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Incorporation of Cardiac Rehabilitation Programs and Their Characteristics in the Spanish National Health Service

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Objectives. To estimate the degree of incorporation of cardiac rehabilitation in the Spanish National Health Service, to describe the characteristics of the programs, and to report on the opinions of those responsible for them regarding their progress.

Patients and method. Cardiac rehabilitation centers were identified from different sources. A questionnaire which included items about coverage, resources, activities and services, selection of patients, and opinions was mailed to the heads of all units.

Results. Twelve public centers with cardiac rehabilitation programs were identified. Cardiac rehabilitation was offered to 53% of all eligible patients. All units treated patients with myocardial infarction, 64% treated those with heart failure; and 60% high risk patients. Approximately 10-19% of all patients were women. The physicians involved most frequently in programs were cardiologists; nonmedical professionals who participated most often were physiotherapists, and 64% of all units had a staff psychologist. Phase II rehabilitation was provided by all units, and phase III treatment was provided mainly by units that operated in coordination with out-patient services (45%). All units provided physical exercise training and counseling about the disease and risk factors, and 73% of them provided psychological support. The main reasons cited for providing rehabilitation were its efficacy and ability to prevent illness; and the main barriers to more widespread use were lack of resources and support. About three-fourths (73%) of all doctors interviewed thought that primary health care centers could play an important role in rehabilitation programs.

Conclusions. Cardiac rehabilitation is poorly implemented in the Spanish National Health Service. The most significant differences between programs were related to the inclusion of high risk patients and with a diagnosis other than myocardial infarction, coordination with out-patient services, and provision of phase III rehabilitation.

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Implantación y características de los programas de rehabilitación cardíaca en el Sistema Nacional de Salud español

Objetivos. Estimar el grado de implantación de la rehabilitación cardíaca en el Sistema Nacional de Salud, describir las características de los programas y las opiniones de sus responsables sobre su desarrollo.

Pacientes y método. Se identificaron las unidades de rehabilitación cardíaca a partir de diversas fuentes. Se envió un cuestionario postal a sus responsables, con preguntas sobre cobertura, recursos, actividades y servicios, selección de pacientes, y opiniones.

Resultados. Se localizaron 12 hospitales públicos que llevaban a cabo rehabilitación cardíaca. Como media, ésta se oferta al 53% de los pacientes elegibles. Todas las unidades incluyen a pacientes con infarto de miocardio, un 64% con insuficiencia cardíaca y un 60% pacientes de alto riesgo. Un 10-19% de los pacientes son mujeres. Los médicos más implicados son los cardiólogos; los profesionales no médicos que más participan son los fisioterapeutas, y un 64% de las unidades cuenta con psicólogo. La realización de la fase II es generalizada, y la fase III se realiza más en unidades coordinadas con centros extrahospitalarios (45%). Además del ejercicio físico, todas las unidades ofrecen consejo sobre la enfermedad y los factores de riesgo, y el 73%, apoyo psicológico. Las principales motivaciones mencionadas para hacer rehabilitación son su carácter preventivo y la eficacia, y las principales barreras, la falta de medios y apoyo. Se cree que la atención primaria puede desempeñar un papel importante.

Conclusiones. La rehabilitación cardíaca está escasamente implantada en el sistema sanitario público. Las mayores diferencias entre programas son la inclusión de pacientes de alto riesgo y con diagnósticos distintos del infarto, la coordinación con centros extrahospitalarios y realización de fase III.

