

## EDUCATIONAL INTERVENTIONS IN THE CONTEXT OF SYSTEMIC ARTERIAL HYPERTENSION: A SYSTEMATIC REVIEW

### *INTERVENÇÕES EDUCATIVAS NO CONTEXTO DA HIPERTENSÃO ARTERIAL SISTÊMICA: UMA REVISÃO SISTEMÁTICA*

### *INTERVENCIONES EDUCATIVAS EN EL CONTEXTO DE LA HIPERTENSIÓN ARTERIAL SISTÊMICA: UNA REVISIÓN SISTEMÁTICA*

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**ABSTRACT:** Systemic arterial hypertension is one of the biggest causes of morbidity in the world and is considered one of the main risk factors for the development of cardiovascular diseases. This paper aims to systematically review the educational interventions developed in health services and in the community and their role in preventing and controlling hypertension. For that, a systematic review was carried out in the LILACS, MEDLINE and SciELO databases, considering works without time and language restrictions. The interventions that showed the most satisfactory results used more interactive strategies with the use of sharing experiences, active participation and education based on the assistance and partnership model. Educational interventions can increase knowledge about hypertension, help with treatment adherence, provide improvements related to the patient's clinical conditions and reduce blood pressure levels.

**KEYWORDS:** Hypertension. Health education. Systematic review.

**RESUMO:** *A hipertensão arterial sistêmica é uma das maiores causas de morbidade no mundo, considerada um dos principais fatores de risco para desenvolvimento de doenças cardiovasculares. O presente trabalho tem como objetivo revisar sistematicamente as intervenções educativas desenvolvidas em serviços de saúde e na comunidade e sua atuação na prevenção e controle da hipertensão. Para tal, realizou-se uma revisão sistemática nas bases de dados LILACS, MEDLINE e SciELO, considerando trabalhos sem restrição de tempo e idioma. Os trabalhos que apresentaram resultados mais satisfatórios utilizaram estratégias mais interativas com uso de compartilhamento de experiências, participação ativa e educação baseada no modelo de assistência e parceria. Intervenções educacionais podem ampliar o conhecimento sobre a hipertensão arterial sistêmica, ajudar na adesão ao*

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*tratamento, proporcionar melhorias ligadas às condições clínicas do paciente e reduzir os níveis de pressão arterial.*

**PALAVRAS-CHAVE:** *Hipertensão arterial. Educação em saúde. Revisão sistemática.*

**RESUMEN:** *La hipertensión arterial sistémica es una de las más grandes causas de morbilidad en el mundo, considerada uno de los factores de riesgo para el desarrollo de enfermedades cardiovasculares. Este trabajo tiene como objetivo repasar sistemáticamente las intervenciones educativas desarrolladas en servicios de salud y en la comunidad y su actuación en la prevención y control de la hipertensión. Para eso, fue hecho un repaso sistemático en las bases de datos LILACS, MEDLINE y SciELO, considerando trabajos sin restricción de tiempo e idioma. Los trabajos que presentaban resultados más satisfactorios utilizaron estrategias más interactivas por medio de experiencias compartidas, participación activa y educación basada en el modelo de asistencia y trabajo en conjunto. Intervenciones educacionales pueden ampliar el conocimiento sobre la hipertensión arterial sistémica, ayudar en la adhesión del tratamiento, proporcionar mejoras atribuidas a las condiciones clínicas del paciente y reducir los niveles de presión arterial.*

**PALABRAS CLAVE:** *Hipertención arterial. Educación para la salud Revisión sistemática.*

## **Introduction**

Systemic Arterial Hypertension (SAH) is one of the main causes of morbidity in the world, being a multifactorial clinical condition characterized by pressure levels high enough to increase the risk of developing cardiovascular diseases (CVDs), such as: Acute Myocardial Infarction (AMI), Congestive Heart Failure (CHF), Stroke, Renal Failure and Peripheral Artery Disease (KASPER *et al.*, 2017).

