



The profile of patients receiving public and private surgical services in Greece during the economic crisis: a comparative study

Dimitrios Schizas¹, Adamantios Michalinos¹, Prodromos Kanavidis¹, Georgios Karaolanis¹, Irene Lidoriki¹, Athanasios D. Sioulas², Dimitrios Moris¹

¹The First Department of Surgery, Laikon General Hospital, National and Kapodistrian University of Athens, Athens, Greece; ²Department of Gastroenterology, Hygeia Hospital, Athens, Greece

Contributions: (I) Conception and design: D Schizas, A Michalinos, P Kanavidis; (II) Administrative support: D Schizas, D Moris; (III) Provision of study materials or patients: D Schizas, I Lidoriki; (IV) Collection and assembly of data: D Schizas, AD Sioulas; (V) Data analysis and interpretation: D Schizas, A Michalinos, P Kanavidis; (VI) Manuscript writing: All authors; (VII) Final approval of manuscript: All authors.

Correspondence to: Dr. Adamantios Michalinos, MD, PhD. The First Department of Surgery, National and Kapodistrian University of Athens, Ag. Thoma 17 str., Goudi, Athens 15771, Greece. Email: amichalinos@hotmail.com.

Background: International experience has shown that deterioration of healthcare services is a common consequence of socio-economic crises. Exact mechanism of this deterioration varies with respect to particularities of each healthcare system, government and administrative policies and local epidemiological conditions. The aim of the present study was to evaluate the effect of Greek economic crisis on the profile and the satisfaction rates of patients seeking surgical services in public and private hospitals.

Methods: A questionnaire-based survey concerning healthcare quality and patients' satisfaction was conducted at a private and a public (university) hospital. Patient demographics alongside with patient satisfaction before and after treatment were quantified and compared.

Results: Significant differences between private and public sector patients were found concerning nationality, socio-economic status and medical conditions. Private sector patients are younger, of a higher socio-economic status and admitted for elective rather than urgent medical conditions. Patient expectations before treatment are lower for public sector concerning a variety of markers but patient satisfaction is similar.

Conclusions: Even in the years of financial crisis, Greek patients seem to be satisfied by the quality of the healthcare services in both public and private hospitals. Despite the limitations of our study regarding the selection of the population, we believe that the findings might generate more meticulous research on the field hoping that juxtaposed discussions will sensitize policy makers.

Keywords: Healthcare; public; private; Greece; financial crisis; surgery

Submitted Jun 05, 2018. Accepted for publication Nov 09, 2018.

doi: 10.21037/atm.2018.12.07

View this article at: <http://dx.doi.org/10.21037/atm.2018.12.07>

Introduction

From 2009 to date, Greece is still suffering a financial crisis of enormous magnitude. Reductions in public expenditure affect all parts of social life; Greek National Health System (GNHS) could not be excluded from these measures [reduction from 10% to 6% of annual gross domestic product (GDP)] (1). Long-identified problems of GNHS

appear now augmented due to the current economic situation (2). Social phenomena that intensify during recession periods such as unemployment, involuntary job-loss and job insecurity may have a negative impact on health (3). Specific sequelae are difficulties in accessing healthcare services, delays in treatment and abandonment of pre-symptomatic check-ups.

Recent literature has shown that the number of the patients seeking medical help during the crisis has increased while their profile and reason for attendance has shifted (4). The effects on public and private Healthcare sectors should be different due to the different funding resources and probably due to different socio-economic populations they might serve.

The aim of this report is to investigate the different profiles of patients seeking help in both public and private hospitals.

Methods

For the purposes of this study, a questionnaire-based survey was conducted at patients submitted at Departments of Surgery, Attikon University Hospital and Euroclinic in Athens, Greece (*Figure 1*). Attikon University Hospital is a tertiary public hospital, funded from public budget alongside with per-purpose research funds and minimum private funding in form of scholarships. Euroclinic is a large tertiary private hospital, funded from private insurances and only minimal participation of public insurance. We chose these hospitals because they are comparable in terms of surgical wards size, residing surgical specialties and provided healthcare services. They also serve distant but similar populations in terms of numbers, socio-economic status and healthcare needs. The areas covered by both hospitals are the Municipality of Attika, Central Greece (around 3 million of population) and the majority of the regions of Central Greece (another 1.5 million of population). Considering their level of expertise, both hospitals accept referrals for complex cases from other, mainly rural, hospitals.

