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Original article

Efficiency of "Prescribe Vida Saludable", a health promotion innovation. Pilot phase

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ABSTRACT

Objective: "Prescribe Vida Saludable" (PVS) is an organisational innovation designed to optimise the promotion of multiple healthy habits in primary healthcare. It aims to estimate the cost effectiveness and cost-utility of prescribing physical activity in the pilot phase of the PVS programme, compared to the routine clinical practice of promoting physical activity in primary healthcare.
Methods: An economic evaluation of the quasi-experimental pilot phase of PVS was carried out. In the four control centres, a systematic sample was selected of 194 patients who visited the centre in a single year and who did not comply with physical activity recommendations. In the four intervention centres, 122 patients who received their first physical activity prescription were consecutively enrolled. The costs were evaluated from the perspective of the PVS programme using bottom-up methodology. The effectiveness (proportion of patients who changed their physical activity) as well as the utility were evaluated at baseline and after 3 months. The incremental cost-utility ratio (ICUR) and the incremental cost-effectiveness ratio (ICER) were calculated and a sensitivity analysis was performed with bootstrapping and 1,000 replications.
Results: Information was obtained from 35% of control cases and 62% of intervention cases. The ICUR was €1,234.66/Quality Adjusted Life Years (QALY) and the ICER was €4.12. In 98.3% of the simulations, the ICUR was below the €30,000/QALY threshold.
Conclusions: The prescription of physical activity was demonstrably within acceptable cost-utility limits in the pilot PVS phase, even from a conservative perspective.

Eficiencia de «Prescribe Vida Saludable», una innovación de promoción de la salud. Fase piloto

Palabras clave:
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RESUMEN

Objetivo: Prescribe Vida Saludable (PVS) es una innovación organizativa para optimizar la promoción de múltiples hábitos saludables en atención primaria. El objetivo es estimar el coste-efectividad y el coste-utilidad de la prescripción de actividad física en el pilotaje del programa PVS, respecto a la práctica clínica habitual de promoción de la actividad física en atención primaria.
Métodos: Se llevó a cabo una evaluación económica del pilotaje *cuasi* experimental PVS. En los cuatro centros de control se seleccionó una muestra sistemática de 194 pacientes que visitaron el centro durante 1 año y que no cumplían las recomendaciones de actividad física. En los cuatro centros de intervención se captaron consecutivamente 122 pacientes que recibieron la primera prescripción de actividad física. Los costes se evaluaron desde la perspectiva del programa PVS con la metodología *bottom-up*. Tanto la efectividad (proporción de pacientes que modificaron su actividad física) como la utilidad fueron evaluadas basalmente y a los 3 meses. Se calcularon la razón de coste-utilidad incremental (RCUI) y la razón de coste-efectividad incremental (RCEI), y se realizó el análisis de sensibilidad con *bootstrapping* con 1000 repeticiones.
Resultados: Se obtuvo información de un 35% de los casos control y de un 62% de los casos con intervención. La RCUI fue de 1234,66 € por año de vida ajustado por calidad (AVAC) y la RCEI fue de 4,12 €. En un 98,3% de las simulaciones el RCUI estuvo por debajo del umbral de 30.000 €/AVAC.
Conclusiones: La prescripción de actividad física se muestra en unos límites aceptables de coste-utilidad en el pilotaje de PVS, incluso desde una perspectiva conservadora.

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Introduction

Unhealthy habits and the associated risk factors are the most important causes of disease and death in developed countries.[1] Evidence shows that 65-80% of cardiovascular disease, 75-90% of type 2 diabetes and 20-30% of all cancers could be prevented if the population were persuaded to adopt a healthy diet, take up physical exercise and stop smoking.[2,3] Different studies consistently attribute a 50% decrease in mortality and an eleven year increase in life expectance to the adoption of these habits and moderate alcohol consumption.[4–6]

We believe that the ideal place to implement this type of interventions that address unhealthy habits is primary healthcare (PHC), for accessibility features and continuity. Despite various interventions have shown their effectiveness,[7,8] it is a problem unresolved and healthy lifestyle promotion is far from being integrated in routine primary care practice.[9,10]

For this reason, in 2008, phase I of the action-research project "Prescribe Vida Saludable" (PVS) was piloted in PHC, in order to set up innovative interventions optimizing the promotion of multiple healthy habits (physical activity, healthy diet, abstinence from smoking) consisting of multiple active ingredients based on main theoretical models of behaviour change and fundamentally, in the 5As strategy (Ask, Advise, Agree, Assist and Arrange follow-up), and modelled by professionals in each intervention centre.[11] Professionals in four PHC centres adapted evidence based interventions to their real life context, carrying out organizational changes, including community services (schools, multisport centres, town halls...) and developing new information and communication tools, so that these innovative programmes could be feasible, sustainable and potentially effective. In 2010, phase II was piloted. Its aim was to evaluate the potential feasibility and effectiveness of the PVS in four different reference centres following their usual health promotion practice.