According to the World Health Organization (WHO), more than a billion people worldwide are hypertensive. In Brazil, SAH affects 32.5% (36 million) of adult individuals, more than 60% of the elderly, contributing directly or indirectly to 50% of deaths from cardiovascular diseases (SCALA *et al.*, 2015). In addition, the high prevalence of SAH and consequently CVDs generates intense economic and social impacts, due to the costs of hospitalization and individual and family psychological suffering.

The 7th Brazilian Guidelines on Hypertension (2016) points out that the main risk factors for the development of SAH are: age, sex and ethnicity, overweight and obesity, salt intake, alcohol intake, sedentary lifestyle and socioeconomic factors. So, the vast majority of these risk factors can be modifiable through health education, which consists of a set of practices that provide individuals with sufficient health knowledge to generate promotion and prevention of diseases. In this scenario, intensifying individuals' access to information

through educational interventions in health can contribute to the dissemination of knowledge in relation to risk factors and control of SAH and contribute to behavior change.

Therefore, the main objective of this study is to conduct a systematic review of the literature on health education actions in the context of systemic arterial hypertension, in order to verify whether health education is able to reduce the risk factors associated with SAH, at the same time, observe which measures are more effective in this aspect through the use of a tool that assesses the quality of studies and verify the participation of actions in improving behavioral and clinical outcomes.

## Method

As a methodological strategy, a systematic review was carried out in the following databases: Latin American and Caribbean Literature on Health Sciences (LILACS), International Literature on Health Sciences (MEDLINE) and Scientific Electronic Library Online (SciELO). The search took place during the month of March 2020, considering works without time and language restrictions.

Combinations were used with the following terms present in the Medical Subject Headings (MeSH) and their correspondents in the Health Sciences Descriptors (DeCS): (*"health education"*[MeSH Terms] OR *"health promotion"*[MeSH Terms]) AND *"hypertension/prevention and control"*[MeSH Terms]) AND (*"intervention studies"*[All Fields] OR *"clinical trial"*[Publication Type]) OR *"evaluation study"*[Publication Type]) OR *"program evaluation"*[MeSH Terms]). For searches in LILACS and SciELO, descriptors in Portuguese were also considered.

The following were included in this review: (i) intervention studies, with or without randomization, with or without a control group, including public of any age group; (ii) educational interventions/actions that assess clinical and/or behavioral outcomes; (iii) studies in which educational interventions are carried out and/or led by health professionals or community agents.

The following were excluded from the study: (i) duplicate articles; (ii) theses and dissertations; (iii) studies with small samples ( $n < 20$  in intervention or control groups); (iv) studies that do not focus on educational interventions aimed at SAH; (v) works with unclear educational interventions; (vi) studies in which the main objective is to assess the experience and knowledge of health professionals or students; (vii) studies that focus only on awareness or knowledge acquisition without evaluating clinical or behavioral changes; (viii) multifaceted

studies that do not have educational intervention as the main action; (ix) studies including patients with severe comorbidities and hospitalized.

The selection of articles was made by reading the titles and abstracts, carried out independently by two of the authors. After the full reading, evaluation and selection of the works, the following information was extracted from the studies, based on the work of Menegaz *et al.* (2018): author, sample number, place of study (developed or developing countries), type of study (randomized and controlled trial or before and after), type of health service (primary care health center, hospitals, medical clinic, schools), target audience, type of educational resource or strategy used, dose of intervention (1 to 3, 4 to 12 contacts with the target audience), maximum evaluation time in months (2 to 6, 7 to 12, 13 to 24) and type of outcome (clinical, behavioral or clinical and behavioral), in addition to the results obtained in the studies.

In evaluating the results, behavioral parameters were considered: salt intake, tobacco use, alcohol consumption, physical activity and knowledge about hypertension. The clinical data evaluated consisted of the assessment of blood pressure (BP) measurements.

