Assessing Quality across Health Care Subsystems in Mexico

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Abstract

Recent healthcare reform efforts in Mexico have focused on the need to improve the efficiency and equity of a fragmented healthcare system. In light of these reform initiatives, there is a need to assess whether healthcare subsystems are effective at providing high-quality healthcare to all Mexicans. Nationally representative household survey data from the 2006 Encuesta Nacional de Salud y Nutrición (National Health and Nutrition Survey) were used to assess perceived healthcare quality across different subsystems. Using a sample of 7234 survey respondents, we found evidence of substantial heterogeneity in healthcare quality assessments across healthcare subsystems favoring private providers over social security institutions. These differences across subsystems remained even after adjusting for socioeconomic, demographic, and health factors. Our analysis suggests that improvements in efficiency and equity can be achieved by assessing the factors that contribute to heterogeneity in quality across subsystems.

Keywords

quality; Mexico; health care subsystem assessment

Introduction

Mexico faces significant challenges in the provision of high quality health care services to its population. This dilemma is the result of a protracted epidemiological transition whereby[1] the country faces what some experts have called a "double burden" of ill health.[2] That is, Mexico's population continues to experience infectious diseases, malnutrition and reproductive health challenges[3], while it also faces an increasing incidence of non-communicable diseases together with growing injury rates and violence.[4] The distribution of these two types of health challenges is widely different among diverse population groups and geographical areas, leading to large inequities in health outcomes. Moreover, the Mexican health care system seems to be overstretched and health care quality has remained unsatisfactory for most of the population. A 2000 national survey reported that 76% of Mexicans thought their health system needed fundamental changes.[5]

In Mexico, as in many other developing countries, the health care system has been unable to keep up with the growing financial pressures posed by this double burden. In trying to handle increasingly complicated health problems, the Mexican government launched a health reform initiative in 2001 that attempted to address inequities in access while improving health care quality. Inequity was addressed by implementing the Seguro Popular

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(SP; Popular Health Insurance). This program started in January 2004 and its main objective is to eventually provide health insurance coverage to close to 50 million children and adults (12 million uninsured families) over 7 years, thus achieving universal coverage by 2010. The Seguro Popular provides beneficiaries with access to health care services in facilities operated by the Ministry of Health and the Instituto Mexicano de Seguridad Social (IMSS; Mexican Social Security Institute).

In tandem with addressing the inequity in access to care problem, the Ministry of Health also included improvements in quality as part of the policy agenda in the *National Health Program 2001–2006.* More specifically, in 2001 the Mexican government launched the *Crusade for Health Care Quality*, whose goal was to provide high quality care to the population by "offering health services in a framework that respects human dignity, autonomy, confidentiality… as well as granting the population the right to choose a physician or the clinic of first contact, to make use of fair general services in health units, to face reasonable wait times for a consultation or intervention, and to have access to the networks of social support during inpatient stays".[6] Given the implementation of these health care reform initiatives targeting different population segments, it is of key policy relevance to assess the level of health care quality across the different institutions—or subsystems—that comprise the Mexican health care system. Few studies have conducted an in-depth assessment of health care quality in Mexico. In recent years, a survey of medical doctors treating HIV-positive patients (Bautista-Arrendondo *et al.*) reported 37% adherence to protocols for antiretroviral therapy.[7] Barber *et al.* found that patients receiving care from private providers and non-medical personnel received lower quality prenatal care than what is recommended in clinical guidelines. Moreover, there is scarce evidence identifying how the general public perceives quality across the different subsystems of care. A recent study based on data from the National Survey of Performance Evaluation (2002–2003) showed that health care system users report much lower responsiveness levels at social security institutions than users of institutions operated by the Ministry of Health or the private sector.[8]

In this study, we use the 2006 Encuesta Nacional de Salud y Nutrición (ENSANut; National Health and Nutrition Survey) to evaluate the perception of users of the health care system regarding the quality of care they received. In particular, we analyze the differences in perceived quality among the users of the different health care subsystems that exist in Mexico.

Setting

Over 100 million Mexicans are potential users of health care services in one of Mexico's health subsystems. These subsystems can be classified into three groups: the social security institutions, the institutions that provide services to the population without social security, and the private sector.

