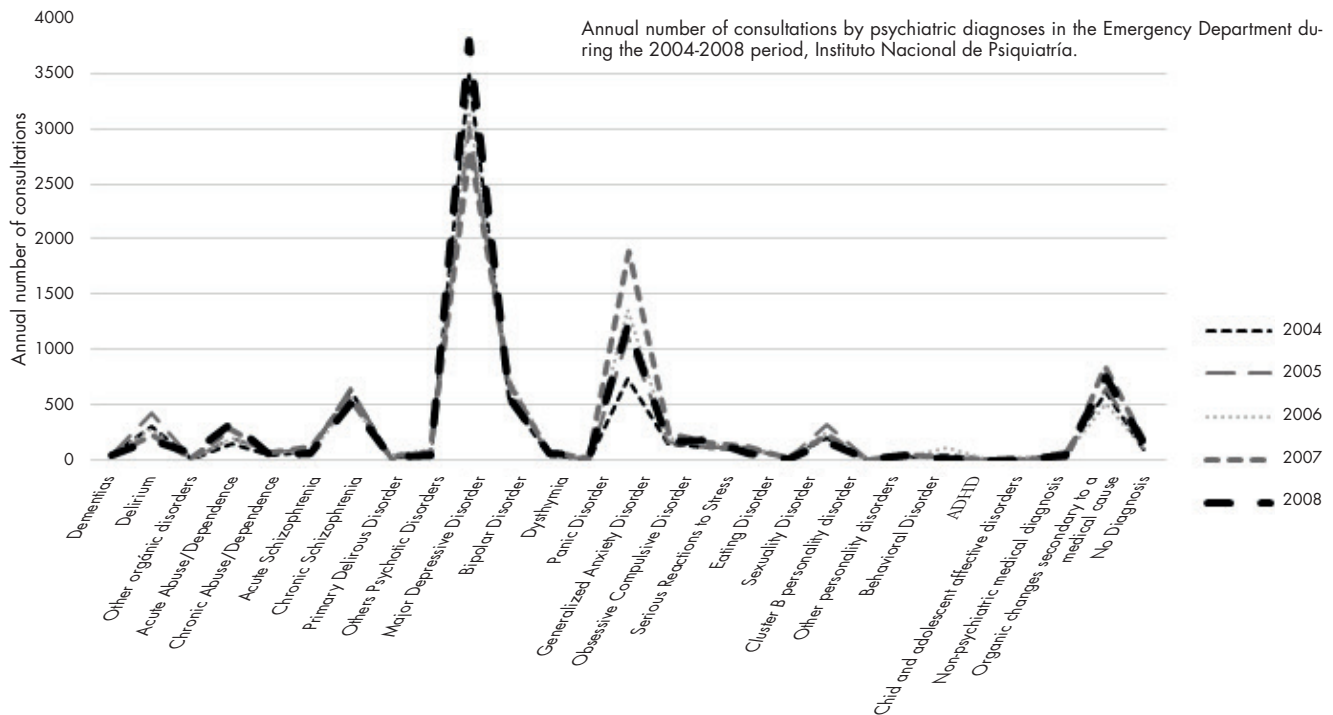
The majority of consultations were subsequent, (67.11%, n=27,552) of which n=15 699 (38% of the total sam-

ple and 56.98% of the subsequent sample) did not have adequate adherence to outpatient appointments. Some 53.03% (n=21,772) attended emergencies due to an exacerbation of their symptoms. More than three quarters of the sample (n=31,317, 76.41%) were sent to the institution's outpatient service (External consultation or Pre-consultation). A total of 2 044 patients were hospitalized, representing 4.98% of the total sample and generating a mean of 408 ± 27.49 hospitalizations per year. A greater proportion of consultations given during the morning shift was noted in comparison to the evening and night shifts.