Regarding the quality of the studies, those included were assessed using an instrument proposed by Downs and Black (1998) and modified by Menegaz *et al.* (2018). The instrument consists of 26 questions related to the quality of the article's information, external validity, validity and statistical power, offering scores ranging from zero to 27. The studies were classified according to their scores as: excellent (25 to 27), good (20 to 24), fair (15 to 19), or poor or limited (14 or less), according to the criteria used by the authors.

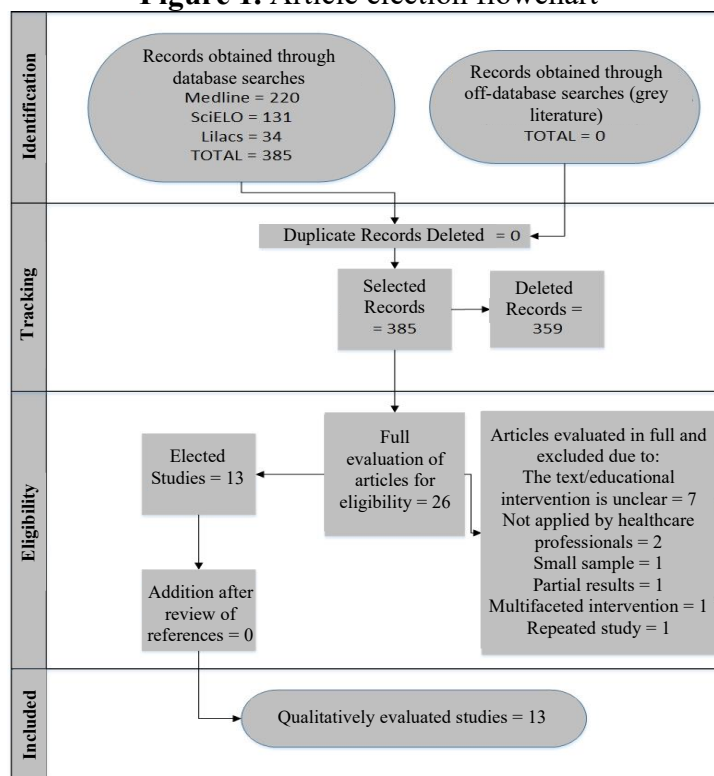
## Results and discussion

The search for texts selected 385 studies in indexed databases, so that 220 were present in Medline, 131 in SciELO and 34 in Lilacs. No other articles were found in databases other than those cited or without any database indexing (gray literature). Also, no duplications were found, which led to the complete evaluation of 385 searches for screening, which ended up excluding 359 studies.

Subsequently, of the remaining 26 articles read in full, 13 were excluded due to: the educational intervention was not clear (7 studies), not being applied by health professionals (2 studies), presenting a small sample (1 study), partial results (1 study) and multifaceted interventions (1 study).

Thus, 13 articles were included for qualitative evaluation, in such a way that the review of the references of the included texts did not show any new additions, the process of choosing the texts is indicated in Figure 1.

**Figure 1.** Article election flowchart



Source: Devised by the authors

Regarding the characteristics of the selected texts, most took place in developing countries (MACHADO *et al.*, 2016; JAFAR *et al.*, 2010; LU *et al.*, 2015; NGUYEN *et al.*, 2018; OLIVEIRA *et al.*, 2013; MOHAMMADI *et al.*, 2006; KISIOGLU *et al.*, 2004; MARTÍN *et al.*, 2009) and it is of the randomized type, with only 2 texts of the type before and after (SMITH, MERRITT, PATEL 1997; NGUYEN *et al.*, 2018). The community health centers (MACHADO *et al.*, 2016; LU *et al.*, 2015; MOHAMMADI *et al.*, 2006; KISIOGLU *et al.*, 2004; MARTÍN *et al.*, 2009) and the community itself (SMITH, MERRITT, PATEL 1997; ISO *et al.*, 1996; JAFAR *et al.*, 2010; NGUYEN *et al.*, 2018; OLIVEIRA *et al.*, 2013) were the places where the most interventions took place, each with 5 studies, although hospitals/clinics (BALCAZAR *et al.*, 2009; MORI *et al.*, 2010) and ambulatories (FERRARA *et al.*, 2012) were also used.

