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ORIGINAL ARTICLE

REMOTE EDUCATIONAL INTERVENTIONS FOR THE LITERACY OF ADULTS WITH ARTERIAL HYPERTENSION IN PRIMARY CARE

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ABSTRACT

Objective: to analyze the remote educational interventions for the literacy of adults with hypertension in primary care. **Method:** practical intervention, developed from the knowledge about hypertension, of adults registered in a basic health unit located in a Metropolitan Region, in the state of Paraná, Brazil, from March to December 2020. A clinical and sociodemographic questionnaire, Item-Eight *Health Literacy Assessment Tool* and *Hypertension Knowledge-Level Scale were applied.* Telephone calls were audio-recorded and later transcribed into a field diary. Instrument data were analyzed by simple, relative, mean frequencies and standard deviation, and field diary information by domains. **Results:** in the assessment of health literacy, an increase in the mean was observed in the question related to low and high quality health information on the internet. In the knowledge instrument, the questions related to medication adherence, diet and change in lifestyle presented 100% of correct answers in the second moment. **Conclusion:** remote educational interventions showed influence on health literacy and knowledge about hypertension, with an increase in correct answers on issues related to health information on the internet and change in lifestyle; thus, the potential of telemonitoring as a way of monitoring and promoting health, favoring the control of the disease is highlighted.

Keywords: Health literacy. Chronic diseases. Systemic arterial hypertension. Knowledge. Nursing.

INTRODUCTION

Systemic arterial hypertension (SAH) is a chronic disease that is characterized as the main cause of expenses and hospitalizations in the public health system, and represents a modifiable risk factor for cardiovascular diseases (CVD). The prevalence of hypertension in Brazilian adults is 32.3%, considering blood pressure (BP) ≥140 x 90 mmHg and the use of antihypertensive medication [(1)]. It should be noted that the disease has an asymptomatic and multifactorial course, and these factors cause secondary complications and morbidity and mortality[(2)].

Health teams, especially nurses, stand out in the approach to secondary prevention[(1)], promoting the empowerment of people with SAH through health education actions, planning and management of qualified care, in addition to comprehensive care that provide changes in behavior and adoption of new life habits[(3)] in order to avoid and/or minimize complications of SAH, improve quality of life and health literacy (HL). In the VIII Brazilian Guidelines on SAH, care actions performed by nurses are listed, which should be focused on the person, for the development of HL, through health education, developed through home visits, remote monitoring and group educational sessions [(1)].

Such educational activities can help in the strengthening of HL, defined as a competence that provides the improvement of the health condition, through the access to information

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which favors the people in the daily decision making [4], enables a better understanding of written materials, spoken orientations, associated with previous and cultural knowledge. Low HL levels result in high hospitalization rates, high costs with health services and worse general health status [5].

Adequate levels of HL result in lifestyle changes (LSC) and increase health knowledge, which reflect in self-care and in the reduction of health services costs, by reducing complications[4]. Another aspect that may influence the search for health information for the control of the disease refers to the knowledge related to SAH, which in its incompleteness makes it impossible to understand aspects related to drug and non-medication treatment, with limitation in quality of life and autonomy to cope with the disease and its conditions[6].

Many methods and strategies are presented to stimulate and develop skills for disease control; however, the effectiveness of such actions is due to the collaboration and attitudes of the persons with chronic disease. In this sense, the remote monitoring of chronic diseases presents itself as a favorable measure in the search for resolution of health problems, facilitating access to information; however, the professionals executing this strategy must provide quality guidelines that are feasible within the reality of each person[7]. Based on this, the following research question was formulated: do remote educational interventions influence the literacy of adults with hypertension in primary care?

Thus, the objective of this study was to analyze the remote educational interventions for the literacy of adults with hypertension in primary care.

