Author's response to reviews

Title: Comparison of primary health care services between urban and rural settings after the introduction of the first urban health centre in Vyronas, Greece

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Author's response to reviews: see over
Dear Editor,

We are sending you the revised manuscript entitled: “Comparison of Primary Health Care services between urban and rural settings after the introduction of the first urban health centre in Vyronas, Greece”, MS: 8564514291634029 for publication in the BMC Health Services Research.

There is no financial or other conflict of interest that might have biased the work and all authors have seen and approved the manuscript.

We have addressed the reviewers’ comments in the revised manuscript. Point by point response to those comments follows.

Regarding your personal comments, we have to mention the following:

1. We recommend that you copyedit the paper to improve the style of written English

The style of written English was edited and improved.
2. Please also ensure that your revised manuscript conforms to the journal style

(http://www.biomedcentral.com/info/ifora/medicine_journals). It is important that your files are correctly formatted.

The revised manuscript now conforms to the journal style

We would also like to inform you about our proposal to change the title of our study from “Comparison of Primary Health Care services between urban and rural settings after the introduction of the first urban health centre” to “Comparison of Primary Health Care services between urban and rural settings after the introduction of the first urban health center in Vyronas, Greece”. We think that the geographical definition makes our title more specific.

Apologizing for our mistake, the authors’ order should be changed. Dr. T. Mariolis-Sapsakos should be in the 4th position (instead of the 5th). Dr. K. Marayiannis is now in the 5th position.

Looking forward to receiving a reply,

On behalf of all co-authors,

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Dear Reviewers,

I would like to thank you for your encouraging comments on our manuscript entitled: “Comparison of primary health care services between urban and rural settings after the introduction of the first urban health centre”. We performed a new careful revision of the submitted manuscript, incorporating the reviewers’ suggestions, in order to improve the clarity and quality of the present work. All changes made are underlined throughout the body of the text and tables. We hope that our responses to the issues raised are proven satisfactory, resulting in a more straightforward and improved paper that is suitable for publication in the Journal.
Replies to Reviewers’ comments

Reply to Reviewer 1 (Mr. Harris)

Major Compulsory Revisions

1. The conclusion that the urban “experiment” should be implemented more widely through a network of urban health health centres is not really supported by the data. The latter conclusion would require comparison with data from other urban services such as the Social Insurance Institute or private medical practices. As it stands, the paper provides evidence for differences in presentation and management between the urban and rural services which may be at least partially explainable by differences in the population as well as some differences in the staff and services provided. The latter would be greatly strengthened by reference to a model of service use in primary care such as that proposed by Anderson (Anderson RM Revisiting the Behavioural Model and Access to Medical Care: Does it matter. J of health and Social Behaviour. 1995; 36(1): 1-10.).

According to your suggestion, we have changed our conclusion to a more relative to the results of our work one. Thus, in the new revised text we now conclude:

“According to the results of our study, it seems that there are differences between an urban and a rural population in Greece regarding both demographics and health needs. The main reasons for choosing a PHC unit differed also between urban and rural citizens. It is a challenge for every health system to provide the proper PHC services in each population in order to satisfy their health needs.
Although it may be early for final conclusions, it seems that the “experiment” of introducing and operating a Primary Health Care unit in an urban setting produces some encouraging results in terms of provision of free public services that did not exist in the past. The patients’ satisfaction, at least as it reported, is another hopeful fact. It is suggested that the differences found in the profile and the health needs of the citizens using PHC services between an urban and a rural area in Greece should be considered before the establishment of other PHC units in major cities.”

A reference to the paper you recommended is now added in the last paragraph of the Discussion section: “According to the behavioural model as presented by Ronald M. Andersen [33], there are differences between those two populations regarding the potential access to medical care (presence of enabling health resources) and the actual use of those services (as derived from the results of this study and elsewhere [34]). In addition, urban and rural populations differ with regard to demographic characteristics.”

2. The paper itself has numerous grammatical errors which need to be corrected.

We apologize for our errors. The whole paper is re-edited and all grammatical errors are now corrected.

Background

3. This section could be more clearly written and constructed. The opening statement that PHC is mainly provided by GPs worldwide is probably not correct. General Practice
comprises the majority of primary medical services in developed countries. However many non GPs work in general practice and most PHC service providers in developing countries are not GPs.

We acknowledge that our statement was not correct. What we really want to underline was that PHC is in its majority provided by specialized in General Practice medical personnel in the Western World. In agreement to your suggestion the opening statement has now changed to “Primary health care (PHC) is mainly provided by General Practitioners – Family Physicians (GPs) in developed countries[1-3] This is not the case in developing countries, where many doctors who are not GPs work in PHC[4].”