Palabras clave: *Ejercicio. Enfermedades cardíacas. Provisión de atención sanitaria.*

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INTRODUCTION

Secondary prevention for cardiovascular disease and cardiac rehabilitation (CR) comprise a single strategy[1] that can include several components, from strictly clinical ones, such as pharmacological treatment and control of risk factors, to others, such as physical exercise, education and counseling, psychological and social support, and occupational therapy. The extent to which these components are achieved, particularly those of a less medical nature, varies with each health care center.[2-4]

Cardiac rehabilitation is recommended for many conditions and is particularly effective in ischemic heart disease and following aortocoronary bypass or angioplasty. It is also useful after heart transplantation and in patients with operated valvulopathy, congenital defects, or heart failure.[5] Among these processes, ischemic heart disease stands out because of its high prevalence-angina alone affects 7.5% of the population between 45 and 74 years old[6] - and because it is the main cause of cardiovascular mortality, an important cause of chronic disability, and leads to extensive use of health care services.[7,8]

In 1998 the Center for Reviews and Dissemination of the University of York published a rigorous review of the literature on the effectiveness of CR.[9] The main conclusion derived from this effort was that CR programs combining physical, psychological, and educational interventions can improve the recovery of patients with ischemic heart disease, allowing them to achieve and maintain a better health status and reducing the risk of death by 20% to 25%. The report also provided data from the United Kingdom and concluded that the practice of CR in that country showed considerable variation. Many patients who could benefit from CR never receive it.

In 1995 in Spain, the estimated availability of CR only reached 2% of patients with myocardial infarction.[5] Since that time, the evolution of this activity has not been documented. Moreover, it is not known how much coverage existing CR units provide to their referral populations, the resources at their disposal, the types of patients they treat, and the characteristics of the programs, particularly regarding components of a less clinical nature, such as physical exercise, educational and counseling activities, psychosocial support, etc.

Considering the proven benefits of CR in terms of survival and quality of life in highly prevalent diseases, research into the current situation of these programs in Spain would seem appropriate. The components of secondary cardiovascular prevention, previously investigated in a European study,[10] are of particular interest, as they might be expected to be less prevalent because of their less clinical nature. In the present study, the term *cardiovascular rehabilitation* will be used in the same way as in the European research. This study has the following aims:

1. To determine the extent to which CR has been incorporated into the National Health System in Spain and to estimate the coverage of existing programs.

2. To describe the characteristics of CR programs in Spain as related to the type of patients assisted, the resources available and the most adequate activities according to medical evidence.

3. To explore the opportunities and obstacles encountered when broadening the use of CR, in the opinion of the professionals in charge of the programs now running.

PATIENTS AND METHODS

The following sources were used to identify the centers that offer CR:

– Lists of centers from the Sociedad Española de Cardiología (Spanish Society of Cardiology) surveys (1995 and 1998) and the European Cardiology Society survey (unpublished data).

– Articles published in Spanish over the past 25 years, retrieved from Medline and the Índice Médico Español (Spanish Medical Index) and information compiled by a manual search through medical journals (REVISTA ESPAÑOLA DE CARDIOLOGIA and *Rehabilitación*) and a book in Spanish on CR.[11]

– Mail survey sent to the centers identified through the above sources, requesting the names of other centers with CR programs in addition to those on an enclosed list

During the second and third quarter of 2001, a survey was conducted among the heads of cardiac rehabilitation units at all centers identified within the public health system. The survey was based on a structured questionnaire (available from the authors upon request) containing specific questions except for one final section for remarks. The questionnaire items can be classified into eight areas of information:

1. Identification data.

2. Estimated coverage of the program in the referral area.

3. Material resources and equipment.

4. Human resources.

5. Activities and services provided: rehabilitation according to phases, therapy evaluation and planning, physical training, psychological support, occupational therapy, counseling and education, assistance to family members and follow-up. The phases of CR were as follows: phase I (acute, during hospitalization, includes early ambulation and education; phase II (lifestyle modification, first few months after discharge, can include all the components of CR; and phase III (maintenance, can include all the components of CR). The intensity of exercise could be high (over 75%-85% of the maximum heart rate) or low.[10]

