

## Evaluation of biopsychosocial and nutritional impact of a social prescription about Mediterranean diet in Primary Care

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### Abstract

**Objective:** The aim of this study was to determine the biopsychosocial and nutritional impact of a social prescription about Mediterranean diet on a group of people at nutritional risk. **Methods:** A quasi-experimental, pretest-posttest study was conducted, for which 10 patients over age of 65 and who lived alone were selected. Participants were evaluated using the COOP/WONCA, Predimed and MNA questionnaires. **Results:** The intervention was associated with a decrease of pain perceived and a change in health status in the patients. Likewise, we observed a reduction in weight and an improvement of social relationships after the social prescribing. **Conclusions:** The social prescription of a Mediterranean diet could improve the biopsychosocial and the nutritional status of patients at nutritional risk, which would contribute to reducing the healthcare burden of Primary Care.

**Key-words:** Aged. Diet Mediterranean. Primary Health Care. Social Participation.

### Evaluación del impacto biopsicosocial y nutricional de una prescripción social sobre dieta mediterránea en Atención Primaria

#### Resumen

**Objetivo principal:** El objetivo de este estudio fue determinar el impacto biopsicosocial y nutricional de una prescripción social sobre dieta mediterránea en un grupo de personas con riesgo nutricional. **Metodología:** Se realizó un estudio cuasi-experimental, pretest-posttest, para el cual se seleccionaron 10 pacientes mayores de 65 años de edad y que vivieran solos. Los participantes se evaluaron mediante los cuestionarios COOP/WONCA, Predimed y MNA. **Resultados principales:** La intervención se asoció a una disminución del dolor expresado y un cambio en el estado de salud. Asimismo se constató una tendencia hacia la disminución del peso y mejora de las relaciones sociales. **Conclusión principal:** La prescripción social sobre dieta mediterránea podría mejorar la esfera biopsicosocial y el estado nutricional de pacientes con riesgo nutricional, lo que contribuiría a reducir la carga asistencial de Atención Primaria.

**Palabras clave:** Anciano. Atención Primaria de Salud. Dieta Mediterránea. Participación Social.

### Introduction

The current primary health care (PHC) promotes the implementation of innovative care strategies, such as Social Prescribing (SP), in order to influence health determinants of a population and to reduce the number of drug prescriptions.<sup>1</sup>

SP is the non-clinical measures and services package offered by the community, at the disposal of health professionals of PHC, to lead and give support to patients that can benefit from its activities.<sup>2</sup> The SP interventions are implemented with the collaboration of healthcare professionals and social workers. There must be a structural balance between the two areas and

all the personnel involved is committed to using the resources in the most efficient manner possible to tackle address the health determinants in a broad sense.<sup>3</sup>

The management of patients with chronic illnesses requires a broad integrated approach that is not usually possible in daily primary health care,<sup>4</sup> but in which SP could play an important role.<sup>5</sup> Thereby, there is evidence about SP based on social-physical activity interventions,<sup>6</sup> psychosocial programmes with art therapy sessions and visits to museums,<sup>7-9</sup> among others,<sup>10</sup> could improve the physical condition of the participants,<sup>6</sup> their perception of health,<sup>7</sup> their working career,<sup>8</sup> as well as their self-esteem and self confidence,<sup>9</sup> their abilities

and social contacts.<sup>9</sup> However, so far there is no study that has evaluated the effectiveness of a nutritional SP. Therefore, the objective of the present study has been to evaluate the nutritional and biopsychosocial impact of a SP with dietary interventions on a group of people with nutritional risk.

## Methodology

A quasi-experimental pilot study using a pretest-posttest design was carried out in the Primary Care Centre Morera-Pomar (Badalona), between October of 2018 and February of 2019. A total of 10 patients, over age of 65, and who lived alone at Morera y Pomar, were selected by a convenience, non-probabilistic sampling method. These patients were included due to its potential nutritional risk.<sup>11</sup> On the contrary, patients with cognitive impairment or who were illiterate were excluded.