The target audience for all studies included adults. In 2 works (ISO *et al.*, 1996; LU *et al.*, 2015), in addition to adults, the elderly population was considered and one of the texts involved children (JAFAR *et al.*, 2010). The methodological strategies used were: educational

meetings/lectures with 6 studies (FERRARA *et al.*, 2012; ISO *et al.*, 1996; MARTIN *et al.*, 2009; MOHAMMADI *et al.*, 2006; MORI *et al.*, 2010; SMITH, MERRITT, PATEL 1997), distribution of educational material (BALCAZAR *et al.*, 2009), home visits (JAFAR *et al.*, 2010) and self-care training (KISIOGLU *et al.*, 2004), some research used combinations of these strategies.

Several health professionals participated in the studies and the number of contacts between researchers and participants was always greater than three. Most of the works followed the research audience for more than 1 year (ISO *et al.*, 1996; JAFAR, *et al.* 2010; LU *et al.*, 2015; MARTÍN *et al.*, 2009; MOHAMMADI *et al.*, 2006; SMITH *et al.*, 1997) and had clinical and behavioral outcomes, with 4 studies showing only clinical outcomes (SMITH, MERRITT, PATEL 1997; JAFAR *et al.*, 2010; MORI *et al.*, 2010; MARTÍN *et al.*, 2009). The main characteristics of the studies and their main results are presented in table 1.

**Table 1.** Qualitative analysis of included studies

**Author:** Balcazar *et al.* (2009).  
**Target audience:** 98 adults with SAH without regular medical care.  
**Study and description of educational action:** 9-week randomized trial. Intervention group: 58 participants received four educational modules weekly and follow-up phone calls. Control group: 40 participants. Weekly educational materials were received in general..  
**Main results:** The intervention group showed a reduction in salt consumption and a slight decrease in blood pressure.

**Author:** Ferrara *et al.* (2012)  
**Target audience:** 188 hypertensive and undergoing regular treatment for at least 6 months  
**Study and description of educational action:** 1-year randomized study.  
**Intervention group:** 94 participants received outpatient consultations and three monthly meetings in small groups to improve knowledge about SAH. **Group control:** 94 participants received only outpatient appointments.  
**Main results:** Mean systolic BP decreased in the intervention group. Participants in the intervention group also performed more physical activity.

**Author:** Iso *et al.* (1996)  
**Target audience:** 111 individuals between 35 and 69 years of age with SAH.  
**Study and description of educational action:** Randomized study with 1.5 year of follow-up. Intervention group: attended lectures and activities on hypertension control and stroke prevention three times during the first 6 months and four more times during the rest of the study. Control group: followed a lecture similar to the intervention group after 8 months of randomization.  
**Main results:** In the intervention group, salt consumption decreased, and physical activity increased

**Author:** Jafar *et al.* (2010)  
**Target audience:** 4023 individuals between 5 and 39 years old.



**Study and description of educational action:** 2-year randomized study. Intervention group: received home sessions to disseminate concepts related to the prevention and control of SAH through visits by community health agents. Control group: did not receive educational intervention.

**Main results:** Reduction of SBP and DBP levels in the intervention group.

**Author:** Kisioglu *et al.* (2004)

**Target audience:** 400 randomly chosen women between 20-50 years of age.

**Study and description of the action:** A 6-month randomized study. Intervention group: 200 participants were trained in BP control and obesity reduction. Control group: 200 participants. Did not receive educational intervention.

**Main results:** The intervention group showed reduced BP levels. There was also a reduction in sedentary lifestyle and salt intake.

**Author:** Lu *et al.* (2015)

**Target audience:** 360 patients with SAH between 40-75 years of age undergoing treatment.

**Study and description of the action:** 2-year randomized study, in which participants were divided into three groups:

Group 1: 120 participants received educational reading material.