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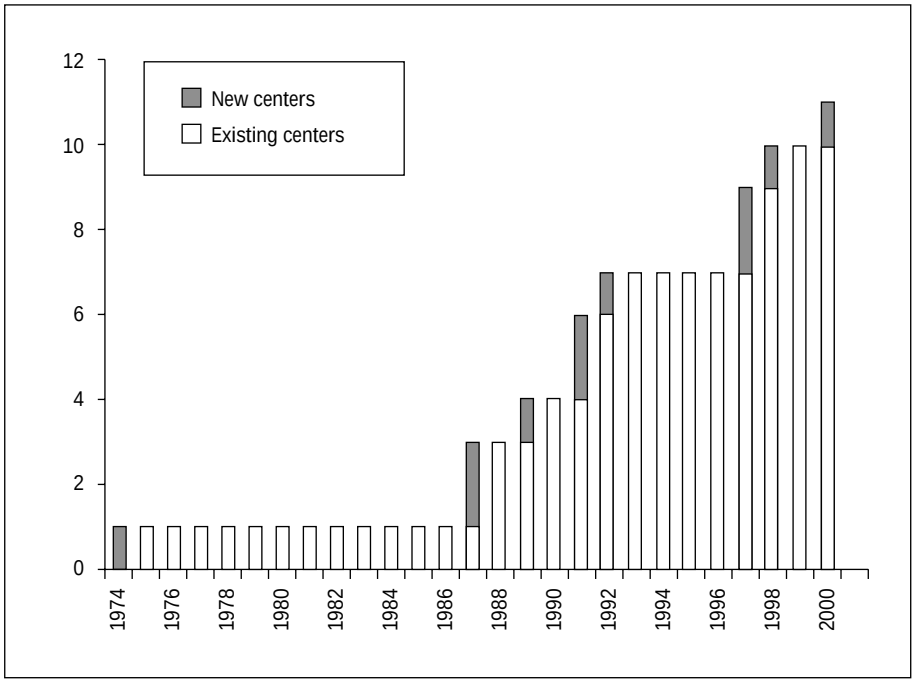

Fig. 1. Cardiac rehabilitation programs in Spain.

6. Patient selection: age, sex, diagnosis, and risk of new ischemic events. Classification of degree of risk according to the system usually used in CR as established in the guidelines published by the Sociedad Española de Cardiología.[12]

7. Opinion of the physicians regarding their personal reasons for supporting CR and the obstacles they have encountered in its implementation.

8. Identification of other centers not previously included: centers listed by autonomous community in an enclosure to indicate centers not included.

The questionnaire was sent by regular mail and replies could be sent by return mail or by e-mail. Those who did not respond to the first questionnaire were reminded by phone and sent a new questionnaire.

Data from the survey are expressed as absolute numbers and percentage. When the data point from each center is expressed as a percentage, then the mean, standard deviation (SD) and range are also indicated.

RESULTS

Implementation and coverage

Through the various sources indicated in the section on patients and methods, 20 public hospitals were found and sent questionnaires about their CR activity. Among them, 8 (40%) responded that CR was not practiced at their center. Among the remaining 12, 11 (91.6%) answered the questionnaire and one did not respond, although it is known that CR is provided there. CR units within the public health system were located in Madrid (n=4), Catalonia (n=3), Andalusia (n=3), León (n=1) and Valencia (n=1) (Table 1). No additional CR programs were identified by questioning the 11 centers that responded.

The first center offering CR started its program in 1974, but most began in the 1990s (Figure 1). Among the patients who initially could have benefited from cardiac rehabilitation, a mean of 83% (SD=15) met the inclusion criteria. The program was offered to 53% (SD=39) of patients who met the criteria, with range among centers of 5% to 100%. The main reasons given for not offering CR to all patients included a lack of space and/or personnel, insufficient financing, difficulties in transportation, and coordination problems. Among the patients offered CR, 92% (SD=7) accepted and 93% (SD=4) completed the program. The reasons for dropping out of the program included clinical dete-

Tabla 1. **Hospitals with cardiac rehabilitation programs in the Spanish National Health System**

Hospital Virgen de la Victoria (Malaga)
Hospital Virgen de Valme (Seville)
Hospital Virgen Macarena (Seville)
Complejo Hospitalario de León (León)
Hospital Germans Trias i Pujol (Badalona)
Hospital de la Santa Creu i Sant Pau (Barcelona)
Hospital General de Cataluña (Barcelona)
Hospital La Paz (Madrid)
Instituto de Cardiología de Madrid (Madrid)
Hospital General Gregorio Marañón (Madrid)
Hospital Ramón y Cajal (Madrid)
Hospital General de Valencia (Valencia)

