

RESEARCH

Open Access



Trends and inequalities in health system satisfaction: results from the latest nationally representative surveys in Qatar

Faleh Mohamed Hussain Ali^{1*}, Zlatko Nikoloski², Orsida Gjebrea³ and Elias Mossialos²

Abstract

Background Health system satisfaction is an important but understudied indicator of health system performance. It has far-reaching implications for sustainability but has been widely understudied particularly for non-European settings. Qatar represents a growing international experience of rapid development requiring steadfast system funding and reorganisation. After decades of unprecedented immigration and nearly free health care, Qatar sought to expand the system by 2016, reorganise it by 2022, and accelerate private funding and health system outcomes by 2030.

Aim The aim of this study is to conduct a comprehensive assessment of health system satisfaction in Qatar, in anticipation of the 2024–2030 health reforms, with a particular emphasis on detailed policy attribution and the formulation of recommendations. The overarching aim of this study is to contribute to the limited body of international literature on health system satisfaction, particularly in non-European contexts, with a focus on specific populations such as migrants, labourers, and labour camp residents.

Methods We analysed the levels of, and individual inequalities in, health system satisfaction in Qatar between 2012 and 2014. Descriptive statistics were employed to assess satisfaction levels, while inequalities were examined using logit analysis. The satisfaction variables encompass the key aspects of health system provision and management, whereas the individual variables are focused on their attributability to Qatar's specific health policy context, including regionally distinct socio-economic groups.

Findings Health system satisfaction levels in Qatar were relatively high in both 2012 and 2014, particularly regarding service provision, though they did not reach exceptionally high levels. Both satisfaction dimensions—provision and management—improved in 2014, with management showing more rapid progress. However, males, Qatari citizens, individuals with chronic disease, labourers, and residents of the largest labour camps were less likely to express satisfaction with the system.

Conclusion Qatar's satisfaction trends and inequalities between 2012 and 2014 emphasise the significance of both dedicated efforts and effective organisational structures in maintaining high levels of health system satisfaction during periods of rapid development. To ensure continued satisfaction, performance, and sustainability throughout

*Correspondence:
Faleh Mohamed Hussain Ali
drfalehali@gmail.com

Full list of author information is available at the end of the article



© The Author(s) 2024. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

the 2024–2030 reforms, it is essential to address unresolved organisational constraints before eroding dedicated efforts through increased private health funding.

Keywords Health system satisfaction, Health system performance, Migrants, Labourers, Labour camps, Qatar, Gulf Cooperation Council, Middle East, North Africa

Background

Health system satisfaction

Health system satisfaction is an important but understudied indicator of health system performance. A lack of unified terminology, theory, and methodology have hampered its application as a firm system performance indicator [1]. There is however a common understanding that health system satisfaction represents the gap between perceptions and expectations on the entire health system and by the entire population [1]. In contrast, the satisfaction concepts of patient experience and health system responsiveness are centred solely on user experiences, with patient experience pertaining to interactions with clinical services, and health system responsiveness relating to the non-clinical aspects of both clinical and non-clinical services [2]. However, the breadth and subjectivity of health system satisfaction make it more challenging to attribute directly to the health system. General perceptions and expectations [3] as well as their interaction with satisfaction [4], are not yet well-understood. In addition, the health system is a complex concept that respondents may not consistently distinguish from its narrower components such as healthcare services, or its broader context such as government policies and institutions [1, 5].

On the other hand, the breadth and subjectivity of health system satisfaction also make it a valuable and comprehensive indicator of overall health system performance. Perceived performance plays a crucial role in the stability and sustainability of both the health system and broader public administration. Public systems rely on citizens' willingness to accept, fund, and actively participate in their co-production [6]. Furthermore, existing theory and evidence suggest that citizens are aware of the features of their health systems when evaluating them. Established theories on health care performance view satisfaction as an indicator of access [7, 8] and a validation of quality [9]. Emerging evidence shows a similar relationship for health systems where satisfaction has been empirically linked to both access [5, 10] and quality [5]. Health system satisfaction has also demonstrated a positive association with other conventional system performance indicators, such as perceived health status [11], financial protection [5], and efficiency [12]. Likewise, it has shown a consistent correlation with key health system inputs. For the funding input, the association is unsurprisingly positive with higher satisfaction linked to low out-of-pocket (OOP) expenditure and higher general

government expenditure on health (GGEH) [13–15]. The direction of association is mixed for service and workforce inputs indicating citizen awareness of distribution issues [13–16].

Moreover, studies are often unable to attribute most health system satisfaction to individual factors such as demographic characteristics [5], or to contextual factors such as national income [15]. When an association is identified, its direction tends to be mixed, indicating the importance of the specific features of each health system in shaping satisfaction outcomes. Taken together, this indicates that, with appropriate judgement and supporting evidence, health system satisfaction can serve as a valuable tool for building evidence on health system performance and establishing national priorities for more sustainable health systems [4].

Health system satisfaction in MENA

Health system satisfaction remains significantly understudied in non-European contexts. Although evidence is emerging across various settings [16–19], only one study could be identified for the Middle East and North Africa (MENA) [20] (see Health system satisfaction in Qatar). Most studies in MENA focus instead on patient experience or health system responsiveness [21–25]. Similarly, evidence is scarce on comprehensive assessments of health system performance in MENA [26], despite the region having a population size comparable to that of the European Union [27]. Many MENA health systems can be considered developing, post-conflict, or conflict-affected which limits data availability. In contrast, the Gulf Cooperation Council (GCC) countries have experienced rapid health reform in recent years to address the demands of unprecedented immigration. For example, following five decades of the world's second fastest annual population growth [28], the State of Qatar (Qatar) saw its GGEH grow at a rate five times faster than its population growth during the preceding decade [29–31]. Understanding and documenting health system satisfaction in the GCC is therefore timely for ensuring regional system stability and sustainability and enhancing the representativeness of international literature on health system satisfaction.

Qatar's health system

Health system strengths

Against this backdrop, this study aims to examine health system satisfaction in Qatar. Qatar has a long tradition

of state responsibility for health, characterised by substantial dedicated efforts primarily through health funding and stewardship [32]. Health system provision has been generous for decades. The Government funds 84% of total health expenditure (THE) according to the latest official figures [31]. Pre-payment fees for the mainstream public scheme are low having not changed since first introduced in 1996 at USD2.75 per year for Qatari citizens, USD13.74 for domestic workers, and USD27.47 for the remaining population (i.e., non-Qatari citizens, non-domestic workers) [33]. Co-payments are minimal and slightly lower for Qatari citizens [33, 34] placing the latest official OOP at 5.6% of THE [31]. Eligibility to the mainstream public health scheme extends to the entire population, though enrolment is voluntary [33]. The scheme offers broad service coverage, excluding only enhanced entitlements such as in vitro fertilisation or cosmetic procedures [34]. However, benefits are slightly more comprehensive for Qatari citizens, such as free in vitro fertilisation. The provider network is wide and covers all public facilities which together provide around three-fourth of care [35]. However, the high levels of GGEH funding are neither solidaristic nor sustainable and providers are not compensated based on performance outcomes. A second scheme mandates that employers provide onsite clinics when employing over 500 workers [36]. This initiative is aimed at improving health care accessibility for workers; however, little is known about its enforcement or the impact it has had on worker health and well-being.

A mandatory social health insurance scheme, aimed at replacing the mainstream public and employer schemes, was introduced in 2014 [35] but suspended in 2015 to support the private insurance sector [37]. For the first time in Qatar, the suspended social health insurance scheme was mandated for 100% of Qatari citizens and extended to private healthcare providers. Notably, this scheme did not reduce service coverage or increase fee levels, as its initial focus was on streamlining financing functions. The inclusion of migrants was anticipated by 2016, followed by the gradual introduction of progressive household and employer contributions into the scheme and performance-based payments for healthcare providers [35]. Instead, a two-tier health insurance scheme is expected over the coming few years. Private health insurance will be mandated for migrants, while Qatari citizens will remain covered by the mainstream public scheme [38]. Under the private health insurance scheme for migrants, enrollment fees will be covered by employers and access to health care will be confined to private providers. Although full details regarding services and co-pay levels have yet to be determined, the information available suggests that both Qatari citizens and migrants could face increased healthcare costs. Qatari

and non-Qatari employers of migrants would experience a rise in healthcare costs once they are mandated to insure non-Qatari employees with private health insurance. Additionally, migrants could face indirect enrolment fees if employers inconspicuously pass on to them the costs of insurance.

