

ORIGINAL PAPER  
ΕΡΕΥΝΗΤΙΚΗ ΕΡΓΑΣΙΑ

## Use of primary health care services in Southern Greece during a period of economic crisis

**OBJECTIVE** Data are limited regarding the frequency of use of primary health care (PHC) services in Greece and the reasons given for its use. The study aimed to investigate the most frequent reasons for seeking emergency help in PHC centers (PHCC) in rural areas of Greece and factors that may act as determinants of their use. **METHOD** A random sample of 5 PHCCs serving rural areas of Crete was selected. Data collection was performed retrospectively from the medical records for the years 2010 to 2013. The International Classification of Primary Care was used to classify presenting symptoms into broader disease categories based on the information available. The study was approved by the Ethics Committee of the Cretan Health Region. **RESULTS** Symptoms related to the respiratory system (21.3%) and the musculoskeletal system (17.6%) were the most frequent reasons for seeking for emergency health care. Other high frequency reasons were digestive symptoms and skin related symptoms. Significant differences were identified in the distribution of the main symptomatology and related diseases according to age and sex. Spatial and temporal variations were observed, particularly for occupational and road traffic accidents. The high increase observed between 2010 and 2013 in the numbers of people who visited PHCCs because of neuropsychiatric symptoms raises the issue of the impact of the economic crisis on mental health. **CONCLUSIONS** Deeper understanding of the epidemiological profile of users of primary healthcare facilities is recommended. There is an urgent need for the adaptation of the electronic health records to facilitate monitoring of use of services.

There is no longer any doubt that the cost-efficiency of health care services can be improved by shifting the emphasis towards primary health care (PHC). This view is emphasized by the World Health Organization (WHO) in its recent report entitled "Primary Health Care: Now more than ever".<sup>1</sup> The devastating effects of the financial crisis in countries such as Greece, which have been gravely affected over the last 5 years, raise major concerns about their impact on health and the provision of quality care.

A recent report by general practitioners (GPs) serving rural areas of southern Greece highlighted the impact of the financial crisis on both the quantity and quality of healthcare services and the threat to patient safety in the PHC setting.<sup>2</sup> The recommended transition to PHC in Greece appears to be an unfulfilled goal, taking into account that PHC services were fragmented and deprived of financial, human and training resources even before the economic crisis.

Recent epidemiological data indicate cardiovascular diseases followed by malignant and pulmonary diseases as the three main causes of disease, while ischemic heart disease and cerebrovascular disease are the two major causes of death in Greece.<sup>1</sup> In Greece, PHC centers (PHCC) constitute the first level of the PHC system with GPs having the leading role and providing the link between the primary and tertiary public national health care systems.<sup>3</sup> The most common reasons for visiting PHCCs, particularly in rural areas, and the patterns of utilisation of PHC services in Greece are not well documented, due mainly to the lack of an electronic recording system. A recent study conducted in four PHCCs in a district of central Greece listed diseases of the circulatory system followed by endocrine, metabolic, musculoskeletal and respiratory diseases as the most prevalent. The authors pointed out the necessity of developing an electronic health records system, which could provide

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Χρήση υπηρεσιών πρωτοβάθμιας φροντίδας υγείας στη νότια Ελλάδα σε μια περίοδο οικονομικής κρίσης

Περίληψη στο τέλος του άρθρου

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the basis for the implementation of effective intervention and prevention strategies and continuing education of the health care personnel.<sup>3</sup>

The absence of a uniform system of disease surveillance based on an electronic health records system and use of a common classification system in PHCC in Greece results in lack of scientific data on the most frequent reasons for seeking emergency care in the PHC setting in rural and semi-rural areas. Current evidence clearly highlights the need for addressing a variety of issues, including lack of integration, continuity of care and the use of an electronic health records system in the PHC setting in Greece, in preparation for the shift of the healthcare system to PHC.<sup>4</sup>

In this context and taking into consideration the sporadic nature of the data on user access and utilisation of PHCCs, the main purpose of this study was to investigate the most common reasons for emergency visits to PHCCs by rural inhabitants of Crete. A secondary objective was exploration of the role of demographic factors, including age, sex and ethnicity in the use of PHC services in these rural areas and identification of possible temporal or spatial variations in the most common reasons for PHCC visits. The findings will be used as the basis of suggestions for further research and dissemination of the research conclusions and implementation of the recommendations by policy- and decision-makers.