METHOD

This is a practical intervention developed in a Basic Health Unit located in a Metropolitan Region in the State of Paraná, Brazil. It is noteworthy that the study is part of a larger project entitled: chronic diseases and health education: multiple approaches to nursing, which uses several strategies for health education carried out by nursing, aimed at health literacy and knowledge of the disease, in this cut the educational environment used was remote monitoring.

The development period occurred from January to December 2020. Data collection was carried out in four stages: 1) documentary research to select of participants; 2) recruitment; 3) nursing consultation; and 4) remote educational interventions.

The selection of participants was based on a list of the health unit with the names and registration codes of all the people attended, and 639 were identified with a diagnosis of SAH. When performing the active search in the electronic medical record, 136 people were eligible to participate in the research. The inclusion criteria were age between 18 and 65 years, presenting in the records of the electronic medical record BP measurement ≥140x90 mmHg in 2019, being in the area covered by the unit in question.

Recruitment was carried out by telephone; however, it was not possible to contact 85 people due to the lack of a telephone number, 18 refused to participate and two due did not participate due to change of location. Thirty-one people accepted to participate in the research, who signed the Term of Commitment for Freedom of Clarification (TCFC), guaranteeing their rights and allowing audio recording of the application of the instruments and guidelines.

The instruments with clinical and sociodemographic variables, *Item-Eight Health Literacy Assessment Tool* (HLAT-8) and the Brazilian version of the *Hypertension Knowledge-Level Scale* (HK-LS) were applied in the nursing consultation. Based on the previous analysis of the least scored questions in the HK-LS, the goals for disease control were planned together with the participants.

The HLAT-8 is an HL assessment instrument developed in Switzerland translated and culturally adapted to Brazilian Portuguese, validated in 2017 by Quemelo *et al*. In the Brazilian version, a Cronbach's alpha coefficient of 0.74 was obtained. The instrument consists of eight questions on a Likert-type scale, where affirmatives are presented and the participants answer according to the degree of agreement with that

phrase, reaching 4 to 5 points per question, the higher the score, the higher the degree of agreement [8].

The questions are related to the four structural factors: Understanding of Health Information (UHI; items 1 and 2); Search for Health Information (SHI; items 3 and 4); Interactivity in Health (IH; items 5 and 6); and Critical Health Knowledge (CHK; items 7 and 8). The higher is the score of the item and overall, the higher the level of HL [8].

The HK-HL is a scale that assesses knowledge in different domains about SAH, developed in English, validated and adapted to Brazilian Portuguese in 2018, by Arthur *et al*. Content and face validation was performed using the Delphi technique, with Cronbach's alpha and Content Validity Index of 0.92 and 0.84, respectively. There are 22 statements, which can be answered with: "right", "wrong" and "I do not know", divided into six domains of knowledge: definition (items 1 and 2), medical treatment (items 6, 7, 8 and 9), medication adherence (items 3, 4, 5 and 12), lifestyle (items 10, 11, 13, 16 and 17), diet (items 14 and 15) and complications (items 18 to 22). The score ranges from zero to 22, and the statements "I do not know" are considered as wrong and do not receive a score[6].

The remote educational interventions were carried out through telephone calls, being audio-recorded, and occurred in three rounds with the prior authorization of the participants, from August to December 2020. During the communication, the participants were asked about the achievement and difficulties in the execution of the goals agreed in the nursing consultation. For those who expressed difficulties, the goals were reformulated and recorded in a field diary.

Inclusion, allocation, follow-up and analysis data were organized in a flow diagram to show the progression of the group of participants from the beginning to the end of the analysis. The clinical and sociodemographic information and scores of the instruments obtained in the nursing consultation (initial time (T1)) and in the last telephone call round (final time (T2)), were inserted in Microsoft Excel® spreadsheets and analyzed descriptively (absolute (n) and relative (%) frequency) and by central tendency (mean and standard deviation (SD)).