The management of the health system expanded significantly in 2011 with the launch of National Health Strategy (NHS) 2011-16. Assessed by an independent study as ambitious, holistic, and clear [39], the NHS 2011-16 represents Qatar's first major health reform and a significant exercise in health system stewardship [32]. The NHS 2011-16 focused on expanding healthcare infrastructure and establishing the foundation for a reorganised health system [40], achieving nearly 90% of its outputs by its conclusion [41]. The strategy was followed by two successive initiatives that maintained a consistent vision. The NHS 2018-22 prioritised the reorganisation of healthcare services and achieved over 90% of its targets by its closure [42]. The reorganisation efforts under the NHS 2018-22 focused on aligning healthcare services with population needs and enhancing system integration. Recently, the NHS 2024-30 was launched [43], with a focus on increasing private health funding and improving key system outcomes, such as efficiency and patient satisfaction, by 2030 [44].

Health system constraints

Qatar's health system faces three key organisational constraints, primarily related to health services and the workforce [32]. First, rapid population growth has placed unprecedented pressure on healthcare capacity. The most recent official estimates indicate that, in 2013, per-capita densities for hospital beds, physicians, and nurses [30] were approximately one-third of the respective averages for the Organisation for Economic Co-operation and Development [45]. This followed a decade of fluctuations and overall declines in these indicators [29, 30, 46–48]. Additionally, there are significant distribution and composition challenges. For instance, in 2013, hospital occupancy rates were twice as high in the public sector and capital city compared to the private sector and other regions [30]. Similarly, by 2011, nearly the entire health workforce was non-Qatari [49]. To address these issues, under the NHS 2011-16, the government worked on 118 new and refurbished healthcare facilities, slated for completion between 2015 and 2022 [35], and launched the country's first national planning tools for aligning population health needs to healthcare services, facilities, and workforce [50].

However, capacity planning requires dynamic inputs and Qatar's population continues to grow at an unparalleled rate. Qatar maintained its position as the country with the highest average annual population growth rate

between 2001 and 2023 [51]. In response, the alignment between healthcare services and population needs, a priority in the NHS 2018-22, has been carried forward as a key objective in the NHS 2024-30 [44]. A further capacity alignment challenge over the next few years centres around the fragmentation the country's provider network under the upcoming two-tier health insurance scheme. This will likely result in undercapacity for migrants, as well as both undercapacity and overcapacity for Qatari citizens. Migrants comprise three-quarters of Qatar's population group [35], yet their dedicated provider network, private healthcare providers, deliver only around one-quarter of health care (see Health system strengths). In addition to the possibility of overcapacity in the public sector, Qatari nationals with supplementary insurance could also lose some access to the private sector once the private sector becomes the primary network for migrants. While the effects of undercapacity on health outcomes are more obvious, overcapacity can worsen health outcomes in two main ways. Underuse can diminish the performance of the health workforce and equipment, while overcapacity can lead to overuse [52, 53] which can increase health risks, such as hospital-acquired infections or radiation-related cancers [54, 55].

Second, rapid expansion of healthcare infrastructure has placed considerable pressure on service coordination. The absence of a family physician model and a largely migrant health workforce [56] have limited continuity of care. National clinical guidelines were first introduced in 2016 [57], but they do not cover the majority of health conditions. This, combined with a diverse health workforce, has hindered the integration and standardisation of healthcare practices. Over the next few years, establishing a two-tier health system between Qatari citizens and migrants under the upcoming health insurance scheme would require further, effective coordination initiatives within and between the two provider networks.

Third, despite the health system undergoing significant transition, public knowledge and engagement efforts have focused almost exclusively on improving health behaviours rather than assisting the population with navigating a transitioning health system [40, 41, 44]. This poses particular challenges, given that much of Qatar's population is male and non-Qatari [30], and that these groups, compared to females and Qatari citizens, tend to have significantly lower levels of education [58]. This disparity increases the vulnerability of non-Qatari males to lower health literacy, making it more difficult for them to navigate the evolving health system effectively.

Health system satisfaction in Qatar

Health system satisfaction

Only one prior study on health system satisfaction in Qatar has been identified [20]. This study assessed

satisfaction levels and inequalities in 2012, using descriptive statistics to measure satisfaction levels and logit regression to examine inequalities. Satisfaction levels were found to be relatively high, at 70–71%, with males and Qatari citizens being less likely to express satisfaction compared to females and migrants. However, this study did not explore trends over time or assess inequalities for individual determinants relevant to the GCC context. For instance, while labourers and labour camp residents—who make up around two-thirds of Qatar's population [59, 60]—are rarely included in international health system satisfaction studies, they are often considered separately in GCC studies or policy due to their significant population shares.

A second study also examined satisfaction for the same year [61] but excluded most of Qatar's population, specifically, labour camp residents, thereby failing to meet the health system satisfaction definition's requirement for population-wide perspectives (see Health system satisfaction). Both studies offer limited insights into the health system's influence on satisfaction or health policy recommendations, and they primarily attributed nationality and gender inequalities to differences in expectations. Other studies have focused on narrower aspects of satisfaction, such as patient experience within a single hospital [62, 63].

Health system performance

Qatar also faces a shortage of studies on health system performance, which is often defined in terms of access, responsiveness, efficiency, financial protection, and population health [1, 64, 65]. A small number of studies have examined access and responsiveness in Qatar between 2006 and 2014 [20, 34, 66, 67]. Access was assessed using utilisation indicators, while responsiveness¹ was evaluated for seven of eight well-established responsiveness domains. These studies primarily focused on inequalities, with overall levels assessed only for responsiveness.

Similar to the study on health system satisfaction, gender and nationality were the most consistent variables influencing inequalities in both access and responsiveness. However, in contrast to the satisfaction study, where Qataris were less likely to report satisfaction than migrants, these studies found that Qatari citizens had a consistently higher likelihood of both access and responsiveness. Responsiveness levels were generally high, ranging between 70% and 90% depending on the domain examined.

As with previous research, these studies did not explore inequalities within key GCC population subgroups, such

¹ Health system responsiveness is commonly defined as the degree to which a system meets the legitimate non-clinical, non-financial expectations of a population in its interactions with the health system [2].

as labourers and labour camp residents, nor did they offer comprehensive, policy-relevant discussions. Instead, the findings were broadly attributed to Qatar's generous health care provisions, without delving into the structural or policy-related factors driving these outcomes.

Methods

Data source

This study used Qatar's 2012 and 2014 Health, Expenditure and Utilization Surveys. These are Qatar's latest known national health surveys, and they help establish a baseline for health system satisfaction ahead of the NHS 2024-30. The 2012-14 study period reflects largely unchanged overarching health system strengths (see Health system strengths) and constraints (see Health system constraints). The cross-sectional and temporal approach strengthens and validates the study's findings. A growing body of literature on health system satisfaction posits that cross-sectional studies avoid variations in surveys and contexts [1, 4, 5], and temporal studies avoid anomalous years and identify persistent issues [4, 68, 69]. By contrast, the majority of literature on health system satisfaction adopts a comparative and non-temporal approach [5, 10, 12–16].

The sampling design techniques were identical between both surveys and appropriate for selecting a nationally representative population sample in Qatar. For representativeness and based on regional best practice, such as the World Health Surveys (WHS) of the World Health Organization (WHO) [70, 71], these surveys subsampled separately for Qatar's three main population groups—nationals, labour camp migrants, and other migrants. Stratified sampling provides a more accurate representation of heterogeneous populations with important differences and allows for targeted sampling design techniques. Qatari citizens and other migrants were sampled based on probability-based sampling across all municipalities and their subdivisions [72, 73]. Additional stratified sampling was used for labour camp non-nationals in proportion to the five main camp types based on official information on resident numbers. Disproportionate sampling was used to account for the small Qatari population share with sampling weights to adjust for any bias.