## MATERIAL AND METHOD

Crete is an island with 4 prefectures and 17 PHCCs (6 in the prefecture of Heraklion, 4 in Rethymnon, 4 in Lasithi and 3 in Chania) serving the wider rural and semi-rural areas. According to the 2011 census, the total population of the island is 623,065 (5.8% of the total population of Greece), of whom 305,490 (almost half of the total population) are residents of the Heraklion prefecture.<sup>5</sup> Only 7.6% of the total population of Crete are immigrants. For the purposes of this study, one PHCC was randomly selected from each prefecture, with the exception of Heraklion, from which 2 PHCCs were selected.

A retrospective analysis of the medical records of the randomly selected 5 PHCCs was performed for the period 2010–2013, retrieving data on subjects who visited the PHCC to seek medical care on an emergency basis. Specifically, the first 10 emergency visits to each PHCC on every first Wednesday of all months over the years 2010–2013 were included in the study. Because of the absence of electronic medical records, the research group reviewed all the archived handwritten medical records, excluding those of subjects below the age of 18 years and records that were unclear or incomplete. The research assistants completed a structured form for each medical record, covering demographic characteristics and the reason for the visit (symptomatology). Direct coding of

the symptoms was based on the second edition of the WHO International Classification of Diseases in Primary Care (ICPC-2), which was published in 1998 and is widely used in general practice and PHC.<sup>6</sup> The study was approved by the relevant Ethics Committees.

## Statistical analysis

Descriptive analysis was performed to calculate the differences between the variables. Cross tabulation  $\chi^2$  testing was performed to analyse the interrelationship and statistically significant differences between the categorical variables. Demographic and categorical variables are presented as percentages while prevalence was estimated taking into account the observations (incident recorded) over time and the sample total. Analyses were performed using the Statistical Package for the Social Sciences (SPSS), version 19.0.

## RESULTS

A total of 2,658 medical records of patients who visited the PHCCs during the period 2010–2013 were included. The demographic and other characteristics of the patients are presented in table 1. The two PHCCs in the prefecture of Heraklion provided almost half of the records (47.6%). The majority of the patients were Greek (95.6%) and more patients visited the PHCCs during 2013; (34.5%) half were men (51.0%) and half were aged above 60 years (50.8%).

The most frequent symptoms given as reasons for visiting the PHCC are presented in tables 2 and 3. The reasons given in a high percentage of the records were classified as general symptoms (21.2%), and the other most common symptoms included respiratory (21.3%), musculoskeletal (17.6%), digestive (13.5%) and dermatological symptoms (11.9%). A small percentage of the records referred to road traffic (2.4%) or occupational accidents (3.8%) and some users visited the PHCC for an emergency drug prescription (12.2%).

The most frequent reasons for using PHCC services varied according to demographic characteristics (tab. 4). Specifically, musculoskeletal and skin related symptoms were more commonly recorded as the reasons for a PHCC visit by men than women (19.6% vs 16.6% and 13.8% vs 12.8%, respectively;  $p < 0.05$ ). Age-related differences were detected and specifically users aged over 60 years visited the PHCC for symptoms related to the circulatory system more frequently than those in younger age groups ( $p < 0.001$ ), musculoskeletal symptoms and skin related symptoms were more common reasons for seeking medical help among the younger age groups ( $p < 0.001$ ), and respiratory symptoms were recorded in higher percentages for the age group 18–39 years ( $p < 0.05$ ). Greek users visited PHCCs more frequently because of digestive and circulatory symptoms than non-Greek users (23.2% vs 21.2% and 8.8% vs 2.5%,

**Table 1.** Main characteristics and distribution of emergency Primary Health Care Center (PHCC) visits in Crete 2010–2013 (n=2,658).

Data distribution	Visits	
	(n)	%
<i>PHCC</i>		
PHCC-Heraklion 1	635	23.9
PHCC-Heraklion 2	630	23.7
PHCC-Rethymnon	355	13.4
PHCC-Chania	695	26.1
PHCC-Lasithi	343	12.9
<i>Spatial distribution of PHCC records (prefecture)</i>		
Heraklion	1,265	47.6
Chania	355	13.4
Rethymnon	695	26.1
Lasithi	343	12.9
<i>Temporal distribution of PHCC records (year)</i>		
2010	589	22.2
2011	587	22.0
2012	565	21.3
2013	917	34.5
<i>Seasonal distribution of PHCC records</i>		
Autumn	653	24.6
Winter	665	25.0
Spring	676	25.4
Summer	664	25.0
<b>Patient characteristics</b>		
<i>Sex</i>		
Men	1,359	51.0
Women	1,299	49.0
<i>Age (years)</i>		
18–39	671	25.3
40–59	636	23.9
60–79	976	36.7
80–98	375	14.1
<i>Nationality</i>		
Greek	2,540	95.6
Non-Greek	118	4.4
<b>Reason for PHCC visit</b>		
<i>Accident</i>		
Road	66	2.4
Occupational	100	3.8
Other symptoms	2,492	93.8
<i>Prescription (urgent basis)</i>		
No	2,335	87.8
Yes	323	12.2

**Table 2.** Most common reasons-symptoms for emergency Primary Health Care Center (PHCC) visits in Crete 2010–2013 (n=2,658).

