

# Satisfaction of patients suffering from type 2 diabetes and/or hypertension with care offered in family medicine clinics in Mexico

Svetlana Vladislavovna Doubova, MC, MSc,<sup>(1)</sup> Ricardo Pérez-Cuevas, MC, MSc, Dr PH,<sup>(1)</sup>  
Maribel Zepeda-Arias PHS,<sup>(2)</sup> Sergio Flores-Hernández, MC, MSc.<sup>(3)</sup>

Doubova SV, Pérez-Cuevas R,  
Zepeda-Arias M, Flores-Hernández S.

Satisfaction of patients suffering from type 2 diabetes and/or hypertension with care offered in family medicine clinics in Mexico. *Salud Publica Mex* 2009;51:231-239.

## Abstract

**Objective.** To evaluate the satisfaction and the factors related to dissatisfaction in patients suffering from type 2 diabetes and/or hypertension with care offered in family medicine clinics. **Material and Method.** A secondary data analysis was conducted. Main outcome measures were two indices of satisfaction: family doctor-patient relationship (FDPR) and clinic organizational arrangements (OA). **Results.** Approximately half of patients ( $n=1\ 323$ ) were satisfied with care. In the FDPR index the items "kindness of the family doctor" (FD) scored high, while the lowest score was for the items: "the FD allows the patient to give an opinion about his/her treatment," "the patient understands the information" and "the FD spends enough time on the consultation." As for satisfaction with OA, the items "cleanliness of the clinic" and "ease of administrative procedures" obtained the lowest scores. In the logistic regression analysis the covariate "negative self-rated health" and "type of institution" were associated with dissatisfaction. **Conclusions.** There are aspects of the FDPR and OA that reveal dissatisfaction of patients with chronic conditions.

Key words: patient satisfaction, diabetes, hypertension, family medicine, Mexico

Doubova SV, Pérez-Cuevas R,  
Zepeda-Arias M, Flores-Hernández S.

Satisfacción en pacientes con diabetes mellitus o hipertensión arterial atendidos en clínicas de medicina familiar en México. *Salud Publica Mex* 2009;51:231-239.

## Resumen

**Objetivo.** Analizar la satisfacción y los factores relacionados con insatisfacción en pacientes con diabetes mellitus (DM) o hipertensión arterial (HTA) atendidos en clínicas de medicina familiar (MF). **Material y métodos.** Se realizó análisis secundario de datos. Las variables de resultado fueron dos índices de satisfacción: relación médico familiar-paciente (RMFP) y aspectos organizacionales (AO). **Resultados.** Aproximadamente la mitad de los pacientes ( $n=1\ 323$ ) estuvieron satisfechos. Para la RMFP, "la amabilidad del MF" obtuvo la mayor calificación, y la más baja fue para "el MF permite la opinión del paciente sobre los tratamientos", "comprensión de la información" y "tiempo que el MF dedica al paciente". Para satisfacción con AO, "la limpieza de la clínica" y "fácil solución de los trámites administrativos" calificaron más bajo. En la regresión múltiple, la "autopercepción negativa de la salud" y "tipo de la institución" fueron relacionados con insatisfacción. **Conclusión.** Existen aspectos de RMFP y AO que provocan mayor insatisfacción en los pacientes crónicos y requieren mayor atención.

Palabras clave: satisfacción de los pacientes, diabetes, hipertensión, medicina familiar

The study was supported by grants from the Consejo Nacional de Ciencia y Tecnología (CONACYT): SALUD-2004-C01-145 and by the Instituto Mexicano del Seguro Social (IMSS) 2003-785-024.

- (1) Unidad de Investigación Epidemiológica y en Servicios de Salud. Centro Médico Nacional Siglo XXI. Instituto Mexicano del Seguro Social (IMSS). México, DF, México.
- (2) Coordinación de Infraestructura Médica. División de Equipamiento Médico. IMSS. México, DF, México.
- (3) Coordinación de Investigación en Salud, Centro Médico Nacional Siglo XXI. IMSS. México, DF, México.