**Table 2.** Quarter and Semester Relative Frequency during the five years

ICD-10 Diagnosis	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	1st sem	2nd sem	Percentage Diff 1 & 2 sem	Overall activity comparison	Statistic	p
Dementias	0.267	0.235	0.199	0.291	0.502	0.491	2.381			
Delirium	1.918	1.268	1.312	1.360	3.187	2.672	16.145	Inter-trimestre:		
Other organic disorders	0.052	0.060	0.116	0.144	0.112	0.259	-132.140	Trim. 1 - Trim. 2	t = 0.5430	0.591
Acute abuse/dependence	1.165	1.232	1.300	0.921	2.397	2.222	7.321	Trim. 1 - Trim. 3	t = 1.4340	0.162
Chronic abuse/dependence	0.347	0.363	0.255	0.319	0.709	0.574	19.101	Trim. 1 - Trim. 4	t = 2.9730	0.006**
Acute schizophrenia	0.463	0.542	0.275	0.331	1.005	0.606	39.680	Trim. 2 - Trim. 4	t = 2.7830	0.009**
Chronic schizophrenia	3.091	2.888	2.931	2.792	5.978	5.723	4.269			
Primary delirious disorders	0.307	0.291	0.215	0.183	0.598	0.399	33.330			
Other psychotic disorders	0.012	0.028	0.000	0.012	0.040	0.012	70.000			
Major depressive disorder	16.090	16.91	16.640	14.760	33.000	31.400	4.858			
Bipolar disorder	3.661	3.243	3.015	2.912	6.903	5.927	14.153			
Dysthymic disorders	0.335	0.335	0.271	0.319	0.670	0.590	11.904			
Panic disorder	0.136	0.140	0.092	0.084	0.175	0.175	36.231	Trim. - Sem.		
Generalized anxiety disorder	7.143	6.481	5.376	5.695	13.620	11.070	18.735	Trim. 1 - Sem. 1	t = -2.3850	0.024*
Obsessive compulsive disorder	1.041	0.957	0.850	0.885	1.998	1.735	13.174	Trim. 2 - Sem. 1	t = -2.1730	0.038*
Serious reactions to stress	0.830	0.722	0.658	0.698	1.551	1.356	12.596	Trim. 3 - Sem. 1	t = -2.4990	0.018*
Eating disorders	0.618	0.447	0.511	0.391	1.065	0.901	15.356	Trim. 4 - Sem. 1	t = -2.3160	0.028*
Sexuality disorders	0.076	0.088	0.080	0.076	0.163	0.155	4.878	Trim. 1 - Sem. 2	t = -2.5440	0.017*
Sleep disorders	0.016	0.012	0.004	0.012	0.028	0.016	42.857	Trim. 2 - Sem. 2	t = -2.3932	0.023*
Somatoform disorders	0.000	0.000	0.000	0.012	0.000	0.012	0.000	Trim. 3 - Sem. 2	t = -2.4812	0.019*
Cluster A	0.008	0.028	0.012	0.004	0.036	0.016	55.556	Trim. 4 - Sem. 2	t = -2.3182	0.028*
Cluster B	1.344	1.169	1.033	1.149	2.513	2.181	13.174	Sem. 1 - Sem. 2	t = 2.7830	0.009**
Cluster C	0.032	0.052	0.020	0.016	0.083	0.000	57.142			
Behavioral disorder	0.191	0.183	0.168	0.160	0.375	0.327	12.765			
A.D.H.D.	0.160	0.263	0.076	0.128	0.442	0.203	51.886	Diagnóst. - Trim.:		
Adolescent affective disorders	0.016	0.016	0.028	0.004	0.032	0.032	0.000	Diagnóst. - Trim. 1	F = 1.4930	0.219
Other adolescent disorders	0.080	0.040	0.056	0.072	0.120	0.128	-6.660	Diagnóst. - Trim. 2	F = 1.4600	0.231
Non-psychiatric medical disorder	0.283	0.215	0.327	0.148	0.499	0.475	4.800	Diagnóst. - Trim. 3	F = 1.4500	0.234
Psych disorder secondary to medical cause	3.227	3.729	3.849	2.999	6.955	6.848	1.548	Diagnóst. - Trim. 4	F = 1.4700	0.227
No diagnosis	0.427	0.606	0.554	0.455	1.032	1.009	2.317	Diagnóst. - Sem. 1	F = 1.4770	0.224
Total	43.340	42.540	40.220	37.330	85.880	77.550	9.696	Diagnóst. - Sem. 2	F = 1.4590	0.231

The figures represent the rate of emergency service activity per 100,000 inhabitants according to the reference cover population. The percentage difference was obtained from the accumulated percentage per semester between the first and second semesters during the five year period. Negative percentages imply greater activity in the second semester compared to the first.



