Original Research

Dissatisfaction with Cardiovascular Health and Primary Health Care Services: Southern Mani, Isolated Area in Europe. A Case Study

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Introduction: Access to local providers of primary health care (PHC) services and their utilisation is a challenge faced by the authorities of developed as well as developing countries. The aim of our study was to assess and evaluate the level of satisfaction with the currently provided cardiovascular and PHC services in the southernmost region of continental Greece (and of the European Union), Southern Mani.

Methods: The sample (422 individuals, 375 of whom finally participated: 187 men and 188 women, response ratio: 88.86%), was selected between January-December 2006, using stratified randomisation by sex and age. Participants were asked to fill in a validated questionnaire containing socio-demographic data and items about the health needs/level of satisfaction with cardiovascular health and PHC services, as well as two indices for cardiovascular health: i) frequency of international normalised ratio (INR) measurement in case of atrial fibrillation, and ii) history of timely thrombolysis in case of acute myocardial infarction.

Results: The majority of the responders stated that their level of satisfaction with PHC services was "low" or "very low" (total: 52.80%), while the percentage of dissatisfaction with cardiovascular health services was 56.0%. In addition, most of the participants expressed a strong wish for improvement of PHC services (71.33%). The level of satisfaction with PHC services was higher than with cardiovascular health services (2.49 ± 1.26 vs. 2.38 ± 1.24; $p<0.001$). Satisfaction scores for both cardiovascular health and PHC services were negatively associated with the distance from the nearest PHC Unit. Only 11.1% of patients (95% CI: 0.3%-48.2%) reported annual testing of prothrombin time more than once, while among those with a history of acute myocardial infarction, none reported timely thrombolysis (0%, one-sided 97.5% CI: 0%-41,0%).

Conclusion: It is evident that a large portion of the Southern Mani population perceives the provided cardiovascular health and PHC services as problematic, while the distance from the nearest PHC unit seems to be one of the most important factors and predictors of dissatisfaction. The provision of efficient PHC services in isolated areas is a matter that should be re-evaluated.

Although medicine is continuously advancing in terms of new discoveries and implementation of new treatments that significantly improve both quality of life and survival rates, it seems that the progress reaches only a small proportion of the world population.[1,2] The access to local providers of health services

and their consequent utilisation is a challenge faced by the authorities of developed as well as developing countries.

There is an already recognised discrepancy regarding the definition of "access" to health services and accessibility-related issues.[3,4] Generally speaking, adequate access to health services exists when patients can use the proper health service at the right time and in the right place.[4] Access to health services is a multidimensional concept which is based on the following: availability, utilisation, effectiveness and social equality.[3,4]

A variety of factors may modify the patients' access to healthcare services, such as temporal, geographic, financial, socio-economic, educational, linguistic, cultural, and technological parameters. In addition, the low status or non-existence of an adequate primary health care (PHC) network might even exert an inhibitory effect upon health-seeking behaviours in rural and remote communities.[5,6]

Having a unique topography that consists of many mountainous areas and hundreds of small islands, Greece faces a challenge regarding the provision of primary, and especially cardiovascular health services in isolated communities. Being the southernmost region of continental Greece (and of the European Union), Southern Mani was chosen as a typical index of an isolated rural area (Figure 1).

Southern Mani has a poor road network and lacks any other kind of transportation. In addition, it possesses only a rudimentary PHC system. More specifically, there is only one local medical practice, with one junior doctor who has recently graduated from medical school. According to the Greek legislation, medical practices in isolated areas are staffed by junior doctors who serve their mandatory rural medical service for one year. The next nearest PHC unit is a rural health centre staffed with general practitioners (GPs), nurses and administrative personnel, which is located between 20 km and 70 km from villages in the Southern Mani region (Figure 2). In view of the poor roads this distance might take one hour by car.

In this rather "hostile" rural setting, the present study aimed to evaluate the health needs of the Southern Mani population and its satisfaction with PHC services in general and cardiovascular health services in particular.

Material and methods

This was a cross-sectional study carried out between January and December 2006. The sample was selected

Figure 1. Map of Europe showing Southern Mani, the extreme south-eastern region of continental Europe.

Figure 2. The Southern Mani region.

using stratified randomisation by sex and age, following the distribution of the local adult population (Table 1).[7] Four hundred and twenty-two individuals were asked to participate in the study and 375 finally participated (187 men, 188 women; response ratio: 88.86%).

The research team invited the participants to fill in a validated questionnaire containing socio-demographic data, and items related to their health needs and level of satisfaction with cardiovascular and PHC services, as well as two indices of cardiovascular health: i) in case the subjects reported atrial fibrillation treated with oral anticoagulants, whether the prothrombin time (international normalised ratio: INR), was measured at least on an annual basis; and ii) in case the subjects reported a history of acute myocardial infarction, whether timely thrombolysis was performed.