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TABLE 2. **Types of patients included**

Types of patients	CR units including each type of patient	
	No.	%
Myocardial infarction	11	100
Post-angioplasty 11	100	
Post-bypass	10	90.9
Treated with artificial heart valve	8	72.7
Cardiac insufficiency	7	63.6
Heart transplant	3	27.3
Other diagnoses	4	36.4

CR indicates cardiac rehabilitation.

TABLE 3. **Percentage of women in cardiac rehabilitation programs**

Percentage of women	No. of units	Percentage
<10%	3	27.3
10%-19%	7	63.6
20%-49%	1	9.1
Total	11	100.0

rioration, causes related to employment and transportation problems.

The mean number of patients receiving CR per center (from the start of the center's CR activity to the time of writing) was 639 (SD=448), with a range of 200 to 1400 patients.

CHARACTERISTICS OF THE PROGRAMS

Types of patient included

All units included patients who had experienced a myocardial infarction or undergone angioplasty, and the majority (91%) had undergone bypass surgery. A large number of units performed rehabilitation of patients with heart failure (Table 2).

Most units (90%) included low- and moderate-risk patients, and 60% included high-risk patients. Only two units had a maximum age limit (70 years), whereas none placed a limit on minimum age.

In all units it was specifically stated that CR was offered to women, although the percentage of the total cases they represented was found to vary. In most units women accounted for 10% to 19% of the patients (Table 3).

Material and human resources

All centers were equipped with a stationary bicycle, treadmill, echocardiograph, Holter monitor, capability for pacemaker placement, interventional cardiology, biochemistry laboratory, intensive care unit and defibrillator.

Full-time employment of physicians in CR programs was very rare in all the specialties mentioned on the questionnaire (Table 4). The physicians most commonly involved were cardiologists (82% of centers), followed by rehabilitation specialists. Involvement of family physicians and psychiatrists was exceptional. In 64% of centers there was at least one part-time psychologist providing CR support.

The professionals participating most in CR programs were physiotherapists (36% of centers had full-time physiotherapists and 64% had at least one working part-time), followed by nurses. Social workers usually participated on a part-time basis, but some centers did not have the benefit of these professionals. The same was true for nutritionists. Finally, none of the centers had occupational therapists in their CR programs (Table 4).

Activities and services included in the rehabilitation programs

Phases of rehabilitation. Six of the eleven CR units performed rehabilitation exclusively in the hospital, and five worked in conjunction with other centers. Among the six working alone, one-third performed only phase II CR, another third offered phases I and II, and the final third all three phases. Among the units acting in conjunction with centers outside the hospital, two worked with primary care centers, one with a municipal center, one with a private center and one with a coronary club. In these units the hospital performed mainly phase II activities (2 programs) or mainly phase I and phase II (3 programs), whereas the activity performed outside the hospital was mainly phase III.

Physical training. Most of the units (72.7%) included physical exercise as part of the rehabilitation process in all patients, 18.2% included it in some patients and one unit responded that physical training was not performed in any case.

With respect to the number of phase II sessions carried out per week, nine of the ten centers offering exercises provided three sessions per week and one provided four sessions. The duration of phase II ranged from two to three months (45.5% and 36.4% of units, respectively). The intensity of the exercise in the sessions was high in four programs (36.4%), low in another four (36.4%), and both high and low in two (18.2%). The ten units with exercise activity used an established series of exercises (90.9%) and nine used both stationary bicycles and light weights (81.2%). Less frequently, physical exercise consisted of walking, light running and treadmill activity (45.5% of units for each of these options). The sessions were monitored in eight centers (72.7%), two consistently and four intermittently. Two centers did not answer

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TABLE 4. **Professionals in cardiac rehabilitation programs**