Received on: August 22, 2008 • Accepted on: February 25, 2009

Address reprint requests to: Dr. Svetlana Vladislavovna Doubova. Unidad de Investigación Epidemiológica y en Servicios de Salud. Centro Médico Nacional Siglo XXI. Instituto Mexicano del Seguro Social. Cuauhtémoc 330, col Doctores, 3<sup>er</sup> piso. 06725 México, DF, México.  
E-mail: svetlana.doubova@imss.gob.mx

Satisfaction of users of health services is a quality-of-care indicator employed to evaluate health care and to identify, from the user perspective, aspects of services that can be improved; it also serves as a method to conduct comparative analyses of health care programs.<sup>1,2</sup>

Satisfaction is multifaceted and reflects the experiences, expectations and preferences of users with regard to different components of the care process, such as access, facilities available, interpersonal relationships and technical quality. Satisfaction is influenced by user characteristics such as gender, age, socio-economic status, and comorbidity, and by the health outcomes achieved by care—principally expectation fulfillment.<sup>1-4</sup> Also, satisfaction has an effect on user behavior. Specifically, individuals who are satisfied with health care are more likely to comply with treatment regimens and are more willing to continue visiting the same doctor in the same institution.<sup>5,6</sup>

In Mexico, a number of studies have evaluated user satisfaction with health care in different public institutions and at different care levels. The proportion of ambulatory patients receiving care who were satisfied ranged from 64.8% to 88.0%. Several aspects of care cause greater dissatisfaction than others; provision of little information by the doctor, a perception that care was untimely, difficulty in obtaining an appointment, long waiting times and drug shortage are found by patients to be particularly annoying.<sup>7-9</sup>

Although there is a substantial body of literature addressing patient satisfaction, its focus on chronically ill patients is still incipient in the international arena.

In both developed and developing countries the incidence and prevalence of chronic diseases is showing a steady increase and Mexico is facing a growing demand for care of patients with chronic conditions as well. The two main Mexican social security institutions, which cover 60% of the population, are the Mexican Institute of Social Security (IMSS) and the Institute of Security and Social Services for State Employees (ISSSTE). These institutions have reported that hypertension and type 2 diabetes are among the top causes of medical visits to family medicine clinics and of hospitalizations.<sup>10,11</sup>

Satisfaction with health care on the part of patients with chronic conditions is of particular importance, given that they will interact continuously with health services from the time the disease is detected and diagnosis is confirmed through all stages of their condition. As long as their needs and expectations are satisfied, their collaboration in managing illnesses will be maintained and may even increase.

The present study has two objectives: to evaluate satisfaction with health care and factors related to dissatisfaction among patients who receive care from the

Mexican social security institutes and who suffer from type 2 diabetes and/or hypertension.

## Material and Methods

The present paper is a secondary data analysis from the study “Model of Integrated Ambulatory Care for patients with type 2 diabetes and/or hypertension” (MIAC Study) which was aimed at improving care for such patients, and was carried out during 2005-2006 in eight family medicine clinics: five IMSS clinics and three ISSSTE clinics that were located in Mexico City and in the cities of Monterey, Tijuana, Oaxaca, Durango and Tlalnepantla.

For the MIAC study, the participating clinics had ten or more examining rooms and were similar in organization to the rest of those that constitute IMSS and ISSSTE primary care systems. The family medicine clinics were selected by convenience. The MIAC Study was approved by the Institutional Research and Ethics Review Boards.

Cross-sectional data from 1 323 ambulatory patients with type 2 diabetes and/or hypertension were collected. We included patients older than 20 years of age and who had been receiving care at the clinics over the previous six months.

Patients were included when going to a control visit for their chronic disease. Immediately after the visit, specially trained nurses interviewed all patients who accepted to participate in the MIAC study and gave voluntary written informed consent.

Satisfaction was ascertained by using a 19-item questionnaire, which is a modified version of a questionnaire that was developed and validated in Mexico by our group (appendix).<sup>\*</sup> We did not use the complete questionnaire, as some questions from the original instrument were not applicable to patients in this study.

Each item was scored using a 5-point Likert scale in which the highest satisfaction score was five and the lowest was one. The questionnaire explored satisfaction with the care process in the preceding six months. An exploratory factor analysis was used to identify satisfaction indices by applying a principal components extraction method and orthogonal rotation, reducing the number of items and analyzing relationships among them. Each index (factor) was integrated with all items that had a common factor

---

\* Zepeda-Arias M. Development and validation of an inventory to measure satisfaction of users of family medicine clinics with hypertension and diabetes in Mexico. Master's degree thesis. Universidad Autónoma de Aguascalientes; 2005. Unpublished.

variance  $>0.30$ . To identify significant factor loadings for the items, load values  $>0.50$  were sought. All factors that individually attained  $<3$  significant variables were eliminated (the criterion of existence was employed).<sup>12</sup> This exploratory factor analysis allowed the creation of two indices. One index evaluated satisfaction with the family doctor-patient relationship (FDPR) and was composed of eight items: kindness of the family doctor, physical examination, treatment, whether the family doctor allows the patient to give his/her opinion about the treatment, whether the patient understands the information, whether the doctor clarifies patient questions, whether the family doctor spends enough time on the consultation, and general satisfaction with the family doctor. The other index measured satisfaction with the organizational arrangement (OA) and included six items: organization of the clinic, convenience of appointment times, clinic comfort, trust in the quality of clinic care, clinic cleanliness, and resolution of administrative difficulties (Table I).