	Reasons	
	n	%
General	564	21.22
B. Blood, lymphatic system	1	0.04
D. Digestive	358	13.47
F. Eye	30	1.13
H. Ear	36	1.35
K. Circulatory	227	8.54
L. Musculoskeletal	468	17.61
N. Neurological	195	7.34
P. Psychological	57	2.14
R. Respiratory	567	21.33
S. Skin	316	11.89
T. Endocrine, metabolic and nutritional	47	1.77
U. Urology	143	5.38
W. Pregnancy, Fertility, Family Planning	9	0.34
X. Genital Female	4	0.15
Y. Genital Male	12	0.45
Z. Social problems	5	0.19

respectively;  $p < 0.01$ ). Road traffic or occupational accidents were the reason for seeking medical care in PHCCs more often by men (67% and 65%, respectively). Traffic accidents were more often recorded among younger users (18–39 years; 66.7%) and occupational accidents among older users (60–79 years; 35%).

The data revealed both spatial (prefecture) and temporal (year, season) variations. In particular, digestive and musculoskeletal symptoms were recorded in higher percentages in the prefectures of Heraklion and Lasithi compared to the other two ( $p < 0.05$ ), but the residents of the prefectures of Rethymnon and Chania were more frequent users of PHCCs because of skin and urology symptoms. Respiratory and skin related symptoms were the main reasons for visiting a PHCC during autumn, winter and spring months, with fewer recorded cases during the summer period (23.0% vs 23.4% vs 23.1% vs 15.7%;  $p < 0.001$ ). An increase in visits to PHCCs because of symptoms related to the digestive and musculoskeletal systems and neuropsychiatric problems was observed from 2010 to 2013 ( $p < 0.001$ ), but visits for circulatory symptoms declined in the period 2012–2013 compared to 2010–2011 ( $p < 0.05$ ). Finally, road traffic and occupational accidents were most frequently recorded in the prefectures of Heraklion and Rethymnon and an increase in recorded traffic accidents was observed during the summer periods.

**Table 3.** Primary Health Care Center (PHCC) visits in Crete 2010–2013 (n=2,658): Distribution of accidents and urgent prescription records by prefecture, season, year and sample characteristics.

	Traffic accident		Occupational accident		Emergency prescription	
	n	(%)	n	(%)	n	(%)
<i>PHCC</i>						
PHCC-Heraklion 1 and 2	31	(47.0)	40	(40.0)	182	(56.3)
PHCC-Rethymnon	17	(25.0)	42	(42.0)	63	(19.5)
PHCC-Chania	8	(13.0)	6	(6.0)	46	(14.2)
PHCC-Lasithi	10	(15.0)	12	(12.0)	32	(10.0)
<i>Season</i>						
Autumn	14	(21.2)	23	(23.0)	84	(26.0)
Winter	16	(24.2)	24	(24.0)	87	(26.9)
Spring	14	(21.2)	26	(26.0)	86	(26.7)
Summer	22	(33.4)	27	(27.0)	66	(20.4)
<i>Year</i>						
2010	16	(24.2)	24	(24.0)	72	(22.3)
2011	12	(18.2)	20	(20.0)	120	(37.2)
2012	14	(21.2)	19	(19.0)	88	(27.2)
2013	24	(36.4)	37	(37.0)	43	(13.3)
<i>Sex</i>						
Men	44	(67.0)	65	(65.0)	179	(55.4)
Women	22	(33.0)	35	(35.0)	144	(44.6)
<i>Age (years)</i>						
18–39	44	(66.7)	24	(24.0)	27	(8.4)
40–59	7	(10.6)	29	(29.0)	80	(24.7)
60–79	11	(16.7)	35	(35.0)	163	(50.5)
80–98	4	(6.0)	12	(12.0)	53	(16.4)
<i>Nationality</i>						
Greek	64	(97.0)	99	(99.0)	307	(95.0)
Non-Greek	2	(3.0)	1	(1.0)	16	(5.0)

## DISCUSSION

The results of this study indicate that general symptoms followed by respiratory, musculoskeletal and digestive symptoms were given as the main reasons for seeking medical care in PHCCs in rural Crete on an emergency basis in 2010–2013, which was a period of a severe economic crisis. General symptoms are listed as the main reason for consultations in PHCC, using ICPC-2 in many studies, although the percentages vary in different settings.<sup>7,8</sup> Significant variations in the frequency of the recorded symptoms according to the demographic characteristics of the users were observed, and also temporal and spatial variations. These findings support the view that in Greece there is an unmet need for development of a recording system in PHC for monitoring the pattern of the main reasons utilisation

of PHCC services. Effective strategies for the prevention and management of the main diseases in a region can only be implemented effectively on such a basis.