The questionnaire consists of three parts: part A (demographics), part B (patient perspective before treatment) and part C (patient satisfaction after treatment). Patients were asked to complete parts A and B within 6 hours of their admission and before the operation, so that their answers would not be biased by treatment quality or final outcome. Part C was completed after the operation, preferably on the last day of their hospitalization. Part A consisted of qualitative data while parts B and C from quantitative data in the form of a 5-point Likert scale (5). One (1) stood for “very bad”, 2 for “bad”, 3 for “moderate”, 4 for “good” and 5 for “very good”. Emergency (but not urgent) cases were excluded as they were considered unable to complete parts A and B. A brief conversation and explanation on purposes and methodology of the study was

available for the patients alongside with a communication line. Only adult patients speaking the Greek language fluently were enrolled so to ensure good understanding of the questionnaire. Questionnaires were considered valid only when fully completed and when the formal informed consent was given by each patient.

Continuous variables were analyzed with independent samples Student's *t*-test, for normally distributed variables, or Welch *t*-test otherwise (Kolmogorov-Smirnov test of normality was used). For categorical variables Pearson's Chi-square test was used, with Yates' continuity correction when appropriate, whereas for ordinal variables we used Wilcoxon rank sum test. Level of statistical significance was set at 5%.

Results

In total, 200 questionnaires were distributed at the public hospital (group A) and 150 at private hospital (group B) during a 3-month period. One hundred and seventy-three questionnaires were collected from group A and 125 from group B, achieving a completion rate of 86.5% and 83.3%, respectively.

General findings

Patients admitted at private hospital were younger, of higher educational level and earned higher monthly income. More specifically, more than 50% of them were at least of 2nd level education and earned more than 1,000 euros (€) per month (in Greece the basic guaranteed income is 586 € for 2015–2016). Almost 40% of private hospital patients were employed in private sector. On the contrary, only 11.5% of public hospital patients were employed in private sector. Almost 60% of patients treated at private hospitals had mixed health insurance (both public and private) insurance in contrast to 2.3% of patients treated at public hospital ($P < 0.05$).

Significant clinical differences were also found between two groups. Patients admitted at public hospital were more likely to be subjected to complex or very complex operations (35.2% *vs.* 28.8%, $P < 0.05$ and 42.7% *vs.* 35.8%, $P < 0.05$) respectively with longer hospitalization (> 6 days; $P < 0.05$). This could be partially attributed to urgent character of many admissions at public hospital (50.9 *vs.* 22.4; $P < 0.05$).

Pre-admission evaluation (patient expectation)

Concerning patient expectations, patients appear pessimistic

Questionnaire

Comparative survey between public and private healthcare service in Greece

Part A: Demographics

Sex	<ul style="list-style-type: none"> • Male • Female 	Income	<ul style="list-style-type: none"> • 0-1000 • 1001-2000 • 2001-3000 • >3001
Age		Insurance type	<ul style="list-style-type: none"> • Public • Private
Nationality	<ul style="list-style-type: none"> • Greek • Other 	Operation	<ul style="list-style-type: none"> • Conservative • Simple • Complicated • Very complicated
Family status	<ul style="list-style-type: none"> • Non married • Married without children • Married with children • Divorced 	Hospitalization days	<ul style="list-style-type: none"> • 1-3 • 4-6 • >6
Education	<ul style="list-style-type: none"> • Basic • College • University • Post University 		

Part B (to be completed before operation)

How would you characterize healthcare services in Greece?

1. Very bad 2. Bad 3. Tolerable 4. Good 5. Very good

How would you characterize public healthcare services in Greece?

1. Very bad 2. Bad 3. Tolerable 4. Good 5. Very good

How would you characterize private healthcare services in Greece?

1. Very bad 2. Bad 3. Tolerable 4. Good 5. Very good

You entered the hospital

- Urgently
- Electively

At what point did the below criteria affected hospital selection?

	Not at all	A little	Somehow	A lot	Determinative
Hospital reputation					
Doctor reputation					
Nursing service					
Expected cost					

Part C (to be completed after the operation)

Are you satisfied from	Not at all	A little	Somehow	A lot	Determinative
Treatment quality (general)					
Medical service					
Nursing service					

Figure 1 Study questionnaire.