Each item in the FDPR and OA indices was evaluated individually; then, the average score of all items in each index was calculated. Next, each index was divided into two categories, satisfaction and dissatisfaction. A patient was considered satisfied when the average score for each index reached 4 points or more, and dissatisfied when the average score was 3 points or less on each.

**Table I**  
**ORTHOGONAL TWO-FACTOR ROTATIONAL SOLUTION**  
**FOR PATIENT SATISFACTION. MEXICO, 2005-2006**

	Factor	
	1	2
Kindness of the family doctor	<b>0.623</b>	0.274
Questions answered	<b>0.742</b>	0.010
The patient understands the information	<b>0.684</b>	0.138
Physical examination	<b>0.678</b>	0.209
Treatment for disease control	<b>0.520</b>	0.382
The family doctor allows the patient to give an opinion about the treatment	<b>0.614</b>	0.002
The family doctor spends enough time on the consultation	<b>0.626</b>	0.294
General satisfaction with the family doctor	<b>0.717</b>	0.266
Organization of the clinic	0.172	<b>0.687</b>
Convenience of clinic appointment times	0.178	<b>0.619</b>
Resolution of administrative difficulties	0.128	<b>0.664</b>
Patient trust in care that the clinic provides	0.275	<b>0.527</b>
Comfort of the clinic	0.094	<b>0.689</b>
Cleanliness of clinic facilities	0.076	<b>0.648</b>

Other variables were general patient characteristics, including sex, age, marital status (married, including consensual union, or single, including divorced or separated), literacy (elementary school or below or secondary school or above), occupation (homemaker, retired and with or without paid work), number of consultations during the last six months, medical diagnosis (type 2 diabetes and/or hypertension), presence or not of both chronic diseases, chronic disease control (criterion for controlled hypertension was blood pressure  $<140/90$  mmHg and for diabetes, blood glucose  $<140$  mg/dl. Patients with results above these figures were considered uncontrolled) and self-rated health status, which was measured using a 5-point Likert scale and then categorized as negative and positive self-rated health.

Patient characteristics and their satisfaction with care were analyzed using descriptive statistics, such as mean and standard deviation for continuous variables and absolute and relative frequencies for categorical variables. To establish which patient characteristics were associated with dissatisfaction with the family doctor-patient relationship and which with the organizational arrangement, a bivariate analysis was performed by using the chi-square test for categorical variables. To obtain the adjusted association, we carried out a multiple logistic regression analysis using the backward stepwise method. The logistic regression analysis was run for each index. For this analysis, the variables showing  $p$  values  $<0.25$  in the bivariate analysis and plausible variables were included (i.e. chronic disease control). Due to the fact that self-rated health could be different when the patient suffers from both diabetes and hypertension and may affect the outcome variable, the interaction between the presence of both chronic diseases and negative self-rated health was also assessed. Furthermore, the goodness of fit test was assessed for determining the best model. The analysis was carried out using the statistical package Stata (Stata Statistical Software, Release 8.0 STATA 2003).

A power analysis showed that the study had 90% power to detect an odds ratio of 1.26 between satisfied and dissatisfied patients affiliated with a social security institution.

## Results

A total of 1 418 patients with type 2 diabetes and/or hypertension were invited to participate in the MIAC Study, among which 5% refused to answer the questionnaire because they had time restrictions, although they fulfilled the inclusion criteria (age and time of enrollment in the clinic). A total of 1 351 patients were

interviewed, of which 28 (2.0%) did not complete the questionnaire and were excluded from the final analysis; the final figure was 1 323 patients. We compared the sociodemographic characteristics, diagnosis and self-rated health of those who answered the questionnaire versus those who did not. There were no differences between these two groups ( $p > 0.05$ ).