4. It goes on to state that health centres are “mostly (more than 50%) staffed by general practitioners”. Does this mean that more than 50% of Centres have GPs in them or that more than 50% of the Centres medical staff are GPs or that more than 50% of all their staff are GPs?

We apologize for the confusion made. Indeed, this point needed clarification. What we meant was that more than 50% of the medical personnel working in the Centres are GPs. In the revised manuscript, this statement has been replaced with “In Greece, the National Health System (NHS) is organized in a way that local PHC units (known as Health Centres) are responsible for PHC in their region [5]. More than half the medical personnel working in these Centres are GPs.”
5. The third paragraph ends with a sweeping statement: “In the major cities, the Greek healthcare system follows the trend towards super-specialized and inter-hospital medicine, made necessary by the explosion of new knowledge in the field of biomedical research and the attractiveness due to its better ‘market value’”. The reference for this is a letter in the Saudi Medical Journal. It would be helpful to provide a more precise description of the place of general practice in the Greek health system supported if possible by some evidence (eg proportion of graduates entering general practice).

This statement is now further supported by a reference to a recently published in BMC Medical Education study of ours regarding General Practice as a career choice among undergraduate medical students in Greece. To be more specific, the following phrase has been added: “…by the explosion of new knowledge in the field of bio-medical research and the attractiveness due to its better ‘market value’ [16]. The low status of General Practice in our country is also reflected upon the low proportion (4.3%) of undergraduate medical students in their senior year willing to choose GP as a career choice [17].”

Methods

6. It would be useful to have a detailed description of the staffing and services provided by the two centres (possibly in a table).

A detailed description of the staffing and services provided is now included (Table 1).
7. In the analysis section it is not clear how the adjusted analysis was performed (adjusting according to table 6 for gender, age, financial income, educational status, marital status and nationality.

A more detailed description of the adjusted analysis is now included in the Statistical analysis section:

“The following variables were used as stratification factors: Age (9 decades, 9 strata), gender (males and females, 2 strata), marital status (singles, married, divorced, widowers/s, 4 strata), educational status (tertiary, secondary and primary level, analphabetic, 4 strata), nationality (Greek, other, 2 strata), financial status (≤€15,000, > €15,000, 2 strata). The relative frequencies of the stratification factors were pre-defined based on the data coming from the national census of 2001[7]. As a result, the two new samples had similar distribution of the aforementioned parameters, adjusting for their potential effect on the attributes examined in our study. The power analysis showed that a number of 5902 participants in each group was adequate in order to detect real proportion differences greater than 0.03, achieving power 90% at a significance level of 0.05.”

8. It would also be useful to have a table comparing the descriptive statistics for these variables between the two centres.

A table showing the distribution of gender, age, financial income, educational status, marital status and nationality of the populations of the two areas (urban and rural) is now included. (Table 2)
Results

9. The first sentence states that the age and gender distribution of the populations in the two areas of the health centres are shown in table 1. However this does not appear to be the case.

We apologize for this mistake. Age, gender and other attributes describing the populations of the two areas are now shown in Table 2. (See comment 8)

10. The following statement in the third paragraph does not make sense: “Even though the patients per population per year and contacts per population per year ratios were higher at the HCNM due to its smaller population, the contacts per patient per year ratio was 32.19% lower than this of the HCOV.”

We acknowledge that this point was not clear. This has been now changed with: “The patients per population per year and contacts per population per year ratios were higher at the HCNM than at the HCOV (3.64 vs. 1.19, p<0.001 and 6.52 vs. 3.14, p<0.001, respectively). The average patient visited more frequently the HCOV than the HCNM, as it is derived by the higher contacts per patient per year ratio (2.64 vs. 1.79, p<0.001).”