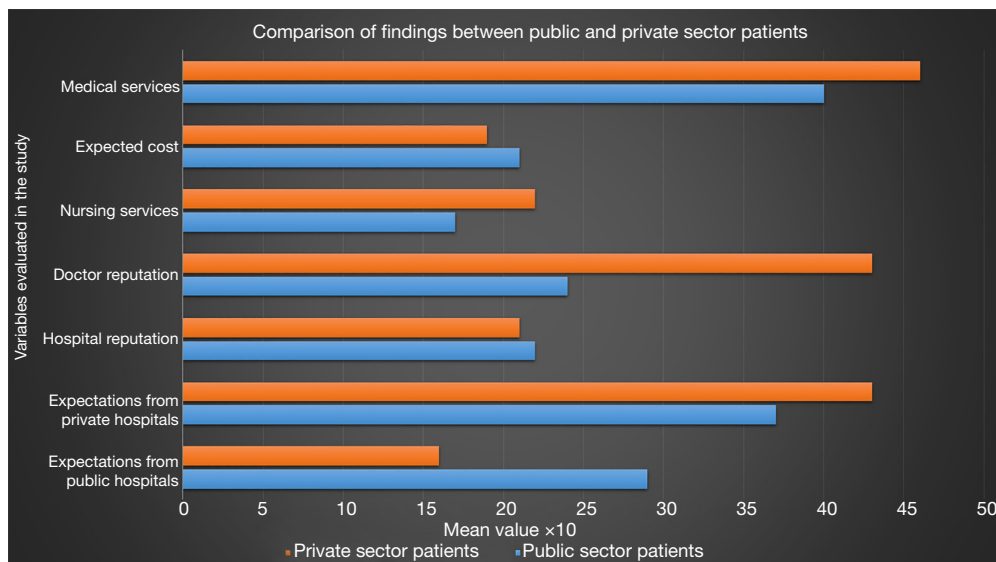


Figure 2 Comparison of the variables evaluated between public and private sector patients.

about healthcare status in Greece. General healthcare system rating was moderate and lower for private sector patients (2.7 *vs.* 2.3, $P < 0.05$). Public healthcare system expectations were lower for private sector patients (2.9 *vs.* 1.6, $P < 0.05$). Instead expectations for private healthcare system were higher for private sector hospital patients (3.7 *vs.* 4.3, $P < 0.05$). Selection criteria for the admission of patients were driven mainly by hospital reputation for public sector patients (2.2 *vs.* 2.1, *N/S*) and doctor reputation for private sector patients (2.4 *vs.* 4.3, $P < 0.05$). Nursing services did not seem to be a crucial selection factor for neither of groups, as neither did cost (*Figure 2*). The latter, however, might be biased as public hospital patients were usually unanimously covered by public insurance while private hospital patients were covered by private insurance before admission.

Post-hospitalization evaluation (patient satisfaction)

Interestingly, patient rating at discharge was significantly improved compared with their expectations. Public hospital achieved high general, doctor-specific and nursing-specific services satisfaction (4.0, 4.4 and 4.3 respectively), significantly higher than preoperative expectations. Private hospital patients also achieved high satisfaction rates (4.6, 4.6 and 4.6), similar to their preoperative expectations. Only satisfaction from nursing services was significantly improved (*Figure 2*).

Table 1 summarizes the findings of the study.

Discussion

Consequences of austerity affect virtually all socio-economic and health quality markers, leading to higher disease-related morbidity, less utilization of health services and deterioration of population general health status (6). “Rationalization” of facilities and human resources resulted in administrative closing down of primary healthcare units and directs the patient burden to larger hospital units, usually unprepared to deal with the augmented burden (7).

Falloff of primary healthcare units undermines the effectiveness of healthcare policies due to the suboptimal application of out-of-hospital treatment as well as diminished educational and prevention policies and research (8). At the same time, population does not seek healthcare examination or treatment, even if necessary, because of the cost, waiting time and travel distance (9).

Apart from general sequelae, economic crisis affects each medical specialty in different ways. A number of studies in Greece and Spain has shown that deterioration of socio-economic markers is correlated with a higher incidence of cardiovascular disease and its associated risk factors (10), deterioration in mental health and suicide increase (11), deterioration in perinatal and reproductive health (12) and increase in infectious and sexually transmitted diseases (13,14). An increase in over-the-counter drug usage without medical consultation has been reported with unknown results on treatment efficacy of common diseases (15). Interestingly, effects on surgical