Group 2: 120 participants participated in monthly lectures.

Group 3: 120 participants participated in monthly interactive lectures.

**Main results:** The three groups showed increased knowledge and control of SAH, increased physical activity and decreased risk factors related to the disease.

**Author:** Machado *et al.* (2016)

**Target audience:** 212 individuals with hypertension participating in HIPERDIA.

**Study and description of the action:** 1-year randomized study, which divided the participants into the following groups:

Group 1: monthly workshops for individuals with more than 8 participations in meetings.

Group 2: monthly workshops and home visits.

Group 3: monthly workshops for individuals with less than 8 participations in meetings. The workshops and lectures used active methodologies to provide education and disease prevention with an emphasis on SAH.

**Main results:** Individuals from all groups had increased adherence to non-pharmacological treatment of SAH, as well as decreased risk factors related to the disease, an example of which was the decrease in salt consumption.

**Author:** Martín *et al.* (2009)

**Target audience:** 2180 patients with SAH chosen at random.

**Study and description of the action:** 1-year randomized study. Intervention group: 3 sessions, 1 workshop and 1 reinforcement session were actively carried out. Control group: Did not receive educational intervention.

**Main results:** Decrease in salt intake and cardiovascular risk in the intervention group.

**Author:** Mohammadi *et al.* (2006)

**Target audience:** 150 patients with SAH chosen at random.

**Study and description of the action:** 1.5-year randomized study. Intervention group: 75 patients attended 4 sessions of knowledge about SAH and 11 monthly sessions that consisted of exchanging information about self-care, based on a care and partnership model. Control group: 75 received routine care without health education measures.

**Main results:** Decrease in SBP and DBP levels with increased disease control rate among the intervention group.

**Author:** Mori *et al.* (2010)

**Target audience:** 75 hypertensive individuals from a health center.

**Study and description of the action:** 9-month randomized study. Intervention group: 41 participants received lectures and pharmaceutical guidance for the control of SAH. Control group: 34 participants did not receive the intervention.

**Main results:** Participants in the intervention group had greater BP reduction compared to the control group.

**Author:** Nguyen *et al.* (2018)

**Target audience:** 157 individuals with poorly controlled hypertension.

**Study and description of the action:** 1-year randomized study. Intervention group: 78 individuals participated in two strategies: exchange of experiences (“storytelling”) and distribution of educational material (DVDs) regarding the control of risk factors related to SAH. Control group: 79 participants did not receive the intervention.

**Main results:** Both strategies performed in the intervention group were able to decrease BP levels and increase the control of SAH.

**Author:** Oliveira *et al.* (2013)

**Target audience:** 216 adults with SAH.

**Study and description of the action:** Before and after study for 6 months. It consisted of exchanging experiences, providing educational material and evaluating care.

**Main results:** Adherence to non-drug treatment for SAH increased.

**Author:** Smith *et al.* (1997)

**Target audience:** 97 individual adult members of selected churches.

**Study and description of the action:** Study before and after for 2 years. Sessions/lectures were used to disseminate knowledge about SAH and its risk factors with an emphasis on reducing sodium and cholesterol levels.

**Main results:** Participants had increased knowledge about hypertension and reduced levels of SBP and DBP.

Source: Devised by the authors

Appropriate guidance to individuals regarding salt consumption can have an impact on their blood pressure levels. This fact has been analyzed by some authors (BALCAZAR *et al.*, 2009; MACHADO *et al.*, 2016; ISO *et al.*, 1996; MARTIN *et al.*, 2009; KISOGLU *et al.*, 2014), that, using sessions, lectures and distribution of teaching material, managed to establish a correlation between health education about SAH and salt consumption.

These studies that followed the participants for 2-18 months in their entirety determined that health education, through the aforementioned methodologies, was able to reduce the participants' BP levels.

