Participatory management of the chronically ill patient in primary care

Dr. María Augusta Reyes Pérez.
Professor of Medicine at the Universidad Regional Autónoma de los Andes (UNIANDES Ambato)
Email: ua.mariareyes@uniandes.edu.ec, https://orcid.org/0000-0002-8882-7672

Dr. Marcia Alexandra Silva Mata.
Professor of Medicine at the Universidad Regional Autónoma de los Andes (UNIANDES Ambato)
Email: ua.marciasilva@uniandes.edu.ec, https://orcid.org/0000-0002-9462-9605

Dr. Olivia Altamirano Guerrero
Professor of Medicine at the Universidad Regional Autónoma de los Andes (UNIANDES).
Email: ua.oliviaaltamirano@uniandes.edu.ec, Orcid: https://orcid.org/0000-0002-7613-5329

Abstract

Introduction: Patient engagement and activation in self-care and focused care are important issues in primary health care.

Objective: To determine whether a participatory planning intervention has any impact on HRQOL in patients with chronic diseases.

Methods: A real-life randomized control study integrated into daily work was conducted in 28 primary care practices.

Results: After 12 months, there was a significant decrease in systolic blood pressure and mean arterial pressure in the intervention groups.

Conclusions: Treatment with a participant patient care plan was not significantly superior to usual care after a 12-month follow-up.

Keywords: chronic diseases, arterial hypertension, primary care, participation, intervention source: DeCS

DOI Number: 10.14704/nq.2022.20.13.NQ88195 **Neuro Quantology 2022; 20(13):1562-1567**

Resumen

Introducción: La participación y la activación del paciente en el autocuidado y la atención centrada son cuestiones importantes de la atención primaria de la salud

Objetivo: Determinar si una intervención de planificación participativa tiene algún impacto en la CVRS de pacientes con enfermedades crónicas

Método: Se realizó un estudio de control aleatorizado de la vida real integrado en el trabajo diario en 28 prácticas de atención primaria.

Resultados: Después de 12 meses, hubo una disminución significativa en la presión arterial sistólica y la presión arterial media en los grupos de intervención

Conclusiones: el tratamiento con un plan de atención del paciente participante no fue significativamente superior en comparación con la atención habitual después de un seguimiento de doce meses.

Palabras clave: enfermedades crónicas, hipertensión arterial, atención primaria, participación, intervención fuente: DeCS

Introduction

Patient participation and activation in self-care, patient-centered care, support for self-management and shared decision-making are essential issues in primary health care and health policy[1]. Populations worldwide are aging rapidly, and the number of chronic diseases and long-term health problems is increasing. Healthcare resources are limited, and continuity of care must be ensured. One of the tools to respond to this demand and collect information is a care or treatment plan[2].

An individual or personalized care plan or treatment plan is a detailed approach to the goals of care tailored to an individual patient's needs. It is a mutual agreement between the patient and the healthcare staff about the goals the patient is willing to achieve to improve his or her health and well-being. It also describes what kind of support the patient needs and the treatment goals from a medical perspective[3][21].

Previous care plan projects reported a decrease in long-term care visits and improvements in blood lipid levels, blood pressure levels, and body mass index (BMI)[4]. In Australia, using a care plan improved the treatment of depressed patients reduced their 10-year risk of cardiovascular disease, and increased their physical activity. The care plan also appears to have the potential to shift the focus from treating a single disease to recognizing the management of the whole package of all chronic diseases[5]. According to the Cochrane review, it has a small positive impact on diabetes control, blood pressure, asthma balance, depression, and self-care, but not on perceived health[6]. The impact of a care plan was found to be greater with more rounds of the care plan, more frequent patient contact with health care, and when the physician treating the patient was more involved in the process.[22]

Health-related quality of life (HRQoL) is a significant healthcare outcome that plays a prominent role in patients with chronic diseases. HRQoL depends on the number of chronic diseases and is higher with a lower disease burden. For example, hypertension and diabetes experienced a lower decline in HRQoL than depression, cancer, asthma and chronic obstructive pulmonary disease[7].

The present study aimed to investigate whether a participatory patient care planning intervention impacts HRQoL and clinical outcomes in primary care patients with hypertension, ischemic heart disease, or diabetes.

Method

A real-life randomized control study integrated into daily work was conducted in 28 primary care practices from 2019-2020 in Santo Domingo. This study was approved by the Universidad Regional Autónoma de Los Andes (UNIANDES).

