Original Article

Technological effectiveness in readiness for behavior change in hypertension and overweight

Efetividade tecnológica na prontidão para mudança comportamental em hipertensão e excesso ponderal

Efectividad tecnológica en la prontitud para cambios de comportamiento en hipertensión y exceso ponderal

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Abstract

Objective: To test the effectiveness of an educational technology on overweight in the stage of readiness for behavior change in adults with hypertension and overweight.

Methods: This is a quasi-experimental study, with two groups, comparison and intervention, each with 36 participants, whose stage of readiness for behavior change was assessed before (moment zero) and after (moment one) of the intervention (implementation or not) of the booklet after one month (moment two) and two months (moment three) of the first contact via telephone. The stage of readiness for behavior change was compared before and after and between groups by Student's t test for sample in pairs and for independent groups, respectively.

Results: The results showed that the implementation of the booklet favors more lasting thoughts of change, with statistically significant differences between the groups in moment two (p=0.020) and three (p=0.003) and between moments zero and one (p <0.0001), moments zero and two (p=0.001), moments zero and three (p <0.0001) and moment two and three (p <0.0001) in the group intervention.

Conclusion: The educational booklet was therefore validated and favored the advance in the stage of readiness for behavior change, proving to be effective for educational health practices. The validation of the booklet allows its use in health education activities reliably in the public in question.

Resumo

Objetivo: Testar a efetividade de uma tecnologia educativa sobre excesso ponderal no estágio de prontidão para mudança de comportamento do adulto com hipertensão arterial sistêmica e excesso ponderal.

Métodos: Estudo quase-experimental, com dois grupos, comparação e intervenção, cada um com 36 participantes, cujo estágio de prontidão para mudança de comportamento foi avaliado antes (momento zero) e depois (momento um) da intervenção (implementação ou não da cartilha), após um mês (momento dois) e dois meses (momento três) do primeiro contato, via telefone. O estágio de prontidão para mudança de comportamento foi comparado antes e depois e entre os grupos pelo teste t de Student para amostra em pares e para grupos independentes, respectivamente.

Resultados: Os resultados mostraram que a implementação da cartilha favorece pensamentos de mudança mais duradouros, com diferenças estatisticamente significativas entre os grupos no momento dois (p = 0,020) e três (p = 0,003) e entre os momentos zero e um (p < 0,0001), momentos zero e dois (p = 0,001), momentos zero e três (p < 0,0001) e momento dois e três (p < 0,0001) no grupo intervenção.

Conclusão: A cartilha educativa foi, portanto, validada e favoreceu o avanço no estágio de prontidão para mudança de comportamento, mostrando-se efetiva para práticas educativas em saúde. A validação da cartilha permite sua utilização em atividades de educação em saúde de modo confiável no público em questão.

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Conflicts of interest: nothing to declare.

Resumen

Objetivo: Poner a prueba la efectividad de una tecnología educativa sobre exceso ponderal respecto al nivel de prontitud para cambios de comportamiento de adultos con hipertensión arterial sistémica y exceso ponderal.

Métodos: Estudio cuasi experimental con dos grupos, uno de comparación y otro experimental, cada uno con 36 participantes, cuyo nivel de prontitud para cambios de comportamiento fue evaluado antes (momento cero) y después (momento uno) de la intervención (implementación o no de la cartilla), después de un mes (momento dos) y dos meses después (momento tres) del primer contacto, por teléfono. El nivel de prontitud para cambios de comportamiento se comparó antes y después para muestreo en pares y entre los grupos para grupos independientes mediante el test-T de Student.

Resultados: Los resultados demostraron que la implementación de la cartilla favorece pensamientos de cambios de mayor duración, con diferencias estadísticamente significativas entre los grupos en el momento dos ($p = 0,020$) y tres ($p = 0,003$) y entre los momentos cero y uno ($p < 0,0001$), momentos cero y dos ($p = 0,001$), momentos cero y tres ($p < 0,0001$) y momento dos y tres ($p < 0,0001$) en el grupo experimental.

Conclusión: Por lo tanto, la cartilla educativa fue validada y favoreció el avance del nivel de prontitud para cambios de comportamiento, por lo que se mostró efectiva para prácticas educativas en salud. La validación de la cartilla permite que sea utilizada en actividades de educación en salud de forma confiable para el público en cuestión.