Furthermore, health education was also able to reduce the sedentary lifestyle of the participants (LU *et al.*, 2015; OLIVEIRA *et al.*, 2013; KISIOGLU *et al.*, 2004; FERRARA *et*



*al.*, 2012). It was shown that through meetings, exchanges of experiences among hypertensive patients and distribution of teaching material about SAH for 6 months to 2 years, the level of participation in physical activities among participants increased.

This fact is beneficial to the health of individuals because physical exercise promotes cardioprotection and consequently reduces the chances of myocardial ischemia, so the possibility of adverse cardiovascular diseases may be reduced (BORGES; LESSA, 2015).

Another positive impact of health education was about the knowledge of SAH in hypertensive patients, the studies (SMITH, MERRITT, PATEL 1997; LU *et al.*, 2015; MORI *et al.*, 2010) that evaluated this correlation used questionnaires applied before and after the interventions, so that all of them demonstrated an increase in the participants' knowledge about the disease.

In this aspect, the understanding of the health-disease process has impacts on individuals by improving adherence to therapy and, consequently, life expectancy (CARVALHO *et al.*, 2013). It should also be considered that studies have shown that the educational level of the participants influences the understanding of the aspects addressed, enhancing learning.

On the other hand, the studies analyzed (LU *et al.*, 2015; OLIVEIRA *et al.*, 2013) failed to establish significant results of the relationship between health education and alcohol and tobacco consumption during the assessment period from 6 to 24 months, through meetings and distribution of teaching material related to SAH. This fact can be explained by the ability of alcohol and cigarettes to generate dependence in their users, making it difficult strategies to put an end in the addiction.

Regarding BP levels, the thirteen studies found some type of change, whether in the mean of systolic and diastolic pressures or in the number of patients who managed to control BP. Five studies showed a significant reduction in BP after the intervention (FERRARA *et al.*, 2012; LU *et al.*, 2015; MOHAMMADI *et al.*, 2006; OLIVEIRA *et al.*, 2013; SMITH, MERRITT, PATEL 1997), as can be seen in figure 2.

**Figure 2.** Table of blood pressure measurements in the groups

Author (year)	Group(s)	Values before intervention	Values after intervention	p (before/after)
<b>SBP and DBP, mmHg (<math>\pm</math>DP)</b>				
Balcazar <i>et al.</i> (2009)	I	22% of the subjects had BP <120/80	26% of the subject showed BP <120/80	na
	C	18% showed BP <120/80	15% showed BP <120/80	
Ferrara <i>et al.</i> (2012)	I (SBP)	136.0 $\pm$ 17	124.5 $\pm$ 10	0.001
	C (SBP)	132.3 $\pm$ 15	133.5 $\pm$ 15	ns
	I (DBP)	85.4 $\pm$ 12	77.9 $\pm$ 9	0.001
	C (DBP)	83.3 $\pm$ 9	81.3 $\pm$ 9	ns
Iso <i>et al.</i> (2010)	I (SBP)	149.5 $\pm$ 8.0	136.3 $\pm$ 13.2	na
	C (SBP)	148.4 $\pm$ 10,1	141.0 $\pm$ 16.0	
	I (DBP)	84.1 $\pm$ 7.6	79.0 $\pm$ 9.0	
	C (DBP)	83.3 $\pm$ 8.4	78.6 $\pm$ 9.6	
Jafar <i>et al.</i> (2010)	I (SBP)	114.0 $\pm$ 14	Increase of 0.1	na
	C (SBP)	115.0 $\pm$ 14	Increase of 1.5	
	I (DBP)	74.0 $\pm$ 11	Increase of 0.6	
	C (DBP)	74.0 $\pm$ 11	Increase of 2.1	
Kisioglu <i>et al.</i> (2004)	I	31.5% had blood pressure >130/85	21.5% had BP > 130/85	na
	C	31% had blood pressure > 130/85	28.5 had BP > 130/85	
Lu <i>et al.</i> (2015)	1 (SBP)	140.2 $\pm$ 17.9	139.4 $\pm$ 16.7	0.611
	2 (SBP)	143.9 $\pm$ 16.2	134.8 $\pm$ 15.9	< 0.001
	3 (SBP)	148.7 $\pm$ 21.5	133.7 $\pm$ 13.6	< 0.001
	1 (DBP)	86.7 $\pm$ 11.2	85.2 $\pm$ 10.66	0.177
	2 (DBP)	85.8 $\pm$ 10.7	80.4 $\pm$ 11.2	< 0.001
	3 (DBP)	90.7 $\pm$ 16.5	81.2 $\pm$ 8.0	< 0.001
Machado <i>et al.</i> (2016)	1 (SBP)	125.0 $\pm$ 20	121.0 $\pm$ 18.5	0.356
	2 (SBP)	117.00 $\pm$ 14.8	119.0 $\pm$ 18.0	0.839
	3 (SBP)	124.0 $\pm$ 20.0	122.0 $\pm$ 16.9	0.937
	1 (DBP)	72.2 $\pm$ 11.8	68.4 $\pm$ 18.9	0.749
	2 (DBP)	70.6 $\pm$ 11.6	69.5 $\pm$ 16.0	0.809
	3 (DBP)	74.7 $\pm$ 16.0	70.9 $\pm$ 12.8	0.300
Martin <i>et al.</i> (2009)	I (SBP)	137.9 $\pm$ 19.6	132.6 $\pm$ 19.6	na
	C (SBP)	139.1 $\pm$ 16.3	132.0 $\pm$ 16.3	
	I (DBP)	83.8 $\pm$ 10.8	79.9 $\pm$ 10.8	
	C (DBP)	79.6 $\pm$ 11.5	76.9 $\pm$ 11.5	
Mohammadi <i>et al.</i> (2006)	I (SBP)	175.5	144.7	0.00
	C (SBP)	167.6	163.2	