The study population was based on adult residents (age ≥ 18 years) who had diabetes, ischemic heart disease, or hypertension. They were registered in electronic patient registries. Participating patients were recruited from those patients who had follow-up visit for their disease between February 2019 and March 2020. Of the diabetics, 58 had ischemic heart disease (24%), and 193 had hypertension (80%). Of the patients with ischemic heart disease, 59 (57%) had hypertension. The diabetes group included patients with both type 1 and type 2 diabetes.

A total of 800 patients were informed about the study. In total, 622 patients agreed to participate, but 17 subsequently canceled their participation. Of the 605 participants, 587 patients completed all the data required for this analysis.

Participants were randomly assigned to an intervention or control group receiving usual care (HA). Randomization was stratified according to disease and was performed by a statistician external to the research team.

Intervention

The intervention consisted of the participatory patient care plan (PPCP). It included the patient activation questionnaire form and a request to attach records of self-monitored measurements, such as blood sugar and blood pressure values.

The primary outcomes were health-related quality of life (HRQoL) measured with the 15D[8] and disease-specific outcomes: blood pressure, glycemic control measured with glycosylated hemoglobin (HbA1C), dyslipidemia treatment status measured with low-density lipoprotein cholesterol (LDL-C), and BMI. The 15 D is a generic, comprehensive, standardized, self-administered measure of health-related quality of life.

A fasting blood sample for HbA1C and C-LDL was drawn in a laboratory after 12 h of fasting. A trained nurse measured blood pressure in a sitting position after 10 min of sitting. Diastolic blood pressure (DBP) and systolic blood pressure (SBP) were recorded and mean arterial pressure (MAP) was calculated. The nurse also measured weight in light clothing and height, and body mass index was calculated as weight (kg)/height^2.

The questionnaire asked about educational background and marital status. Accordingly, the presence of other chronic illnesses was asked. Depressive symptoms were measured with the 21-item Beck Depression Inventory[9]. The number of drinks per week and current smoking habits (yes or no and number of cigarettes per day) was asked on the question form.

In all analyses, intention-to-treat analysis was applied. Data were presented as means with standard deviation (SD) and as counts with percentages. Statistical comparisons between groups were performed using a t-test and a chi-square test. Adjusted mean changes in outcome measures between baseline and 12-month measures were assessed by analysis of covariance (ANCOVA), with the baseline measure as covariates. Database and statistical processing of the data were performed and analyzed in SPSS 26 statistical software (SPSS Inc., Chicago, IL, USA). Descriptive statistics were used for the results collection, presentation and interpretation.

Results

There were 289 patients (54% women) in the intervention group and 298 patients (50% women) in the usual care group. The mean age in both groups was 69 years. After a 12-month follow-up, there was a significant decrease in systolic blood pressure and mean arterial pressure in the intervention and usual care groups when all participants were evaluated together (Table 1). There were no significant differences in changes in 15D, BMI, C-LDL, HbA1C, or blood pressure between the intervention and usual care groups.

Table 1. Baseline values and changes after 12 months of patient outcomes in intervention and usual care groups.

	Base		Change		p-value	
Variables	Intervention Mean (SD)	Usual care Mean (SD)	Intervention Mean (SD)	Usual care Mean (SD)	Crude	Adjusted
HRQoL, score 15D	0,867 (0,095)	0,876 (0,093)	0,004 (-0,003 a 0,01)	- 0,002 (- 0,009 a 0,005)	0.26	0.42
Body mass index, kg/m2	29,2 (5,2)	29,5 (5,8)	- 0,17 (- 0,35 a 0,01)	- 0,04 (- 0,19 a 0,11)	0.28	0.25
C-LDL, mmol/l	2,67 (0,97)	2,59 (0,92)	-0,01 (- 0,09 a 0,09)	0,06 (-0,02 a 0,14)	0.32	0,45
HbA1C, mmol/mol	40,9 (8,2)	41,8 (8,8)	0,4 (-0,1 a 1,0)	0,1 (-0,5 a 0,8)	0.46	0.83
Blood pressure (mmHg)						
systolic	148 (17)	148 (18)	-3,3 (-5,6 a -1,0)	-2,5 (-4,5 a -0,5)	0,62	0,64
diastolic	82 (11)	82 (10)	-1,1 (-2,4 a 0,1)	- 1,1 (- 2,2 a 0,0)	0.94	0.90
Mean arterial pressure	103 (11)	103 (11)	-1,9 (-3,3 a -0,4)	-1,6 (-2,8 a -0,3)	0.75	0.74

Source: statistical analysis, $p \leq 0.05$, SD standard deviation, HRQoL health-related quality of life, C-LDL low-density lipoprotein cholesterol, HbA1C glycosylated hemoglobin.