Professionals	No. of professionals per unit		
	0	1	>1
Full-time* cardiologists	9 (81.8%)	2 (18.2%)	0
Part-time cardiologists	2 (18.2%)	7 (63.6%)	2 (18.2%)
Full-time* rehabilitation physicians 10 (90.9%)	1 (9.1%)	0	
Part-time rehabilitation physicians 5 (45.5%)	6 (54.5%)	0	
Full-time* family physicians	11 (100%)	0	0
Part-time family physicians	10 (90.9%)	1 (9.1%)	0
Full-time* psychiatrists*	11 (100%)	0	0
Part-time psychiatrists	10 (90.9%)	1 (9.1%)	0
Full-time* psychologists	10 (90.9%)	1 (9.1%)	0
Part-time psychologists	4 (36.4%)	5 (45.5%)	2 (18.2%)
Full-time* nurses	7 (63.6%)	4 (36.4%)	0
Part-time nurses	6 (54.5%)	4 (36.4%)	1(9.1%)
Full-time* physical therapists	7 (63.6%)	4 (36.4%)	0
Part-time physical therapists	4 (36.4%)	6 (54.5%)	1 (9.1%)
Full-time* occupational therapists	11 (100%)	0	0
Part-time occupational therapists	11 (100%)	0	0
Full-time* social workers	10 (90.9%)	1 (9.1%)	0
Part-time social workers	4 (36.4%)	6 (54.5%)	1 (9.1%)
Full-time* nutritionists or dietitians	10 (90.9%)	1 (9.1%)	0
Part-time nutritionists or dietitians	7 (63.6%)	4 (36.4%)	0
Full-time* administrative and secretarial personnel	10 (90.9%)	1 (9.1%)	0
Part-time administrative and secretarial personnel	6 (54.5%)	5 (45.5%)	0

*Professionals working full time in cardiac rehabilitation programs.

this last question. In eight centers physical exercise was supervised by physical therapists, and in two others by a physical therapist together with a rehabilitation specialist or a nurse.

Psychological support. In more than half of the centers (54.5%) psychological support was offered to all patients, whereas in two centers (18.2%) it was never given. The remaining units answered that psychological support was not always indicated (18.2%), or that it was impossible to assist all patients (9.1%).

Among the nine centers with psychological support, six (54.5%) offered it for two months and three (27.3%) for three months. The support consisted of training in relaxation techniques in four programs (36.4%), and relaxation together with cognitive-behavioral therapy in five programs (45.5%). Psychologists were in charge of psychological support in five units (45.5%) and physical therapists in three units (27.3%). One of the units did not respond to this question.

Occupational therapy. Only one of the centers surveyed (9.1%) performed occupational therapy in some patients. The program offered one session weekly, supervised by a nursing professional, and consisted of physical retraining through activities, re-adaptation to specific tasks, counseling on alternative employment and other activities.

Counseling and education. All the units provided general information on the disease, and on diet, obesity, dyslipidemia and the need for exercise outside the program. It is noteworthy that 66.7% of the units provided no information on resources to offset reduced income and up to 55.6% offered no information on social resources such as voluntary caregivers, etc.

In six programs (54.5%), the educational activities combined individual sessions with group sessions, and in four cases only group sessions were given. Support was always provided to the patient´s families in 82% of units and almost always in 18%. In 90% of the units, information was provided to family members and the patient together.

The professionals participating most in counseling and providing information were the cardiologist and nurse, although four units answered that all the professionals from the unit participated.

Follow-up. After completion of phase II, the follow-up of cardiological problems was performed by the cardiologist specifically connected with the rehabilitation unit in five cases (45.5%), and by another cardiologist from the hospital in six cases (54.5%). In two units this task was performed in conjunction with the family physician. Follow-up of risk factors and physical exercise during phase II was carried out by the unit cardiologist in more than half of the programs.

Among the five units in some way involved in phase II (the hospital or other centers working in coordination with the hospital), follow-up of risk factors and progress with physical exercise was mainly carried out

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by the unit cardiologist (4 and 2 programs, respectively) and, less frequently, by the nursing team or other professionals.