The audio-recordings were transcribed in full with the support of a field diary in Microsoft Word® and analyzed by the domains: medication, physical activity, substance use, weight control and diet, and describing the difficulties expressed by the participants. Based on this, we sought in the VIII Brazilian Guideline on Arterial Hypertension evidence for the formulation and standardization of guidelines according to the demands, to promote the reformulation of the goals and the guidelines made by the researchers.

The study was conducted in accordance with the requirements of the Resolution of the National Health Council 466/2012, and approved by the Research Ethics Committee of the University of Southern Brazil, under opinion number 3703283.

RESULT

A total of 31 people with SAH were assessed in the nursing consultation, and in the first round of telephone calls 21 (67.7%) answered the calls and received guidance related to the care to be taken to control the disease. It is noteworthy that 8 (25.8%) did not answer any of the three calls in the first round and 2 (6.4%) had an invalid phone number.

In the second round of calls, 14 (45.1%) participants were contacted, while 12 (38.7%) did not answer the calls and 5 (16.2%) had an invalid number in this round. At the end of the follow-up, in the third round 11 (35.4%) participants answered the call, 15 (48.4%) did not answer and 5 (16.2%) had the invalid number. Figure 1 shows the flow diagram to illustrate the inclusion, allocation, follow-up and analysis of the participating sample.

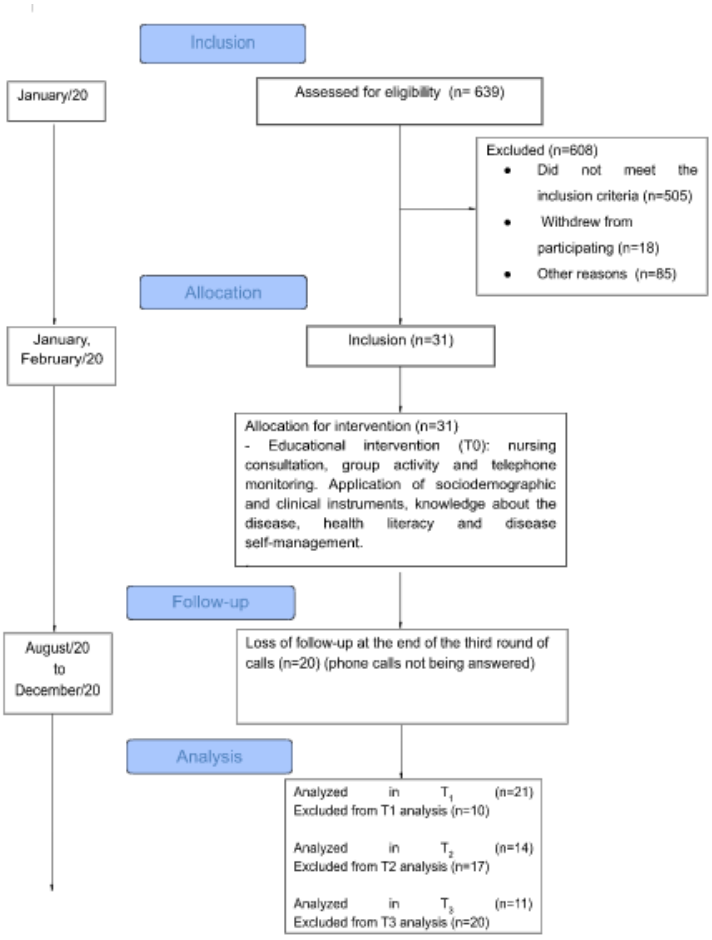

Figure 1. Representation of the inclusion, allocation, follow-up and analysis of participants with SAH, by adapting the CONSORT diagram. Metropolitan Region of Curitiba, Paraná, Brazil, 2020.

Box 1 describes the difficulties reported by the participants during remote educational interventions, as well as the reformulation of the agreed goals and guidelines, based on the VIII Brazilian Guideline on Arterial Hypertension.

Box 1. Domains, difficulties, goals and guidelines, according to the records of the field diary. Metropolitan Region of Curitiba, Paraná, Brazil, 2020.