Formal sector workers and their families obtain health care services mostly through two social security entities. IMSS covers workers employed in the formal private sector. This institution is responsible of providing health care services to approximately 38 million potential customers. The Instituto de Seguridad y Servicios Sociales de Trabajadores del Estado (ISSSTE; Social Security and Services Institute for State Workers) covers approximately 10 million Mexicans encompassed by workers who are employed in the public sector and their dependents. Both institutions are financed by earmarked employee and employer payroll taxes plus legally mandated government contributions. In addition, the armed forces and the workers at Petróleos Mexicanos (PEMEX; the Mexican oil parastatal

company) each have their own social security institutions that provide health care services for around 1.5 million individuals.[9]

Alternatively, the population not affiliated or eligible for social security can get access to government-provided health care services through the Secretaría de Salud (SSA; Ministry of Health). Health care services available through the SSA have been increasingly delivered directly by decentralized state-level health providers in facilities owned and operated by these providers, although a large proportion of the primary care services for the rural poor is delivered by an IMSS-administered, centrally operated government program called Oportunidades (formerly known as Progresa).[10] Health care services provided by both the SSA and Oportunidades are almost entirely financed by general tax revenues, with a small proportion (3.4 percent) financed by user fees. It has been estimated that about 52 million people receive health care services through SSA and six million obtain health care services through Oportunidades.[11]

Finally, private medical care in Mexico is widely available but very heterogeneous in terms of its quality and the level of services provided. Although there is a small nonprofit sector (e.g., nongovernmental organizations and the Red Cross), most private care is for-profit. At almost all levels of socioeconomic status, people seem to prefer the "responsive" care they get in the private sector. In large cities, excellent specialty-trained physicians and well equipped tertiary-care medical centers provide care for the wealthy at a quality level comparable to what is available in developed countries. Yet, large numbers of unregulated private physicians deliver their services in small clinics. Health care services at these clinics are provided mostly to the uninsured population who can afford them. The clinics are also used by those unsatisfied by the health care benefits provided by the social security institutions (IMSS, ISSSTE, PEMEX, etc).[12]

Methods

Data Source

We analyzed data from the 2006 ENSANut. The survey is a cross-sectional in-person interview in 48,304 households encompassing 206,700 individuals within.[13] The survey is funded by the Mexican federal government through the National Institute of Public Health. The 2006 ENSANut survey used a multi-stage, probabilistic stratified sampling design in each of the 32 states of Mexico, considering the size of the geographic area and its participation in the Oportunidades program. In each household, an adult and a user of health care services were randomly selected and interviewed.

Study Population

For this study, we used a subsample of the population that used any kind of health care services due to sickness, injury, accident, prevention or rehabilitation within six months prior to the survey. We exclude respondents aged 17 or lower. Our working sample consisted of 7,234 individuals without missing answers in the variables of interest.

Study Variables

Independent Variables—We categorized the sample by demographic characteristics including age, gender, marital status, indigenous status, education (elementary or primary, junior high or secondary, preparatory or high school, college/university or higher), self-reported health status (poor or fair vs. good or very good), monthly income and health insurance coverage status (Table 1). Our main independent variable was the health subsystem where the beneficiary received health care. We grouped survey respondents into five categories: IMSS, ISSSTE, SSA, Private and Other. This last category encompassed

relatively less frequently used ancillary health delivery organizations such as the Red Cross, the services provided at the health facilities for members of the armed forces and their families, services at facilities for PEMEX workers, and services provided at facilities of the Integral Family Development (DIF) institutions.

Dependent Variables—To assess quality of health care, we examined three self-reported measures: (1) whether or not the respondent would rate the quality of health care services received as very good or good, (2) whether or not the respondent would return again to obtain health care services in the same facility, and (3) whether or not the respondent believed that his/her health had improved as a result of obtaining health care services.

Data Analysis

The primary analyses included an assessment of quality measures by health care subsystem. We tested for differences across subsystems in all quality measures using Pearson's χ^2 test. We then performed multivariate logistic regression analyses to determine the association between the subsystem providing care and our three self-reported perceived quality measures. All statistical analyses took into account the complex survey design of the 2006 ENSANut and they were conducted using Stata 10.1 MP software.

Results

Summary statistics of the sample demographic characteristics as well as the main dependent and independent variables are reported in Table 1. Four of every five respondents (80.3%) rated the quality of health care services obtained as good or very good and 85.2% of respondents would return again to obtain health care services in the same facility. Three out of every four respondents (74.7%) said that their health condition improved as a result of obtaining health care services. Almost 30% of respondents obtained services at an IMSS facility, 23.6% at the SSA, 6.0% at ISSSTE, 33.1% at a private provider, and 7.6% at other providers (e.g., PEMEX, Red Cross, etc.). The mean age of respondents was 48.4 years and 65.2% of them were female. About 71% of health care system users were married and 18.3% had an indigenous ethnic background. Only 15.4% of participants self-reported to be in fair or poor health. More than half of respondents had a primary education or less (55.8%) and the mean monthly income was $2,111.7 Mexican pesos (about $192 U.S. dollars). Almost 64% of health care system users had health insurance coverage (i.e. being covered by IMSS, ISSSTE, Seguro popular or private insurance).