In patients with hypertension, HbA1C increased, and blood pressure decreased in both groups. In patients with ischemic heart disease, HbA1C increased in both groups. In patients with diabetes, BMI decreased in the intervention group. There were no significant changes in 15D, BMI, C-LDL, HbA1C, or blood pressure between intervention and usual care in either disease group.

There were no significant changes in 15D, BMI, C-LDL, HbA1C or MAP in any disease group between intervention and usual care, although the change in BMI slightly favored intervention in patients with diabetes.

Discussion

The intervention group did not appear to benefit significantly from the participating patient's care plan after a 12-month follow-up compared with the usual care group in any disease group measured by health-related quality of life (HRQoL) or disease-specific outcomes. There was a slight decrease in body mass index within the diabetes group but not in usual care at the 12-month follow-up, although the difference between intervention and usual care was not highly significant.

Few studies are found after the Cochrane review besides the study that has follow-up while measuring the impact of care plans. A retrospective observational study of patients with type 2 diabetes in primary care with a mean follow-up time of 14 months showed a statistically significant decrease in C-LDL, blood pressure, and BMI[10]. A telephone interview study of asthmatic women after a 2-year follow-up showed greater medication adherence and satisfaction with clinical care among patients who had a negotiated care plan but no significant associations between a negotiated care plan, asthma control, and the use of urgent care[11]. In a 1-year primary care-based follow-up study in Australia, a care plan improved the treatment of depressed patients, reduced their 10-year risk of cardiovascular disease, and increased their physical activity[5]. This study was the TrueBlue model of collaborative care using practice nurses as case managers, with the care plan not being the only intervention used to improve care for depressed patients with diabetes or heart disease. A UK implementation study with primary care patients showed no significant difference in mean vitality after one year of follow-up[12]. The findings are in line with these studies, although the influence was more significant in the Australian study, perhaps partly due to enhanced nurse and GP visits every three months during the 12-month follow-up. In the study, patients continued their individually planned follow-up with their physician after 12 to 24 months or with the nurse after 6 to 12 months, depending on their individual needs.

The trend of the findings parallels previous research on diabetes control, as it showed a small positive impact on BMI, although not significant on diabetes control. According to research, the care plan positively impacts diabetes control, blood pressure, asthma balance, depression, and self-care, but not perceived health[13]. The impact of the care plan was found to be greater with more care plan rounds, more frequent patient contact with medical care, and if there was continuity with the same physician in the care plan process. In a cross-sectional study, a personalized care plan was positively associated with better clinical outcomes in patients with type 2 diabetes, such that patients who had a copy of their care plan were much more likely to achieve their goals[14].

The study found no significant changes in HRQoL. The present study with a 12-month follow-up, may have several issues related to small changes in HRQoL. Previously, a study indicated that the decline in HRQoL is more significant in diabetes than in coronary heart disease or hypertension[15]. In cardiovascular disease, older patients seem to experience a smaller decline in HRQoL compared to healthy patients. It is plausible that in the present study, patients with ischemic heart disease had a reasonably stable treatment situation, which is reflected in a low dropout rate. In older patients with diabetes, higher HRQoL and better HbA1C balance have been associated. In the study, people with diabetes had an excellent treatment balance on average. Hypertension, especially hypertension awareness, is known to decrease HRQoL slightly, although the study included only patients with known hypertension[16].

Previous studies have shown a possible tendency to make care plans for patients with a worse therapeutic balance, which may affect the efficiency of the care plan[17]. In the study, patients were randomized, and there was no selection according to therapeutic balance. Their therapeutic balance was good, particularly in HbA1C in diabetic patients, although BMI, C-LDL and blood pressure could be better in all disease groups. However, the therapeutic balance was so good that improvement in any part of this type of patient material would be quite challenging[18].