The mean age was 57 years old; there were more women than men. Most patients lived with their partners. Regarding the occupation, approximately 50% of them were homemakers, roughly 30% had paid work and 14% were retirees. Sixty-two percent had elementary school education or below. IMSS provided care to 68.7% and ISSSTE to the remaining 31.3%. The average number of consultations they went to in the previous six months was 5.13. There were more patients (72.1%) with hypertension than with type 2 diabetes (54.7%) and 26.8% had both diseases. Less than half of patients (42.0%) had their disease controlled (45.8% of patients with hypertension had blood pressure  $<140/90$  mmHg and two of every three patients with type 2 diabetes had blood glucose  $<140$  mg/dl). Furthermore, more than half of patients reported positive self-rated health (Table II).

The analysis of the satisfaction of patients with the family doctor-patient relationship and the organizational arrangements showed the following: the mean rate of satisfaction of the family doctor-patient relationship index was 3.84 points (on a 1 to 5 scale); the items "kindness of the family doctor" followed by "general satisfaction with the family doctor" scored highly, while the lowest scores were for the items "the family doctor allows the patient to give an opinion about his/her treatment," "the patient understands the information," "the family doctor spends enough time on the consultation" and "physical examination."

The satisfaction score for the organizational arrangements index was roughly 3.89 points; the items in this index that scored the lowest are "cleanliness of the clinic" and "resolution of administrative difficulties."

After the patients were categorized as satisfied or dissatisfied, slightly more than half of them were shown to be satisfied with the family doctor-patient relationship (51.8%) and with the organizational arrangements (53.6%) (Table III).

The bivariate analysis and the logistic regression modeling of the family doctor-patient relationship index showed that negative self-rated health and being an IMSS affiliate were significantly associated with dissatisfaction, whereas older age and literacy of secondary school or above showed a protective effect against dissatisfaction (Table IV). Furthermore, after adjusting by health status (control of chronic disease),

**Table II**  
**GENERAL PATIENT CHARACTERISTICS. MEXICO, 2005-2006**

Variables	n=1 323
Age, years, mean $\pm$ SD	56.75 $\pm$ 11.4
Sex, n (%)	
Male	446 (33.7)
Female	877 (66.3)
Marital status, n (%)	
Married and consensual union	949 (71.7)
Single	374 (28.3)
Occupation, n (%)	
Homemaker	625 (47.2)
Retiree	194 (14.7)
Paid work	443 (33.5)
No paid work	61 (4.6)
Literacy, n (%)	n=1 305
Elementary school or below	821 (62.9)
Secondary school or above	484 (37.1)
Type of institution, n (%)	n=1323
ISSSTE	414 (31.3)
IMSS	909 (68.7)
Number of consultations with a family doctor during the last 6 months, mean $\pm$ SD	5.13 $\pm$ 1.8
Diagnosis, n (%)	
Hypertension	954 (72.1)
Type 2 diabetes	724 (54.7)
Presence of both chronic diseases, n (%)	355 (26.8)
Chronic disease control, n (%)	555 (42.0)
Self-rated health, n (%)	
Positive	724 (54.7)
Negative	599 (45.3)

ISSSTE: Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado

IMSS: Instituto Mexicano del Seguro Social

the effect of self-rated health on the family doctor-patient relationship was dependent upon whether the patient had hypertension, diabetes or both (interaction term; adjusted odds ratio [aOR]: 1.82, 95% CI: 1.1- 3.0,  $p < 0.05$ ).

**Table III**  
**SATISFACTION OF PATIENTS WITH THE PHYSICIAN-PATIENT**  
**RELATIONSHIP AND THE ORGANIZATIONAL ARRANGEMENT.**  
**MEXICO, 2005-2006**

	<i>n=1 323</i> <i>mean ± SD</i>
I. Family doctor-patient relationship index	3.84 ± 0.6
• Kindness of the family doctor	4.26 ± 0.7
• Physical examination	3.72 ± 0.8
• Treatment for disease control	4.03 ± 0.5
• The family doctor allows the patient to give an opinion about the treatment	3.09 ± 1.2
• The patient understands the information	3.68 ± 0.9
• Questions answered	4.06 ± 1.3
• The family doctor spends enough time on the consultation	3.85 ± 0.6
• General satisfaction with the family doctor	4.06 ± 0.7
II. Organizational arrangements index	3.89 ± 0.4
• Organization of the clinic	3.94 ± 0.7
• Convenience of clinic appointment times	3.99 ± 0.6
• Comfort of the clinic	3.93 ± 0.7
• Patient trust in the care that the clinic provides	3.90 ± 0.7
• Cleanliness of the clinic	3.88 ± 0.7
• Resolution of administrative difficulties	3.68 ± 0.8
Satisfaction groups	
Satisfaction with family doctor-patient relationship	
Satisfied	685 (51.8)
Dissatisfied	638 (48.2)
Satisfaction with organizational arrangements	
Satisfied	709 (53.6)
Dissatisfied	614 (46.4)

Being IMSS affiliated had 69% more possibilities of dissatisfaction (aOR: 1.69, 95% CI; 1.31-2.18), secondary school or above (aOR: 0.78, 95% CI; 0.59-0.99), and age (aOR: 0.99, 95% CI; 0.98-0.99) (Table V).