It is of note that previous studies in Greece and other European countries have reported similar findings regarding road traffic accidents, which are considered as a frequent reason for accessing PHCC among males and young adults.<sup>9</sup> A previous study on 4,564 participants in central Greece from 1996 to 1998 showed that the frequency of traffic accidents was higher in the age group 25–34 years with an increase in summer period.<sup>10</sup> An earlier Cretan study analysing all the traffic accident-related records for the period 1997–2000 also showed that traffic accidents were more frequent among younger age groups.<sup>11</sup> Occupational accidents were found to be more common among older men, as reported in other studies.<sup>12,13</sup> The records studied showed that a very low percentage of immigrants visited PHCCs to seek medical care. An epidemiological study in Spain that examined the prevalence of chronic diseases based on an electronic primary care record system also reported low percentages of immigrants using PHCCs. The authors attributed this pattern to the “healthy migrant effect” since most migrants are healthy, young and in the country to work.<sup>14</sup>

An important finding of this study is the high percentage of users who visited PHCCs as an emergency because of neuropsychiatric symptoms, with a particular increase in 2013. This observation is in line with the findings of an epidemiological analysis of the prevalence of chronic diseases in Thessaly (central Greece), which also indicated a high prevalence of neuropsychiatric disorders.<sup>3</sup> Over the past 3 years, there has been extensive scientific discussion and debate regarding the negative health effects of the economic crisis in Greece<sup>15,16</sup> with reports of increases in the mortality rate due to suicide and the diagnosis of depression.<sup>15,16</sup> Although the suicide rates were stable for the years 2008–2010, they increased at an alarming rate during the period 2010–2012. It is widely believed that the Memorandum adoption by the Greek government is responsible for the alarming increase in both the unemployment rate (especially among the young) and the percentage of poverty-stricken people. Specifically, recent reports put the unemployment rate during the third trimester of 2013 at 27.5%, compared to 9.5% in 2009, and in 2012 the percentage of people at risk of poverty and social exclusion reached 34.6% (25.4% in 2009).<sup>16</sup> The authors of a study showing that the rate of depression in Greece has increased dramatically from 2006 to 2011 concluded that the overall picture of the effects of the economic crisis on health would become visible over the next couple of years.<sup>16</sup>

To our knowledge, this is the first report of the patterns of the use of PHCC services in Greece over the period of

economic crisis. One of the main strengths of this study is the large representative sample of the Cretan population, which allowed investigation of the patterns of utilization of the PHCCs, despite the absence of an electronic health record system or an operational records system. The study results should be interpreted in light of potential limitations. Firstly, for geographical reasons, these results may present differences when compared with future findings in the general population. The data may apply specifically to rural and semi-rural setting as the selected PHCCs do not correspond to urban areas. A further possible limitation is the retrospective analysis of the medical records, which may reflect bias in the information recorded and incomplete registry.

The current economic crisis poses a direct threat to the health of the population, but at the same time it highlights the need for a systemic approach to healthcare reform in Greece. The introduction of an electronic health records system is imperative: In addition to improving the operational efficiency of the PHCCs, it can provide an analysis of the health profile and the needs of the population. This system may help healthcare professionals focus on the most common everyday reasons for visiting the PHCC and enhance their clinical performance. It is evident that an electronic record system may also enhance planning and health promotion initiatives. During periods of crisis in particular, electronic records can assist regional health authorities predict future utilisation patterns for PHCC services on which to base effective measures aimed at the reduction of their unnecessary use.<sup>17</sup> This has already been planned in other countries; for example, the development of a new pan-Canadian network for PHC was announced

recently.<sup>18</sup> To date, however there has not been adequate adoption of electronic records systems and the proportion of physicians using them remains quite low.<sup>19,20</sup>

