

# EFFECT OF HOME VISITS IN THE MAINTENANCE OF DAILY LIFE ACTIVITIES OF ADULTS IN POSTOPERATIVE PERIOD

## EFEITO DE VISITAS DOMICILIARES NA MANUTENÇÃO DAS ATIVIDADES DE VIDA DIÁRIA DE ADULTOS EM PÓS-OPERATÓRIO

## EFFECTO DE LAS VISITAS DOMICILIARIAS EN EL MANTENIMIENTO DE LAS ACTIVIDADES DE LA VIDA DIARIA DE LOS ADULTOS EN EL POSTOPERATORIO

António Manuel Rocha Fonseca Pinto<sup>1</sup>  
Elisabete Pimenta Araújo Paz<sup>2</sup>  
Amâncio António de Sousa Carvalho<sup>3</sup>

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**Objective:** to evaluate the effects of implementing a home visiting (HV) program for adults in the Daily Life Activities (DLA) domain. **Method:** quasi-experimental study with users of a hospital center in north Portugal, with the application of the Hip Disability and Osteoarthritis Outcome Score LK2.0 scale. Data processing was performed through SPSS. **Results:** most participants were male (61.4%) and were 65 years old or older (65.9%). There was no significant effect on HV program interaction, on multivariate composite (DLA Observation1 and DLA Observation2) MANOVA:  $p=0.164$ , but average DLA domain score in both groups increased from Observation1 to Observation2, with the most pronounced increase in the Experimental Group. **Conclusion:** the HV program had no significant effect on improving the DLA domain, but slightly contributed to the user's autonomy.

**Descriptors:** Osteoarthritis, Hip. Activities of Daily Living. Early Intervention (Education). Community Health Nursing. House Calls.

*Objetivo: avaliar os efeitos da implantação de um programa de visitas domiciliares (VD) a pessoas adultas no domínio Atividades de Vida Diária (AVD). Método: estudo quasi-experimental, com usuários de um centro hospitalar do Norte de Portugal, aos quais se aplicou a escala Hip Disability and Osteoarthritis Outcome Score LK2.0. O tratamento de dados foi realizado pelo SPSS. Resultados: a maioria dos participantes era do sexo masculino (61,4%) e pertencia à faixa etária dos 65 anos ou mais (65,9%). Não se verificou um efeito significativo na interação do programa de VD, sobre o compósito multivariado (AVD Observação1 e AVD Observação2) MANOVA:  $p=0,164$ , mas a média da pontuação do domínio AVD nos dois grupos, em comparação, aumentou da Observação1 para a Observação2, sendo*

<sup>1</sup> Nurse. MSc in Community Nursing. Centro Hospitalar de Trás-os-Montes e Alto Douro. Vila Real, Portugal. <https://orcid.org/0000-0002-1272-1679>

<sup>2</sup> Nurse. PhD in Nursing. Professor at the Universidade Federal do Rio de Janeiro. Rio de Janeiro, Rio de Janeiro, Brazil. [bete.paz@gmail.com](mailto:bete.paz@gmail.com). <https://orcid.org/0000-0002-1692-0253>

<sup>3</sup> Nurse. PhD in Child Studies. Professor at the Universidade de Trás-os-Montes e Alto Douro. Vila Real, Portugal. [amanciocarv@hotmail.com](mailto:amanciocarv@hotmail.com) <http://orcid.org/0000-0002-1573-5312>

*o aumento mais pronunciado no Grupo Experimental. Conclusão: o programa de VD não teve efeito significativo na melhora do domínio AVD, mas contribuiu ligeiramente para a autonomia do usuário.*

*Descritores: Osteoartrite do Quadril. Atividades Cotidianas. Intervenção Precoce (Educação). Enfermagem em Saúde Comunitária. Visita Domiciliar.*