Introduction

Behaving as a chronic disease and as a risk factor for other chronic non-communicable diseases (CNCDs), obesity presents growing epidemiological data in Brazil. One in five Brazilians is overweight (OW). Over ten years, the prevalence went from 11.8% to 18.9%. This increase contributes to the increase in diabetes and hypertension and favors cardiovascular complications, especially considering the association of two or more NCDs. Hypertension (HP) also increased from 22.5% to 25.7% in the same period and country.[1]

Although obesity and its treatment possibilities are widely publicized, there are still few intervention studies on the intention to change risky behaviors, especially among those with associated HP and OW, putting more control on body mass control. Thus, as part of the therapy, it is relevant to assess how the individual feels about the possibility of changing behavior and how to provide the motivation for changing the lifestyle, reflecting on the expected results with healthier behaviors.[2]

According to the transtheoretical model,[3] also known as the model of the stages of readiness for behavior change, people go through different stages of motivation to modify a behavior considered a problem. The stage of change reflects directly on how much the individual is effectively motivated to change, i.e., the willingness to adhere to the change. The stages include precontemplation, contemplation, preparation, action, and maintenance.[3] Identifying the stage is important to choose additional therapeutic motivation strategies, in order to favor behavior change.

In the meantime, an educational booklet about OW in adults with HP validated in terms of content by teaching specialists (content validation index equal to 0.78) and in terms of appearance by assistance, design specialists and the target audience was developed (agreement index greater than 80%), being considered adequate.[4] The booklet was entitled "*Alimentação e atividade física no adulto hipertenso e acima do peso: disposto a mudar?*"; according to the authors,[4] it is complementary to health education practice for a growing population, given the increase in NCDs worldwide, suggesting its clinical validation.

In addition to this perspective, the technology was developed taking into account the stage of behavior change. While many interventions already available in literature use imperative language, this booklet works on the differential perspective of individuals identifying with the character, bringing them closer to the possibilities of change instead of pushing them away. Thus, it can also be a tool for bringing health professionals closer to the patient, an essential link in this process of readiness for change.

From this context, the objective was to test the effectiveness of an educational technology about OW in the stage of readiness for behavior change (SRBC) of adults with HP and OW.

Methods

This quasi-experimental study was carried out with two groups: comparison (group A) and interven-

tion (group B). The intervention consisted of applying the educational booklet to the population of adults with PH and PE. The study was carried out in a specialized outpatient clinic, a reference in the prevention and treatment of complications of patients with diabetes and hypertension in the state of Ceará.

The study population consisted of all adults with PH and OW duly registered and monitored at the study site. The study sample was calculated from the formula for studies with comparative groups, as described below: $n= (p1.q1+p2.q2).(Z_{\alpha/2}+Z_{\beta})^2/(p1-p2)$;[5] n means sample size for each group; p1 means estimated percentage of adults in group A with readiness to change behavior at the preparation level (p1=0.50); q1 means complementary to p1 (q1=0.50); p2 means estimated percentage of adults in group B with readiness to change behavior at the preparation level (p2=0.80); q2 means complementary to p2 (q2=0.20); $Z_{\alpha/2}$ means level of significance set (1.96); Z_{β} means power of the fixed test (0.84).

Thus, the sample for each group was initially calculated with 36 adults, with similar distribution as to the age group (20 to 59 years), HP and OW duly registered and being followed up, who agreed to participate in the research and were present at the study site during collection days, configuring these items as selection criteria. It is noteworthy that the selected age group was established, taking into account the minimum age of registered adults in the service, which was 20 years old and the upper limit of 59 years old, established not to include older adults, a category with peculiarities that could generate analysis bias and consequently on the effect of the intervention.

Participants were selected for convenience; when they were present on the collection days, they were alternately allocated to the intervention or comparison group. The difficulty in reaching the sample is highlighted, since most patients in the service were older adults. The study excluded those with cognitive deficits that made it impossible to understand the material, as well as those who had clinical conditions that interfered with OW, such as endocrine disorders and pregnancy.[6] All of these exclusion criteria were identified from the consultation of the medical record. Discontinuity criteria included illness or death, non-location of address and telephone number that does not exist or does not answer.

All patients who met the criteria were invited until the calculated value for the sample was reached. At the end, it was possible to compose a sample of 33 participants for the intervention group and 34 participants for the comparison group since, in the comparison group, two participants fell ill and were hospitalized and, in the intervention group, two participants did not answer the phone and one gave up to continue. According to the sample calculation, 36 patients were included in the study; however, due to the discontinuity criteria, this amount was reduced at the end of the collection.