Table 2 displays the percentage of individuals who answered positively to the measures of health care quality at the different types of institutions. We found significant differences in the perceived quality of health care services received by type of health subsystem for the three measures studied (i.e., the χ^2 tests of differences in the distributions within each health care quality indicator were all significant at p<0.01). About 91% of respondents who used a private provider stated that the quality of health care received had been good or very good. IMSS and ISSSTE were the two lowest rated subsystems in this category as only 69.6% and 71.9% of respondents, respectively, rated the health care quality received in their facilities as good or very good.

When respondents were asked if they would return in the future to the facility they had visited for health care services the results were very similar. Of those receiving care in the private sector, 89.8% said they would return to the same facility. Similarly, 86.8% of those receiving care at SSA facilities responded that they would be willing to return to the same facility in the future. However, only 78.9% and 78.3% of respondents who used IMSS and ISSSTE facilities, respectively, stated that they would return again to the same facility in the future. A similar pattern was observed with the question on whether obtaining health care

improved their health condition. Private and SSA facilities received more positive responses (84.1% and 71.0%) among the surveyed population than those receiving care at IMSS and ISSSTE (66.9% and 69.4%).

Table 3 reports the results from multivariate logistic regressions of how the different health care subsystems perform in terms of the three health care quality measures, after adjusting for age, gender, marital status, indigenous ethnic background, health status, education, income level, and health insurance status of respondents. Before proceeding to the main results, it is worth noting that the three health care quality ratings vary mostly by age, health status, and education. For example, older respondents were more likely to rate the health care quality received as good or very good compared to younger respondents (OR=1.15; 95% CI=1.08, 1.22). Also, respondents in fair or poor health rated the health care quality received to be lower than that received by respondents in good or very good health (OR=0.62; 95% CI=0.48, 0.81). The adjusted odds ratios for marital status, having an indigenous ethnic background, income, and health insurance coverage status were not statistically significant at conventional levels for any of the three health care quality measures considered.

Respondents who received health care services at IMSS and ISSSTE facilities were less likely than those receiving health care services from private facilities to rate the quality of health care obtained as good or very good ((OR=0.21; 95% CI=0.15, 0.27) and (OR=0.21, 95% CI=0.14, 0.31), respectively). SSA performed slightly better than IMSS and ISSTE, but the health care quality rating of SSA facilities was still substantially lower than that of private facilities (OR=0.38; 95% CI=0.28, 0.51). Respondents receiving health care services at IMSS and ISSSTE facilities were significantly less likely to state that they would return again for health care services to the same facility than respondents receiving health care services in private facilities ((OR=0.41; 95% CI=0.30, 0.55) and (OR=0.38; 95% CI=0.24, 0.59), respectively). Lastly, respondents receiving health care services at IMSS, SSA, and ISSSTE facilities were significantly less likely to say that the health care services received improved their health condition compared to respondents receiving health care services in private facilities ((OR=0.39; 95% CI=0.30, 0.50), (OR=0.46, 95% CI=0.36, 0.59), and (OR=0.38; 95% CI=0.24, 0.59), respectively). It is worth noting that having a college education is positively associated with the first quality measure (column 1) and that older age is positively associated with the first two measures of health quality (see table 3).

Discussion

As the importance of health in the agenda of most Latin American and Caribbean countries grows, the responsibility to measure accurately its complex dimensions and to assess the effects of increasing investments becomes more relevant. The recent surge of political and financial will to improve population health in Mexico through policies such as the Seguro Popular has to be matched by an adequate response from the community of experts to assure that the challenges are well understood and resources are allocated in the most effective way. These goals can only be achieved if there is a firm foundation of metrics and evaluation.[14] In this sense, the World Health Organization has advocated the need to assess the performance of health systems along three fundamental goals: improving health, enhancing responsiveness to the expectations of the population, and assuring fairness of financial contribution. While, improving health means both increasing the average health status and reducing health inequalities, responsiveness includes two major components: (a) the respect for persons (including dignity, confidentiality and autonomy of individuals and families to decide about their own health); and (b) client orientation (including prompt attention, access to social support networks during care, quality of basic amenities and choice of provider). Fairness of financial contribution means that every household pays a

fair share of the total health bill for a country (which may mean that very poor households pay nothing at all).[15]