	I (DBP)	98.5	91.5	0.05
	C (DBP)	99.5	98.4	
Mori <i>et al.</i> (2010)	I	51% presented BP > or near to 140/90	48% of those who had BP > or near to 140/90 normalized the BP	na
	C	71% presented BP > or near to 140/90	21% of those who had BP > or near to 140/90 normalized the BP	
Nguyen <i>et al.</i> (2018)	1 (SBP)	150.4 ± 17.5	139.7 ± 16.7	
	2 (SBP)	144.3 ± 8.9	138.5 ± 16.7	
				na
	1 (DBP)	91.3 ± 9.3	84.7 ± 9.8	
	2 (DBP)	87.8 ± 8.1	84.1 ± 12.5	
Oliveira <i>et al.</i> (2013)	I	44.9% had blood pressure < 140/90	76.6% had blood pressure < 140/90	0.004
Smith <i>et al.</i> (1997)	I (SBP)	147.0	140.0	<0.0000
	I (DBP)	85.0	83.0	< 0.008

I: intervention group; C: control group; 1, 2, 3: Different interventions in the same work; SBP: systolic blood pressure; DBP: diastolic blood pressure; SD: standard deviation; pa: p from comparison of groups at baseline; pd: p from the comparison of groups after the intervention; ns: Not significant; na: Not shown.

Source: Devised by the authors

Ferrara *et al.* (2012) showed a reduction in SBP and DBP in the intervention group. Lu *et al.* (2015) report that both systolic and diastolic BP decreased significantly, and the proportion of normalized BP increased significantly after the intervention in groups 2 and 3.

In Jafar *et al.* (2010), a small increase in SBP and DBP can be seen, however the increase was smaller in the intervention group, which consisted of home education, which has a beneficial effect on the BP of children and young adults. Significant changes are also noticed in: Mohammadi *et al.* (2006), Oliveira *et al.* (2013) and Smith *et al.* (1997).

The studies that showed more satisfactory results in relation to BP reduction and/or control had a longer follow-up time with the study subjects, generally longer than 12 months and used more interactive strategies with the use of sharing experiences, active participation and education based on the care and partnership model.