The intervention to be assessed by the study consisted of the application of a booklet entitled "*Alimentaction e atividade física no adulto com hipertensão e acima do peso: disposto a mudar?*", consisting of 32 pages, booklet format, with A4 sheet folded in half, printed on glossy stock and bound paper, with cover, presentation, catalog, summary, and items: I – Does my excess weight influence my blood pressure ?; II - What are the advantages of changing my lifestyle ?; III - Do I eat right?; IV - Do I need to do physical activity? My space, Notes and References, in addition to the message on the back: "More important than the will to change is the courage to start". This technology proved to be valid in content and appearance, being indicated for clinical validations in health educational processes.[4]

On the day established for the research, the intervention group participants were identified and the booklet was made available for them to read (without the researcher's initial intervention), whose reading time varied from ten to 20 minutes. It is noteworthy that only one participant did not know how to read, but the images were self-explanatory (characteristic of the type of technology). Those who had doubts were clarified by the researcher as visualization or reading took place. At the end of this process, the booklet was kindly collected by the researcher for use at other times.

From the first reading of the booklet, a new intervention was carried out after one month, which consisted in the delivery of a copy of the booklet by the researcher through a home visit to patients so that they could do successive readings at home. It is noteworthy that the visit was made only as a means of delivering the technology, since, at the first moment of the intervention, still in the health service, the booklets were collected. Thus, no other intervention was performed by the researcher at the time of the visit.

The comparison group was not submitted to any type of intervention, except that provided for in the standard educational guidance offered by the service, which took place in nursing consultation.

For data collection, the following instruments were used: form on sociodemographic and clinical profile developed by the researchers and an SRBC assessment tool for eating habits and physical activity (SOC Scale). This research phase was carried out in an appropriate room in order to guarantee the patient's privacy, as well as in a quiet space that would allow the reading of the booklet for those who were in the intervention group. The collection period was between August 2015 and February 2016, considering that not all members of each group started participating on the same day.

The SOC Scale (Stage of change Scale) was validated,[7] being translated and adapted to Portuguese from the original version. This suggests that, although people realize that they need to make changes in their behavior, they do not do it abruptly, but in stages. The scale consists of 38 questions, divided into four domains and the answers present five options: 1 (precontemplation), 2 (contemplation), 3 (preparation), 4 (action), and 5 (maintenance). The average score obtained for each of the domains indicates the stage at which individuals are.

The moments in which SRBC were assessed consisted of four phases, where the first was before using the booklet (intervention group) or standard service consultation (comparison group), and the others, after the intervention or consultation.

Moment zero was approaching patients using the SOC Scale before reading the booklet (intervention group) or the standard nursing consultation at the service (comparison group). Moment 1 was the application of SOC Scale immediately after educational intervention or immediately after nursing consultation. Moment 2 was applied by SOC Scale phone one month after the first phase. In the case of the intervention group, the telephone call took place one day after the home visit. Finally, moment 3 was applied by SOC Scale also by telephone, in both groups, two months after the first contact at the service where the study was initially carried out.

It is noteworthy that the data collection took place on different days for those who made up the comparison group and the intervention group and the total collection period involved from August 2015 to February 2016.

The data present in the instruments applied to the target population were compiled and analyzed using the statistical program IBM SPSS Statistics version 23.0. The variables were analyzed in a descriptive manner, considering simple frequency and percentage, mean and standard deviation. The values obtained pre-test and post-test were compared intra and intergroups, using Student's t test for samples in pairs and for independent samples. For numerical variables, normality was tested using the Kolmogorov-Smirnov test. In all cases, a significance level of 5% was considered.

The collection started after approval of the project by an ethics committee, under CAAE (*Certificado de Apresentaction para Apreciaction Ética* - Certificate of Presentation for Ethical Consideration) 38645414.4.0000.5534. All ethical and legal precepts of research involving human beings were respected, according to Resolution 466/2012 of the Brazilian National Health Council (*Conselho Nacional de Saúde*).

Results

Table 1 shows the sociodemographic data of participants in the two study groups.