The sample selection techniques were also identical between both surveys and appropriate for representativeness in Qatar. All three samples were selected at random. Households and rooms within labour camps were selected based on systematic random sampling. This reduces nationality cluster bias since labour camp residents tend to share adjacent rooms with members of the same nationality. Qatari and other migrant individuals were selected for interview based on their preference while labour camp residents through simple random sampling. It was not practical to apply equal sampling

intervals due to variation in room sizes. Weights were used to align sample numbers to population numbers and to reflect sample selection probability.

Interview procedures were sensitive to the unique characteristics of Qatar's population. Interviews were conducted in different languages and there was a focus on assuring respondents of the confidentiality of their responses. Three interview quality assurance procedures were put in place in both years which included supervisor field visits, call-backs to interviewees, and checks on interview lengths. The target sample sizes after estimating for non-response were 4,000 respondents and actual sample sizes were 4,061 in 2012 and 4,230 in 2014.

Statistical methods

Based on best practice, this study examined levels and inequalities in health system satisfaction. Levels of satisfaction were analysed through descriptive analysis and inequalities through regression analysis on individual determinants. Health system and contextual determinants could not be examined because of the country's small size². However, this approach is rare in cross-sectional literature on health system satisfaction due to similar data availability issues. For assurance, four types of regression techniques were used to measure inequalities. There is no established methodological framework for health system satisfaction and different approaches provide different advantages. The surveys used in this study report satisfaction through five ordered levels of satisfaction (see Dependent variables) and international studies of non-binary health system satisfaction adopt both binary [5, 16, 17] and non-binary [13, 74] approaches. Binary approaches are more meaningful for policy since thresholds provide clearer basis for action, but non-binary approaches provide more granularity. Therefore, this study adopted satisfaction as both binary and non-binary.

Based on the literature review, this study used logistic [5, 16, 17] and probit [75] regression techniques for health system satisfaction as binary, and ordered probit [13] and ordinary least squares [74] regression techniques for satisfaction as non-binary. Logistic regression results were reported as main results for policy relevance. In addition to binary approaches providing clearer thresholds for action, logistic regression is also the most common regression method across disciplines and produces straightforward results for policy interpretation. Remaining results were adopted as robustness checks. The analysis was conducted on around 98% of the samples since only responses who fully answered satisfaction questions were included in the analysis. Following established practice, all regression results were adjusted

² Qatar occupies 11,636 square kilometres (4,468 square miles) [88].

for socio-demographic variables common worldwide (i.e., gender, age) and in the GCC (i.e., nationality). The validity of all four final regression models was established through standard tests and diagnostics.

For enhanced policy relevance, an informed crude view was taken on interpreting the significance and magnitude of results. Considering limitations in international comparability, adopted thresholds were as conservative as possible. The threshold for high satisfaction levels was set at 70% based on well-performing universal systems commonly achieving satisfaction levels of 70-80% and sometimes 80-90% [1]. Odds ratios (OR) were considered significant for P values < 0.05 based on system satisfaction literature [14, 16, 17, 19]. The magnitude thresholds were 35% for small ORs and 70% for large ORs. This is based on an upper limit of 100% based on system satisfaction studies rarely finding higher ORs, and a broadly even split within.

Variable definitions

Dependent variables

Health system satisfaction was examined for health system provision and management. This is a common distinction in regional WHO WHS surveys [70] and comprised the only satisfaction variables available in the surveys used on this study [76, 77]. The distinction between health system provision and management has been shown to attract markedly different scores [1] and is especially insightful for Qatar. Provision and management in Qatar have evolved at very different paces, and both underwent significant reform between the two surveys. While provision has been generous since at least 1996, comprehensive management began only in 2011 with the NHS 2011-16 (see Health system strengths). Additionally, between the 2012 and 2014 surveys used in this study, provision grew considerably for Qatari citizens through the suspended social health insurance scheme [78] while management gathered pace with over half of the NHS 2011-16 reported as complete for 2014 [35].

Available theory and evidence suggest that survey respondents were highly cognizant and reflectful of the NHS 2011-16 and the suspended social health insurance scheme when evaluating Qatar's health system. Reform-time satisfaction can indicate acknowledgment and acceptability of reforms [4, 17] and media portrayal, which was characterised by unprecedented awareness campaigns for both reforms³, further influences satisfaction with health systems [1, 79]. Furthermore, the inclusion of a question in the 2014 survey used in this study on Qatari awareness of the insurance scheme confirmed that

Qatari citizens were cognizant of enrolment into the suspended social health insurance scheme [77]. Moreover, it may have potentially biased Qatari citizens toward reflecting this scheme into their 2014 evaluations.

The surveys use the same questions on provision and management for both years. The question on provision states: "In general, how satisfied are you with the level of health care services provided in the State of Qatar?". The question on management states: "In general, how would you rate the way health care is managed in Qatar?". Respondents could select only one response from very satisfied, satisfied, neither, dissatisfied, or very dissatisfied. The terminology and response categories are consistent with international best practice such as WHO WHS surveys [70], Eurobarometer and the Commonwealth Fund and International Health Policy Survey [1]. Also consistent with international practice [1], satisfaction was assigned a value of 1 if satisfied or very satisfied and 0 otherwise.

SES independent variables

Based on the literature review and data availability, the first set of independent variables included the most common socio-economic status (SES) variables of gender, age, and income [10, 14, 16, 19]. They were also included because of their policy relevance. Gender and age are viewed as largely expectation-based by satisfaction literature [69] and predisposing by access theory [80]. However, expectations can be managed to some extent by public knowledge activities, and satisfaction by gender and age can indicate inadequacies in gender- or age-specific services such as for women, children, and the elderly. Income is considered more policy-relevant by access theory since it can enable or impede access. This study takes a similar view in that lower satisfaction among lower income groups could indicate accessibility issues. Lower satisfaction among higher income groups could indicate higher expectations and inadequate supplementary coverage depending on the system's features.

Gender and income were assigned a value of 1 for females and non-poor and 0 for males and poor respectively. Income was treated as a categorical variable despite being reported as continuous for policy meaningfulness. This aligns with our overarching methodological objective of clear statistical thresholds for policy action (see Statistical methods). Non-poor was defined as respondents in the top 80% of total household expenditure in per capita equalised terms. Age was tested for a U-curve relationship as is commonly hypothesised in literature.

Other conventional SES variables were tested but excluded from the model because they were not statistically or conceptually feasible. Wealth, employment, education, and marital status did not yield statistically

³ Between 2012 and 2014, the regulator had nearly doubled regular media outputs such as press releases and media interviews, and launched enhanced outputs such as nationwide roadshows and annual progress reports [89] [50] [35].

significant results or influence the model's validity nor the significance, sign, or magnitude of other variables. Apart from marital status, they all showed fairly high multicollinearity with each other and included SES variables. Furthermore, they are not meaningful for this study. The proxy available for wealth (i.e., home ownership) applies almost exclusively to Qatari citizens since most migrants live in employer labour camps [60]. Qatar's near-zero unemployment rate is the world's lowest (i.e., 0.1%) [81] diminishing its statistical power and policy significance. Education levels are not a defining characteristic of Qatar's population (see Health system constraints). Finally, the effects of marital status on satisfaction are diminished for at least two-thirds of the population who reside without family in labour camps.

GCC SES independent variables

The second set of individual variables included the distinct GCC SES variables of migrant status, occupation, and accommodation. These population groups are sizable in Qatar (see Health system constraints, Health system satisfaction in Qatar) and often confer explicit or implicit differences in health entitlements. Qatari citizens are entitled to slightly lower fees and wider service coverage particularly at the time of this study's second survey following enrollment into a broader social health insurance scheme (see Health system strengths). Occupation holds implicit health entitlements such as by determining accommodation type. In turn, labour camps can be more geographically remote affecting the accessibility and variety of services available.