With regard to the organizational index, the bivariate analysis showed that the patients who had negative self-rated health were the most dissatisfied ( $p < 0.05$ ), whereas older age showed a protective effect (Table IV). Furthermore, in the logistic regression analysis for the organizational index, the adjusted odds ratio showed that patients affiliated with IMSS were the most dissatisfied (Table V). The interaction term was not statistically significant.

## Discussion

The present study found that little more than half of patients in the study with type 2 diabetes and hypertension receiving care from two Mexican social security institutions were satisfied with the care they received. These findings are consistent with those of other studies reporting that patients with chronic conditions stated being dissatisfied more frequently.<sup>13</sup> The fact that more patients with chronic conditions are dissatisfied deserves attention because they use the health services continually and their satisfaction can influence their contribution to disease management, which is important for better control of their conditions. Patients with chronic conditions receive long-term care and this should be reliable, periodic, continuous, and coordinated among different providers.

From our perspective, close family doctor-patient communication is the backbone of care; this allows the family doctor to better know the condition of the patient and to place treatment in a context that permits comprehensive disease management.

Nevertheless, we found communication gaps between patients and family doctors, leading to dissatisfaction. Informing patients on different aspects of their health and about the care they need are very important for those with chronic conditions. Also, treating patients as co-participants in the process of decision-making has been repeatedly emphasized as an important patient right;<sup>1</sup> when patients are well-informed and participate in treatment decisions, their anxiety decreases and their therapeutic adherence improves, thus increasing the chances of getting better health outcomes.<sup>14</sup> Nevertheless, this critical component of communication is badly neglected by family doctors.<sup>1, 15-19</sup> For example, our prior study found that one of the most frequent prescription errors in ambulatory patients over 60 years of age with non-malignant pain syndrome was that family doctors failed to provide instructions to the patients about how to take the prescribed drugs and did not inform them of possible adverse effects.<sup>19</sup>

Moreover, effective family doctor-patient communication requires sufficient consultation time. We found that the item "the family doctor spends enough time on the consultation" showed low satisfaction. Patients with chronic conditions relate better to family doctors who spend more time on consultations because they perceive that such family doctors can identify their needs, are able to recognize and to treat emotional changes secondary to the illness, and can provide information on self-care. They consider that these aspects of the family doctor-patient relationship are equal in importance to the technical quality of diagnosis and treatment.<sup>20</sup>

**Table IV**  
**RELATIONSHIPS BETWEEN PATIENT CHARACTERISTICS AND SATISFACTION WITH THE FAMILY DOCTOR-PATIENT RELATIONSHIP AND ORGANIZATIONAL ARRANGEMENTS (BIVARIATE ANALYSIS). MEXICO, 2005-2006**