Recently, researchers have focused on assessing Mexico's performance regarding the first and third goals by reporting on the country's achievements on improving health, facing the epidemiological transition, and improving financing for health for the poor and reducing health inequalities through the implementation of the Seguro Popular.[16] However, little attention has been paid to the assessment of the responsiveness of the Mexican health care system to its consumers or users. In this paper, we have compared the perception of Mexican users of health care services regarding the quality of the services they have received at each of the main subsystems existing in the country. To our knowledge, this is one of the first studies that have used national representative level data to study how the quality of the different health care subsystems is perceived or rated by their users.

We found that among 7,234 users of health services surveyed in the 2006 National Health and Nutrition Survey (ENSANut), the facilities of the two main health care subsystems for private and public sector workers—IMSS and ISSSTE—were less favorably rated than the facilities in the other health subsystems. This is important, because two-thirds of users reported that they received health care services from facilities within these two subsystems. Remarkably, private institutions were more favorably rated by users in measures of health care quality, willingness of patients to return to that facility, and improvement in patients' health. These findings persist even after controlling for demographic and socioeconomic variables, as well as the self-rated health status of survey participants. Hence, our study shows that private institutions have a higher perceived quality of care. These perceptions help to explain why more than 50% of the total health expenditures in Mexico come from private sources and more than 90% of these expenditures are paid directly out of pocket.[17]

Our analysis also shows that higher educational achievement is associated with a higher likelihood of using private providers; 41% of the population with a college degree or beyond used private health providers while only 26% of people with only primary education did so. Thus, increasingly educated Mexicans disproportionately seek care from private providers. This might partly explain why education seems to be a significant predictor of better perceived quality of care. However, this is not true when examining different age groups. There are no consistent trends as to where people seek health care services by age. Thus, we hypothesize that the fact that age is a significant predictor of health is due to idiosyncratic factors or expectations that are unobserved in the data.

This study has several limitations. First, the measures of perceived quality refer only to those who used the services. Thus non-users of health care are omitted from our analyses. Unfortunately, the survey contains no information as to the reasons for not seeking health care. Second, our measures of quality taken from the ENSANut are imperfect in the sense that they capture the subjective opinion of patients who self-selected into and obtained care at these institutions. They do not evaluate other important dimensions of health care quality such as, for example, compliance with treatment guidelines or achievement of medical benchmarks in patient treatment. Third, the ENSANut did not include a large enough sample of survey respondents receiving care at the smaller health subsystems. Hence, our "Other" category grouped fairly distinct institutions such as NGO's, tertiary national institutes of health, PEMEX hospitals, and other facilities under the same category. Although these institutions are certainly different from each other, only 7.6% of ENSANut respondents stated that they had used health care services in these facilities. Fourth, all data were obtained by self-report and, as such, they are subject to recall (and other) biases. Sub-optimal response rates may also impact the generalizability of the results obtained from analyzing this sample. Finally, because this is a cross-sectional survey, we could not draw

conclusions about follow-up care and changes in the types of facilities utilized over time. In addition, the structure of the survey is ambiguous with respect to the type of care that was used by respondents. It is not clear whether the opinions of respondents reflected their encounters with, for example, ambulatory curative or preventive care. We also did not distinguish between different types of settings (hospital, physician office, etc.) used to receive ambulatory care.

Much work remains to be done by Mexican institutions to face the daunting challenge of a double burden of disease to surmount an incomplete epidemiological transition. The results presented here suggest that inequalities in health care quality persist across different health care subsystems, even after the implementation of ambitious reforms to the health care system in recent years. The findings also point out the need to balance the quality of ambulatory care throughout a rather unequal and fragmented health system.

Acknowledgments

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Table 1

Descriptive statistics of sample used in the analysis (N=7,234)

Variable	% or Mean	95% CI
Health care quality		
Poor or very poor	19.7	(18.2, 21.1)
Good or very good	80.3	(78.9, 81.8)
Return again for care		
No	14.8	(13.5, 16.0)
Yes	85.2	(84.0, 86.5)
Improved health condition		
No change or worse	25.3	(23.8, 26.9)
Improved	74.7	(73.1, 76.2)
Health care subsystems		
IMSS	29.7	(28.1, 31.3)
SSA	23.6	(22.1, 25.1)
ISSSTE	6.0	(5.1, 6.9)
Private	33.1	(31.3, 34.8)
Others	7.6	(6.5, 8.8)
Age (mean)	48.4	(47.8, 49.1)
Gender		
Male	34.8	(33.0, 36.5)
Female	65.2	(63.5, 67.0)
Married		
No	28.8	(27.2, 30.4)
Yes	71.2	(69.6, 72.8)
Indigenous		
No	81.7	(80.3, 83.1)
Yes	18.3	(16.9, 19.7)
Health status		
Good or very good	84.6	(83.3, 86.0)
Fair or poor	15.4	(14.0, 16.7)
Education level		