Nationality was assigned a value of 1 for Qatari citizenship, and 0 for migrant status. Occupation is represented by manual, service, and professional workers. As the surveys collect ten types of occupations, occupation types were aggregated into categories relevant for statistical analysis [82] and that align with the conventional occupational categories of blue-collar, pink-collar, and white-collar workers. This still separates out labourers which comprise most of Qatar's population but also accounts for the diversity within non-manual occupations. These variables were assigned a value of 1 for service and professional workers, and 0 for labourers. Various accommodation combinations were considered but only one yielded evidence of an association. Accordingly, respondents residing in the largest labour camps housing over 200 residents were assigned a value of 1, and 0 for all other respondents.

Health-related independent variables

Also based on the literature review and data availability, the third and final set of independent variables included the most common health-related variables of health status, health insurance, and utilisation [10–12, 17, 19].

Distinguishing health-related variables from SES ones is important since satisfaction is difficult to attribute to health systems. For example, lower satisfaction among respondents with certain illnesses can indicate inadequate entitlements of relevant services, accessibility of entitled services, and quality of accessed services. Similarly, lower satisfaction for some types of insurance can indicate inadequate affordability, service coverage, and provider network. Lower satisfaction among non-users can indicate accessibility issues and lower satisfaction among users can indicate quality issues.

Health status is represented by self-reporting of diagnosis with one or more chronic diseases as the only quasi-objective measure. The survey also asks respondents about how they feel but this is harder to attribute to health systems and is a solely subjective measure. Studies often distinguish between self-reported health status and self-reported information on factual characteristics such as diagnoses or tests to support attribution to the health system [83, 84]. This variable is assigned a value of 1 for one or more chronic diseases and 0 for none. Transforming health status to binary helps policy relevance since interpreting the association between two binary variables is easier than otherwise. Health insurance is examined for mainstream public health insurance only as well as all other insurance combined based on the prevalence of insurance schemes and respective sample sizes. Other insurance includes respondents covered with both public and private insurance, private insurance only, and employee clinics. These variables are assigned a value of 1, and 0 for no insurance. Utilisation was examined for inpatient and outpatient use. These are the main type of utilisation examined in similar studies and surveys did not capture other utilisation measures. Inpatient utilisation referred to the previous 12 months and outpatient utilisation referred to the previous 30 days. These variables were assigned a value of 1 for utilisation, and 0 for none respectively.

Results

Respondent characteristics

Table 1 summarises the main characteristics of respondents to Qatar's 2012 and 2014 national health surveys. Most respondents were non-poor in both years (80.1% in 2012, 83.1% in 2014), insured (83.1%, 80.1%), non-users (no inpatient utilisation 90.0%, 90.8%; no outpatient utilisation 78.1%, 80.0%), and migrants (63.7%, 65.0%). Mainstream public health insurance was the predominant form of coverage in both years (63.4%, 59.9% public only; 13.0%, 11.9% public and others), with very few respondents reporting private cover only (5.7%, 7.7%), or employer clinic cover (1%, 0.9%). The main sample divergences were sharp increases in the 2014 share and number of respondents with chronic conditions (21.6%, 878;

Table 1 Main characteristics of respondents to HUES2012 and 2014 surveys in Qatar

Variable	Respondents (%) 2012	Respondents (%) 2014
Gender		
Male	2143 (52.5)	2021 (52.4)
Female	1940 (47.5)	1835 (47.6)
Income		
Poor	815 (19.9)	655 (16.9)
Non-Poor	3268 (80.1)	3221 (83.1)
Chronic Condition		
Yes	878 (21.6)	1692 (40.0)
No	3194 (78.4)	2538 (60.0)
Health insurance		
Mainstream Public Only	2579 (63.4)	1582 (59.9)
Private Only	231 (5.7)	198 (7.7)
Public and Private Only	530 (13.0)	313 (11.9)
Employer Clinic	40 (1.0)	23 (0.9)
None	688 (16.9)	525 (19.9)
Inpatient Utilisation		
Yes	371 (9.1)	352 (9.2)
No	3712 (90.0)	3487 (90.8)
Outpatient Utilisation		
Yes	895 (21.9)	767 (20.0)
No	3188 (78.1)	3073 (80.0)
Nationality		
Qatari Citizen	1483 (36.3)	1313 (35.0)
Migrant	2600 (63.7)	2539 (65.0)
Occupation		
Professionals	1212 (48.0)	910 (39.1)
Service Workers	613 (24.3)	659 (28.3)
Labourers	700 (27.2)	760 (32.6)
Accommodation Type		
Largest Labour Camps	18 (0.4)	260 (6.9)
Other Accommodation	1065 (99.6)	3532 (93.1)

Table 2 Levels of satisfaction with health system provision and management in Qatar

Variable	Respondents (%) 2012	Respondents (%) 2014
Health System Provision		
Satisfied/Very Satisfied	2817 (71.2)	2926 (77.2)
Indifferent	458 (11.6)	425 (11.2)
Dissatisfied/Very Dissatisfied	686 (17.3)	438 (11.6)
Health System Management		
Satisfied/Very Satisfied	2785 (70.4)	2899 (76.5)
Indifferent	454 (11.5)	435 (11.5)
Dissatisfied/Very Dissatisfied	717 (19.3)	457 (12.1)

40.0%, 1,692) and residing in the largest labour camps (0.4%, 18; 6.9%, 260).

Levels of health system satisfaction

Table 2 shows levels of satisfaction with health system provision and management in Qatar in 2012 and 2014.

Most respondents were satisfied or very satisfied with both provision and management in both years (71.2% provision, 70.4% management in 2012; 77.2%, 76.5% in 2014). The remainder were similarly dissatisfied or very dissatisfied (17.3%, 19.3%; 11.6%, 12.1%), or indifferent (11.6%, 11.5%; 11.2%, 11.5%). Provision showed slightly more satisfied respondents in both years (1.1% in 2012, 0.9% in 2014) and less dissatisfied respondents (-10.4%, -4.1%) (Supplementary Table 1). In 2014, there were similar improvements in satisfaction (+8.4% provision, +8.7% management) and dissatisfaction (-32.9%, -37.3%) with indifference stagnating (-3.4%, 0) (Supplementary Table 2). Management improved somewhat faster for both satisfaction (+3.6%) and dissatisfaction (-13.4%) (not shown in Supplementary Table 2).

Inequalities in health system satisfaction

Table 3 shows the main individual determinants of satisfaction with health system provision and management in Qatar in 2012 and 2014. Gender and nationality showed the most consistent association with health system satisfaction. Females were around half more likely than males to be satisfied for three of four satisfaction variables, with the 2014 significance and magnitude decreasing for provision (1.612*** in 2012, 1.437** in 2014) and disappearing for management (1.527**, 1.393*). Qatari citizens were around one-third less likely than migrants to be satisfied for three of four variables, with the 2014 significance disappearing for provision (0.658**, 0.735).

There were three further sporadic results. Those with chronic conditions were around two-thirds less likely than those without to be satisfied but only in 2014 (0.302*** provision, 0.324*** management). Service workers were around half more likely than labourers to be satisfied but only in 2014 and only for management (1.433**). Respondents residing in the largest labour camps were less⁴ likely than other respondents to be satisfied but only in 2014 and for a negligible magnitude (1.000*** provision). Age, income, health insurance, and utilisation were not significantly associated with health system satisfaction for provision or management and in both years. These results were confirmed through three robustness checks (Supplementary Tables 3–4).

Discussion

Interpretation and attribution

This study set out to estimate levels and inequalities in health system satisfaction in Qatar in 2012 and 2014 to establish a baseline ahead of the NHS 2024-30 (see Dependent variables). Our analysis shows three

⁴ The magnitude and direction of association is confirmed in Supplementary Tables 1 and 2 (i.e., 2014 provision 0.000000510*** for ordered probit, 0.000000460*** for OLS, -0.000000893*** for probit; 2014 management 0.000000555***, 0.000000514***, -0.000000971***).