The questionnaire was interviewer-administered at the participants' place of residence; the exact location of the residence was noted, along with the distance from Aeropoli, the nearest town with a PHC Unit (Figure 2).

Table 1. Southern Mani population distribution by age.

Age range (yrs)	Men	Women	Total	%
0-14	271	248	519	12.40%
15-39	699	489	1188	28.37%
40-64	685	569	1254	29.95%
65+	610	616	1226	29.28%
Total	2265	1922	4187	100.00%

The degree of satisfaction and desire for improvement had been predefined on a Likert scale, ranging between "very low" and "very high". The pilot testing and validation of the questionnaire was performed in a sample of 42 PHC users (10% of the study sample) at the Health Centre of Vyronas, Athens, prior to the study.

All categorical variables are presented as absolute and relative frequencies. The Likert scale was treated as an ordinal variable (score 1-5: 1 "very low", 2 "low", 3 "moderate", 4 "high", 5 "very high"), and its associations with socio-demographic parameters and the distance from the nearest PHC Unit were examined. Accordingly, the level of education was treated as an ordinal variable. The statistical test used in each case is given in the text below. The analysis was performed with Stata™ 9.0 statistical software (Stata Corporation, 4905 Lakeway Drive, College Station, TX 77845, USA).

Results

Table 2 presents the descriptive statistics of socio-demographic variables, as well as of the health needs-related parameters.

Most of the responders stated that their level of satisfaction with PHC services was "low" or "very low" (total: 52.80%). Similarly, the respective percentage of dissatisfaction with cardiovascular health services was 56.0%. In addition, the majority of the participants ex-

Table 2. Demographic characteristics and health services estimates.

Variable		Mean ± SD
Age (years):		53.6 ± 14.6
		N (%)
Sex:	Men	187 (49.87%)
	Women	188 (50.13%)
Educational status:	Illiterate	49 (13.07%)
	Primary level	170 (45.33%)
	Secondary level	123 (32.80%)
	Tertiary level or above	33 (8.80%)
Marital status:	Single	71 (18.93%)
	Married	209 (55.73%)
	Widowed/divorced	95 (25.33%)
Level of satisfaction with cardiovascular health services:		
Likert scale	Very high	21 (5.60%)
	High	58 (15.47%)
	Moderate	86 (22.93%)
	Low	86 (22.93%)
	Very low	124 (33.07%)
Level of satisfaction with primary healthcare services:		
Likert scale	Very high	27 (7.20%)
	High	61 (16.27%)
	Moderate	89 (23.73%)
	Low	88 (23.47%)
	Very low	110 (29.33%)
Desire for improvement of health services		
Likert scale	Very high	210 (56.00%)
	High	80 (21.33%)
	Moderate	43 (11.47%)
	Low	28 (7.47%)
	Very low	14 (3.73%)
	Total	375 (100.00%)

pressed a strong wish for improvement of the health services (71.33%). The level of satisfaction with PHC services was higher than for cardiovascular health services (2.49 ± 1.26 vs. 2.38 ± 1.24, $p<0.001$; Wilcoxon signed-rank test for paired observations). The level of education was negatively associated with both levels of satisfaction (Spearman's rho=-0.190, $p<0.001$, for cardiovascular health services; -0.202, $p<0.001$, for PHC services). Both satisfaction scores were negatively associated with the distance from the nearest PHC Unit (Spearman's rho=-0.711, $p<0.001$, for cardiovascular health services; -0.781, $p<0.001$ for PHC services). No significant associations were observed regarding gender or marital status.

Nine subjects reported atrial fibrillation treated with oral anticoagulants, but only one of them (11.1%, 95% CI: 0.3%-48.2%) reported annual testing of prothrombin time more than once. Among the seven local inhabitants reporting a history of acute myocardial infarction, none reported timely thrombolysis (0%, one-sided 97.5% CI: 0%-41.0%).

Discussion

In Greece, patients' dissatisfaction with health services has become the subject of a variety of studies focusing mainly on Greek hospitals.[8,9] Although acute cardiovascular events seem a hot topic in Greece,[10] the satisfaction with PHC and cardiovascular health services is a far less studied domain.

Based on the results of the present study, it is evident that a large portion of the local population per-

ceives the available health services as problematic and inadequate. Regarding both PHC and cardiovascular health services, a marked level of dissatisfaction was observed; the dissatisfaction was noticeably more profound regarding cardiovascular health services. This observation may integrate a host of factors. Cardiovascular events may seem awesome in the eyes of the local population, and thus more intense disapproval of the existing infrastructure vis-à-vis the cardiovascular health network may be expected. On the other hand, the existing, though rudimentary, medical practice may slightly attenuate the disapproval with respect to PHC services.