Variables	Family doctor-patient relationship		Organizational arrangements	
	Satisfied n=685 n(%)	Dissatisfied n=638 n(%)	Satisfied n=709 n(%)	Dissatisfied n=614 n(%)
Age, years, mean $\pm$ SD	57.44 $\pm$ 11.2	56.0 $\pm$ 11.5*	58.17 $\pm$ 11.3	55.11 $\pm$ 11.2*
Sex				
Male	247 (55.4)	199 (44.6)	246 (55.2)	200 (44.8)
Female	438 (49.9)	439 (50.1)	463 (52.8)	414 (47.2)
Marital status				
Married and consensual union	490 (51.6)	459 (48.4)	513 (54.1)	436 (45.9)
Single	195 (52.1)	179 (47.9)	196 (52.4)	178 (47.6)
Occupation				
Homemaker	316 (50.6)	309 (49.4)	341 (54.6)	284 (45.4)
Retiree	108 (55.7)	85 (44.3)	102 (52.6)	92 (47.4)
Paid work	228 (51.5)	215 (48.5)	232 (52.4)	211 (47.6)
No paid work	33 (54.1)	28 (45.9)	34 (55.7)	27 (44.3)
Literacy	n=672	n=633	n=697	n=608
Elementary school or below	402 (49.0)	419 (51.0)*	442 (53.8)	379 (46.2)
Secondary school or above	270 (55.8)	214 (44.2)	255 (52.7)	229 (47.3)
Type of institution	n=685	n=638	n=709	n=614
ISSSTE	251 (60.6)	163 (39.4)*	238 (57.5)	176 (42.5)
IMSS	434 (47.7)	475 (52.3)	471 (51.8)	438 (48.2)
Number of consultations, <sup>‡</sup> mean $\pm$ SD	5.22 $\pm$ 1.8	5.03 $\pm$ 1.7	5.15 $\pm$ 1.8	5.11 $\pm$ 1.7
Diagnosis				
Type 2 diabetes	366 (50.6)	358 (49.4)	392 (54.1)	332 (45.9)
Hypertension	507 (53.1)	447 (46.9)	519 (54.4)	435 (45.6)
Presence of both diseases	188 (53.0)	167 (47.0)	202 (56.9)	153 (43.1)
Chronic disease control	293 (52.8)	262 (47.2)	294 (53.0)	261 (47.0)
Self-rated health				
Positive	418 (57.7)	306 (42.3)*	452 (62.4)	272 (37.6)*
Negative	267 (44.6)	332 (55.4)	257 (42.9)	342 (57.1)

\*  $p < 0.05$

<sup>‡</sup> Number of consultations with a family doctor during the last six months

Some characteristics of the organizational dimension cause dissatisfaction. The main problems are related to cleanliness of the facilities and administrative procedures. In the institutions examined, paperwork prior to receiving care is lengthy and has some flaws. Checking that a patient has the right to receive care, opening a clinical chart for a newcomer, or arranging a temporary disability leave are procedures that take lon-

ger than expected and sometimes cause dissatisfaction. This is consistent with reports from other developing countries.<sup>21</sup>

Attention to both elements –the family doctor-patient relationship and organizational arrangements– are essential to improve patient satisfaction. The improvement of the family doctor-patient relationship (process) depends heavily on the attitude of the family doctors,

**Table V**  
**FACTORS RELATED TO THE FAMILY DOCTOR-PATIENT RELATIONSHIP**  
**AND ORGANIZATIONAL ARRANGEMENTS. MEXICO, 2005-2006**

Variables	Crude Odds Ratio	Confidence Intervals at 95% of the Crude Odds Ratio	*Adjusted Odds Ratio <sup>‡</sup>	Confidence Intervals at 95% of the Adjusted Odds Ratio
Dissatisfaction with family doctor-patient relationship				
Negative self-rated health	1.69	1.36-2.11	1.48	1.14 -1.92
Presence of both chronic diseases	0.94	0.73- 1.19	0.70	0.49-0.99
Presence of both chronic diseases x negative self-rated health <sup>§</sup>			1.85	1.12-3.10
IMSS	1.67	1.33-2.13	1.69	1.31-2.18
Secondary school or above	0.76	0.61-0.95	0.78	0.59 -0.99
Age	0.98	0.97-0.99	0.99	0.98-0.99
Dissatisfaction with organizational arrangements				
Negative self-rated health	2.21	1.77-2.76	2.19	1.75-2.75
IMSS	1.26	0.99 -1.59	1.36	1.07-1.73
Age	0.97	0.96-0.98	0.97	0.97-0.98

\* Logistic regression model

<sup>‡</sup> Adjusted by chronic disease control

<sup>§</sup> Interaction term including presence of both chronic disease and negative self-rated health

whereas the improvement of organizational arrangements (structure) is the responsibility of managers.

Differences in satisfaction between institutions deserve comment. Although at first glance the results appear to suggest that IMSS patients are more dissatisfied than those affiliated with ISSSTE, it is important to interpret this result conservatively. Both health institutions have rigid structures and processes to provide health care and patients and family doctors are forced to adapt to conditions that the services impose on them, the former to receive care and the latter to provide it. For example, examination of the workload of family doctors, measured by the number of consultations in a 6-hour shift shows that an IMSS family doctor gives twice as many consultations as does an ISSSTE family doctor.<sup>22</sup> In practical terms, it is desirable to study, in-depth, the organizational conditions that hamper the provision of health care and generate user dissatisfaction, particularly among patients with chronic conditions.