The recruitment of the participants was carried out in two phases. In the first one, which lasted three weeks, nursing and medical personnel informed all the patients who potentially fulfilled all the selection criteria, registering those who showed interest in the ECAP software package. In the second phase, which lasted two weeks, the compliance of the selection criteria for the proposed participants in the previous phase was confirmed via the telephone. Furthermore, the participants were informed about the set up of the SP: day of the week, timetable, number of sessions and content of it, so as to finally elaborate the final list of the first 10 participants, who verbally accepted to participate. Their consent was subsequently ratified by filling out an informed consent form.

The SP intervention dealt with Mediterranean diet and it was structured in 5 sessions. The sessions were once a week and each one lasted 2 hours. During the intervention, the participants were taught about the Mediterranean diet as well as activities related to a healthy diet (Table 1).

**Table 1.** Characteristics and content of the Social Prescription (SP)

Activity	Content and characteristics	Duration
Pretest evaluation	The sessions and their purpose were explained via personal interviews. The patient was handed the information sheet, the informed consent form and the necessary documentation for the pre-test evaluation	15 minutes per participant
Session 1	Introduction of the participants and intervention presentation, with the tasting of a Mediterranean breakfast. A video was shown about "tricks and skills" to do the shopping in a responsible and healthy manner. The information dossier about basic eating guidelines relevant to the Mediterranean diet was handed to the participants	2 h
Session 2	Projection of an educational PowerPoint presentation about the concept of the Mediterranean diet, healthy habits, groups of food, their sugar content and the preparation of different menus in accordance to Mediterranean diet and the plate method*.	2 h
Session 3 and 4	Practical workshop to prepare the recipes that were designed in the previous session and which adapted to the age and to the disposable income of the participants. The workshop was carried out to promote the Mediterranean diet with economic recipes that were easy to make.	2 h each one
Session 5	Projection of a PowerPoint presentation where it was explained and identified the physical location of the health assets that the Health area of Badalona has. In this session, we also handed out a dossier which contained the resources and activities of the Health area of Badalona that promoted a healthy lifestyle: hikes, yoga workshops, fall prevention... At the end of the session, a satisfaction survey was carried out among the participants	2 h
Posttest evaluation	Evaluation "post-intervention" 2 months after finalizing the SP	15 minutes per participant

\*The plate must be divided into 3 parts: 2 quarters made up of non-starchy vegetables, 1 quarter of starchy foods and 1 quarter of protein based foods

The evaluations pre and post-intervention (2 months after finishing SP) included a study of the nutritional and biopsychosocial status by means of the questionnaires: (a) COOP/WONCA: It evaluates the health-related quality of life (HRQoL) by scoring each item on a Likert-type scale from 1 to 5 (corresponding to best and worst HRQoL, respectively); (b) Predimed (PREvención con DIeta MEDiterránea). It assesses adherence to the Mediterranean diet, according to the following criteria: a score  $\geq 9$  corresponds to a high adherence to the Mediterranean diet, and a score  $<9$  corresponds to a low adherence to the Mediterranean diet; and (c) MNA (Mini Nutritional Assessment). It evaluates the risk of malnutrition and distinguishes among patients: with adequate nutrition status (score from 24 to 30 points); at risk for malnutrition (score from 17 to 23.5 points); and malnourished (score  $<17$  points).

The results were presented as number and percentage or mean  $\pm$  standard deviation (S.D.) for the qualitative and quantitative data, respectively. Bivariate analysis was performed by paired samples t-tests. The software IBM SPSS Statistics (version 24) was used for the statistical processing of the data. A p-value less than 0.05 was considered significant throughout the study.

The study was performed with the approval of the Clinical Investigation Ethical Committee of l'IDIAP Jordi Gol (P18/152). Likewise, pursuant to the Declaration of Helsinki and Data Protection Act (Organic Law 3/2018), data confidentiality was guaranteed at all times.

## Results

Nine participants completed the study, the tenth one only attended the first session of SP, consequently this participant was excluded from the analysis. The sample consisted of 2 men and 7 women with an average age of  $75.6 \pm 5.7$ .

In relation to the HRQoL, there were only significant differences between pre- and post-evaluations with regards to pain perceived and change in health. Likewise, it should be noted that although social support improved after SP, the difference was not statistically significant (Table 2).