**Figure 1.** Diagnoses were assigned in accordance with the clinical records of the patients generated from the emergency consultations.

### Changes in annual and five-yearly relative frequency

Service usage variables were converted to indicators of relative frequency by quarter and semester, analyzing the percentage differences at the start (2004) and end (2008) of the five year period. Table 2 summarizes the changes in relative frequencies by quarter and semester. Non-significant differences were found in the initial and end proportions of first-time and subsequent consultations ( $\chi^2=3.027$ ,  $gl=4$ ,  $p=0.553$ ). A significant reduction of 11.82% was observed in subsequent users attending outpatients, and an increase of 15.32% in the proportion of subsequent users not attending outpatients at the end of the five year period ( $\chi^2=248.085$ ,  $gl=4$ ,  $p<0.0001$ ). An increase of 4.03% was also seen in referrals to outpatients and a reduction of 3.35% in referrals to other institutions ( $\chi^2=536.83$ ,  $gl=12$ ,  $p=0.01$ ). A five-year increase of 10% was observed in consultations during the night shift ( $\chi^2=1066.46$ ,  $gl=8$ ,  $p<0.0001$ ).

### Psychiatric diagnosis in the emergency service

Each one of the psychiatric diagnoses presented by the sample was broken down by code according to Section F of the ICD-10. Figure 1 sets out the distributions of diagnoses by year. The most frequent diagnosis was major depressive disorder (prevalence of 39.61%,  $n=19,262$ ) with a mean of

$3,252.4 \pm 393.35$  annual consultations. The second most frequent diagnosis was generalized anxiety disorder (15.34%,  $n=6,306$ ), with a mean of  $1,262.2 \pm 417.79$  annual consultations. In third place was psychiatric disorders secondary to a medical cause (8.21%,  $n=3,370$ ), followed by bipolar disorder (7.72%,  $n=3,170$ ), chronic paranoid schizophrenia (7.0%,  $n=2,876$ ), delirium secondary to a medical cause (3.46%,  $n=1,419$ ), and addictive disorders and personality disorders. The presence of acute addiction-related disorders was greater in comparison to chronic disorders (2.81% vs. 0.80%). It was found that cluster B personality disorders (limit, antisocial, histrionic, and narcissistic) were the most frequent compared to other personality disorders (2.83% vs. 0.06%).

### Inter-quarter and inter-semester activity

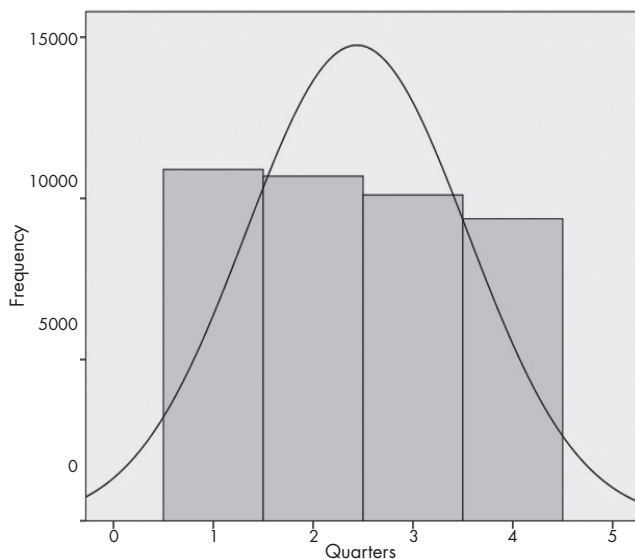
Over the five years, greater service activity was observed in the early months (January through June,  $n=21,533$ ) compared to the late ones (July through December,  $n=19,445$ ), with 9.696% greater activity found in the first semesters compared to the second ( $t=2,783$ ,  $p=0.009$ ). The majority of psychiatric diagnoses showed a pattern of greater activity during the first quarters, which progressively decreased throughout the following quarters. Only the diagnoses "Other organic disorders" (e.g. personality changes secondary to a medical cause) and "Other disorders in adolescence" (e.g. tic disorder) showed greater activity during the