DOMAINS	DIFFICULTIES	GOALS AND GUIDELINES
Medications	Take the medications correctly.	Exposure of complications resulting from SAH; Explanation of the therapeutic action of the drug.
Physical Activity	Perform physical exercises as a result of physical impairments.	Take a short walk or stand for five to 10 minutes to minimize sedentary behavior between rests.
	Perform physical exercise as a result of other reasons.	Take 30-minute walks, at least two to three times a week, in the courtyard or in the backyard.
Substance use	Stop using alcohol and cigarettes.	Gradually decrease the use, aiming to cease it.
Manage weight	Reduce weight or maintain weight	Decrease, through food care and physical activity practice.
Diet	Maintain healthy eating.	Consuming fruits and vegetables, reducing salt and processed foods
	Water consumption	Ingest around two liters of water (10 glasses of 200 ml).

When comparing the mean scores of HLAT-8 between times (T1 and T2), there was an increase in the mean of question eight, related to low and high quality health information on the internet. Question one, regarding the understanding of the information present on the package inserts of the medications, remained with the same mean between times; however, there was a decrease in the standard deviation (SD) at T2. It was found that question eight had the highest mean, but after the intervention it showed a decrease and increase in SD. The comparison of the mean scores between the times is presented in Table 1.

Table 1. Comparison of the mean scores of participants with SAH in HLAT-8. Metropolitan Region of Curitiba, Paraná, Brazil, 2020.

HLAT-8 Issues	Time			
	T1		T2	
	Mean	SD	Mean	SD
Q1 – How much do you understand from the instructions on the medicine package inserts?	1.8	1.6	1.8	1.5
Q2 – How much do you understand about the health information in leaflets/ booklets?	2.0	1.6	1.4	1.6
Q3 – When I have questions about diseases or complaints, I know where I can find this information.	2.8	0.4	2.8	0.4
Q4 – When I want to do something for my health without being sick, I know where I can find this information.	2.2	0.9	2.2	1.0
Q5 – How often were you able to help a family member or a friend when they had questions about health problems?	2.9	1.2	2.4	0.5
Q6 – When you had doubts about problems and health issues, how many times were you able to receive advice and information from other people (family and friends)?	2.9	1.5	2.3	1.1
Q7 – How do you believe you know how to choose the advice and recommendations that are best for your health?	3.1	1.0	2.5	1.7
Q8 – Regarding health information on the internet, I am able to determine which sources are of high or low quality.	1.1	1.3	1.2	1.4
Score	19.0	5.7	16.4	5.3

The analysis and the results of comparison of HK-LS, with the wrong and right answers in each time are presented in Table 2.

Table 2. Comparison of right and wrong answers between the times of participants with SAH in HK-LS. Metropolitan Region of Curitiba, Paraná, Brazil, 2020.

HK-LS Issues	T1		T2	
	Right n (%)	Wrong n (%)	Right n (%)	Wrong n (%)
1. High systolic (maximum) or diastolic (minimum) blood pressure indicates increased blood pressure.	23 (74.2)	8 (25.8)	9 (81.8)	2 (18.2)
2. Elevated (minimum) diastolic blood pressure also indicates increased blood pressure.	21 (67.7)	10 (32.3)	8 (72.7)	3 (27.3)
3. High blood pressure is caused by aging, so it does not require treatment.	23 (83.9)	5 (16.1)	10 (90.9)	1 (9.1)
4. If the medication for high blood pressure can control blood pressure, there is no need for lifestyle change.	24 (77.4)	7 (22.6)	11 (100)	0 (0)
5. If people with high blood pressure change their lifestyles, there is no need for treatment.	17 (54.8)	14 (45.2)	11 (100)	0 (0)
6. People with high blood pressure should take their medications in the way they consider most appropriate.	22 (71.0)	9 (29.0)	9 (81.8)	2 (18.2)
7. Medications for high blood pressure should be taken daily.	30 (96.8)	1 (3.2)	11 (100)	0 (0)
8. People with high blood pressure should take their medication only when they feel unwell.	29 (93.5)	2 (6.5)	11 (100)	0 (0)
9. People with high blood pressure should take their medication for the rest of their lives.	27 (87.1)	4 (12.9)	10 (90.9)	1 (9.1)
10. For people with high blood pressure, frying is the best way to	28 (90.3)	3 (9.7)	11 (100)	0 (0)