On the other hand, despite the nutritional status of participants did not change significantly (MNA questionnaire), we observed a better adherence to the Mediterranean diet as well as a reduction in weight after the SP (Table 2).

**Table 2.** Pre and post-evaluation of the health-related quality of life (COOP/WONCA questionnaire), degree of adherence to the Mediterranean diet (Predimed questionnaire) and nutritional status (MNA questionnaire) of the participants (n=9). The statistical significance ( $p<0.05$ ) was studied by test t-student for related samples

	Pre-evaluation (mean±S.D.)	Post-evaluation (mean±S.D.)	
<b>Weight</b>	75.2±14.9	73.9±13.8	
<b>MNA</b>	26.6±1.6	27.6±2	
<b>Predimed</b>	8.5±1.1	11.3±1	
<b>COOP/WONCAS</b>	Overall health	3.1±0.3	2.6±0.7
	Change in health	3.1±0.6	2.6±0.7
	Feelings	2.1±1.5	2.4±1.3
	Pain	3.5±0.7	2.4±1.1
	Physical fitness	3.4±1.1	3±1
	Daily activities	1.1±0.3	1.1±0.3
	Social activities	1±0	1±0
	Social support	3±1.3	1.8±1
	General quality of life	2.2±1	2±0.5

\*Not calculable because the standard error of the difference between two means is zero

## Discussion

This present study has showed that a SP about Mediterranean diet affects positively on the biopsychosocial and nutritional status of patients at nutritional risk, improving the adherence to the Mediterranean diet and decreasing pain. These results, from the clinical point of view, could be translated into a decrease in the number of requested medical consultations thereby, a reduction in the care load of PHC.

The Mediterranean diet has attracted a lot of attention in recent years due to the positive effects on health that it is credited with, and also to its association with good quality of life.<sup>12</sup> Thereupon, a greater adherence to the Mediterranean diet with the consumption mainly of olive oil, vegetables, legumes and fruit has been related to a decrease in cardiovascular events, and in particular to a lower incidence of coronary disease, myocardial infarction, and strokes.<sup>13</sup>

The causes of nutritional risk in older people are multifactorial (e.g. cognitive deterioration, poor eating habits, poor self-perceived health, or loss of appetite); so it is not always easy to pinpoint exactly which is the most determining factor.<sup>14, 15</sup> On the other hand, different studies indicate the suitability of a community healthcare professional who aids these patients in the nutritional management in order to favour their participation in the community and increase their social network;<sup>16</sup> furthermore, he/she would also provide support to other health professionals.<sup>17</sup> In this way, nursing staff play a key role as a link between the patient and the health system, as they occupy an optimum position to develop health promotion activities oriented to address situations of nutritional risk.<sup>18</sup> In a society like the Spanish one, with low natality, population ageing and increased prevalence of chronic diseases, it is necessary to introduce changes in the healthcare model to tackle in a more proactive way the new typology of patient. According to this, March et al.<sup>19</sup> agree that a community approach may be more effective than an individual one when developing preventive measures. This theory would bestow a major role on interventions such like SP; whose common

purpose is to increase the empowerment of the patient in the self-care of his chronic health, and to encourage health promotion and disease prevention.

The main limitations of the study were the small size of the sample and the short duration of the intervention. Although we would have liked to conduct the present study on a large scale, it was not possible due to reduced physical space and to limited human capital available. If we had carried out it under the existing conditions, the development of the sessions would have been compromised. Both limitations might explain the lack of significant differences between pre and post-test evaluations, having only been able to demonstrate improving trends for many of the measures evaluated.

## Conclusion

Interventions like SP contribute to raise awareness of the importance of implementing healthy lifestyles. Specifically, SP about Mediterranean diet improves biopsychosocial and nutritional status which could decrease the number of requested medical consultations and thereby, reduce the care load of PHC. These results place SP as key interventions for a proactive approach of prevalent chronic diseases in the community. Larger studies are necessary to elucidate the impact that this type of activities could cause on general population health.