*Objetivo: evaluar los efectos de implementar un programa de visitas domiciliarias (VD) para adultos en el dominio de actividades de la vida diaria (AVD). Método: estudio cuasiexperimental con usuarios de un hospital en el norte de Portugal, con la aplicación de la escala Hip Disability and Osteoarthritis Outcome Score LK2.0. El procesamiento de datos se realizó a través de SPSS. Resultados: la mayoría de los participantes eran hombres (61,4%) y tenían 65 años o más (65,9%). No hubo un efecto significativo sobre la interacción del programa VD en el compuesto multivariado (AVD Observation1 y AVD Observation2) MANOVA:  $p=0.164$ , pero el puntaje promedio del dominio AVD en ambos grupos aumentó de Observation1 a Observation2, siendo el aumento más pronunciado en el Grupo Experimental. Conclusión: el programa de VD no tuvo un efecto significativo en la mejora del dominio AVD, pero contribuyó ligeramente a la autonomía del usuario.*

*Descritores: Osteoartritis de la Cadera. Actividades Cotidianas. Intervención Temprana (Educación). Enfermería en Salud Comunitaria. Visita Domiciliaria.*

## Introduction

In recent decades, the aging of the population has become a worldwide phenomenon. In demographic terms, it has become one of the main factors of change in the population structure, that is, the inversion of the population pyramid. Until the year 2050, one in every five people will be 60 years or more, totaling two billion people around the world<sup>(1)</sup>. In 2015, the elderly already accounted for 12% of the world population, a number expected to double until 2050<sup>(2)</sup>.

One of the consequences of the elevation of standards of increased longevity is the increased burden of chronic degenerative diseases. These, in turn, are intimately related to the increase in sequels that cause some kind of limitation to perform daily life activities (DLA). Osteoarthritis (OA) is the most important rheumatic disease, affecting all components of the joints. It is one of the ten most debilitating diseases in developed countries, being one of the main causes of pain and disability throughout the world. Globally, estimates show that 9.6% of men and 18% of women aged over 60 years suffer from symptomatic OA<sup>(3)</sup>.

Other authors also claim that OA is the most common joint disease in the world, and

its prevalence increases with age<sup>(4,5)</sup>. In Brazil, it affects approximately 6% through 12% of adults and more than a third of the elderly, representing a disease that generates high costs for the health systems<sup>(4)</sup>. According to the Portuguese League Against the Rheumatic Diseases, in industrialized countries, the rheumatic and musculoskeletal disorders affect more people than any other group of diseases. They reaches a quarter of all people in the European Union, totaling more than 120 million people, being the biggest cause of labor shortages due to illness and early retirement around the world. In this region, public spending with these diseases totals more than 200,000 million euros per year, which makes the disease more expensive for the socioeconomic and health systems in Europe<sup>(6)</sup>.

Data from nine Portuguese studies conducted between 1976 and 2000 indicate that rheumatic diseases are the most prevalent chronic pathology, accounting for 28% to 37% of chronic pathologies in the Portuguese population. These results are in line with other studies carried out in Portugal during the same period, in which the complaints related to the musculoskeletal system corresponded to 29.5% of major health problems. The osteoarthrosis corresponds to 3.8% of the reasons for consultation at Primary Health Care

units, being the second most common cause of total spending on medicines, the first cause of absenteeism at work and of the total number of days of sick leaves, the leading cause of temporary/permanent impairment and, in the final analysis, the first cause of retirements<sup>(7)</sup>.

OA is a chronic degenerative joint disease evidenced by the wear of the articular cartilage, characterized by pain, especially in the mornings, morning stiffness, crackling bone and muscle atrophy, whose risk factors include age, female sex, obesity, excessive joint overload, trauma, periarticular lesions, some occupational risks and genetic components<sup>(5)</sup>.

The pain initially comes with the joint movement, followed by an increase in its frequency and intensity. Subsequently, the patient feels it even at rest. With the worsening of the disease, there are joint stiffness, deformity, inflammatory signs, articular crepitation, limitation of motion and limping gait, signal with a tendency to deteriorate over time, increasing the functional disability in the performance of the DLA, consequently decreasing the quality of life. The coxarthrosis is the onset of most Total Hip Arthroplasties (THA) held annually in the USA and in Portugal<sup>(8)</sup>.

After hospital discharge, the user submitted to the THA still shows limitations to perform ADL. The home visit (HV) by the nursing is a necessary activity of great importance to help return to a "normal" life, aiming at health promotion, in a health-disease and disease-health transition<sup>(9)</sup>, by means of an integral, resolute and contextualized care, suitable to the user's culture and family dynamics<sup>(10)</sup>. HV in Portugal can be multidisciplinary or of each health professional, with the Nurses responsible for executing this activity.