prepare food.				
11. For people with high blood pressure, cooking only in water or grilling is the best way to prepare food.	30 (96.8)	1 (3.2)	11 (100)	0 (0)
12. People with high blood pressure can eat food without controlling the amount of salt as long as they take their medication every day.	27 (87.1)	4 (12.9)	11 ; 100	0 (0)
13. People with high blood pressure should eat fruits and vegetables frequently.	30 (96.8)	1 (3.2)	10 (90.9)	1 (9.1)
14. The best type of meat for people with high blood pressure is red meat.	19 (61.3)	12 (38.7)	7 (63.6)	4 (36.4)
15. The best type of meat for people with high blood pressure is white meat.	26 (83.9)	5 (16.1)	8 (72.7)	3 (27.3)
16. People with high blood pressure should not smoke.	29 (93.5)	2 (6.5)	9 (81.8)	2 (18.2)
17. People with high blood pressure can drink alcohol at will.	31 (100)	0 (0)	10 (90.9)	1 (9.1)
18. If high blood pressure is not treated it can cause stroke.	31 (100)	0 (0)	11 (100)	0 (0)
19. If high blood pressure is not treated it may cause heart attack.	31 (100)	0 (0)	10 (90.9)	1 (9.1)
20. If high blood pressure is not treated it can cause early death/ anticipate death.	30 (96.8)	1 (3.2)	11 (100)	0 (0)
21. If high blood pressure is not treated it may cause the kidneys to stop working.	28 (90.3)	3 (9.7)	9 (81.8)	2 (18.2)
22. If high blood pressure is not treated it can cause vision problems.	23 (74.2)	8 (25.8)	8 (72.7)	3 (27.3)
Total	31 (100)		11 ; 100	

When using HK-LS, it was observed that the questions related to medication adherence (7 and 8), diet (10, 11 and 12) and change in lifestyle (4 and 5) obtained 100% of correct answers in T2. On the other hand, it was found that there was a decrease in the correct answers in the questions related to the consumption of white meat, vegetables and fruits, as well as the complications related to the lack of control of SAH.

DISCUSSION

In this study, we used remote educational interventions with the use of telephone calls for people diagnosed with SAH, supported by the previous analysis of the HK-LS score and the goals agreed with the participants. The descriptive analysis made it possible to observe the increase of correct answers in the instrument of knowledge about the disease, especially in questions related to the domains of adherence to medication, dietetics and LSC.

Findings that are consistent with a randomized clinical trial that used three interventions, being the telephone follow-up, follow-up application and messages by WhatsApp group, with results in behavior became more physically active, with improvement in eating habits and SEM[9]. Based on this, it is inferred that the telemonitoring, carried out in the present study, along with the agreement of goals, according to the difficulties reported by the participants, resulted in increased knowledge about SAH, a fact that enhances decision-making about health choices, positively interfering with LH.

Another randomized clinical trial conducted in southern Brazil with 94 participants used the case management method through nursing consultation, telephone monitoring, educational activities and home visits, demonstrating positive results in the comparison between groups in the reduction of BP, abdominal circumference, body mass index and adherence to treatment[10]. As in this study, in which follow-up resulted in an increase in correct answers to questions related to these themes, demonstrating an increase in knowledge that may influence greater adherence to LSC and treatment.