Once phase II had ended, seven units (63.6%) carried out an additional session with the patient in the hospital that served as a reminder about the risk factors and/or physical exercise.

Special programs. Two centers (18.1%) had specific CR programs for the elderly and four (36.4%) had home programs for monitoring physical activity.

Opinions of the program heads

The responses of program heads to an open-ended question about their reasons for performing cardiac rehabilitation were varied. The reason most frequently cited (5) was that CR was «preventive cardiology», followed by the opinion that it was «effective» (4). An additional two persons stated that CR was «personally satisfying», another two mentioned that it was a «well-rounded approach» and one responded that in was «useful for the patients».

In the opinion questions, the majority of professionals agreed that rehabilitation improved the patients' quality of life (100%) and that it decreased the risk of death (73%). There was generalized agreement in favor of work in a multidisciplinary team (100%) and many cited the possibility of professional advancement (73%). The need to work in a multidisciplinary team was not viewed as a barrier, nor was it considered that the field would become less interesting with time.

With regard to the level of development of cardiac rehabilitation in Spain, all those surveyed considered that it was very poor (91%) or poor (9%). The following were cited as obstacles to the creation of more units: lack of support from the administration (8), lack of information and skepticism on the part of patients (6), lack of interest on the part of the cardiologists (5), insufficient space (1) and difficult relations with other specialists (1). The following were identified as obstacles to greater development (more patients and phases in each center): lack of resources (6), activity in the units poorly publicized (3), enhancement of other subspecialties (2), lack of full-time professionals (1) and poor management of the services (1).

With regard to primary care, 73% considered that these centers should play a major role in cardiac rehabilitation and all stated that little is being done at the primary care level. The following were cited as obstacles to more extensive implementation of CR in these centers: primary care professionals are not familiar with this activity (6), poor relationship among professionals at different levels of health care (5), lack of resources (1), lack of support from the administration (1), and lack of involvement of the pharmaceutical industry (1).

DISCUSSION

The results of this study clearly show that cardiac rehabilitation is not well implemented in the National Health System of Spain. Although some public institutions may have been missed in the identification processed used, CR activity was found in only 12 centers, mainly tertiary hospitals in Madrid, Catalonia, and Andalusia. This unfortunate situation has persisted despite the urging of the Sociedad Española de Cardiología to expand these programs[5,12] and the evidence derived from two recent systematic reviews concluding that programs combining physical exercise with education and psychological support can lead to a 20% to 26% reduction in cardiac mortality.[9,13] Many cardiology services are inclined toward the use of costly interventions and do not offer CR programs, which have proven to be very cost-effective.

The percentage of the Spanish population being assisted at the centers we identified is not known, but it is surely low and consolidated in only a few cities. In 1995 the Grupo de Trabajo de Rehabilitación Cardíaca de la Sociedad Española de Cardiología (Cardiac Rehabilitation Working Group of the Spanish Cardiology Society) located 16 public and private centers in Spain offering these programs and estimated that less than 2% of patients with myocardial infarction received rehabilitation.[5] Using the estimates of the persons surveyed in the present study on the percentage of patients offered CR, and even though private centers were excluded, the situation does not seem to have changed substantially in recent years. This contrasts with the trend toward improvements in other aspects of myocardial infarction treatment in Spain, such as the profile of prescribed drugs.[14]

In Austria, one of the countries in which CR is most extensively established, 95% of the affected population has Phase II coverage; this rate falls to 60% in the Netherlands and 30% in Denmark.[10] In 1998 there were 300 CR programs in the United Kingdom; nevertheless, they were found to be underused and widely varying in approach and organization.[9] In Italy there are around 111 centers.[10] In the United States 10% to 20% of patients that meet the criteria participate in CR programs.[15] These data show that the situation is less than optimal in most countries, but also indicate that Spain lags well behind.

