

Disease Management in Greece Running Head: Disease Management in Greece

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Abstract

Background: Disease Management (DM) is an approach to healthcare according to which resources are coordinated across the healthcare system and throughout the course of a disease. The **purpose** of the present review was to identify and evaluate all the studies about DM implementation in Greece, a country with distinct geographical characteristics and abnormal distribution of healthcare services.

Method and Material: Bibliographic data were gathered from electronic databases (PubMed, Cinahl, Cochrane Library), using the key words "disease management", "Greece", "cost control", "public health", "patient care", "outcomes", "resources", as well as by manual search. Only studies examining the effects of DM programs on clinical, patient- centred, and process outcomes, or evaluating the utilization of DM programs were included. Studies should have been published from 2009 onwards, in order to identify the most recent studies and depict the most current situation.

Results: DM is not well applied in Greece; the primary healthcare setting has not been sufficiently developed and the percentage of population receiving screening services remains low. The shortages of healthcare professionals have aggravated the problem. Programs with lifestyle interventions are feasible and accompanied by beneficial changes.

Conclusions: In total, the need for development and integration of primary healthcare is the issue mostly underlined in the majority of the Greek studies. Such integration will reduce hospital utilization and delay for treatment, and will increase accessibility to healthcare services.

Keywords: Disease management; Outcomes; Resources; Greece

Introduction

Healthcare systems worldwide share common goals, like i.e. providing high quality care to patients, improving access to care, and improving efficiency, while at the same time reducing healthcare costs [1]. Disease Management (DM) has the potential to improve patient outcomes, to offer coordination of care [2], and to reduce healthcare costs [3]. DM is especially effective in the management of chronic diseases [3,4] and in conditions in which patient self- care are significant [3]. In DM, the improvement process is continuous, evaluates outcomes, and redefines treatment, in order to maximize the quality of healthcare provided [1].

DM generally entails using both a multidisciplinary team of

healthcare professionals and supporting services (i.e. web-based applications, monitoring devices) in order to cover needs even in remote patients [1]. This can be very useful in Greece, a country with many islands and areas in which people are isolated and in a long distance from the nearest primary healthcare center. In DM, the most important segments are groups of patients with the same disease [4]. According to DM, when the right tools, professionals, and equipment are applied to a population, costs can be minimized [1,4].

Thus, it is of great importance to select recipients most likely to benefit from DM [4], in terms of demographic profile, level of co-morbidity, and the intervention content of DM [1]. A DM approach may also implement a specialized program to monitor patients with more severe health conditions and educate them so

they can self-manage elements of their treatment, ensuring that holistic and individualized care is provided [3,4]. The role of nurses is important in achieving an interaction that is patient-centred and with an emphasis in prevention rather than in treatment.

All the above are of special significance in countries with limited resources. Greece was until recently among the Organisation for Economic Co-operation and Development (OECD) countries with the highest healthcare expenditures as a percentage of Gross Domestic Product [5]; however, no matter the expenditures allocated for the healthcare sector, no integration or development i.e. of the primary healthcare system, did occur. The present review had as a purpose to evaluate the DM implementation in a country like Greece, with distinct geographical characteristics, as the country is mountainous inland and at the same time has many islands, and abnormal distribution of healthcare services.

Methods

An electronic search was conducted in databases such as Pubmed, Cinahl, and Cochrane Library, using the key words "disease management", "Greece", "cost control", "public health", "patient care", "outcomes", "resources" in various combinations, in order to identify studies about DM implementation in Greece. References in the selected publications were checked for relevant publications not included in the database search. From the papers retrieved, only studies fulfilling the following criteria were included in the review:

- Research studies (prospective, cross sectional or retrospective).
- Studies examining the DM programs that have taken or are currently taking place in Greece and their effects on outcomes (i.e. clinical outcomes, patient-centred measures, process measures)
- Studies about DM implementation in Greece or about the utilization of DM programs
- Studies published from the year 2009 onwards.
- The exclusion criteria were the following:
- Studies examining the effects of other interventions (i.e. patient education), or the prevalence of specific diseases in the Greek population,
- Studies about the theoretical framework of DM,
- Studies published prior to the year 2009, as many things in the Greek healthcare system have changed since then.

The search yielded in total 319 papers potentially relevant according to their titles; 215 studies were excluded after reading the abstract and 65 studies were excluded after reading the whole text. Finally, 39 studies were included in the review. Two studies were conducted at an international level with the participation of Greece (i.e. in order to explore certain current practices, or multicenter studies about the effectiveness of certain DM interventions) [6,7], while the majority of studies were conducted in Greece. Only one paper was found by manual search. The results

of the review were categorized into three groups, according to their aims and objectives; for example, the findings of the Greek studies about primary care were categorized and summarized in the present study in the results' section "primary healthcare setting". The other two sections include the screening practices and other preventive programs, and the creation of registries. An interesting finding is that the majority of the papers are written by physicians, while only a few papers are written by nurses.