Based on the potential of educational interventions aimed at the knowledge of the disease, it is clear that these are fundamental for the development of autonomy and skills to manage health care, as long as they are based on the beliefs and values of people with SAH[11]. Exploratory-descriptive research followed 265 patients with SAH after hospital discharge, revealing that 25% of the participants believed in the cure of the disease[12], a belief that must be known and understood by health professionals, so that knowledge and HL can be strengthened, enhancing the changes necessary to achieve

health objectives.

This fact can be observed in this study, by analyzing the wrong and correct answers of HK-LS in T1, in which it was verified that the question of number five (if people with high blood pressure change their lifestyles, there is no need for treatment) obtained the highest number of wrong answers, a circumstance that may be associated with several factors, including unsatisfactory levels of HL. The difficulty of understanding the instructions and health conditions is related to holders of little HL, succeeding in the absence of self-confidence for the practice of self-care, with losses to adherence to treatment[13].

It was observed by the application of HLAT-8 that the mean with the highest score on T1, referred to knowing how to choose the best advice and recommendations for health; however, in T2 there was a decrease in the mean and increase in SD in this question. This fact may be related to the educational intervention, which clarified some aspects of the disease and care, which until then were taken as effective measures for the control of SAH.

It is pointed out that knowledge about the disease is one of the factors that most influence the management of care and the improvement of quality of life. An integrative review revealed the degree of knowledge and proportionality with quality of care management, which act as facilitators in the identification of signs of worsening of the disease and consequently in the reduction of hospitalizations[14].

Regarding the questions about drug treatment and LSC, there were higher percentages in T2, to the detriment of T1, it is emphasized that during the follow-up there were reports of difficulties in performing physical activity due to limitations, and for medication adherence, and guidance was given on the importance of continuing drug and non-medication treatment. The relative impasses regarding adherence to therapy to control SAH may be the result of cultural factors and beliefs of these people[15].

For the effectiveness of actions aimed at medication adherence due to personal factors, the VIII Brazilian Guideline on Hypertension suggests that health professionals base interventions on motivational strategies, home BP monitoring, promotion of self-care, encouragement and family support, group meetings, remote monitoring by phone calls and exchange of messages[1]. Therefore, it is stated that the health team is the main transmitter of health knowledge and disease management techniques for society, families and individuals[16], who, when seeking guidance from professionals, are more likely to improve their HL level [17].

Regarding the lower HLAT-8 means, referring to the question of high or low quality sources on the internet at both times is justified by the fact that most participants claim to have no experience with the network. Although the literature points to the internet as an ally of better levels of HL, and that Brazilians are in fifth place in the world ranking of people who most seek guidance on diagnosis and self-medication on the internet[17].

In addition, it can be considered that the rapid development of technology has hindered the accessibility of the older population to social communication networks, thus justifying the deficiency of adaptation to new technologies [18].

Regarding the low understanding of the health information present in the package inserts and health leaflets, most of the participants in this study answered that they did not have the habit of reading these medication leaflet. This data Corroborates a qualitative study carried out in South Africa, in which the participants had little access to other sources of knowledge and did not seek any additional information other than that they receive in health institutions during the consultation[12].

In addition, an exploratory qualitative study conducted in Bono, Ghana, with 15 participants, aimed to explore the challenges that patients with SAH when dealing with disease conditions, presents in one of the testimonies the feeling of lack of attention and active listening by health professionals [19]. A factor that reflects in the search and understanding of health information, thus, it is up to services and health professionals to establish a bond with people through home visits, shared action with other members of the multidisciplinary team, in order to strengthen the care network and provide relevant and clear information [1].

We list as limitations the incompleteness of medical records, with personal data of outdated

users, in addition to the difficulty of telephone contact in monitoring, which reduced the final number of participants and the situation of health calamity, due to the Covid-19 pandemic.

CONCLUSION

Remote educational interventions enabled changes in health literacy and knowledge of the disease, increasing the number of correct answers in the instruments used, especially in questions related to medication adherence, dietetics and changes in lifestyle. Thus, such interventions are configured as an option for monitoring and promoting health through telemonitoring, thus contributing to nursing regarding the creation of bonds and the achievement of care for the population in the area covered. This study will serve as a basis for future research, especially with regard to the number of respondents, which was reduced. At another time, when the health conditions of the COVID-19 pandemic are stabilized, is suggested further research with a larger number of respondents.