Therefore, nursing HV is an important instrument widely used in the Health Education (HE) process, which establishes a set of knowledges and nursing practices geared toward disease prevention and health promotion, constituting a strategy in daily work, which may trigger changes in attitudes and behaviors, enabling the improvement of quality of life and

autonomy of users involved. It is, therefore, complex in its development, being essential to return autonomy in care and consequent improvement in people's quality of life<sup>(11)</sup>.

Currently, nursing has an extremely important role in the satisfaction of patients' needs, particularly those regarding information and training, after undergoing THA. The body of scientific knowledge held by nurses allows for developing skills that will enable, through the HV, guiding, educating, training, and providing the means for the individual, the family and the community have conditions to become independent<sup>(10)</sup>.

The objective of HV is to promote, maintain or restore health, seeking to maximize the independence and minimize the effect of the disease or impairment on the individual. It seeks to develop the person's capacities, relearning new skills and, consequently, providing greater autonomy to perform DLA. In this way, it contributes to increasing the premises of health promotion as defined by the World Health Organization, promoting and maximizing gains in health in its practice<sup>(10,12)</sup>.

After THA, the individual has a set of limitations in his/her activities of life, "imposed" for the success of arthroplasty and, consequently, for his/her full recovery. The recovery measures must not be confined to an intervention directed only to the curative treatment related to an acute situation, but should also be directed to the needs for support in DLA and care for rehabilitation.

As a nursing activity, HV can be seen as a *continuum* of health care provided to the individual or to the family, provided at home context, whose objective is to promote, maintain or restore health, seeking to maximize the independence and minimize the effects of the disease or impairment on the individual. The purpose is to facilitate an early return to the domicile, reducing the time of hospitalization, risk of comorbidities, as is the case of healthcare-associated infections. Nursing HV allows for the accomplishment of activities scheduled in the household, facilitating these professionals know

the social context and identify the health needs of families<sup>(9)</sup>.

The HV program of community nurses, in this context, should include actions such as teaching, education, training, assistance, supervision on topics such as: walking with the aid of a walker or Canadian crutches; positioning; sitting; self-care on hygiene; dressing or undressing; using the restroom; lying down and standing up; and informing about the existence of technical aid<sup>(13)</sup>.

Thus, “[...] regarding the relevance of the care provided to the patient undergoing hip arthroplasty, the practice of home visits should be incorporated as a tool for health promotion”<sup>(14:75)</sup>. During this visit, the nurse can take actions that promote autonomy and improve the quality of life related to DLA. In this context, this study aims to evaluate the effects of implementing a home-visiting program for adult patients in the field of DLA.

## Method

Intervention, quasi-experimental study<sup>(15)</sup>, carried out at the orthopedics sector of a hospital and in the community context, from a municipality of Vila Real, located in north Portugal, whose total population was 51 thousand people in 2011, of which approximately 18.0% were 65 years or more<sup>(16)</sup>.

The study population consisted of 50 users hospitalized at the Orthopedics Service of a Hospital Center in North Countryside of Portugal, in the period from July to December 2012, with an indication of THA for improvement of conditions stemming from coxarthrosis. Of these, 88% (N=44) agreed to participate in the study. The cases (N=21) were selected in the pre-operative THA and included in the HV Program of the Nurse (intervention), being part of the experimental group (EG). The controls (N=23) were users admitted for the same reason, but received no HV of the nurse for implementation of the program, representing the control group (CG). This group followed post-discharge recommendations imposed by the Hospital Center.

Users were not randomly selected for each group, being selected based on the area of coverage of Health Centers. Users who belonged to the area of health centers that were willing to follow voluntarily the HV program were included in the EG and other users, in the CG.

The data collection instrument was a form consisting of three parts: the first was the sociodemographic characterization; the second, the Hip Disability and Osteoarthritis Outcome Score (HOOS LK 2.0) scale, validated for the Portuguese population<sup>(17)</sup>; and the third contained questions concerning the post-discharge HV program. The HOOS scale assesses the impairment caused by problems in the hip, including the DLA. The present study refers only to the DLA domain. Socioeconomic characterization based on information on sex, age, marital status, education, place of residence (urban and rural) and labor status (active and inactive). The scale was applied in two moments of data collection, pre and post-intervention (Observation 1 and Observation 2).