Results

Primary healthcare setting

Despite several efforts and reforms, primary healthcare has not yet been sufficiently developed in Greece; this is a matter of serious concern and it is well depicted in the Greek healthcare literature. Despite the universal access of the Greek population to the healthcare services, structural problems of the Greek National Healthcare System (Greek NHS) have imposed organizational barriers to the access and distribution of these services [8,9].

The utilization of health services from the Greek population depends on age, income, gender, and region [10]. Older people, women, and residents of mountainous regions show increased utilization of primary healthcare services, since they do not have easy access to hospitals [10], but even when they do, they do not get as much care as they need, and therefore report poorer health status and poorer compliance to treatment [11]. The financial crisis is reported to have a serious impact on the population, especially on vulnerable groups [12,13]. The existence of inequities in access and use of primary healthcare services is underlined in the study of Tountas et al., in which contacts with healthcare professionals were found to be less for residents of rural areas, for individuals without private insurance and of lower education [14].

The services delivered in rural primary care are mainly oriented towards acute problems [15,16]. This perhaps is the reason why only a small percentage of the rural population uses the NHS rural services as their main source of primary care, while the majority chooses private or urban primary care services instead [16]. Moreover, very often patients search for specialist consultations according to their own personal estimations about their health situation rather than seeking an opinion from a general practitioner first [15].

The shortages of healthcare professionals, especially nurses [8], have further aggravated the problem in the primary care setting. According to the 2010 data, there is a need to employ 15000 nurses and 4000 physicians in public hospitals [15] in order to address the shortages. Not only hospitals, but also primary care centres present shortages of nurses and physicians [17].

The main emphasis in primary care in Greece is given on prescribing pharmaceuticals [18], while at the same time there are high percentages of patients with uncontrolled chronic conditions (like hypertension and diabetes mellitus) [19]. Furthermore, a high percentage of people with chronic diseases are unaware of the diagnosis [20-22], and have ignorance or wrong opinions concerning prevention [23]. For example, in the study of Skliros et al., a high proportion of the rural population used antibiotics without medical prescription [24].

Patients are also often hospitalized for conditions which could

be treated within the primary care setting [15]. Thus, the improvement of primary care services could also reduce the waiting time for the patients in the emergency departments of the hospitals [20]. Another related finding in the Greek health literature is the delay for treatment [25]. In the study of Brokalaki et al., patients with acute myocardial infarction had a delayed hospital arrival in the case they happened to be at a distance of more than 10 kilometres from the hospital when the infarction occurred, while the authors suggest that this should be taken into account in healthcare service planning in order to improve the accessibility to these services [25]. In the study of Marinos et al., it has been pointed out that 17% of the patients examined at the emergency departments of the hospitals were from rural areas, whereas one in every three patients could have been managed in the primary care setting [26].

Screening services

Despite the free provision of primary healthcare, current preventive practices have not influenced screening behaviour in Greece [27]. As in primary care, there are organizational barriers in the provision of screening services. In the study of Panagouloupoulou et al., it was shown that screening rates were positively associated with a history of health problems and with age, but had no correlation with the socio-economic status, while only 41% of the participants were screened according to the guidelines [27]. In other studies the percentage of Greek population receiving screening is also low, and significantly affected by socioeconomic factors [28,29].

Primary prevention in Greece depends mainly on the advice from primary care providers and on the individuals' request, since there is absence of an official national program. Also, there is a wide variety of recommendation practices among physicians; with the exception of PAP test, cost-effective tests are advised at sub-optimal rates, while at the same time non-recommended tests are frequently performed [30]. In the study of Trigoni et al., physicians demonstrated a limited awareness of international recommendations for breast cancer screening, while agreement with current guidelines ranged from 31% to 58%, a finding that reveals limited knowledge among physicians to breast cancer screening guidelines [31]. Furthermore, the efficacy and the cost-effectiveness of the screening tests remains a matter of concern for policy formulation [32]. In the area of vaccinations, though there is a national immunization program [7], there is room for improvement, as there are indications about the need of policies in order to eliminate certain diseases and to evaluate the existing programs.