second semesters. Major depressive disorder had greater activity during the second quarters. An increase was observed in the activity in the fourth quarter compared to the third for diagnoses of *delirium*, other organic disorders, dysthymic disorders, generalized anxiety disorder, obsessive compulsive disorder, and serious reactions to stress including post-traumatic stress. No significant inter-group or intra-group differences were found because of the effect of the factor of psychiatric diagnosis ( $F=1.459$ ,  $p=0.231$ ). Graph 2 summarizes the global inter-quarter activity of the emergency service during the five year period.

## DISCUSSION

As far as we know, this is the first study that describes and analyzes activity indicators in a Mexican PES in which the total and relative frequency of consultations given is measured per quarter, semester, year, and five year period for voluntary treatment in the emergency service of a psychiatric hospital without a *triage* procedure.

The most evident finding is that a five-year growth pattern of 14.81% was detected in the service's activity. This phenomenon may seem to be explicable as secondary to the natural increase in demand for the emergency service according to current psychopathological and social phenomena, such as alcohol consumption,<sup>33</sup> the increase in suicidal



**Figure 2.** Overall inter-quarter activity of the emergency service in five years. Distribution and curve of frequency of emergency consultations per quarter. Presents the sum of consultations broken down into each of the four quarters (1 = January through March; 2 = April through June; 3 = July through September; 4 = October through December) from 2004 through 2008. A bias of 0.77 (Standard error = 0.12) and kurtosis = -1.338 (Standard error = 0.24) was calculated, corresponding to a right-skewed and platikurtic distribution.

behavior in recent years, both worldwide<sup>34</sup> and in Mexico,<sup>35</sup> and the increase in violent behavior associated with substance use.<sup>36</sup> However, there are other additional factors that can increase the activity indicators of an emergency service.

There are some factors intrinsic to the emergency service's procedures that can explain the increase in activity, such as the presence of frequent service users,<sup>37</sup> and recurrent demand of non-urgent conditions.<sup>38</sup> Both of these conditions were detected in the PES due to results in the variables of service use during the five years, such as the increase of users who did not attend outpatients (15%), the increase in users coming from outpatients (4%), and the greater proportion of users whose primary reason for attendance was an exacerbation of pre-existing symptoms (53%). The above encapsulates how the type of service use that was increasing was primarily for non-urgent reasons, given that being sent to outpatients (External consultation or Pre-consultation) generally corresponds to stable, non-critical users, with individual subjective demand for immediate PES care and intervention.

The "snowball-type" growth in the PES service indicators describes a phenomenon that could be attributed to a growing number of patients who frequently use the service. The phenomenon of the "frequent flyer" patient developed due to a negative feedback between the lack of attendance of outpatient services and the frequenting of the emergency service, which worsens when there is voluntary attendance without a *triage* system in place to classify patients by risk or severity. This generates a "revolving" phenomenon of frequent users which stretches the service more and more and limits the availability of care for users with truly urgent conditions.

One interesting finding observed an increase of 5% in PES activity during the morning shift (08:00 - 14:00hrs), as well as an increase of 10% during the night shift (20:00 - 08:00hrs) over the five year period. One noticeable phenomenon is that a considerable number of users frequented the night shift in order to avoid the administrative procedures present during normal working hours. This is especially the case for procedures related to deferred payment for services, which could be one explanation for the increased demand for night shift services.

It has been seen that the indiscriminate offer of PES care for non-urgent conditions causes different problems such as oversaturation and an increase in frequent service users, especially if there are no other alternatives such as sending them to the first level of care in the short term or integrating follow-up programs for specific disorders.<sup>39</sup> Far from being isolated from emergency services, outpatient services should be in close contact with them in such a way that they work in a synergic and coordinated manner to increase continuity of care in outpatients, and at the same time, reduce attendance of the emergency services.