The first moment of assessment was performed preoperatively, with the user admitted; the second was conducted in a community context in the third postoperative month. The implementation of the HV program was performed by the nursing team of health centers covering the user's area of residence, previously instructed, in order to standardize the procedures. These visits during those periods resulted from the fact of being the process of transition from hospital to home, where the rehabilitation became necessary and the autonomy of these users remained limited.

The HV program contemplated two previously scheduled visits with the user. The nurse's role was to offer knowledge, educate and train users in their DLA through HE. The first visit allowed for identifying the difficulties in the adaptive process at home and in the execution of DLA, being carried out with the user, who was educated and trained in the gait, sitting/standing up, lying down/standing up, dressing/undressing, hygiene and using the restroom, and monitoring of post-operative complications. In the second visit, the user

was requested to perform DLA and train those still not performed, correcting errors and movements that could put at risk the integrity of the prosthesis and, again, monitoring of post-operative complications. Both groups were followed in the hospital appointment and received routine care of professionals of Health Centers.

The scores that represented the DLA domain were analyzed by means of descriptive statistics (mean, minimum and maximum values) and the differences in the sociodemographic characteristics between EG and CG were observed by means of  $\chi^2$  tests. The relationship between the means of the DLA domain obtained in both moments (O1 and O2) was verified in relation to each sociodemographic variable, by means of non-parametric tests (Mann-Whitney and Kruskal-Wallis).

Subsequently, a MANOVA at two fixed factors was requested to evaluate the effect of the HV intervention program on the DLA. Concomitantly, the effect of the program and sociodemographic variables was assessed on the composite of the average score of the DLA domain, at both observations (O1 and O2). The HV program (EG), with another factor (independent variable) were placed successively as factors, including sex, age, marital status, schooling and labor status<sup>(18)</sup>. Data

analysis was performed with the aid of SPSS 20.0 software (@IBM, 2013).

For this study, an authorization was requested to the Board of Directors of the Hospital Center, whose Ethics Committee issued a favorable opinion (Protocol on 06/27/2012). The procedures followed the norms from the Declaration of Helsinki.

## Results

Of the total number of participants (n=44), most were males (61.4%), 65 years or more (65.9%), with the first and second cycles of schooling (61.4%), married (70.5%), predominantly lived in the rural area (77.3%) and did not have labor activity (79.5%), with mean age of 68.3 years (minimum 47 and maximum 85 years). Regarding sociodemographic characteristics, there were no significant differences between the participants from the intervention group (EG) and control group (CG).

The average score of the DLA domain in the two groups increased from O1 to O2, but the increase was more pronounced in the EG (77.35) than in the CG (70.01) from O1 to O2. This means that disability related to self-care in ADL decreased from O1 to O2 (Table 1).

**Table 1** – Distribution of mean, minimum and maximum values of the Activities of Daily Living domain of the Hip Disability and Osteoarthritis Outcome Score by group and observation. Vila Real, Portugal – 2012 (N=44)

HOOS		Control group			Experimental group		
		Mean	Minimum	Maximum	Mean	Minimum	Maximum
Daily Life	Observation 1	25.80	2.94	48.44	31.30	11.76	62.50
Activities	Observation 2	70.01	5.88	98.53	77.35	45.59	95.59
Domain							

Source: Created by the authors.

In the intersection between the DLA domain and the attribute variables, O1 showed no statistically significant differences; the O2 showed

the same behavior, except for the sex variable ( $p=0.033$ ). In this case, the male sex obtained

highest mean position (25.78 versus 17.29 female), that is, had less disability in DLA (Table 2).