Table 1 Summary of study results

Variable	Category	Public sector patients	Private sector patients	Statistical significance (P)
Sex (%)	Male	57.8	53.6	N/S
	Female	42.2	46.4	N/S
Mean age (year)		65.2	57.4	<0.05
Nationality (%)	Greek	93.6	97.6	N/S
	Other	6.4	2.4	N/S
Family status (%)	Non-married	15	20	N/S
	Married without children	2.3	8.8	<0.05
	Married with children	61.8	66.4	N/S
	Divorced	20.8	4.8	<0.05
Education level (%)	Basic (1 st level)	60.7	18.4	<0.05
	High school (2 nd level)	20.2	25.6	<0.05
	University (3 rd level)	18.5	48.8	<0.05
	Post university	0.6	7.2	<0.05
Occupation status (%)	Unemployed	33.3	10.4	<0.05
	Retired	54.3	45.6	<0.05
	Public sector	1.7	4	<0.05
	Private sector	11.5	40	<0.05
Monthly income (%)	0–1,000 €	61.3	19.2	<0.05
	1,001–2,000 €	28.3	39.2	<0.05
	2,001–3,000 €	6.9	12.8	<0.05
	>3,001 €	3.5	15.2	<0.05
Insurance type (%)	Public	97.7	88.8	<0.05
	Private [†]	2.3	59.2	<0.05
Operation (%)	Conservative	12.7	9.6	<0.05
	Simple	9.3	24.8	<0.05
	Complicated	35.2	28.8	<0.05
	Very complicated	42.7	35.8	<0.05
Hospitalization days (%)	1–3 days	13.9	67.2	<0.05
	4–6 days	16.2	20	<0.05
	>6 days	69.9	12.8	<0.05
Admission (%)	Urgent	50.9	22.4	<0.05
	Elective	49.1	77.6	<0.05
Expectations from healthcare services	General healthcare system	2.7	2.3	<0.05
	Public hospital	2.9	1.6	<0.05
	Private hospital	3.7	4.3	<0.05
Selection criteria	Hospital reputation	2.2	2.1	N/S
	Doctor reputation	2.4	4.3	<0.05
	Nursing services	1.7	2.2	<0.05
	Expected cost	2.1	1.9	<0.05
Post-treatment evaluation	General	4.0	4.6	<0.05
	Medical services	4.4	4.6	<0.05
	Nursing services	4.3	4.6	<0.05

[†], public insurance is obligatory in Greece. N/S, not statistically significant.

diseases are far less investigated. Economic crisis might influence the choice of surgical technique, towards less costly protocols (16).

Current literature reveals a significant patient migration from private to public healthcare units, as shown by a rise of 24% of the number of admissions at public hospitals in 2009–2010 and contemporary decrease of admissions at private hospitals by 25–30%. This trend continues as public hospitals admission rates also raised in 2011 by 8% (17,18). Moreover, an increasing number of patients seek medical consultation and treatment from street clinics, previously providing essential healthcare services to undocumented migrants (19), with a growing number of uninsured immigrants treated at the GNHS.

The findings of the present study support the emerging body of data reported by previous studies where significant differences between populations served by public or private healthcare sector. Patients choosing private sector are usually younger, more educated and belong to more productive socio-economic groups. They have higher expectations from healthcare system and stricter hospital selection criteria. On the other hand, public sector patients, while having less expectation for the quality of the healthcare service they will be offered, they seem satisfied from the quality of serviced at GNHS. Patient satisfaction is an important quality marker useful for system evaluation and further planning (20).

Dynamics of the crisis and response of healthcare system dictates measures to be taken. Two important weapons in healthcare system armamentarium are the improvements on regulation of managerial and financial systems with Greece already playing a leading role in Europe (21). Furthermore persistence on individual tries and adaption of its employees to the new data is a mechanism that blunts negative sequelae, as shown by data from Greek education system (22). Negative sequelae of underfunding and austerity are ultimately unavoidable yet persistence on the aforementioned merits can act as a short- or mid-term solution. We believe that our findings can trigger more meticulous research on the field hoping that juxtaposed discussions will sensitize policy makers.

Conclusions

Even in the years of financial crisis, Greek patients seem to be satisfied by the quality of the healthcare services in both public and private hospitals. Drawing evidence from Greece, a country with huge fiscal problems that has

suffered the consequences of the economic crisis more than any other, could be a starting point for policymakers to consider the perspective of redesigning the healthcare map due to the shift in the profile and the needs of patients seeking for healthcare services during the era of financial crisis in Greece.

Acknowledgements

None.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Ethical Statement: No ethical approval was necessary for this study, according to local legislation. Written informed consent was obtained from the patient for publication of this manuscript and any accompanying images.