A common error is to state that emergency services should operate as “buffers” for healthcare delivery, especially when other services are not available.<sup>40</sup> This tendency to delegate all situations not covered by other areas to the emergency service could explain some of the oversaturation over time, at certain times of year, or even for certain shifts in the emergency service. This becomes worse if emergency treatment criteria are based on care that is voluntary, not classified or tiered, which generates progressively worse problems of oversaturation and frequentation over time.<sup>41</sup> This leads to the emergency service losing its primary objective of prioritizing and stabilizing the most serious conditions in the face of excessive demand by service users who may be perceived their situation as urgent but which, paradoxically, do not usually require immediate treatment.<sup>42</sup>

Some studies have reported that the most frequent conditions are presented to the emergency service outside of working hours,<sup>43</sup> which confirms the needs for PES care to be available 24 hours a day, even if the relative frequency is minor compared to day times and working hours.

The results of this study show that some psychiatric diagnoses, such as acute addiction-related conditions and *cluster B* personality disorders, increased their relative annual frequency over the five years. This is in line with reports that other factors that could influence attendance of emergency services are addiction-related diagnoses and *cluster B* personality disorders, according to the DSM-IV.<sup>44,45</sup>

Among other factors that can encourage the influx of frequent patients to the PES is the feeling of privacy and satisfaction of using an emergency service.<sup>46</sup> Another risk factor for being a “frequent flyer” is that the user does not gain a perception of their health improving through using PES; *triage* being carried out, follow-up by nurses, and assessment by different medical *staff* are among the factors related to a feeling of improved health in emergency services.<sup>47</sup> Finally, another factor that can favor frequentation of an emergency service is difficulty in financing the therapeutic relationship, which is considered an important factor in treatment, especially in patients with critical conditions.<sup>48</sup>

It is notable that in spite of an increase in psychiatric diagnoses over the years, the proportion remained the same throughout the study; furthermore, an increase of 9.69% was found in activity during the first semester compared to the second, and in the first quarter compared to subsequent ones. The majority of activity during the first quarters and semesters could be explained by the principle of seasonality, in that an increase in temperature and humidity can increase activity in psychiatric emergency services.<sup>49</sup>

The present study has various limitations. Firstly, it does not show a comparison by age or gender due to the database used not having that information. The gender factor is decisive in assessing suicide risk,<sup>50</sup> and therefore it will

be necessary to carry out new studies where it is possible to compare the impact on activity indicators broken down by gender. Another limitation of the study is that the sample is far from being representative of the general population, as being a hospital sample, it is not probabilistic. It is also notable that the most frequent diagnosis in the emergency service was major depressive disorder, while in the general population it is specific phobia,<sup>51</sup> which reinforces how emergency service diagnoses cannot represent the background reason or critical situation at the moment of seeking care. This is because conditions in psychiatric emergencies are critical entities of a syndromic nature which are to date not sufficiently categorized, therefore current nosological diagnoses are insufficient to adequately classify them. A third limitation is that the study did not include quality indicators (e.g. waiting times), satisfaction indicators (e.g., conformity with information received by the doctor), or continuity indicators (e.g. longitudinal follow-up of the services used after the last emergency consultation).

The results of this study allow us to conclude that open and indiscriminate care by emergency services, although well-intentioned and apparently centered on user satisfaction, can cause problems such as oversaturation of the service and an increase in frequent users with non-urgent conditions. This necessitates a procedure for initial classification of severity or risk for psychiatric emergencies, as swift identification of non-urgent conditions is a priority for matters of quality and satisfaction in the use of emergency services.<sup>52</sup> It also allows us to conclude that voluntary and indiscriminate care in emergency services has the effect of increasing the volume of attendees, a large part of which is made up of frequent service users. This affects overall functioning, user satisfaction, and most seriously, not treating genuine emergencies in a prioritized and favorable manner.

New studies are needed to determine the impact of programs which classify psychiatric emergencies (*triage*) with specific instruments or scales to classify mental health emergencies in both general and psychiatric hospital emergency services.

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