Table 3 Odds ratios for satisfaction with health system provision and management in Qatar

Variable	2012		2014	
	Health System Provision Logit	Health System Management Logit	Health System Provision Logit	Health System Management Logit
<i>Socio-Economic</i>				
<i>Gender</i>				
Female	1.612*** (0.286)	1.527** (0.268)	1.437** (0.252)	1.393* (0.239)
<i>Age</i>				
Age	0.981 (0.0456)	0.963 (0.0478)	1.016 (0.0230)	1.023 (0.0231)
Age (Squared Term)	1.000 (0.000578)	1.001 (0.000627)	1.000 (0.000219)	1.000 (0.000218)
<i>Income</i>				
Non-Poor	0.786 (0.159)	0.880 (0.174)	1.367 (0.295)	1.301 (0.275)
<i>GCC Socio-Economic Nationality</i>				
Qatari Citizen	0.658** (0.138)	0.664** (0.141)	0.735 (0.144)	0.678** (0.132)
<i>Occupation (Ref: labourer)</i>				
Professional Worker	1.200 (0.314)	1.104 (0.293)	0.980 (0.189)	0.974 (0.183)
Service Worker	1.360 (0.303)	1.211 (0.270)	1.344* (0.220)	1.433** (0.236)
<i>Accommodation Type</i>				
Largest Labour Camps (Ref: all other accommodation)	0.982 (0.0231)	0.981 (0.0229)	1.000*** (0.000000341)	1.000*** (0.000000341)
<i>Health-Related</i>				
<i>Health Status</i>				
Chronic Condition	0.912 (0.222)	0.956 (0.230)	0.302*** (0.0464)	0.324*** (0.0496)
<i>Health Insurance (Ref: no insurance)</i>				
Mainstream Public Only	0.927 (0.175)	0.982 (0.183)	1.067 (0.170)	0.928 (0.149)
Other Insurance	0.992 (0.258)	1.135 (0.299)	1.454 (0.399)	1.454 (0.399)
<i>Utilisation</i>				
Inpatient Utilisation (Ref: no inpatient utilisation)	1.192 (0.310)	1.056 (0.270)	0.608 (0.208)	0.638 (0.218)
Outpatient Utilisation (Ref: no outpatient utilisation)	1.059 (0.222)	0.981 (0.205)	1.533* (0.363)	1.378 (0.327)
Number of Respondents	3959	3954	3789	3791
Pseudo R-squared	0.0093	0.0071	0.082	0.078

Notes: Values show odds ratios with standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

main findings. First, levels of health system satisfaction in Qatar were high, particularly for provision, but not very high. Second, there was an upward trend in all satisfaction variables between 2012 and 2014, with faster improvements for management. Third, non-large inequalities (see Statistical methods) existed for gender and nationality and to some extent health status, occupation, and accommodation. Males, Qatari citizens, and to some extent, respondents with chronic diseases, manual

jobs, and residence in the largest labour camps were less likely to be satisfied with the health system.

Qatar's satisfaction levels can be considered high but not very high. Levels fell consistently within the high range (see Dependent variables) across both satisfaction variables and both years. They also align with levels reported in available literature on Qatar's health system satisfaction (see Health system satisfaction in Qatar) and performance (see Health system performance in Qatar).

Non-large inequalities suggest moderate variation between population groups. In addition, the high share of non-poor respondents, who typically tend to evaluate systems more conservatively, indicates that reported satisfaction levels were not over-estimated.

Qatar's satisfaction levels can be largely attributed to the health system, particularly its dedicated aspects. The low share of inpatient and outpatient users indicates that these satisfaction levels represent the entire health system and not only health care. Coupled with an absence of inequalities for the poor, uninsured, and non-users, modest but consistently better provision than management scores across satisfaction, neutrality, and dissatisfaction for both years suggests attribution to high service coverage and low financial barriers. This is further supported by a finding of overwhelming coverage with public health insurance despite it being voluntary. Qatar's health system strengths (see Health system strengths) and international empirical evidence (Health system satisfaction) indicate that the primary health system drivers of Qatar's high satisfaction levels are exceptionally low annual contributions into health schemes, low OOP, high GGEH, and broad benefit packages.

Conversely, this indicates that organisational issues are the main reasons for why Qatar's satisfaction levels are not very high. Based on Qatar's health system constraints (see Health system constraints) and international empirical evidence (see Health system satisfaction) this potentially includes service and workforce capacity (i.e., density, composition, distribution) and coordination (i.e., continuity of care, integration, standardisation). An absence of inequalities for the non-poor, insured, and users suggests no pervasive service quality issues once services have been accessed.

Observed improvements in satisfaction between 2012 and 2014 can be deemed sizable. The period under study was short, starting satisfaction levels were already high, and the direction and magnitude of change was consistent across all satisfaction, neutrality, and dissatisfaction variables. Faster improvement for management indicates acknowledgment and acceptability of the NHS 2011-16. An improvement in provision at the same time as the disappearance of lower Qatari probability to be satisfied with provision indicates that the overall improvement in provision levels was driven by expanded provision for Qatari citizens through the suspended insurance scheme. The nationality inequality was also the only inequality to disappear in 2014 for any satisfaction. Theory and evidence indicate that survey respondents were highly cognizant and reflectful of the NHS 2011-16 and the suspended social health insurance scheme in their evaluations of Qatar's health system (see Dependent variables). By the same token, satisfaction levels in both 2012 and 2014, could be somewhat overestimated for anticipated

improvements in overall healthcare capacity and entitlements. For example, albeit for Qatari citizens alone in 2014, the suspended social health insurance scheme would have signaled impending inclusion of migrants as well as begun to instantly free public sector capacity for all population groups by opening the private sector to Qatari nationals.

The main observed inequalities in health system satisfaction (i.e., gender, nationality) are consistent across both years, all three robustness checks, and align with available literature on Qatar's health system satisfaction (see Health system satisfaction in Qatar) and performance (see Health system performance in Qatar). The main system factor driving these inequalities appears to be lack of public knowledge activities. Observed inequalities align with SES patterns in Qatar's population which would create distinct perceptions and expectations along key population groups. For gender, occupation, and accommodation, lack of public knowledge activities would centre around insufficient activities on how to navigate a fragmented and transitioning system. Gaps in perceptions rather than expectations potentially underscore these inequalities since lower SES among males, labourers, and residents of large labour camps would lower both perceptions and expectations according to theory on health literacy [85] and rational choice [86]. For their satisfaction to then be lower than that of females, service workers⁵, and other accommodation residents, the distance between perceptions would need to exceed the distance between expectations.

This could be moderated by lower health system outcomes such as lower male access documented in existing literature for Qatar. A higher likelihood of satisfaction among females could also reflect satisfaction with women and family-related services such as child services. Conversely, for males, labourers, and residents of the largest labour camps, other potential or moderating drivers include lack of sufficient onsite, local, or occupational services. The sporadic nature of inequalities for labourers and residents of the largest labour camps could in part be due to sample size and fluctuating populations. Labourers employed in infrastructural work would have project-based rather than permanent work.

For nationality, lack of public knowledge activities would centre around insufficient activities on the roles of state and citizen in health since gaps in expectations rather than perceptions likely underscore this inequality. Considering much higher SES, historically near-free health care, and familiarity with the health system, Qatari citizens would hold both higher expectations and

⁵ A larger difference in expectations between labourers and professionals than between labourers and service workers could have resulted in similar overall differences between expectations and perceptions, and therefore satisfaction, among labourers and professionals.

perceptions than migrants. By contrast, most migrants originate from less generous and lower-performing health systems such as South Asian ones [87]. For Qatari nationals to then be less satisfied than migrants, the distance between their expectations would need to exceed the distance between their perceptions.

However, the perception distance could reflect better Qatari awareness of system constraints discernible to long-term users such as continuity, integration, and standardisation. It could also reflect better awareness of system issues more pertinent to Qatari citizens. For example, a disproportionate migrant health workforce can bring about socio-cultural barriers such as language and cultural competency. Another example concerns a lower likelihood of satisfaction among Qatari citizens during the same time as slightly higher Qatari health entitlements and a higher likelihood of Qatari access documented in available literature. While this appears to exclusively indicate higher Qatari expectations, it could also indicate Qatari overutilisation and misutilisation. Anecdotal evidence supports this position and overutilisation and misutilisation would lower Qatari satisfaction by creating more unrealised system expectations such as from unnecessary visits, tests, and medications.