11. The univariate analysis for frequency of visits, referrals etc is presented in the demographic section and the adjusted analysis in the later section. These should be presented together.
According to your suggestion, the data coming from the adjusted analysis were split and integrated to the corresponding Results sections. Taking into account your comment No. 12 (see below), the results of the adjusted analysis are now more extensively described. Therefore, in the “Demographics” subsection, a 4th paragraph has now been added containing the results from adjusted analysis:

“The results of comparison between the two subgroups that were constructed post hoc and adjusted for main demographic confounders are presented in Table 4. According to this analysis, citizens of Nea Madytos visited more frequently the chronic diseases department than those of Vyronas (64.23% vs. 52.51%). On the other hand, more patients were admitted in the Emergency Department of HCOV than in that of HCNM (21.26% vs. 17.78% respectively). In addition, both paediatric clinic use and home visits differed between the two Health Centres (HCOV: 13.29%, 5.62% vs. HCNM: 9.53%, 2.03%, respectively). The total distribution of PHC services used in the two Health Centres differed significantly (p<0.001). The adjusted referral rate was significantly higher in the HCNM than in the HCOV (6.23% vs. 2.41%, p<0.001), while the same patients seemed to visit more frequently the HCOV than the HCNM (Contacts per patient per year ratio: 3.04 vs. 1.67, respectively, p<0.001).”

In addition, the time trend of utilization of PHC services in the two health centres in 2005 and PHC providers in the urban area prior to the establishment of the HCOV are now described in the 5th paragraph of the Demographics subsection:

“In 2005, the number of citizens who utilized the PHC services of the HCOV was steadily increasing (p<0.001), whereas a peak was recorded during summer months in the HCNM followed by a fall to the first 6 months levels after September (Figure 1). Private
medical offices (45.12%), followed by public secondary or tertiary care hospitals (24.78%), private hospitals (15.84%) and pharmacies (7.35%) were the PHC providers the respondents used before the establishment of HCOV.”

A new (5th paragraph) including data from adjusted analysis is now added in “Diagnoses, reasons for visit and for choosing a Health Centre” subsection:

“The top five reasons for visit were almost similar in the adjusted for gender, age financial income, educational status, marital status and nationality samples of both Health Centres (Table 4). Cough and fear of hypertension were the most prevalent (10.04% and 9.32% in HCOV, 7.16% and 6.89% in HCNM) followed by fever and chest symptoms. Headache was a more common symptom for those living in an urban area (6.73%) than in a rural one (4.26%). Proximity to home (52.67%), satisfaction with previous visit (51.47%) and shorter waiting time (25.49%) were the three most important reasons for choosing the urban HCOV. At the same time, the top three reasons for the rural HCNM were availability (40.57%), proximity to home (34.21%) and free services (24.62%) (Table 4)”

12. The description of the adjusted analysis results is very brief. This is the most important section of the analysis.

Following your advice, the results of the adjusted analysis are now more extensively described and included in the other two subsections of the results. (See comment 11).
Discussion

13. The discussion of the frequency of visits at the two centres (para 3) is very difficult to understand. Surely the impact of visitors/vacationers in the rural centre in summer could be adjusted for or at least explored. For example did the rate of contacts differ per 6 month period in the rural centre.

In accordance with your suggestion, the 3rd paragraph of the discussion was edited. Trying to explore the effect of summer visitors/vacationers on the frequency of visits in the rural centre, we excluded the 6 month periods April – September for both years of our study. However, the patients per population per 6 month period ratio was still higher in the rural area (2.43 vs. 1.87, p<0.001). This is now described in the revised 3rd paragraph of the Discussion section:

“More patients per population per year visited the rural health centre. However, it was impossible to count the large amount of visitors and vacationers during the summer period. In an attempt to adjust for this confounding factor, we excluded the two 6 month periods from April to September for both years of our study after the main analysis. Nevertheless, the patients per population per 6 month period (October to March) ratio was still higher in the rural area (2.43 vs. 1.87, p<0.001). A probable but not evident explanation for this difference might be that HCNM is the sole PHC unit in its area, covering the majority of the local population. It is rather interesting but not surprising [23] that the citizens in the urban area who visited HCOV, did it again for about 2 times during a one-year period; indeed, the higher contact/patient/year ratio compared to HCNM probably indicates a higher level of satisfaction with the services provided. Another interesting result is the
monthly increase in HCOV users during the last year in contradistinction to HCNM, where a peak of visits is described during the summer period. This phenomenon could be attributed to the fact that urban citizens were not familiar with public PHC services and after a short period of “exploration” were increasingly visiting the HCOV.”

14. Based on the questions of patients, it would appear that they found the urban centre more accessible (less waiting, closer to home). Rural patients stated that they attended most frequently because they had no choice – this is an important issue. In urban practices patients have some choice about where they can go for health care and this may affect satisfaction.

We totally agree with your comment. We think that the ability to choose among many health care services (public or private sector, hospitals or medical offices) and still select the HCOV in an increasing way may suggest that urban citizens are satisfied from the services provided. Rural citizens had not many choices. During data collection, we discovered that many of them had never visited any doctor or medical unit other than HCNM. In our opinion, it is more difficult to satisfy those who can compare the services provided (urban citizens) than those who do not have many criteria of the quality of the latter (rural citizens).