INTERVENÇÕES EDUCATIVAS REMOTAS PARA O LETRAMENTO DE ADULTOS COM HIPERTENSÃO ARTERIAL NA ATENÇÃO PRIMÁRIA

RESUMO

Objetivo: analisar as intervenções educativas remotas para o letramento de adultos com hipertensão arterial na atenção primária. **Método:** intervenção prática, desenvolvida a partir do conhecimento sobre a hipertensão, de adultos cadastrados em unidade básica de saúde localizada em uma Região Metropolitana, no estado do Paraná, Brasil, de março a dezembro de 2020. Aplicou-se questionário clínico e sociodemográfico, *Item-Eight Health Literacy Assessment Tool* e *Hypertension Knowledge-Level Scale.* As ligações telefônicas foram audiogravadas e, posteriormente, transcritas em diário de campo. Os dados dos instrumentos foram analisados por frequência simples, relativa, média e desvio padrão, e as informações do diário de campo por domínios. **Resultados:** na avaliação do letramento em saúde, observou-se aumento da média na questão relativa às informações de saúde de baixa e alta qualidade na internet. No instrumento de conhecimento, as questões relativas à adesão medicamentosa, dieta e mudança no estilo de vida apresentaram 100% de acertos no segundo momento. **Conclusão:** as intervenções educativas remotas demonstraram influência no letramento em saúde e no conhecimento sobre a hipertensão, havendo aumento de acertos nas questões relativas às informações de saúde na internet e de mudança no estilo de vida. Sendo assim, destaca-se o potencial do telemonitoramento como forma de acompanhamento e promoção de saúde, favorecendo o controle da doença.

Palavras-chave: Letramento em Saúde. Doenças Crônicas. Hipertensão Arterial Sistêmica. Conhecimento. Enfermagem.

INTERVENCIONES EDUCATIVAS REMOTAS PARA LA INSTRUCCIÓN DE ADULTOS CON HIPERTENSIÓN ARTERIAL EN LA ATENCIÓN PRIMARIA

RESUMEN

Objetivo: analizar las intervenciones educativas remotas para el aprendizaje de adultos con hipertensión arterial en la atención primaria. **Método**: intervención práctica, desarrollada a partir del conocimiento sobre la hipertensión, de adultos registrados en unidad básica de salud ubicada en una Región Metropolitana, en el estado de Paraná/Brasil, de marzo a diciembre de 2020. Se aplicó cuestionario clínico y sociodemográfico, *Item-Eight Health Literacy Assessment Tool* y *Hypertension Knowledge-Level Scale*. Las llamadas telefónicas fueron audiograbadas y, posteriormente, transcriptas en diario de campo. Los datos de los instrumentos fueron analizados por frecuencia simple, relativa, media y desviación estándar, y las informaciones del diario de campo por dominios. **Resultados**: en la evaluación de la Instrucción en salud, se observó aumento de la media en la cuestión respecto a las informaciones de salud de baja y alta calidad en internet. En el instrumento de conocimiento, las cuestiones relativas a la adhesión medicamentosa, dieta y cambio en el estilo de vida presentaron 100% de aciertos en el segundo momento. **Conclusión**: las intervenciones educativas remotas han demostrado influencia en la instrucción en salud y en el conocimiento sobre la hipertensión, habiendo aumento de aciertos en las cuestiones relativas a las informaciones de salud en internet y de cambio en el estilo de vida. Así, se destaca el potencial del telemonitoreo como forma de acompañamiento y promoción de salud, favoreciendo el control de la enfermedad.

Palabras clave: Instrucción en Salud. Enfermedades Crónicas. Hipertensión Arterial Sistémica. Conocimiento. Enfermería.

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