**Table 2** – Intersection between Daily Life Activities Domain of the Hip Disability and Osteoarthritis Outcome Score and sociodemographic variables, by observation. Vila Real, Portugal – 2012 (N=44)

Variables	n	Mean position	Test value	Degrees of freedom	Probability
DLA Observation 1 X Sex					
Male	27	15.00	MW = 162	–	0.103
Female	17	18.53			
DLA Observation 2 X Sex					
Male	27	25.78	MW = 141	–	<b>0.033</b>
Female	17	17.29			
DLA Observation 1 X Age group					
45 – 64 years	15	24.33	MW = 190	–	0.496
≥ 65 years	29	21.55			
DLA Observation 2 X Age group					
45 – 64 years	14	19.89	MW = 173.50	–	0.357
≥ 65 years	30	23.72			
DLA Observation 1 X Marital status					
Unmarried	4	17.75	KW = 1.113	2	0.573
Married	31	22.19			
Widow(er)	9	25.67			
DLA Observation 2 X Marital status					
Unmarried	4	27.13	KW = 0.733	2	0.693
Married	31	21.60			
Widow(er)	9	23.56			
DLA Observation 1 X Schooling					
Cannot read or write	7	15.00	KW = 4.127	2	0.127
Can read and write	10	27.85			
1 <sup>st</sup> and 2 <sup>nd</sup> cycles	27	22.46			
DLA Observation 2 X Schooling					
Cannot read or write	7	20.21	KW = 0.326	2	0.849
Can read and write	10	23.80			
1 <sup>st</sup> and 2 <sup>nd</sup> cycles	27	22.61			
DLA Observation 1 X Residence					
Urban	10	17.70	MW = 122	–	0.179
Rural	34	23.91			
DLA Observation 2 X Residence					
Urban	10	25.95	MW = 135.50	–	0.334
Rural	34	21.49			
DLA Observation 1 X Labor condition					
Active population			MW = 140	–	0.610
Inactive population	9	24.44			
	35	22.00			
DLA Observation 2 X Labor condition					
Active population			MW = 126.50	–	0.367
Inactive population	9	19.06			
	35	23.89			

Source: Created by the authors.

Legend: KW: Kruskal-Wallis; MW: Mann-Whitney; DLA: Daily Life Activities

There were no statistically significant differences ( $p > 0.05$ ) in the multivariate analysis of the MANOVA test, at two fixed factors, between the composite of the average score of the DLA domain, in both observations (O1 and O2), the HV program (EG) and sociodemographic variables, except for marital status.

In the intersection between the DLA domain and the factors HV program and marital status, there was a significant mid-size effect ( $\eta^2 p = 0.126$ ), in the interaction of the HV program with the variable Marital status on the multivariate composite (DLA O1 and DLA O2) (Pillai's trace = 0.251; F of Snedcor [2.39] = 2.732;  $p = 0.035$ ; Power = 0.729). The calculated power is, however, average. This means that the interaction of variables HV program and marital status had a significant effect on the DLA domain composite in O1 and O2 of the HOOS, with the unmarried elderly as those who benefited most from the program, presenting lower functional disability in DLA, in O2, comparing to O1 (means in O2 of the widowed, unmarried and married elderly, respectively, 84.04, 81.74 and 73.76 versus O1, respectively, 42.46, 21.63 and 29.24). For the widowed and married elderly, this improvement was less pronounced.

The MANOVA related to the HV program factor revealed no significant effect in the interaction of the HV program over the multivariate composite (DLA O1 and DLA O2) (Pillai's trace = 0.084; Z [1, 42] = 1.888;  $p = 0.164$ ; Power = 0.370). Nevertheless, the average in this domain increases from O1 to O2, always being higher in the EG than in the CG. This means that the HV program had some effect on the improvement of the average of this domain (the average in EG in O2 was 77.35, whereas in CG was 70.01), but without statistically significant differences.

## Discussion

Users participating in the study were mostly male (60.09%), in both groups, which differs

from most of the consulted literature, which says that the OA is more prevalent in females. Nonetheless, these results are in agreement with those obtained in a study conducted in Coimbra (Portugal)<sup>(19)</sup>, in which 62.5% of subjects were male, and also with the study conducted in Minas Gerais (Brazil)<sup>(20)</sup>, which found 55.3% of male individuals. The mean age was 68.3 years, which corroborates the bibliography, which refers to the predominance of coxarthrosis in the second half of life and the prevalence of degenerative arthrosic changes between 55 and 65 years of age<sup>(21)</sup>.