Table 1. Sociodemographic characterization of overweight hypertensive patients seen at a specialized outpatient clinic

Variable	Comparison Group f(%)	Comparison Group Min-Max; Mean (SD)†	Intervention Group f(%)	Intervention Group Min-Max; Mean (SD)†	p value
Sex					
Male	12(33.3)		26(72.2)		0.334*
Female	24(66.7)		10(27.8)		
Age group					
31 to 40 years old	3(8.3)	38-59; 51.58 (+6.31)	5(13.9)	31-59; 49.33 (+7.55)	0.246**
41 to 50 years old	9(25.0)		14(38.9)		
51 to 59 years old	24(66.7)		17(47,2)		
Education					
Illiterate/elementary school	22(61.1)		12(30.6)		0.051**
High school	11(30.6)		19(52.8)		
Vocational training/higher education	3(8.3)		6(16.7)		
Follow-up time in the service					
1 to 5 years	8(22.2)	1-27; 12.39 (+7.50)	6(16.7)	1-25; 9.36 (+4.90)	0.013*
6 to 10 years	9(25.0)		21(58.3)		
11 or more years	19(52.8)		9(25.0)		
Race					
White	18(50.0)		14(38.9)		0.343*
Non-white	18(50.0)		22(61.1)		
Marital status					
Single	6(16.7)		5(13.9)		0.742**
Married	22(61.1)		26(72.2)		
Widowed	4(11.1)		2(5.6)		
Divorced/separated	4(11.1)		3(8.3)		
Family income					
Less than 1MW‡	1(2.8)	300-6000; 1561.56 (+997.61)	1(2.8)	780-10000; 2345.00 (+1971.50)	0.113**
1 to 3 MW‡	34(94.4)		29(80.6)		
4 MW‡ or more	1(2.8)		6(16.7)		

†Standard deviation; ‡Minimum wage; *Pearson's chi-square test; **likelihood ratio test.

Women figured predominantly in the comparison group and in the intervention group. There was a predominance of males. The age in the two groups varied from 31 to 59 years, with a mean of 51.58 (+6.31) in the comparison group and 49.33 (+7.55) in the intervention group. The predominant age group was 51 to 59 years for both groups. Education ranged from illiterate to higher education, with predominance of complete elementary school in the comparison group and high school in the intervention group. Only one adult reported not being able to read and write and one reported having completed higher education. Follow-up time for patients participating in the specialized outpatient clinic was longer for the comparison group compared to the intervention group (p=0.013).

Regarding race, half of the comparison group considered themselves to be non-white, while this value rose to 61.1% in the intervention group. Family income was also investigated. This ranged from R$300.00 (about 54 US dollars) to R$6,000.00 (about 1,090 US dollars) in the comparison group and from R$780.00 (about 141 US dollars) to R$10,000.00 (about 1,818 US dollars) in the intervention group. Most reported earning 1 to 3 minimum wages in both groups, considering the minimum wage in force during the collection period, which was R$ 788.00. The marital status of more than half (61.1%) of the comparison group and the majority (72.2%) of the intervention group was married. Participants were also asked about who they lived with. The most frequent response was to live with a partner and children. From this characterization, there is a similarity in most of the characteristics analyzed.

After sociodemographic characterization, Table 2 presents the results of SRBC assessment at each of the moments of clinical validation, by group.

Table 2. Assessment of the behavior change stage at each moment of clinical validation according to the comparison and intervention group

Stage assessment	Comparison Group f(%)	Intervention Group f(%)	T test
Moment 0 (baseline)			
Precontemplation	0(0.0)	1(2.8)	
Contemplation	7(19.4)	6(16.7)	
Preparaction	17(47.2)	13(36.1)	
Action	10(27.8)	16(44.4)	
Maintenance	2(5.6)	0(0.0)	
Mean (standard deviation)	3.23 (± 0.73)	3.16 (± 0.74)	p=0.887
Moment 1			
Precontemplation	0(0.0)	0(0.0)	
Contemplation	3(8.3)	4(11.1)	
Preparaction	20(5.6)	10(27.8)	
Action	10(27.8)	21(58.3)	
Maintenance	3(8.3)	1(2.8)	
Mean (standard deviation)	3.38 (± 0.64)	3.48 (± 0.63)	p=0.348
Moment 2			
Precontemplation	0(0.0)	0(0.0)	
Contemplation	4(11.8)	2(5.7)	
Preparaction	19(55.9)	12(34.3)	
Action	10(29.4)	17(48.6)	
Maintenance	1(2.9)	4(11.4)	
Mean (standard deviation)	3.16 (± 0.68)	3.63 (± 0.62)	p=0.020*
Moment 3			
Precontemplation	1(2.9)	0(0.0)	
Contemplation	2(5.9)	1(3.0)	
Preparaction	21(61.8)	10(30.3)	
Action	9(26.5)	19(57.6)	
Maintenance	1(2.9)	3(9.1)	
Mean (standard deviation)	3.21 (± 0.70)	3.75 (± 0.56)	p=0.003*