The expectation gap applies to respondents with chronic disease too in so far as their lower likelihood of satisfaction reflects perceptions and expectations around chronic disease services specifically. In addition, it could reflect better awareness of health care, especially complex and long-term care, from prevention and disease management to treatment. Given the need for robust coordination along the continuum of care of these healthcare services, the primary drivers of inequality for chronic diseases sufferers could be coordination (i.e., continuity of care, integration, standardisation) and subsequently service quality (e.g., health outcomes). Observed fluctuations in sample size could in part explain the sporadic nature of these results.

Policy recommendations

These findings point to three overarching policy implications. First, organisational constraints could suppress satisfaction levels faster than before and deepen inequalities by accommodation and health status. Qatar's satisfaction levels in 2012 and 2014 already account for Qatari access to the private healthcare sector, which has since been rescinded (see Health system strengths), and potentially some anticipated improvements in overall healthcare capacity (see Interpretation and attribution). Additionally, restricting Qatari nationals only to the public sector under the upcoming two-tier health insurance scheme, as well as diverting migrants to a disproportionately smaller private sector, could lower satisfaction for both population groups through undercapacity and overcapacity

(see Health system constraints, Interpretation and attribution). Satisfaction levels could decrease faster among labour camp residents without increased private healthcare capacity within close proximity to remote labour camps.

Furthermore, any unresolved coordination constraints could result in exponentially harsher evaluations over extended periods, especially if accompanied by new coordination challenges posed by the introduction of a two-tier system (see Health system constraints). Lower satisfaction could be more pronounced for individuals with chronic diseases considering that healthcare related to chronic diseases relies on both sufficient and coordinated healthcare capacity across all levels of care.

Addressing unresolved organisational constraints with higher urgency, and prior to introducing the upcoming two-tier health insurance scheme, would help uphold health system satisfaction and performance. This would involve more dynamic planning for services, workforce, and facilities, as well as in-depth reviews of chronic care services, occupational health services, remote labour camps, and Qatari utilisation patterns. Additionally, there is a need for greater availability and monitoring of nationwide standards on continuity of care, integration, and standardisation, particularly on the provision of chronic and complex care services. Any changes to the provider networks under the upcoming two-tier health insurance scheme should be enacted after sufficient certainty on the effective alignment between Qatari and migrant health needs and their respective provider networks, as well as coordination within and between those provider networks. Implementation should be followed by close monitoring of process outputs and health outcomes for both population groups.

Second, reducing the basic benefit packages under the upcoming two-tier health insurance scheme, or increasing fee levels, could worsen satisfaction for all population groups, worsen existing inequalities by nationality and occupation, as well as establish new inequalities by income and health insurance. Qatar's health system satisfaction is particularly vulnerable to changes in healthcare packages and funding, given the historically generous government support and the significant capacity constraints that continue to challenge the system. All population groups face the possibility of higher healthcare costs under the upcoming insurance scheme (see Health system strengths), as well as, for the first time in Qatar, contributing toward private sector profit margins for providers of health care and health insurance. Increases in healthcare costs would be more detrimental to lower SES groups such as migrants, particularly migrant labourers, and lower income groups.

It is recommended that the upcoming two-tier health insurance scheme prioritises sustainability through

streamlined financing functions, rather than the reduction of entitlements and equity. Key priority areas for the financing function of fund collection include the introduction of progressive employer contributions and preservation of co-pay levels until healthcare capacity has stabilised. The main priority under pooling of funds focuses on the unification of fund pools for greater administrative and financial efficiency. Implementing sophisticated algorithmic checks on the clinical necessity of services approved by private insurers and adopting performance-based payment models for both healthcare providers and insurers comprise key priorities for the financing function of paying providers. Overall, any significant changes to entitlements, such as the basic benefit packages, pre-payment levels, and co-payment levels, should be adopted gradually and monitored closely to determine optimal levels. Consideration should be given to inclusion of comprehensive occupational health services into the basic benefit package.

Third, public knowledge activities are key to improving satisfaction levels and inequalities in Qatar. A more comprehensive and tailored schedule of public awareness and engagement activities should be planned and implemented targeting the unique needs of Qatari citizens, labourers, and other migrants. These include ongoing clarity and engagement on health entitlements, implementation timelines for the upcoming two-tier health insurance scheme, how to enroll into this scheme and process reimbursement claims, accessing transitioning services, and navigating non-emergency services. Special attention should be paid to activities which promote solidarity in funding health and inform isolated communities.

Research recommendations

This study demonstrates the need for further research on health system satisfaction in Qatar. Research priorities include the regular monitoring of satisfaction levels and inequalities, with a particular focus on health system satisfaction disparities related to sufficiency and organisational system indicators such as unmet need and usual source of care. Targeted focus groups would be valuable in identifying satisfaction risks and issues for specific populations, including Qatari citizens, individuals with chronic diseases, labourers, and labour camp residents. Additionally, experimental, and quasi-experimental methods could be employed to directly test the impact of the upcoming two-tier health insurance scheme on health system satisfaction.

This study underscores the need for further research on health system performance in Qatar. Among the underexamined outcomes—population health, financial protection, and efficiency (see Health system performance in Qatar)—this study highlights the importance

of prioritising policy-relevant assessments of chronic disease outcomes, such as avoidable or amenable mortality for non-communicable diseases. Other health outcomes and financial protection should also be examined, especially if health financing entitlements change under the upcoming two-tier health insurance scheme. Additionally, this study calls for more comprehensive evaluations of already-studied outcomes, such as access and responsiveness (see Health system performance in Qatar). Access to the health system has so far been studied only in terms of utilisation, without considering sufficiency (such as unmet need or misuse) or organisational aspects (such as the usual source of care). Responsiveness, having been studied for only one year, requires ongoing assessments to track progress, particularly in relation to organisational improvements.

Strengths and limitations

This study is the first comprehensive assessment of health system satisfaction in Qatar. It is also one of the few comprehensive assessments of a health system performance indicator in Qatar. This study contributes to otherwise limited international literature on health system satisfaction, particularly on non-European settings. It also demonstrates how, with appropriate judgement and supporting evidence, health systems satisfaction can be used to build evidence on health system performance and establish national priorities for more sustainable health systems. The study's cross-sectional, temporal, and reform-focused approach, along with its emphasis on population groups relevant to Qatar's health policy context, enhances its national policy relevance. By attributing findings to distinct health system features and offering concrete health policy recommendations, the study provides valuable insights for shaping implementation requirements for the NHS 2024-30 and future health reforms in Qatar.

The primary limitation of this study is the lack of detailed information and sufficient data points on health system and contextual determinants of health system satisfaction. Additionally, the absence of an identification variable for general practitioners in the survey instrument presents another limitation. The inclusion of such a variable would have enabled multilevel analysis, which could have addressed the issue of patient clustering. Incorporating this variable in future survey instruments could provide further insights into this aspect if health system satisfaction.

Conclusions

As the sustainability of health systems becomes an increasingly central concern to governments in the GCC and beyond, health system satisfaction data can be instrumental in understanding and mobilising citizen

willingness to accept, fund, and co-produce these health systems. Qatar has achieved high and improving levels of health system satisfaction, with relatively low inequalities, highlighting the importance of dedicated efforts in the face of rapid change and organisational constraints. However, even with exceptional health funding and stewardship, Qatar has not attained very high levels of satisfaction, nor has it fully eliminated inequalities. This underscores the limitations of financial and stewardship resources alone in achieving comprehensive satisfaction and equity in health systems. With the more easily attainable gains likely already achieved, unresolved organisational constraints and any erosion of health entitlements could significantly reduce system satisfaction, particularly among vulnerable groups. While the current levels of government health spending are financially unsustainable, addressing these unresolved organisational constraints before expanding private health insurance, introducing changes gradually, closely monitoring their impact, and keeping the public engaged and informed would be essential for maintaining health system satisfaction, performance, and sustainability in Qatar. Future research is critical to further explore Qatar's health system satisfaction and performance.