Regarding academic qualifications, 61.4% had the first and second cycles, but 15.9% could not read or write, which is in line with the last census of the Portuguese population<sup>(22)</sup>, in which, in the northern area of the country, 15.62% of the individuals had no schooling level and 54.89% had the first and second cycles of schooling. This result is also in line with another study in Lisbon<sup>(21)</sup>, in which the participants possessed, as qualifications, basic education or less, in which 63.3% could read and write, and 22.2% had the first cycle, that is, it was a sample with low schooling, as in this study.

Regarding the marital status, individuals from both groups were mostly married (70.05%), which corroborates studies conducted in Coimbra and Lisbon<sup>(19,21)</sup>, in which most subjects were married, with the percentages of 87.5% and 64.0%, respectively, results that can be related to the age range of participants in the study.

In this study, although there were no statistical differences, the average of the DLA domain of the HOOS scale always increased from O1 to O2, either in the CG, either in the EG. However, these differences were more significant in the latter group. The same happened in a study conducted in Italy<sup>(23)</sup> (n=145), with the intention to translate and validate the HOOS scale for the Italian population, which confirmed the existence of an increase in the average score in all areas from O1 to O2, after the THA.

The average score of the DLA domain in O2 differed between the sexes, being higher in males. This difference between the two sexes can be explained by men's better perception of health status, as reported by the author of another study<sup>(24)</sup> performed in Portugal (n=300), which aimed to evaluate the health-related QOL of the elderly according to sex. Another study performed in Bragança, Portugal<sup>(25)</sup>, with the objective of evaluating the perception of Health-Related Quality of Life (n=1111 users, aged over 18 years, enrolled in the Health Centers of the ACeS Trás-os-Montes I - Northeast), found that the mean values of the QOL related with the DLA were higher in males, as in the present study.

The multivariate analysis allowed for the calculation of a significant statistical effect in the intersection between the set of averages DLA O1 and DLA O2, the HV program and the variable marital status, with this result concerning the interaction between marital status and the HV program. This result can be attributed to the HV program, which was more useful to users without a partner.

The widespread increased average in the DLA domain of the HOOS, in both groups, can be explained by the implementation of the THA, to which all participants were submitted. In turn, the most substantial increase observed in the EG may result from the implementation of the HV program to which this group was subject<sup>(21)</sup>. However, the absence of a statistically significant difference between the averages of both groups under analysis may result from the accomplishment of only two HV, in the context of intervention in the EG, which may have not been sufficient to a significant increase in the average for this group.

This study has some limitations, especially regarding the use of a non-probabilistic sample of convenience, which limits the generalization of the results for this population.

## Conclusion

The sociodemographic variables did not influence the DLA domain of the scale, among

the study participants, and the HV program caused an increase in the average of this domain, especially in the EG, which was, however, not statistically significant. Therefore, the program had no effect on the DLA. The sex variable influenced the DL domain in O2, with men perceiving lower impairment to perform DLA.

The interaction between the Nursing HV intervention program and marital status influenced the set DLA O1-DLA O2, and this effect is only visible in O2, revealing that unmarried users, who probably live alone, seem to benefit more from the program. The impairment related to DLA improved from O1 to O2, although without statistically significant differences, which could be a result of the implementation of the nursing HV intervention program, in the execution of DLA of EG users.

The study has implications for the nursing care provided, with the implementation of the HV program. The nurses that collaborated in this implementation are now more aware of the importance of HV and support they can give to this group, from a disease situation to a healthier situation, in the process of transition from a hospital unit for the community. Its continuity will be an added value to the quality of life and self-care, with gains in health.

New studies in the area may prove to be important for the therapeutic relationship between the community nursing and the individual subjected to THA, and this study can serve as a starting point for more prolonged future investigations, with higher sampling and randomness, which allow for corroborating, or not, the present findings.

## Collaborations:

1 – conception, design, analysis and interpretation of data: António Manuel Rocha Fonseca Pinto, Elisabete Pimenta Araújo Paz and Amâncio António de Sousa Carvalho;

2 – writing of the article and relevant critical review of the intellectual content: António Manuel Rocha Fonseca Pinto, Elisabete Pimenta Araújo Paz and Amâncio António de Sousa Carvalho;



3 – final approval of the version to be published: António Manuel Rocha Fonseca Pinto, Elisabete Pimenta Araújo Paz and Amâncio António de Sousa Carvalho.

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