In studies about programs with DM lifestyle interventions for prevention, it has been shown that such programs are feasible and can have beneficial changes [33,34]. Other interventions that can be implemented in countries with limited resources have also been reported in the Greek literature, such as patients' health education, development of preventive programs [35,36], and medical services to remote patients from mobile care units [37]. All these interventions are reported to have positive health outcomes [37-39], such as continuity of care and short length of hospital stay [37].

Creation of registries

Numerous other initiatives have taken place for the collection of

data and the creation of national registries in Greece, but they still remain incomplete [40-46]. In the Centre for the Control and Prevention of Diseases the obligatory reported cases of infectious diseases are recorded [15], while Greece is one of the eleven countries of the European Union that has registry for identification on migrants on a national basis [6].

The authors of the relevant studies estimate that the creation of registries will help to construct effective prevention policies, to propose methods in order to improve therapy, to reduce socio-economic inequalities in the access to treatment, and also to be used for cost estimations, by identifying high risk groups for potential DM interventions [44]. It is notable that today both prevalence and incidence of common diseases, as prostate cancer, or the exact numbers of surgical operations, like total arthroplasties, are unknown in Greece. Furthermore, there are no systematic records to produce incidence data about admissions in the hospitals, since in the data that are kept the patients readmitted to hospitals can not be distinguished from those admitted for the first time [15].

Discussion

The literature of studies conducted in Greece and evaluating the effects of DM is relatively scarce, a finding that reflects the poor implementation of DM. Most of the Greek studies describe the services' supply side, and few examine DM from the patients' perspective. Finally, the majority of the relevant papers have been written by physicians, reflecting the limited role of the nursing profession in Greece. Perhaps this can be attributed to the lack of nurses in Greece, or it can reflect Greek nurses' inadequate training, knowledge and skills of the research process, their lack of time, funding, and practical support. All these barriers to nursing research have also been identified previously in the literature [47].

As DM is not well applied in Greece, the Greek population receives poor health services, poor distribution of healthcare resources, and experiences inequalities in the access to treatment. This kind of inequalities in access to healthcare services constitute a problem which is recognized in international literature also, especially when it comes to complex procedures, such as diagnostic procedures and glycaemic control in diabetes [48].

The authors of the majority of Greek studies emphasize especially in the hospital-centered and medical orientation of the Greek NHS and the need for development of the primary healthcare, in order to increase people's access to care, minimize the delay for treatment, and reduce overall costs. In Greece, people living in rural areas experience longer delay in reaching a hospital once they seek assistance, a fact that poses ethical issues. In a study conducted in Scotland, all pre-hospital times for the management of trauma patients were significantly longer for rural patients also. However, in this case, longer pre-hospital times were not associated with differences in mortality or length of hospital stay [49]. In a study conducted in Georgia, about the delivery of accessible and affordable care for diabetic patients, access to insulin was reported to be problematic in rural areas, while obtaining self-monitoring equipment was difficult throughout the country; furthermore, diagnosis and treatment of complications were reported to involve hospital admissions and high out-of-pocket payments. Poor collaboration between primary and secondary healthcare and ineffective patient follow-up were also

recognized as a problem. The authors of the latter study conclude that better collaboration between the healthcare providers is essential [50]. This conclusion and suggestion can also be useful in the case of Greece.

Greek primary healthcare is fragmented, since there are several different public and private providers involved, but with poor coordination between them and without a gate-keeping system; this is due to the fact that most of the primary care services are staffed exclusively with specialized physicians and not with general practitioners. The problematic coordination between the healthcare services represents an issue also recognized in the study of Dudley & Garner, who report that in several low- and middle-income countries, separate healthcare programs can be effective, but can at the same time lead to fragmented services [51]. Once more, the need for strategies in order to integrate these services is underlined. Another issue that is described in the literature is that primary healthcare must become a priority in resource allocation, in order to allow access to vulnerable populations and to achieve equity in health outcomes; however, the exact form of such services must be selected with care, taking under consideration the specific problems that need to be addressed in each country and context [52].

In Greece, there is low participation of the population in screening programs and poor compliance to treatment. Moreover, there are no effective systems of keeping medical records, evaluating how resources are used, and assessing the clinical and economical outcomes of DM. There is a lack of Greek epidemiological data that could be used in the development of effective prevention policies, which probably results in increased long-term costs. Although there are substantial differences in terms of management, resources, and outcomes, both within and between countries, there are previous literature findings concentrating on the important role of epidemiological data as a basis for policy formulation [53].