Patients with negative self-rated health were at greater risk for dissatisfaction; this finding was maintained after adjusting for other variables such as age, literacy, institution and chronic disease control. A chronic condition is related to negative self-rated health and, at the same time, patients with such conditions tend to perceive health care as unsatisfactory.<sup>4, 23-26</sup> Positive self-rated health is related to better functional and physical states.<sup>27</sup> Therefore, keeping disease under control in a

patient with a chronic condition is crucial for a positive perception of self-rated health.

When the patient has two chronic conditions, such as type 2 diabetes and hypertension, care management is increasingly complex, which could affect negatively self-rated health and the family doctor-patient relationship and could therefore be associated with more dissatisfaction. This is a possible explanation of the significant interaction term between having two chronic conditions and negative self-rated health found in this study. That the relationship between good control of the chronic disease and the patient's satisfaction could be positive is pertinent; however, it seems that for the patient, his/her self-rated health is more important than clinical or metabolic parameters.

This study has several caveats that should be addressed:

- This is a cross-sectional study and, as such, it tends to overestimate the odds ratios.
- The results of the study may not be generalizable to users with other chronic diseases, such as cancer, or to users receiving care at other types of institutions or private clinics.
- The sample for this secondary data analysis came from the MIAC Study, which is a clinical trial and by nature of its design involves a select, non-representative population. Therefore, for

this analysis it is not possible to assure the representativeness of the sample given the absence of an eligible sampling frame for the eligible study population. The frequency of patients that had adequate control figures for their chronic disease was slightly more than the results of studies conducted in social security institutions,<sup>28</sup> suggesting an underestimate by the results of our study.

- We also may assume that those patients who are very unsatisfied did not participate in the study, because it is possible that they seek care in institutions other than social security health care facilities.

## Conclusions

There are some interpersonal and organizational situations that reveal dissatisfaction among patients with chronic conditions receiving care from family medicine clinics. Responding to the satisfaction of patients with chronic conditions is advisable to improve the quality of the services that are most important to them. As the items "the patient understands the information" and "the family doctor spends enough time on the consultation" scored the lowest, improvement in these areas should be considered by family doctors, clinical managers and policymakers. Additionally, negative self-rated health and the type of social security institution are associated with dissatisfaction in patients with chronic conditions. Therefore, better management of patients with chronic conditions by family doctors is desirable, as are institutional changes that enable doctors to provide more consultation time.

## Competing interests

The author(s) declare that they have no competing interests.