This project is included in the "Strategy to tackle the challenge of chronicity in the Basque Country of the Basque Healthcare Service": Policy II, prioritize health promotion and disease prevention; Policy III, potentialize the active role of the patient, his responsibility and autonomy; Policy IV, guarantee continued assistance by stimulating multidisciplinary assistance, coordinated and integrated in the different services, levels and sectors of care and Strategic Project 14, clinical professional innovation.

Specifically, the World Health Organization recognizes physical inactivity as one of the principal risk factors for morbidity and mortality.[12] The lack of physical activity not only contributes to the increase in prevalence of chronic disease such as cardiovascular disease, obesity, type 2 diabetes, osteoporosis, colon cancer, depression and fall-related injuries, but also contributes to the direct cost of healthcare in developed countries by between 1.5% and 3.0%.[13]

In the usual clinical practice, general practitioners usually recommend an increase in physical activity, since even a moderate increase has been shown to improve quality of life.[14] Nevertheless, the rates and prevalence of physical inactivity remain high.[15]

The aim of this analysis is to evaluate the efficiency of prescribing physical activity in the PVS programme by means of the estimation of its incremental cost-effectiveness and cost-utility, with respect to the usual clinical practice of promoting physical activity in those who consult for whatever reason.

Methods

An economical evaluation of the quasi-experimental piloting of PVS from programme perspective was undertaken. In the Basque Country 8 PHC centres participated: 4 control centres, 4 intervention centres. In the intervention centres, 122 patients between 10 and 65 years old who did not meet with the minimum public health physical activity recommendations (at least 30 min of moderate physical activity 5 days per week, or at least 20 min of vigorous intensity physical activity 3 days per week[16]) were selected and subsequently received a first physical activity prescription plan between May 2012 and May 2013. In the control centres a systematic sample by age and sex of 194 patients between 10 and 65 years old who did not meet with the minimum physical activity recommendations during the data collection period were selected. Intervention and control patients were measured at baseline and at 3 months. The census-based deprivation index, used as a proxy for the socioeconomic status, was developed for the MEDEA project,[17] where the first quintile includes the areas with higher socioeconomic status and the fifth quintile includes areas with low socioeconomic status.

In the intervention centres, having checked the patients' physical activity, the doctors and nurses provided summary advice and educational materials to the patients and offered an additional appointment in order to prescribe a personalized physical exercise plan. It was assumed that the intervention centres were carrying out the same procedure as the control centres with the addition of the PVS programme promoting physical activity.

Costs

The costs were evaluated from the perspective of the PVS programme, this implied that there were no costs in the control centres since the programme was not deployed. The bottom-up method of collecting cost data was used in the intervention centres. The bottom-up method consists of registering the resources used by each centre and converting them into monetary units.[18] To quantify the resources used at patient level, the number of assessment, advisory and prescription of physical activity consultations were counted. The conversion to monetary units was carried out by means of a unit cost for each action: Assessment (A1), Advice (A2), and Prescription (A4).

The unit cost of every action was estimated using the unitary cost of professional intervention (€/minute), the percentage of dedication of each professional to each intervention (%) and the time spent on each intervention (minutes).

The professionals in PHC centres implicated in the PVS programme are administrative assistants, nurses and physicians. In order to calculate the unitary cost of each professional, the gross salary, social security and corresponding structural cost of a Basque Healthcare professional were taken into account.[19]

The distribution of professionals in each action appears in Table 1. The dedication to each action of the professionals implicated in the PVS programme was measured using the report of the professionals who participated in A1, A2 and A4. Using a sample of 32 professionals, each action (A1, A2, A4) was timed during three months of the pilot programme in 2010.

Effectiveness

The effectiveness was measured by means of a comparison of the people in the pilot study who changed. To measure the change, the 7-day Physical Activity Recall (PAR) questionnaire was used[20]. The 7-day PAR registered the time spent in all kinds of leisure and occupational activity which lasted more than 10 minutes accumulated in the 7 days previous to the appointment, the physical intensity being classified as moderate, vigorous and very vigorous. The proportion of participants who attained the minimum recommended level of physical activity was calculated directly, which are modifiers physical activity habits. The incremental effectiveness was calculated on the difference between the proportion of patients