The cultural, economical, societal, geographical and other differences between countries represent factors that make the comparisons about DM programs difficult; this is the reason why no comparison has been attempted between the findings of the Greek studies and that of other countries in a more systematic way in the present review. Sometimes, there are large differences even within the same country; for example, in a study that took place in United Kingdom, data from different regions were compared regarding quality of primary care and the outcome measures were the prevalence rates of certain diseases, which varied by up to 28% between the regions; this meant that not all regions followed the same practices, with larger differences found for regions that also had consistently lower quality of care [54]. Another example can be drawn from countries far less developed, like in sub-Saharan Africa, where healthcare facilities have mainly managed infectious diseases and perhaps are not able to handle the epidemic of chronic non-communicable diseases (i.e. heart failure), which is in contrast with what happens in most of the developed countries. In the study of Peck et al., a total of 42% healthcare facilities had guidelines for infectious diseases, whereas only 13% facilities had guidelines for non-communicable diseases [55]. Evidently, due to the large differences in DM needs between countries, no adequate comparisons can be drawn, neither can be suggested that interventions that have

been implemented in one country with effectiveness can be as effective in another country.

Regarding the issue of lifelong education programs of healthcare professionals, these are partial and incomplete in Greece, although this is an issue described in scientific literature. Healthcare professionals face several obstacles when attempting to utilise evidence from systematic reviews in their everyday clinical practice, due to the large volume of research evidence [56]. The factors affecting the implementation of primary prevention measures include professionals' knowledge, workload, and referral resources, as well as patients' social and cultural characteristics [57]. However, it has been reported that educational interventions for healthcare professionals that are carefully designed, engage healthcare professionals in learning, provide ongoing support, and are delivered in combination with other quality improvement strategies are most likely to be effective [58].

Finally, mechanisms for evaluating practices and practice guidelines are rarely used in Greece. However, these problems have also been reported in the international literature, as best practices have long been used to identify and treat patients, but are inconsistently applied [1]. Problems in implementation and use of such databases have also been reported previously; the authors of a review about the use of databases in assessing the outcomes for patients with cardiovascular disease state that these are still in early stages and need improvement [59].

Over the past years there have been several endeavours of improving public healthcare in Greece, which, however, remains underdeveloped [60]. The issue of quality of the healthcare provided does not concern the medical practice only, although this is emphasized broadly in the literature, but it is extended in all the spectrum of the healthcare services. In any case, it is important that in every development project consideration must be given for the local circumstances in terms of economic resources, political and societal circumstances, organisation and administrative capacities, as well as the specific quality issues that need to be addressed [58].

The identification of the needs of high risk groups, the improvement of the services' accessibility, the coordination among primary care providers, the development of prevention and screening services, and the recruitment and better education of healthcare professionals have been underlined in previous reports [15]. Especially about the integrated primary care system, this represents a necessity, as countries with good primary-care systems generally present better outcomes and lower inequalities concerning health [9,18].

In this context, the role of nurses is of great importance, as there is significant evidence that nurses can contribute to the management of chronic illness and to changing the emphasis from treatment to prevention, self-care, patient empowerment, and the development of efficient and effective systems of care [61,62]. In a systematic review of studies of high-level evidence, it was found that nurses in primary care settings can provide effective care and achieve positive health outcomes for patients similar to that provided by doctors. Nurses can be effective in chronic disease management, in achieving good patient compliance, in illness prevention, and in health promotion [63].

However, more research is needed in order to identify the role that Greek nurses can play on this issue.

Conclusions

Greek population experiences poor distribution of healthcare resources and inequalities in the access to treatment, due to the hospital-centered and medical orientation of the healthcare system. There is an evident need for development of the primary healthcare, in order to increase people's access to care, minimize the delay for treatment, and reduce overall costs. Other problematic areas that could be addressed include better coordination between healthcare services, development and implementation of prevention programs and of methods for assessing clinical and economical outcomes of DM, and the education of healthcare professionals. The role of nurses is of great importance, as there is significant evidence that nurses can contribute to the management of chronic illness and to changing the emphasis from treatment to prevention and the development of efficient and effective systems of care. However, more research

is needed in order to identify the role that Greek nurses can play on this issue.

Implications for Practice

Although more research is needed in order to gather epidemiological data as a basis for policy formulation, according to the present review there is a clear need for development of primary healthcare sector in Greece. Primary care should focus on prevention and health promotion issues, as well as management of conditions that do not require admission to hospital; this should be part of an official national program, with coordination between services, i.e. primary healthcare centres and hospitals. Furthermore, the implementation of a gate-keeping system (i.e. general practitioners) can prevent patients from seeking specialist consultations according to their own personal estimations about their health situation. Use of multidisciplinary teams of healthcare professionals and supporting services (i.e. web-based applications) for remote patients may lead to better coverage of the healthcare needs of these patients and even to reduction of related costs.

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