## References

1. Sitzia J, Wood N. Patient satisfaction: a review of issues and concepts. *Soc Sci Med* 1997;45:1829-1843.
2. Jackson JL, Chamberlin J, Kroenke K. Predictors of patient satisfaction. *Soc Sci Med* 2001;52:609-620.
3. Lezzoni LI, Davis RB, Soukup J, O' Day B. Quality dimensions that most concern people with physical and sensory disabilities. *Arch Intern Med* 2003; 163:2085-2092.
4. Wensing M, Grol R, Asberg J, van Monfort P, van Weel C, Feling A. Does the health status of chronically ill patients predict their judgments of the quality of general practice care? *Qual Life Res* 1997;6:293-299.
5. Kinsey JA, Bradshaw PV, Ley P. Patient satisfaction and reported acceptance of advice in general practice. *J R Coll Gen Pract* 1975;25: 558-566.
6. Larsen DE, Rootman R. Physicians role performance and patient satisfaction. *Soc Sci Med* 1976;10:29-32.
7. Aguirre-Gas H. Evaluation of the medical care quality. Expectations of the patients and the workers of the medical units. *Salud Publica Mex* 1990;32:170-180. (Spanish)
8. Ramirez de la-Roche O, López-Serrano A, Barragán-Solis A, Arce-Arrieta E. [User Satisfaction at a Social Security Institute Family Medical Center in Mexico City.] *Arch Med Fam* 2005;7:22-26. (Spanish)
9. Hernández-Leyva B, García-Peña C, Anzures-Carro R, Orozco-López M. [User Satisfaction in family medicine clinics.] *Rev Med IMSS* 2002;40:373-378. (Spanish)
10. Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado. Anuario estadístico 2006. Morbilidad de las 15 enfermedades notificadas con mayor frecuencia. Available at: <http://www.issste.gob.mx/issste/anuarios>.
11. Instituto Mexicano del Seguro Social. Información estadística en salud, principales motivos de consulta en medicina familiar. Total nacional 2006. Available at: <http://www.imss.gob.mx/dpm/dties>
12. Hatcher L. A step-by-step approach to using SAS for factor analysis and structural equation modeling. 2nd ed. Chapter 1. North Carolina: SAS Press, 1994.
13. Druss BG, Schlesinger M, Thomas T, Allen H. Chronic illness and plan satisfaction under managed care. *Health Aff (Millwood)* 2000; 19:203-209.
14. Stewart MA. Effective physician-patient communication and health outcomes: a review. *Can Med Assoc J* 1995;152:1423-1433.
15. Williams SJ, Calnan M. Key determinants of consumer satisfaction with general practice. *Fam Pract* 1991;8:237-242.
16. Anderson R, Barbara A, Feldman S. What patients want: A content analysis of key qualities that influence patient satisfaction. *J Med Pract Manage* 2007; 22:255-261.
17. Schmader K, Halon JT, Weinberger M, Landsman P, Samsa GP, Lewis I, et al. Appropriateness of medication prescribing in ambulatory elderly patients. *J Am Geriatr Soc* 1994;42:1241-1247.
18. Morris LA, Grossman R, Barkdol GL, Gordon E, Soviero C. A survey of patients sources of prescription drug information. *Am J Public Health* 1984; 74:1161-1162.
19. Dobova SV, Torres-Arreola LP, Rosas-Carrasco O, Pérez-Cuevas R. Quality of medication prescribing for elderly patients with non-malignant pain syndrome attending to family medicine clinics. *Rev Invest Clin* 2007;59:428-436. (Spanish)
20. Infante FA, Proudfoot JG, Davies GP, Bubner TK, Holton CH, Beilby JJ, et al. How people with chronic conditions view their care in general practice: a qualitative study. *Med J Aust* 2004;181:70-73.
21. Bernhart MH, Wiadnyana IG, Wihardjo H, Pohani I. Patient satisfaction in developing countries. *Soc Sci Med* 1999;48:989-996.
22. Secretaría de Salud. Boletín de información estadística No. 19, Vol I, México 2001.
23. Al-Mandhari AS, Hassan AA, Haran D. Association between perceived health status and satisfaction with quality of care: evidence from users of primary health care in Oman. *Fam Pract* 2004;21:519-527.
24. Hall JA, Milburn MA, Epstein AM. A causal model of health status and satisfaction with medical care. *Med Care* 1993;31:84-94.
25. Westaway MS, Rheeder P, Van Zyl DG, Seager JR. Interpersonal and organizational dimensions of patient satisfaction: the moderating effects of health status. *Int J Qual Health Care* 2003;15:337-344.
26. Cott CA, Gignac MA, Badley EM. Determinants of self rated health for Canadians with chronic disease and disability. *J Epidemiol Community Health* 1999;53:731-736.
27. Shoostari S, Menec V, Tate R. Comparing predictors of positive and negative self-rated health between younger (25-54) and older (55+) Canadian adults: A Longitudinal Study of Well-Being. *Res Aging* 2007;29:512-554.
28. Garduño J, Galindo G, Rangel S, Muñoz O. Mejora de la calidad de atención médica a pacientes con diabetes mellitus tipo 2 por medio de la retroalimentación del desempeño médico y alertas en el expediente clínico. In: *Las Múltiples Facetas de la Investigación en Salud. Proyectos Estratégicos del Instituto Mexicano del Seguro Social*. México: IMSS, 2001.



**Appendix**  
**QUESTIONS USED TO MEASURE SATISFACTION**

---

Questions:

---

In general, how do you find the organization of this clinic?

How convenient are the appointment times of the clinic for you?

How easy is resolution of administrative difficulties in the clinic for you?

How often do they give you an appointment on the day that you request?

How often has the family doctor seen you on the same day on which you come for consultation?

Are you satisfied with the time that you have to wait from the time of your appointment until the actual consultation?

How often do they give you all prescribed medicines in the clinic's pharmacy?

How do you rate the comfort of the clinic?

How do you rate the cleanliness of clinic facilities?

In general, how much trust do you have in the care that the clinic provides?

How do you rate the kindness of the family doctor?

How do you rate the physical examination that the family doctor gives you?

How do you rate the treatment that the family doctor gives you to treat your illness?

Are you satisfied with the information the family doctor provides to you about possible drug reactions that can arise during your treatment?

Are you satisfied that the family doctor allows you to give an opinion about your treatment?

How often does your family doctor clarify your questions regarding your treatment?

How well do you understand the information that your family doctor provides to you?

Are you satisfied with the time that the family doctor spends on the consultation?

In general, are you satisfied with your family doctor?

---