It would not be presumptuous to maintain that the inhabitants' disapproval is in line with the conditions prevailing in the examined region. Concerning the two questions related to indices of cardiovascular health, both results were disappointing, as neither patients with acute events (i.e. acute myocardial infarction) nor those with chronic conditions (i.e. atrial fibrillation) seem to receive optimal care. Irregular prothrombin testing could have serious implications for health, especially in older people, as in our sample.[11,12] Despite the relatively small sample size reporting those conditions, which yields a wide confidence interval and does not permit an accurate point estimate, both percentages (prothrombin time measurement and timely thrombolysis) were unacceptably low.

With respect to the putative predictors of dissatisfaction, the distance from the nearest PHC Unit seems to play a major role. Individuals living in the more distant villages are less satisfied with both cardiovascular health and PHC services. As we stated at the start of this paper, the patient in Southern Mani may need to travel tens of kilometres in order to have access to health care services. Notably, it may be reasonable to expect that the observed dissatisfaction might have detrimental social consequences in the most distant areas. Rural depopulation and urbanisation have been commonplace in modern Greece since 1960; feelings of insecurity concerning health services may lead to further migration and isolation.[8]

In addition, a lower level of education was associated with higher satisfaction levels. This finding may not be surprising, as the less educated individuals may accept the defective infrastructure more easily. In contrast, the more educated inhabitants of the region seem to be more demanding and more ready to disapprove of the existing conditions.

Apart from the rudimentary network *per se*, a significant contributing factor may be the lack of GPs in the country. It should be noted that, at present, GPs are the only medical specialists in Greece who have a secure career. This is due to the fact that they are appointed, immediately after accreditation as a specialist, to a tenured post in the Health Centres of the National Health System in rural Greece (where only approximately 1200 such posts out of 2700 are filled). Nevertheless, despite the career opportunities and the large need for GPs, most Greek medical students choose careers in other medical areas. Currently, the proportion of Greek medical students choosing GP as a specialty is as low as 3.1%.[13]

The phenomenon of the inadequacy or non-existence of PHC services is not just a Greek issue. International reports[14] show that there is a trend in developed countries towards abandonment of areas with low contribution to the national economy in favour of supporting more central and larger cities, where various facilities and services accumulate.

The citizens of a rural, remote area need to know that the health system will be able to help them in case of injury or sickness.[15] A rapid response to emergencies might work in urban areas, where there is a dense healthcare and emergency network consisting of hospitals, emergency rooms, private medical offices and, recently, urban PHC units,[16] but fails in isolated areas such as Southern Mani. Interestingly enough, the delay in seeking medical care has been described as a major predictor of acute coronary syndrome mortality in the Greek context;[17] therefore, our results seem of important clinical relevance. Indeed, the present findings are in line with the HELIOS study, which has pointed to the need for prompt reperfusion in Greece.[18] Internationally, the most common strategy implemented to confront such problems is the movement of national health systems or local authorities towards the employment of new doctors and nurses and the improvement or establishment of a PHC network.[3]

Importantly, apart from the demonstration and the description of the problem, the findings of the present study may also be helpful in the planning of the most appropriate PHC network for the future. Given that the level of dissatisfaction is closely associated with the distance from the nearest PHC Unit (see above), a correspondingly appropriate location would be required. For reasons of geography, population, and most importantly transportation, we believe that Gerolimenas village appears to be the most appropriate location for the establishment of a new PHC unit.

This study, as a cross-sectional one, has several limitations. Based on the current results, no causal relationships could be established. Our findings may

only be valuable for stating hypotheses that are valid for the Southern Mani area. The area may be representative of Greek rural and isolated areas, but does not represent the entire country.

Another limitation of this study was that history of thrombolysis and prothrombin testing was self-reported, a fact that might lead to bias. In addition, it should be stressed that the self-reported, subjective character of the Likert-scale responses monitored in this study may not necessarily reflect the adequacy and quality of the Greek National Health System. This should be kept in mind before any generalisation or extrapolation of the presented conclusions is made.

All in all, the documented level of dissatisfaction may seem fairly surprising, but might be attributed to the problematic health care infrastructure. Similar, comparative studies in other isolated areas of Greece and more generally in the European Union may be particularly interesting. Finally, it should be mentioned that the study was conducted before the deadly wildfires of August 2007. That national catastrophe made clear the need for organisational structural reforms in the Peloponnese, among which PHC may be the cornerstone. Hard though it may be, it seems that, despite the significant cost for the National Health System, the provision of PHC services in isolated areas is a matter that should be re-evaluated in order to prevent further depopulation in rural Greece and elsewhere.

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