Abbreviations

GCC	Gulf Cooperation Council
GGEH	General Government Expenditure on Health
MENA	Middle East and North Africa
NHS	National Health Strategy
OOP	Out-of-Pocket Expenditure
OR	Odds Ratios
Qatar	State of Qatar
SES	Socio-Economic Status
THE	Total Health Expenditure
WHO	World Health Organization
WHS	World Health Survey

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12939-024-02317-x>.

Supplementary Material 1

Acknowledgements

Not applicable.

Author contributions

FMHA conceived the work, acquired the data, interpreted the data, and wrote the original draft. ZN analysed the data and contributed to the design of the study and interpretation of data. OG substantively revised the work. EM conceived the work and contributed to all stages of work. All authors read and approved the final manuscript.

Funding

Not applicable.

Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Authors' information

This submission contains material that forms part of FMHA's PhD thesis.

Competing interests

ZN is a Guest Editor for the International Journal for Equity in Health's Collection on Health Inequalities in the Middle East and North Africa Region.

Author details

¹Ministry of Public Health, Al Khaleej Street, PO Box 7744, Doha, State of Qatar

²London School of Economic and Political Science, Houghton Street, London WC2A 2AE, UK

³Imperial College London, Exhibition Rd, South Kensington, London SW7 2BX, UK

Received: 26 March 2024 / Accepted: 30 October 2024

Published online: 25 November 2024

References

1. Busse R. Understanding satisfaction, responsiveness and experience with the Health System. In: Papanicolas I, Smith PC, editors. *Health System Performance comparison: an agenda for policy, Information and Research*. New York: McGraw-Hill; 2013. pp. 255–79.
2. A. d. S. K. K. D. C. J. L. M. D. B. E. Nicole Valentine, Health System Responsiveness: Concepts, Domains and Operationalization, in *Health Systems Performance Assessment: Debates, Methods and Empiricisms*, Geneva, WHO, 2003, pp. 573–596.
3. Carlos El-Haddad IHWH. Understanding patient expectations of Health Care: a qualitative study. *J Patient Experience*. 2020;7(6):1724–31.
4. Mossialos E. Citizens' views on health care systems in the 15 member states of the European Union. *Health Econ*. 1997;6:109–16.
5. Irene Papanicolas JCPCS. An analysis of survey data from eleven countries finds that 'satisfaction' with health system performance means many things. *Health Aff*. 2013;32(4):734–42.
6. Adam Oliver EM. European health systems reforms: looking backward to see forward? *J Health Politiccs Policy Law*. 2005;30(1–2):7–28.
7. Lu RA, Aday A. A Framework for the study of Access to Medical Care. *Health Serv Res*. 1974;9(3):208–20.
8. Ronald Andersen PD. Improving access to care in America: individual and contextual indicators. In: Kominski GF, editor. *Changing the US Health Care System: Key issues in Health services Policy and Management*. San Francisco: Jossey-Bass; 2013. pp. 33–69.
9. Donabedian A. Evaluating the quality of Medical Care. *Millbank Q*. 2005;83(4):691–729.
10. Liubov PEMHTRPSTEE, Borisova V. Public evaluation of health services across 21 European countries: the role of culture. *Scand J Public Health*. 2017;45:132–9.
11. XinXin JHZ, Peng. Socioeconomic inequality in public satisfaction with the healthcare system in China: a quantile regression analysis. *Archives Public Health*. 2022;80:165–77.
12. Simone TP, Schneider M. Cognitive determinants of healthcare evaluations - a comparison of Eastern and western European countries. *Health Policy*. 2018;122(3):269–78.
13. Claus Wendt JKMMMP. How do europeans Perceive their Healthcare System? Patterns of satisfaction and preference for state involvement in the field of Healthcare. *Eur Sociol Rev*. 2010;26(2):177–92.
14. Sarah Missinne BMPB. The popular legitimacy of European health-care systems: a multilevel analysis of 24 countries. *J Eur Social Policy*. 2013;23(3):231–47.
15. Sofia Xesfingi AV. Patient satisfaction with the healthcare system: assessing the impact of socio-economic and healthcare provision factors. *BMC Health Serv Res*. 2016;15(16):94.