In the context of SAH, educational interventions with active participation can expand knowledge about the disease, help with adherence to regular treatment and provide improvements related to BP control (LU *et al.*, 2015).

Another aspect observed in relation to interventions is the benefit of working in small groups with exchanges of experience. The formation of groups generates a potential that favors the expansion of social interactions and dynamism, with sharing of experiences and common problems related to the subject's health conditions (CRABTREE *et al.*, 2015).

Ferrara *et al.* (2012) consider that, in terms of cost-effectiveness, the small group approach to an educational program to improve lifestyle habits can be considered effective and less expensive, especially considering the expected reduction in cardiovascular events over time.

The education model aimed at assistance and partnership is also part of the list of interactive strategies. According to this model, attention should be paid not only to the epidemiological and physiological characteristics of the disease, but also to the characteristics of patients and the interactions between subjects and professionals in the therapeutic process.

Partnership increases people's involvement, motivation and responsibility. Mohammadi *et al.* (2006) show that this type of intervention was effective in most hypertension control indices, such as average of systolic and diastolic BP, controlled hypertension rate and decrease in cardiovascular risk factors.

The evaluation of the quality of the studies is shown in Figure 3. The total average of the scores was 20.1 points (SD = 2.59) according to the instrument by Downs and Black, adapted by Menegaz *et al.* (2018). The lowest score was 15 and the highest scores totaled 24 points.

Eight studies were rated as good and five were considered to be of fair quality. According to the instrument items, the assessment identified major methodological problems related to confusion and reporting.

**Figure 3.** Intervention quality assessment table, according to the Downs and Black criteria

Authors, year	Report (0 to 11)	External validity (0 to 3)	Bias (0 to 6)	Confusion (0 to 6)	Power (0 to 1)	Summation (0 to 27)
Jafar <i>et al.</i> (2010)	9	3	6	5	1	24
Lu <i>et al.</i> (2015)	9	3	6	5	1	24
Machado <i>et al.</i> (2016)	9	3	5	4	1	22
Mohammadi <i>et al.</i> (2006)	8	3	5	5	1	22
Nguyen <i>et al.</i> (2018)	8	3	5	5	1	22
Ferrara <i>et al.</i> (2012)	7	3	5	5	1	21
Balcazar <i>et al.</i> (2009)	8	3	4	4	1	20
Kisioglu <i>et al.</i> (2004)	7	3	5	4	1	20
Martin <i>et al.</i> (2009)	7	3	4	4	1	19
Isso <i>et al.</i> (1996)	7	3	4	3	1	18
Mori <i>et al.</i> (2010)	5	3	5	4	1	18
Oliveira <i>et al.</i> (2013)	7	2	4	3	1	17
Smith <i>et al.</i> (1997)	7	1	5	2	0	15
<b>Average (DP)</b>	7,5 (1,08)	2,7(0,57)	4,8(0,66)	4,0 (0,91)	0,9 (0,26)	20,1 (2,59)

\* Question 14 of the Downs and Black instrument was deleted.

Source: Devised by the authors

It is observed that all studies had a reasonable/good rating regarding the quality of evidence. Part is due to a good description of the intervention activities, with well-clarified methodologies, in addition to the representativeness of the target populations and teams involved in the studies. The main problems in quality were due to the lack of reporting of the main confounding factors, lack of data on adverse events, and limitations in trying to hide the type of intervention from patients and healthcare teams.

### Final considerations

It is concluded that educational interventions in the context of SAH, especially when actively reproduced, result in improvements in behavior that end up leading to a decrease in risk factors that influence the increase in BP. Among the strategies adopted, those with longer follow-up time, interaction between small groups and based on the care and partnership model deserve attention.

This review allows health professionals to obtain information about health education strategies and offers subsidies for possible adaptations and implementations in the community, enabling the encouragement to seek new actions. We emphasize that future studies that mainly address the continued use of interventions in the context of chronic diseases and their long-term repercussions are still needed.

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