The mental health services should be redesigned and strengthened in order to meet the needs of the vulnerable members of the population. Intervention measures, such as psychological support of unemployed patients or those experiencing job insecurity can be pivotal. It is essential that strengthening of social welfare programs with the protection of social safety nets should be a priority.<sup>21,22</sup> Greater emphasis should be placed on continuing education of PHC professionals so that they manage to identify at an early stage those patients who have developed depressive symptoms.<sup>23</sup>

In conclusion, respiratory, musculoskeletal, and digestive symptoms were identified as the most frequent reasons for emergency visits to PHCCs in rural Crete. Neuropsychiatric symptoms were observed to have increased since the onset of the economic crisis. This study revealed variations in the frequency of the presenting symptoms according to gender, age, place of residence, year and season of the PHCC visit. The study data justify the urgent need for the development and adoption of electronic health records in PHCCs and confirm that the re-orientation of the Greek health system to focus on PHC and public health is now more essential than ever.

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## ΠΕΡΙΛΗΨΗ

### Χρήση υπηρεσιών πρωτοβάθμιας φροντίδας υγείας στη νότια Ελλάδα σε μια περίοδο οικονομικής κρίσης

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**ΣΚΟΠΟΣ** Στην Ελλάδα υπάρχει έλλειμμα γνώσεων σχετικά με τη συχνότητα και την αιτία χρήσης των υπηρεσιών πρωτοβάθμιας φροντίδας υγείας. Στόχος της εν λόγω έρευνας ήταν η αξιολόγηση των πιο συχνών αιτιών αναζήτησης συμβουλής όσον αφορά στη φροντίδα υγείας και την παροχή βοήθειας, προσεγγίζοντας κέντρα υγείας της περιφέρειας στην Ελλάδα και διερευνώντας τους παράγοντες που ενδεχομένως καθορίζουν τη χρήση των εν λόγω κέντρων. **ΥΛΙΚΟ-ΜΕΘΟΔΟΣ** Έγινε συλλογή ενός τυχαίου δείγματος από 5 πρωτοβάθμια κέντρα υγείας που υπηρετούν τις ευρύτερες αγροτικές περιοχές της Κρήτης. Η δειγματοληψία πραγματοποιήθηκε αναδρομικά από τον Μάιο έως τον Ιούνιο του 2013. Η Διεθνής Ταξινόμηση Πρωτοβάθμιας Φροντίδας Υγείας χρησιμοποιήθηκε προκειμένου να τα-



ξινομηθούν τα περιστατικά σε ευρύτερες κατηγορίες ασθενειών βάσει της διαθέσιμης πληροφορίας. Η παρούσα μελέτη εγκρίθηκε από την Επιτροπή Ηθικής της Υγειονομικής Περιφέρειας Κρήτης. **ΑΠΟΤΕΛΕΣΜΑΤΑ** Τα συμπτώματα που σχετιζόνταν με το αναπνευστικό σύστημα (21,3%) και εκείνα τα οποία είχαν σχέση με το μυοσκελετικό σύστημα (17,6%) αντιπροσώπευαν τις πιο συχνές αιτίες αναζήτησης ιατρικής περίθαλψης. Άλλα συμπτώματα που αναφέρθηκαν σε υψηλή συχνότητα ήταν τα συμπτώματα που σχετιζόνταν με το πεπτικό σύστημα και με το δέρμα. Παρατηρήθηκαν σημαντικές διαφορές στην κατανομή της βασικής συμπτωματολογίας και στις σχετιζόμενες ασθένειες μεταξύ ομάδων διαφορετικής ηλικίας και φύλου. Παρατηρήθηκαν επίσης χωρικές και χρονικές διακυμάνσεις, ιδιαίτερα όσον αφορά στα επαγγελματικά και στα τροχαία ατυχήματα. Επί πλέον, η μεγάλη αύξηση του πληθυσμού που επισκέφθηκε τα κέντρα πρωτοβάθμιας φροντίδας υγείας λόγω νευρολογικών διαταραχών κατά το χρονικό διάστημα 2010–2013 ήγειρε προβληματισμούς σχετικά με τον αντίκτυπο της οικονομικής κρίσης στην υγεία. **ΣΥΜΠΕΡΑΣΜΑΤΑ** Συνιστάται μια βαθύτερη κατανόηση του επιδημιολογικού προφίλ των χρηστών της πρωτοβάθμιας φροντίδας υγείας και υπογραμμίζεται η επιτακτική ανάγκη ηλεκτρονικών καταγραφών στον τομέα της υγείας.

**Λέξεις ευρητηρίου:** Ασθένειες, Ηλεκτρονικές καταγραφές, Παροχή υπηρεσιών, Πρωτοβάθμια φροντίδα υγείας

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