*significant p value for Student's t test for independent samples

In the baseline, in relation to the participants in the comparison group, it was demonstrated that they were distributed in contemplation stages up to the maintenance stage, most often in the preparation stage (47.2%), i.e., they are defining plans for change within a month. The intervention group, at the baseline, had a higher frequency of patients in the action stage (44.4%), i.e., behavior change began in the last six months. At this point in the second phase, there was no significant difference in means between the two groups (p=0.887). In moment 1, there was also no significant difference in means between the two groups (p=0.348).

In the following moment, which happened one month after the first meeting with the participants, the booklet was delivered through home visits to the intervention group members and the scale was applied by telephone the following day. It is possible to see in the table that the frequencies in the stages of readiness for behavior change in the intervention group were more evident than in the comparison group, highlighted by the test of means differences between the groups that was statistically significant (p=0.020).

In the third moment, it was possible to visualize the increase in frequencies in the "action" stage of the intervention group, to the detriment of the frequency reappearance in the "precontemplation" stage of the comparison group. Differences in means were also significant (p=0.003).

After verifying the difference in means between the comparison and intervention groups at each point in the clinical validation phase, an analysis was performed between stages, for each group. The results are shown in Table 3.

As can be seen in table 3, in the comparison of the baseline and moment one means, there was a statistically significant difference for both groups (p=0.012 for the comparison group and p=0.000 for the intervention group). This is due to the fact that educational interventions and orientations can have an immediate impact on the stage of readiness to change individuals' behavior. In the face of orientation, the patient is sensitized and thinks about changing. However, it is not possible to know how long the change thinking will remain active.

In the comparison of means of the baseline and moment two, the difference was only statistically significant for the intervention group (p=0.001); this suggests that the educational intervention in the booklet format promoted longer-lasting thoughts of change than the guidance offered during an outpatient nursing consultation (p=0.624). It was also noticed a difference in moment two in relation to three in the intervention group (p=0.000), reinforcing the characteristic of the short-term effect.

Discussion

With the intervention performed, alteration in SRBC was verified in the group of adults in question, whose sociodemographic characteristics were similar, except for the time of follow-up. However, it appears that there was no interference in the results of the intervention due to this difference, as it is expected that the longer follow-up time will make patients more aware and motivate them more to change, as they have greater contact with the guidelines. As seen, despite the shorter follow-up

Table 3. Comparison between the effect of outpatient nursing consultation and the use of the educational booklet in the short and medium term on the score of the behavior change stage

Moments	Group					
	Comparison†			Intervention‡		
	Mean (standard deviation)	T test	p value	Mean (standard deviation)	T test	p value
0 – 1	3.23 (± 0.73) - 3.38 (± 0.64)	-2.646	0.012*	3.16 (± 0.74) - 3.48 (± 0.63)	-3.924	0.000*
0 – 2	3.23 (± 0.73) - 3.16 (± 0.68)	-0.494	0.624	3.16 (± 0.74) - 3.63 (± 0.62)	-3.648	0.001*
0 – 3	3.23 (± 0.73) - 3.21 (± 0.70)	-0.197	0.845	3.16 (± 0.74) - 3.75 (± 0.56)	-3.909	0.000*
1 – 2	3.38 (± 0.64) - 3.16 (± 0.68)	1.071	0.292	3.48 (± 0.63) - 3.63 (± 0.62)	-1.221	0.230
1 – 3	3.38 (± 0.64) - 3.21 (± 0.70)	1.044	0.304	3.48 (± 0.63) - 3.75 (± 0.56)	-1.530	0.136
2 – 3	3.16 (+ 0.68) - 3.21 (± 0.70)	-0.667	0.509	3.63 (+ 0.62) - 3.75 (± 0.56)	-4.867	0.000*

†used outpatient nursing consultation and calls; ‡ used educational booklet, home visit and phone call; *significant p value for Student's t test for sample in pairs

time, there was a greater change in behavior in the intervention group when compared to the control group. It is reiterated that these groups must have homogeneous characteristics so that behavior change can be attributed to the intervention and not to other factors.