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## Bibliografía

- Helliwell JF. Determinants of well-being and their implications for health care. *Ann Nutr Metab* 2019; 74 Suppl 2:8-14.
- Friedli L. Developing social prescribing and community referrals for mental health in Scotland. Scotland: Scottish Development Centre for Mental Health. Healthier Scotland, 2007.

3. Pescheny JV, Pappas Y, Randhawa G. Facilitators and barriers of implementing and delivering social prescribing services: a systematic review. *BMC Health Serv Res* 2018; 18:86.
4. Moffatt S, Steer M, Lawson S, Penn L, O'Brien N. Link worker social prescribing to improve health and well-being for people with long-term conditions: qualitative study of service user perceptions. *BMJ Open* 2017; 7:e015203.
5. Bertotti M, Frostick C, Hutt P, Sohanpal R, Carnes D. A realist evaluation of social prescribing: an exploration into the context and mechanisms underpinning a pathway linking primary care with the voluntary sector. *Prim Health Care Res Dev* 2018; 19:232-245.
6. López-Téllez A, Río Ruiz J, Molinero Torres F, Fernandez Maldonado I, Martínez Zaragoza I, Prados Torres P. [Effectiveness of a social-physical activity intervention program in an elderly social risk population]. *Semergen* 2012; 38:137-144.
7. Heijnders M, Meijs J. 'Welzijn op Recept' (Social Prescribing): a helping hand in re-establishing social contacts – an explorative qualitative study. *Prim Health Care Res Dev* 2018; 19:223-231.
8. Stickley T, Hui A. Social prescribing through arts on prescription in a U.K. city: participants' perspectives (part 1). *Public Health* 2012; 126:574-579.
9. Thomson LJ, Lockyer B, Camic PM, Chatterjee HJ. Effects of a museum-based social prescription intervention on quantitative measures of psychological wellbeing in older adults. *Perspect Public Health* 2018; 138:28-38.
10. Chatterjee H, Camic P, Lockyer B, Thomson L. Non-clinical community interventions: a systematised review of social prescribing schemes. *Arts & Health* 2017; 10:97-123.
11. Hanna KL, Collins PF. Relationship between living alone and food and nutrient intake. *Nutr Rev* 2015; 73:594-611.
12. Martínez-González MA, Salas-Salvadó J, Estruch R, Corella D, Fitó M, Ros E, PREDIMED INVESTIGATORS. Benefits of the mediterranean diet: insights from the PREDIMED Study. *Prog Cardiovasc Dis* 2015; 58:50-60.
13. Grosso G, Marventano S, Yang J, Micek A, Pajak A, Scalfi L et al. A comprehensive meta-analysis on evidence of Mediterranean diet and cardiovascular disease: Are individual components equal?. *Crit Rev Food Sci Nutr* 2017; 57:3218-3232.
14. O'Keeffe M, Kelly M, O'Herlihy E, O'Toole PW, Kearney PM, Timmons S, et al. Potentially modifiable determinants of malnutrition in older adults: A systematic review. *Clin Nutr* 2019;38:2477-2498.
15. Pérez-Ros P, Vila-Candel R, López-Hernández L, Martínez-Arnau FM. Nutritional status and risk factors for frailty in community-dwelling older people: a cross-sectional study. *Nutrients* 2020;12:1041.
16. Choi YJ, Ailshire JA, Crimmins EM. Living alone, social networks in neighbourhoods, and daily fruit and vegetable consumption among middle-aged and older adults in the USA. *Public Health Nutr* 2020;14:1-9.
17. Murphy J, Bracher M, Tkacz D, Aburrow A, Allmark G, Steward K, et al. Malnutrition in community-dwelling older people: lessons learnt using a new procedure. *Br J Community Nurs* 2020;25:193-195.
18. Moreno Hidalgo CM, Lora López P. Intervenciones enfermeras aplicadas a la nutrición. *Nutr Clin y Diet Hosp* [Internet]. 2017 [acceso 10 de septiembre de 2019]; 37(4):189-193.
19. March S, Torres E, Ramos M, Ripoll J, García A, Bullete O et al. Adult community health-promoting interventions in primary health care: A systematic review. *Prev Med* 2015; 76:S94-S104.