Variable	% or Mean	95% CI
Primary	55.8	(54.0, 57.6)
Secondary	18.6	(17.2, 20.1)
High school	14.0	(12.7, 15.3)
College or higher	11.5	(10.2, 12.9)
Income (mean)	2,111.7	(1912.3, 2311.1)
Insured		
No	36.2	(34.5, 38.0)
Yes	63.8	(62.0, 65.5)

Note: National Health and Nutrition Survey (ENSANut 2006). All results have been weighted using survey sampling weights.

Table 2

Descriptive statistics: health care quality measures by health care

Institutions	Good Health Care Quality	Return Again for Care	Improved Health Condition
	Good or Very Good	*Yes*	*Yes*
IMSS	69.6	78.9	66.9
SSA	78.5	86.8	71.0
ISSSTE	71.9	78.3	69.4
Private	91.2	89.8	84.1
Others	86.9	90.7	79.7
χ^2	38.7***	16.3***	22.3***

Note: National Health and Nutrition Survey (ENSANut 2006). All results have been weighted using survey sampling weights

*
p<0.1

**
p<0.05

***
p<0.01

Table 3

Odds ratios: health care quality measures (N=7,234)

	Health Care Quality (good or very good=1)		Return Again for Care (yes=1)		Improved Health Condition (yes=1)	
	OR	95% CI	OR	95% CI	OR	95% CI
Health care subsystems						
Private	Reference	—	Reference	—	Reference	—
IMSS	0.21***	(0.15, 0.27)	0.41***	(0.30, 0.55)	0.39***	(0.30, 0.50)
SSA	0.38***	(0.28, 0.51)	0.76*	(0.55, 1.04)	0.46***	(0.36, 0.59)
ISSSTE	0.21***	(0.14, 0.31)	0.38***	(0.24, 0.59)	0.43***	(0.29, 0.63)
Others	0.64**	(0.40, 1.00)	1.10	(0.72, 1.67)	0.73*	(0.50, 1.05)
Age/10	1.15***	(1.08, 1.22)	1.13***	(1.06, 1.22)	0.97	(0.92, 1.02)
Gender						
Male	Reference	—	Reference	—	Reference	—
Female	0.97	(0.80, 1.19)	0.88	(0.70, 1.09)	0.85*	(0.70, 1.02)
Married						
No	Reference	—	Reference	—	Reference	—
Yes	1.05	(0.86, 1.28)	0.97	(0.78, 1.21)	0.90	(0.75, 1.08)
Indigenous						
No	Reference	—	Reference	—	Reference	—
Yes	0.93	(0.48, 0.81)	1.06	(0.84, 1.35)	1.09	(0.89, 1.33)
Health status						
Good or very good	Reference	—	Reference	—	Reference	—
Fair or poor	0.62***	(0.48, 0.81)	0.65***	(0.49, 0.84)	0.58***	(0.46, 0.72)
Education level						
Primary	Reference	—	Reference	—	Reference	—
Secondary	1.06	(0.81, 1.38)	1.00	(0.75, 1.34)	0.82*	(0.64, 1.04)
High school	1.24	(0.92, 1.66)	0.81	(0.60, 1.11)	0.86	(0.65, 1.13)
College or higher	1.71***	(1.16, 2.53)	1.28	(0.86, 1.91)	0.97	(0.67, 1.40)
Income/10,000	0.92	(0.76, 1.11)	0.91	(0.76, 1.10)	0.97	(0.78, 1.21)
Insured						

	Health Care Quality (good or very good=1)		Return Again for Care (yes=1)		Improved Health Condition (yes=1)	
	OR	95% CI	OR	95% CI	OR	95% CI
No	Reference	—	Reference	—	Reference	—
Yes	1.02	(0.81, 1.30)	0.97	(0.75, 1.24)	1.00	(0.82, 1.23)

Note: National Health and Nutrition Survey (ENSANut 2006). All results have been weighted using survey sampling weights

*
p<0.1

**
p<0.05

***
p<0.01