A participatory care plan and involvement in the care plan process make patients more involved in their care and make their treatment more patient-centered[19,20]. This can lead to greater self-efficacy and better control of long-term clinical outcomes. However, given the relatively short follow-up in the study, outcomes may improve with more rounds of the care plan in the future. Twelve months is a comparatively short time for older patients to change their lifestyles and maintain new self-care patterns. In addition, many have suffered from long-term illnesses for a long time and have already adjusted their lifestyle to the disease.

Conclusions

Among primary care patients with hypertension, ischemic heart disease, or diabetes, treatment with a participating patient care plan was not significantly superior compared with usual care after a 12-month follow-up. The follow-up period might have been short for this type of intervention and setting, suggesting the need for a longer follow-up.

References

1. Dineen-Griffin S, Garcia-Cardenas V, Williams K, Benrimoj SI. Helping patients help themselves: A systematic review of self-management support strategies in primary health care practice. PLoS One [Internet]. 2019;14(8):e0220116. Disponible en: https://pubmed.ncbi.nlm.nih.gov/31369582/
2. Young CE, Boyle FM, Mutch AJ. Are care plans suitable for the management of multiple conditions? J Comorb [Internet]. 2016 [citado 21 de agosto de 2022];6(2):103-13. Disponible en: https://pubmed.ncbi.nlm.nih.gov/29090181/
3. Morgan MA, Coates MJ, Dunbar JA. Using care plans to better manage multimorbidity. Australas Med J [Internet]. 2015 [citado 28 de agosto de 2022];8(6):208-15. Disponible en: https://pubmed.ncbi.nlm.nih.gov/26213584/
4. Vuohijoki A, Mikkola I, Jokelainen J, Keinänen-Kiukaanniemi S, Winell K, Frittitta L, et al. Implementation of a Personalized Care Plan for Patients With Type 2 Diabetes Is Associated With Improvements in Clinical Outcomes: An Observational Real-World Study. J Prim Care Community Health [Internet]. diciembre de 2020 [citado 21 de agosto de 2022];11:2150132720921700. Disponible en: https://pubmed.ncbi.nlm.nih.gov/32450742/
5. Morgan MAJ, Coates MJ, Dunbar JA, Reddy P, Schlicht K, Fuller J. The TrueBlue model of collaborative care using practice nurses as case managers for depression alongside diabetes or heart disease: a randomised trial. BMJ Open [Internet]. 24 de enero de 2013 [citado 27 de agosto de 2022];3(1):e002171. Disponible en: https://pubmed.ncbi.nlm.nih.gov/23355671/
6. Coulter A, Entwistle VA, Eccles A, Ryan S, Shepperd S, Perera R. Personalised care planning for adults with chronic or long-term health conditions. Cochrane Database Syst Rev [Internet]. 3 de marzo de 2015 [citado 22 de agosto de 2022];(3):CD010523. Disponible en: https://pubmed.ncbi.nlm.nih.gov/25733495/
7. Samiei Siboni F, Alimoradi Z, Atashi V, Alipour M, Khatooni M. Quality of Life in Different Chronic Diseases and Its Related Factors. Int J Prev Med [Internet]. 2019 [citado 28 de agosto de 2022];10:65. Disponible en: https://pubmed.ncbi.nlm.nih.gov/31198500/
8. Sintonen H. The 15D instrument of health-related quality of life: properties and applications. Ann Med [Internet]. julio de 2001 [citado 21 de agosto de 2022];33(5):328-36. Disponible en: https://pubmed.ncbi.nlm.nih.gov/11491191/
9. Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J. An inventory for measuring depression. Arch Gen Psychiatry [Internet]. junio de 1961 [citado 27 de agosto de 2022];4:561-71. Disponible en: https://pubmed.ncbi.nlm.nih.gov/13688369/
10. Patel MR, Valerio MA, Janevic MR, Gong ZM, Sanders G, Thomas LJ, et al. Long-term effects of negotiated treatment plans on self-management behaviors and satisfaction with care among women with asthma. J Asthma [Internet]. febrero de 2013 [citado 28 de agosto de 2022];50(1):82-9. Disponible en: https://pubmed.ncbi.nlm.nih.gov/23189924/
11. Reeves D, Pye S, Ashcroft DM, Clegg A, Kontopantelis E, Blakeman T, et al. The challenge of ageing populations and patient frailty: can primary care adapt? BMJ [Internet]. 28 de agosto de 2018 [citado 8 de julio de 2022];362:k3349. Disponible en: https://pubmed.ncbi.nlm.nih.gov/30154082/
12. Burt J, Roland M, Paddison C, Reeves D, Campbell J, Abel G, et al. Prevalence and

benefits of care plans and care planning for people with long-term conditions in England. J Health Serv Res Policy [Internet]. enero de 2012 [citado 28 de agosto de 2022];17 Suppl 1:64-71. Disponible en: https://pubmed.ncbi.nlm.nih.gov/22315479/