Change in the readiness stage is a significant fact, as it is known that although the disease affects older adults, young people have developed the disease at an earlier age due to the consumption of a diet rich in salt and fat and poor in fruits, vegetables and vegetables, due to the increase in weight and physical inactivity.[8,9] Thus, they are at risk for other cardiovascular diseases prematurely[10] and consequently need to be the target of health promotion interventions by health professionals.

Identifying SRBC for eating habits and physical activity in a population can be considered one of the initial steps in the process of developing intervention strategies, as, for each behavior found, specific efforts can be employed.

Studies that used this model to support policies to promote physical activity and weight loss in the community and health services have been successful and can serve as examples for other interventions. However, some individuals who seek health services to change their behavior do not do so with the necessary motivation, and professional counseling, based on the use of technologies, is able to increase such motivation and, consequently, the chances of success.[11,12]

The assessment of the behavior change stage allows, therefore, to classify individuals in their respective stages, making it possible to distinguish those who are really willing to change their lifestyle from those who do not wish to change. It is important to highlight that interventions tend to be more efficient in those who are willing to change their behavior.[13,14]

Moreover, it is emphasized that if professional counseling regarding the importance of behavior change occurs before pathologies set in, more motivated individuals can seek treatment and avoid complications. Although some individuals are not ready for treatment, it is up to health professionals to provide advice, based not only on health information, but also on strategies aimed at motivating changes, as in the case of the validated booklet.[4]

There are no clinical trials or quasi-experimental studies that used a printed educational intervention to assess SRBC. However, in an observational study, different from the findings exposed here, almost half of the participants in another study that investigated the motivational stage were in the contemplation stage, indicating that they know the problem, are willing to overcome it, but are not yet fully committed with the decision.[11]

This means that they know the benefits of modifying their lifestyle, recognize its importance for health, but there are barriers that hinder or prevent their adherence like those: related to the individual - cognitive deficit; low education level; feelings of incapacity, socioeconomic alcoholism, acceptance of the disease and forgetfulness; to treatment - high cost of drugs, long duration and complexity of treatment, adverse effects and number of drugs; to disease - late complications, asymptomatology, disease conditions and chronicity, health services, insufficient information, difficulties in access and deficient ability of professionals to teach the correct use of medicines.[15-17]

Thus, one must use the technology individually, as it has an effect on SRBC as evidenced in this study, or in association with other effective technologies,[18,19] because it is known that studies with better impacts on the cardiovascular health of participants are those that bring technology in the form of a program, with several strategies involved.[19]

In addition to providing the identification of SRBC and listing the individuals most likely to adhere to lifestyle change, applying the SOC Scale is useful to measure the effect of educational technologies on the progress of these stages. The educational booklet developed and validated internally[4] was clinically validated in this study, based on the evidence that it reaches the proposed objective.

Some difficulties were encountered throughout the research, where issues related to the period of data collection stand out, since, when it started, part of the medical staff of the service where the research was developed was on vacation. This fact significantly reduced the patient population. Added

to this was the lack of medication. The tension generated in the field, resulting from these institutional vulnerabilities, led many patients who had the research profile to refuse to participate in the collection or, yet, there were no patients with the profile to participate in the study, leading to the extension of the data collection period.

Among the limitations, the loss of follow-up bias may have influenced the result; however, it did not exceed the recommended percentage of 30%, being considered minimum. The absence of blinding by the participants and the researcher due to the characteristic of the technology is also listed as a limitation. In addition, the researcher who applied the intervention was the same one who assessed the effects in sequential moments. However, all technical and ethical criteria were strictly followed.

It is, therefore, an educational material aimed at hypertensive adults with excess weight and focused on SRBC, which has been validated in terms of content and appearance[4] and subsequently clinically validated in this study, which can be used by the health professional to guide and monitor patients with this profile, with a view to advancing the SRBC and effective change.

Conclusion

The educational booklet about OW in adults with HP entitled "*Alimentação e atividade física no adulto hipertenso e acima do peso: disposto a mudar?*" reached the proposed objective, by favoring the advance in the readiness stage for changing eating habits and physical activity practice, being therefore clinically validated. It is an effective technology for the clinical care of the public with HP and OW associated with a sociodemographic profile similar to that of this study, and can be used by health professionals as a complementary tool to health education.

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Collaborations

Santiago JCS, Moreira TMM, Florêncio RS, Borges JWP, Pessoa VLMP and Souza ACC declare that they contributed to the study design, data analysis and interpretation, writing of article, relevant critical review of intellectual content and final approval of the version to be published.

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