The inequalities due to the geographical distribution of the CR units are compounded by other inequalities disclosed in this study, such as the exclusion of persons living far from the hospitals and the extremely low participation of women, who account for a third of all coronary patients. This latter finding is important, since it means that there may be a problem of sex-related inequity in health care access. This observation is not restricted to Spain alone; in the United Kingdom only 15% of CR programs include women.[16] Some au-

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thors have attempted to identify the reasons for this unequal use of CR in men and women. It seems that women more often than men cite concomitant disease as a reason for not attending CR. However, other factors may also play a part, such as the opinion of adult children, which seems to have a greater influence on women attending than on men.[17] We found no studies investigating transportation problems or the woman's caregiving role as potential obstacles to their participation in these programs, and these factors cannot be underestimated in Spanish society.

Assessment of the components of CR programs showed that some, such as physical exercise and counseling, were included in practically all programs, whereas others with proven efficacy, such as psychological support,[9] were much less common. This situation is at odds with that fact that training patients in relaxation techniques is relatively easy. There was much more homogeneity among programs in the total number of Phase II CR sessions, found to be between 24 and 39. These findings contrast with those of a European study in which a greater variability among countries and within each country was detected in this regard.[10]

In general, phase III is poorly established in our hospital CR programs, most likely because of the need to give priority to activities that can be carried out with existing resources. The participation of primary care is also infrequent in this phase of the programs, even though most of the professionals consulted recognized the importance of this level of heath care in CR. The European survey has shown that in countries with extensive incorporation of phase III, this activity takes place mainly in the private sector.[10]

The approach used in the present study to identify public centers offering CR in Spain (consulting experts and bibliographic sources) may not have produced a complete list. Moreover, the search focused on the hospital level, so that health centers performing CR without a link to programs in their referral hospital would not be included. To counterbalance this limitation, we had an open phone interview with a key source of information, the coordinator of the Grupo de Trabajo sobre Actividad Física y Salud de la Sociedad Española de Medicina Familiar y Comunitaria (Working Group on Physical and Health Activity of the Spanish Society of Family and Community Medicine), a professional with experience in cardiac rehabilitation. The interview revealed that few primary care centers in Spain offer CR and those that do usually work within a coordinated hospital-based program.

Another limitation of the present study was that the information compiled on CR programs was provided by a survey questionnaire targeting the individuals in charge of these programs and the accuracy of the data was not confirmed with other sources, such as visits to the centers or a review of the discharge records.

As in other health care interventions, achieving more widespread implementation of CR depends on many stakeholders: politicians, managers, health professionals and patients. According to the evidence of the patients' acceptation and compliance with the programs in this survey, there do not appear to be problems on their part for the incorporation of CR into the system. The professionals currently involved have cited various sources of motivation for establishing these programs, from the benefit to patients to the satisfaction of working in a team. Nevertheless, their implementation is hindered, with insufficient resources being the reason most frequently cited by those consulted in this study. As Sans and Paluzie have recently indicated, CR must be made available within the public health system, so that it will benefit those who need it most.[18]

Coordination with primary care seems to be a key factor. It may be especially important to break down the barriers between primary and hospital health care, clearly define what each of these can provide and set up joint programs. With increased participation of primary care, it may be possible to minimize some of the inequalities shown in this study. CR programs should also be extended to cardiology services in secondary hospitals. Any available resources such as sports facilities and other centers, always under the supervision of qualified professionals, could improve the performance of these programs.

CONCLUSION AND IMPLICATIONS FOR PUBLIC HEALTH

The implementation and development of cardiac rehabilitation is clearly limited in Spain, despite its proven beneficial effects on health, the large number of persons who can be helped by it, and the fact that CR programs do not require a significant investment in technology as compared to other interventions, although they do require human resources. Moreover, this limited use of cardiac rehabilitation in the public health care system is not generalized over the nation; there are significant problems in the equitable availability of these programs. The chances of benefiting from this service when it is needed vary depending on a person´s place of residence and gender. Measures should be undertaken to remedy this situation and to reduce the variation in the types of patients included and the characteristics of the programs.

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