16. Yuan Y. Public satisfaction with health care system in 30 countries: the effects of individual characteristics and social contexts. *Health Policy*. 2021;125(10):1359–66.
17. Shangren Qin YD. Who is more satisfied with Health services? A cross-sectional study in China. *J Health Care Organ Provis Financing*. 2021;58:1–11.
18. XinXin JHZ, Peng. Socioeconomic inequality in public satisfaction with the healthcare system in China: a quantile regression analysis. *Archives Public Health*. 2022;80:165.
19. Yishan Zhu YLMWHF. How do Chinese people perceive their healthcare system? Trends and determinants of public satisfaction and perceived fairness, 2006–2019. *BMC Health Serv Res*, 22, 2022.
20. Zlatko Nikoloski HRFMHA. Satisfaction and responsiveness with health-care services in Qatar: evidence from a survey. *Health Policy*. 2015;19(11):1499–505.
21. A.-K. A. A.-A. NA-NH, Al-Sakkak RJMA. Patient satisfaction with primary health care services in Riyadh. *Saudi Med J*. 2008;29(3):432–6.
22. YH MA, Aldebasi. Patient's satisfaction with medical services in the Qassim area. *J Clin Diagn Res Doctors*. 2011;5(4):813–7.
23. Harrison A. Patients' evaluations of their consultations with primary health clinic doctors in the United Arab Emirates. *Fam Pract*. 1996;13(1):59–66.
24. Al Dousari AAMNAMH. Patient satisfaction according to type of primary healthcare practitioner in the Capital Health Region, Kuwait. *Kuwait Med J*. 2008;40(1):31–8.
25. Bu-Alayyan AMBA-EASHA-TAA-WS. Patient satisfaction with primary health-care services in Kuwait. *Kuwait Med J*. 2008;40(10):25–30.
26. Maram Gamal AACLYGMJ, Katoue. Healthcare system development in the Middle East and North Africa region: challenges, endeavors and prospective opportunities. *Front Public Health*, 10, 2022.
27. International Monetary Fund, Growth and Stability in the Middle East and North Africa, 2024. [Online]. Available: <https://www.imf.org/external/pubs/ft/mena/04econ.htm#:~:text=MENA%20covers%20a%20surface%20of,about%20half%20a%20million%20inhabitants>. [Accessed January 2024].
28. World Population Prospects UNDESA. The 2012 revision: average annual rate of Population Change by Major Area, Region and Country. New York: UNDESA; 2013.
29. SCH, Qatar Health Report 2009, SCH, Doha, 2011.
30. SCH, Qatar Health Report 2013, SCH, Doha, 2015.
31. SCH, Qatar National Health Accounts Report 2013, SCH, Doha, 2015.
32. Ali FMH, Gjbrea O, Sifton C, Alkuwari A, Atun R. Health policy-making in a transformative state. In: Tok ME, Alkhatir L, Pal LA, editors. *Policy-making in a Transformative State, the case of Qatar*. London: Palgrave Macmillan; 2016. pp. 179–212.
33. Government of Qatar. Law No. 7 (1996) Organising medical treatment and health services within the State, Official Gazette, Doha, 1996.
34. Altijani FMAHROG, Hussin H. Tracking access, utilization and health system responsiveness to inform evidence-based health care policy: the case of Qatar. *J Local Global Health Perspect*. 2015;2.
35. SCH, Annual Report 2014, SCH, Doha, 2015.
36. Government of Qatar. Law No. 14 (2004) on the Promulgation of Labour Law 14/2004, Chapter Ten on Safety, Occupational Health and Social Care, Official Gazette, Doha, 2004.
37. Doha, News. Qatar's health insurance program Seha is being suspended, 2015. [Online]. Available: <https://dohanews.co/qatars-health-insurance-program-seha-suspended/>. [Accessed 2024].
38. Essa Al Sulaiti Law Firm. Commentary on Law No. 22/2021: regulating Health-care Services within the Country. Doha: Essa Al Sulaiti Law Firm; 2023.
39. WISH, Global Diffusion of Healthcare Innovation, WISH, Doha, 2013.
40. SCH, National Health Strategy 2011–2016: Executive Summary, SCH, Doha, 2011.
41. National Health MOPH. *Stategy 2018–2022: our Health*. Doha: Our Future, MOPH; 2018.
42. Qatar Tribune, Achievements of NHS2 lead to improved health for Qatari community, says MoPH, September 2024. [Online]. Available: <https://www.qatar-tribune.com/article/138296/front/achievements-of-nhs2-lead-to-improved-health-for-qatari-community-says-moph>. [Accessed 2024].
43. Office GC. Prime Minister and Minister of Foreign Affairs launches National Health Strategy 2024–2030, September 2024. [Online]. Available: <https://www.gco.gov.qa/en/top-news/prime-minister-launches-national-health-strategy-2024-2030/>. [Accessed 2024].
44. PSA, Third Qatar National Development Strategy 2024–2030, PSA, Doha, 2024.
45. OECD. *Health At a Glance 2021: OECD indicators*, OECD Publishing, Paris; 2021.
46. SCH, Qatar Health Report 2010, SCH, Doha, 2013.
47. SCH, Qatar Health Report 2011, SCH, Doha, 2014.
48. SCH, Qatar Health Report 2012, SCH, Doha, 2014.
49. SCH, Qatar Health Workforce Plan 2013–2033, SCH, Doha, 2014.
50. SCH, Annual Report 2013, SCH, Doha, 2014.
51. UNDESA, World Population Prospects 2024: Standard Estimates, 2024. [Online]. Available: <https://population.un.org/wpp/Download/Standard/Most/Used/>. [Accessed 2024].
52. Zhang ZZYSY. When more is less: what explains the overuse of health care services in China? Author links open overlay panel. *Social Science Medicine*, 232, 2019.
53. G.-K. ASE, Segal SHJB. Factors Associated with Overuse of Health Care within US Health Systems: a cross-sectional analysis of Medicare beneficiaries from 2016 to 2018. *JAMA Health Forum*, 3, 1, 2022.
54. Llor LBC. Antimicrobial resistance: risk associated with antibiotic overuse and initiatives to reduce the problem. *Therapeutic Adv Drug Saf*, 5, 6, 2014.
55. Cheung-Larivee K. Hospitals are overusing double CT scans, risking patient harm, CMS finds., *Fierce Healthcare*, 2011.
56. SCH, National Health Workforce Plan 2013–2033, SCH, Doha, 2013.
57. Al Huneiti R, Saeed B, Nusr R, Radwan E, Al-Katheeri H, Rasmeh Al Huneiti. National clinical guidelines: the diagnosis and management of asthma in adults. *Qatar Med J*. 2022;2.
58. PSA, Annual Statistical Bulletin, First Section: Population and Social Statistics, Chapter II: Labour Force, Table 19: Economically Active Population (15 Years and Above) by Nationality, Gender and Educational Status 2019, Sheet 19, PSA, Doha, 2020.
59. PSA, Annual Statistical Bulletin, First Section: Population and Social Statistics, Chapter II: Labour Force, Table 17: Economically Active Population (15 Years and Above) by Nationality, Gender and Occupation 2019, Sheet 17, PSA, Doha, 2020.
60. PSA, Annual Statistical Bulletin, First Section: Population and Social Statistics, Chapter I: Population, Population by Type of Household, Gender and Place of Residence at the Census Night, April 2015, Sheet 8, PSA, Doha, 2020.
61. Salma BSHFAR, Khaled M. The effects of citizenship status on service utilization and general satisfaction with healthcare: a cross-cultural study. *Int J Qual Health Care*. 2017;29(1):47–54.
62. Abdal Kareem LAAGMWJA. Patient satisfaction in government health facilities in the state of Qatar. *J Community Health*. 1996;21(5):349–58.
63. V. D. M. N. A. I. T. MA M. M. A. A. Z. Y. A.-S., Alan S, Weber. Patient opinion of the doctor-patient relationship in a public hospital in Qatar, *Saudi Medical Journal*, vol. 32, no. 3, pp. 293–299, 2011.
64. WHO. *Strengthening Health Systems to improve Health outcomes*. Geneva: WHO's Framework for Action, WHO; 2007.
65. I. EM, Peter PSL, Smith C. *Performance Measurement for Health System Improvement, experiences, challenges and prospects*. Cambridge: Cambridge University Press; 2010.
66. Hussin AH, Ali FMH. Examining Equal Access to Healthcare among nationals and expatriates: evidence from Qatar's World Health Survey. *Social Sci Res Netw Electron J*. 2010.
67. Liu L, Gjbrea O, Ali FMH, Atun R. Determinants of healthcare utilisation by migrant workers in the state of Qatar. *Health Policy*. 2019.
68. Jiasheng Zhang WCNPRMW. The Expectancy-Disconfirmation Model and Citizen Satisfaction with Public services: a Meta-analysis and an agenda for best practice. *Public Administration Reviews*. 2021;82(1):147–59.
69. SN EOCC, Bleich. How does satisfaction with the health-care system relate to patient experience? *Bulletin of the World Health Organization*, pp. 2009(87):106–121, 2009.
70. WHO. *World Health Survey Qatar*, WHO, Geneva, 2006.
71. Kien SPAD, Le T. Labor Camp Surveys in GCC: group quarter Subsampling. *Field Methods*. 2018;31(1):76–91.
72. Qatar, University. *Health Utilization and Expenditure Survey Final Field Report*, unpublished, Doha, 2012.
73. Qatar, University. *Health Utilization and Expenditure Survey: Field Operations and Methodology Report*, unpublished, Doha, 2014.
74. Kotzian P. Determinants of satisfaction with Health Care System. *Open Political Sci J*. 2009;2(1):47–58.
75. Malhotra C, Kyung Do Y. Public health expenditure and health system responsiveness for low-income individuals: results from 63 countries. *Health Policy Plann*. 32(3):314–9.
76. SCH, *Health Expenditure and Utilisation Survey 2012: Roster Questionnaire*, SCH, Doha, 2012.

77. SCH, Health Expenditure and Utilisation Survey 2014: Roster Questionnaire, Unpublished, 2014.
78. The Peninsula, Over 37,000 Qataris treated under insurance plan, The Peninsula, 15 June 2014. [Online]. Available: <https://thepeninsulaqatar.com/article/15/06/2014/over-37-000-qataris-treated-under-insurance-plan>. [Accessed 2024].
79. Judge MSK. Public Opinion and the National Health Service: patterns and perspectives in consumer satisfaction. *J Social Policy*. pp. 1993;22(3):299–327.
80. Andersen R. Revisiting the behavioral model and access to medical care: does it matter? *J Health Social Behav*. pp. 1995;36(1):1–10.
81. The World Bank. Unemployment, total (% of total labour force) (modeled ILO estimate), 2023. [Online]. Available: https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS?most_recent_value_desc=false. [Accessed 6 December 2023].
82. ILO, What are occupational classifications for? ILO, 2023. [Online]. Available: <https://www.ilo.org/public/english/bureau/stat/isco/docs/intro3.htm>. [Accessed 6 December 2023].
83. Dobreva DPR. Your Health at Present: Are Patterns of Reporting Heterogeneity in Self-rated Health Gendered? *Applied Research Quality Life*, p. 2023(18): 2197–2226, 2023.
84. Hendrik J. True Health vs. Response Styles: Exploring Crosscountry Differences in Self-reported Health, *DIW Discussion Papers, No. 588, Deutsches Institut für*, 2006.
85. Joycelyn Cudjoe SDMCH-RH. Empirically tested health literacy frameworks. *Health Lit Res Pract*. 2020;4(1):e22–e.
86. Jaeger M. What makes people support public responsibility for Welfare Provision: self-interest or political ideology? *Acta Sociol*. 2006;49(3):321–38.
87. Britannica. Qatar, [Online]. Available: <https://www.britannica.com/place/Qatar>. [Accessed January 2024].
88. PSA, About Qatar, [Online]. Available: <https://gis.psa.gov.qa/qataratlas/about-qatar>. [Accessed January 2024].
89. SCH, SCH Annual Report 2012, SCH, Doha, 2013.

Publisher's note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.