13. Saarni SI, Härkänen T, Sintonen H, Suvisaari J, Koskinen S, Aromaa A, et al. The impact of 29 chronic conditions on health-related quality of life: a general population survey in Finland using 15D and EQ-5D. Qual Life Res [Internet]. octubre de 2006 [citado 21 de agosto de 2022];15(8):1403-14. Disponible en: https://pubmed.ncbi.nlm.nih.gov/16960751/
14. Mikkola I, Hagnäs M, Hartsenko J, Kaila M, Winell K. A Personalized Care Plan Is Positively Associated With Better Clinical Outcomes in the Care of Patients With Type 2 Diabetes: A Cross-Sectional Real-Life Study. Can J Diabetes [Internet]. marzo de 2020 [citado 27 de agosto de 2022];44(2):133-8. Disponible en: https://pubmed.ncbi.nlm.nih.gov/31399365/
15. Rothrock NE, Hays RD, Spritzer K, Yount SE, Riley W, Cella D. Relative to the general US population, chronic diseases are associated with poorer health-related quality of life as measured by the Patient-Reported Outcomes Measurement Information System (PROMIS). J Clin Epidemiol [Internet]. noviembre de 2010 [citado 21 de agosto de 2022];63(11):1195-204. Disponible en: https://pubmed.ncbi.nlm.nih.gov/20688471/
16. Aro AK, Karjalainen M, Tiihonen M, Kautiainen H, Saltevo J, Haanpää M, et al. Glycemic control and health-related quality of life among older home-dwelling primary care patients with diabetes. Prim Care Diabetes [Internet]. diciembre de 2017 [citado 22 de agosto de 2022];11(6):577-82. Disponible en: https://pubmed.ncbi.nlm.nih.gov/28754430/
17. Jansen DL, Heijmans M, Rijken M. Individual care plans for chronically ill patients within primary care in the Netherlands: Dissemination and associations with patient characteristics and patient-perceived quality of care. Scand J Prim Health Care [Internet]. junio de 2015 [citado 21 de agosto de 2022];33(2):100-6. Disponible en: https://pubmed.ncbi.nlm.nih.gov/25961964/
18. Smith SM, Wallace E, O'Dowd T, Fortin M. Interventions for improving outcomes in patients with multimorbidity in primary care and community settings. Cochrane Database Syst Rev [Internet]. 14 de marzo de 2016 [citado 28 de agosto de 2022];3:CD006560. Disponible en: https://pubmed.ncbi.nlm.nih.gov/26976529/
19. Mittler JN, Martsolf GR, Telenko SJ, Scanlon DP. Making sense of «consumer engagement» initiatives to improve health and health care: a conceptual framework to guide policy and practice. Milbank Q [Internet]. marzo de 2013 [citado 21 de agosto de 2022];91(1):37-77. Disponible en: https://pubmed.ncbi.nlm.nih.gov/23488711/
20. Tusa N, Kautiainen H, Elfving P, Sinikallio S, Mäntyselkä P. Relationship between patient activation measurement and self-rated health in patients with chronic diseases. BMC Fam Pract [Internet]. 4 de noviembre de 2020 [citado 23 de agosto de 2022];21(1):225. Disponible en: https://pubmed.ncbi.nlm.nih.gov/33148185/
21. Noroña RFD, Martínez NG, Plasencia AR. Relación del estrés, afectaciones respiratorias y el vértigo con el tratamiento del tinnitus. Universidad y Sociedad [Internet]. 2022 [cited 2022 Oct 6];14(S3):35–44. Available from: https://rus.ucf.edu.cu/index.php/rus/article/view/2932
22. González IA, Fernández AJR, Cobo AEG. Leyes de etiquetado frontal como garantía de protección a la salud de los consumidores. Universidad y Sociedad [Internet]. 2022 [cited 2022 Oct 6];14(S3):52–9. Available from: https://rus.ucf.edu.cu/index.php/rus/article/view/2934