References

1. Moris D, Zavos G, Menoudakou G, et al. Organ donation during the financial crisis in Greece. *Lancet* 2016;387:1511-2.
2. Economou C. Greece: Health system review. *Health Syst Transit* 2010;12:1-177, xv-xvi.
3. Verropoulou G, Tsimbos C. Mortality by Cause of Death Among Immigrants and Natives in a South European Country: The Case of Greece, 2011. *J Immigr Minor Health* 2016;18:337-44.
4. Kontos M, Moris D, Davakis S, et al. The effect of financial crisis on the profile of the patients examined at the surgical emergencies of an academic institution in Greece. *Ann Transl Med* 2017;5:99.
5. Sullivan GM, Artino AR Jr. Analyzing and interpreting data from likert-type scales. *J Grad Med Educ* 2013;5:541-2.
6. Zavras D, Tsiantou V, Pavi E, et al. Impact of economic crisis and other demographic and socio-economic factors on self-rated health in Greece. *Eur J Public Health* 2013;23:206-10.
7. Falagas ME, Bardakas V, Mavros MN. Biomedical research productivity in Greece: effect of the financial crisis. *Int J Epidemiol* 2012;41:1206-7.
8. Tatsioni A, Lionis C. Responding to financial and economic crisis: what methodology and interventions we

- need in family practice research. *Fam Pract* 2016;33:1-3.
9. Vandoros S, Hessel P, Leone T, et al. Have health trends worsened in Greece as a result of the financial crisis? A quasi-experimental approach. *Eur J Public Health* 2013;23:727-31.
 10. Kollia N, Panagiotakos DB, Georgousopoulou E, et al. Exploring the association between low socioeconomic status and cardiovascular disease risk in healthy Greeks, in the years of financial crisis (2002-2012): The ATTICA study. *Int J Cardiol* 2016;223:758-63.
 11. Rachiotis G, Stuckler D, McKee M, et al. What has happened to suicides during the Greek economic crisis? Findings from an ecological study of suicides and their determinants (2003-2012). *BMJ Open* 2015;5:e007295.
 12. Juarez S, Revuelta-Eugercios BA, Ramiro-Farinas D, et al. Maternal education and perinatal outcomes among Spanish women residing in southern Spain (2001-2011). *Matern Child Health J* 2014;18:1814-22.
 13. Bonovas S, Nikolopoulos G. High-burden epidemics in Greece in the era of economic crisis. Early signs of a public health tragedy. *J Prev Med Hyg* 2012;53:169-71.
 14. Paraskevis D, Nikolopoulos G, Fotiou A, et al. Economic recession and emergence of an HIV-1 outbreak among drug injectors in Athens metropolitan area: a longitudinal study. *PLoS One* 2013;8:e78941.
 15. Kontogiorgis C, Nena E, Berberoglou E, et al. Estimating Consumers' Knowledge and Attitudes Towards Over-The-Counter Analgesic Medication in Greece in the Years of Financial Crisis: The Case of Paracetamol. *Pain Ther* 2016;5:19-28.
 16. Arkadopoulou N, Gemenetzis G, Danias N, et al. Cost-Effective Surgical Management of Liver Disease Amidst a Financial Crisis. *World J Surg* 2016;40:1695-701.
 17. Kentikelenis A, Karanikolos M, Papanicolas I, et al. Health effects of financial crisis: omens of a Greek tragedy. *Lancet* 2011;378:1457-8.
 18. Liaropoulos L. Greek economic crisis: not a tragedy for health. *BMJ* 2012;345:e7988.
 19. Kentikelenis A, Papanicolas I. Economic crisis, austerity and the Greek public health system. *Eur J Public Health* 2012;22:4-5.
 20. Chow A, Mayer EK, Darzi AW, et al. Patient-reported outcome measures: the importance of patient satisfaction in surgery. *Surgery* 2009;146:435-43.
 21. Vogler S, Zimmermann N, de Joncheere K. Policy interventions related to medicines: Survey of measures taken in European countries during 2010-2015. *Health Policy* 2016;120:1363-77.
 22. Kontos M, Moris D, Zografos N, et al. The Greek financial crisis: maintaining medical education against the odds. *Postgrad Med J* 2015;91:609-11.

Cite this article as: Schizas D, Michalinos A, Kanavidis P, Karaolani G, Lidoriki I, Sioulas AD, Moris D. The profile of patients receiving public and private surgical services in Greece during the economic crisis: a comparative study. *Ann Transl Med* 2019;7(1):5. doi: 10.21037/atm.2018.12.07