15. The issue of referrals is important. Is it possible that some urban patients were ‘self referring’? Another explanation was the greater number of specialist doctors in the rural centre (which may have facilitated referral to hospital).
The ‘self referral’ of some patients living in the city could be possible, taking into consideration that it was easier for them to have access to hospitals. However, it can’t be measured if it actually happened. In addition, the referral rates reported in our study were exclusively based on the doctors’ recommendations after the completion of the examination of the patient. We cannot account for some patients who despite the medical treatment they received in the Health Centres might have visited another doctor or hospital. The greater number of doctors of other than GP medical specialty in the HCNM should contribute to a smaller referral rate, given the Greek regulations about medical interventions. For instance, a Greek cardiologist might treat a pulmonary edema in a PHC unit, while a GP is not licensed to do so, even if he has successfully attended an Advanced Life Support course. The above are now summarized in the 4th paragraph of the Discussion section:

“Since the HCOV is not far away from secondary and tertiary care hospitals, the referrals of patients were expected to be more frequent than in the rural health centre [24]. This was not the case, however, as the referral rate was significantly lower. The probable self-referral of some patients could not be measured, if it actually happened, and would not be taken into consideration, since the referral rates shown in the results were exclusively based on the data coming from the Health Centres. The presence of more doctors of other than GP medical specialty in the HCNM should reduce its referral rates, considering the greater “freedom” in performing medical interventions these doctors are given by the Greek legislation compared to GPs. A possible explanation for this difference in referral rates could be the better scientific level of the doctors of HCOV due to the continuing medical education courses conducted in it and the amount of the scientific work produced.”
16. The discussion of the high prevalence of chronic disease in the urban area warrants more analysis. Is it possible that rates of detection are lower in rural areas? Are patients less likely to present for follow up visits in rural areas (with hypertension or diabetes)? How different are the rates of ischaemic heart disease and diabetes in urban and rural people? Do urban people attend doctors more frequently than rural people regardless of the service?

We apologize for the confusion made. The results of our study showed that it was the relative frequency of the patients visiting the chronic diseases – follow up department which was lower in the urban Health Centre compared with the rural one (64.23% vs. 52.51% in the adjusted sample, respectively). This finding does not indicate that there was a higher prevalence of chronic diseases in the urban area but shows a different distribution of the utilization of PHC services in the two centres. Our study tried to describe PHC utilization in a rural and an urban area and not to record the prevalence of some diseases. Therefore, such rates can’t be measured. Regarding the second part of your comment (frequency of visits), we refer you to table 3, where we describe that a statistically significant higher contact per population per year ratio was recorded in the rural area.

17. As mentioned previously the conclusions are not sufficiently closely related to the findings:
- How was “change in their behaviour when seeking for medical assistance” demonstrated in the results?

This statement was rather exaggerated. It has been removed from the conclusion.

- How has the superiority of the urban health centre over existing urban health services been demonstrated?

The comparison of the new urban health centre with existing urban health services was not among the aims of the study, mainly because their different philosophy; on the one hand, there was a mixture of private medicine (medical offices, private clinics), secondary or tertiary care hospitals (SII units and general hospitals) and on the other hand there is a public primary care unit, staffed only by doctors specialized in PHC. Therefore, there has not been a “superiority” of HCOV but a change of philosophy regarding the citizen’s approach. Our re-edited conclusion lacks of any kind of attempt to compare HCOV with existing urban health care services.
Reply to Reviewer #2 (Ms Farmer)

Major points

1. In the conclusion, the authors propose urban primary healthcare centres be extended because they impact on primary healthcare - but they should perhaps clarify what they mean. No impacts on health outcomes or even healthcare process are demonstrated here so are they alerting to access improvements? If so, I think they need data on changing patterns of demand on services.

   We totally agree with your comment. The proposal for extension of PHC units has now been removed and the conclusion of the paper was totally re-edited, according to Mr Harris’ (Reviewer #1) and your comments

2. Yes, the title and abstract accurately conveys what has been found. The writing is acceptable but it requires proof reading by a native English speaker.

   We apologize for our mistakes. The style of written English was edited and improved.

3. At one point in the discussion (paragraph 2, line 6) they say 'urban' when I think they mean 'rural'.

   You are absolutely right. It was a typing mistake and it has been changed with ‘rural’. We apologize for the confusion.