









The effect of operative groups on diabetic foot self-care education: a randomized clinical trial*

Efeito do grupo operativo no ensino do autocuidado com os pés de diabéticos: ensaio clínico randomizado

Efecto del grupo operatorio en la enseñanza del autocuidado con los pies de diabéticos: ensayo clínico aleatorizado

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ABSTRACT

Objective: To evaluate the effect of operative groups on teaching self-care for diabetic foot prevention. **Method:** Controlled, blinded clinical trial with volunteers presenting type 2 Diabetes Mellitus, randomized into treatment (55 subjects) and control (54 subjects) groups. The treatment group received the educational intervention “Teaching foot self-care”, whereas the control group was simply evaluated. Feet evaluation was conducted before and after the intervention, as well as 15 days later in a follow-up. The intervention was conducted through an operative group and developed with orientation via writing, explained through dialogue and role-playing. The following tests were used: Shapiro-Wilk, Chi-squared, t-test, Mann-Whitney, McNemar, and paired Wilcoxon. **Results:** One-hundred and nine volunteers took part in this study. Their sociodemographic variables were homogeneous. In an analysis between groups, an improvement was observed after the educational intervention regarding most variables related to skin annexes, blood flow, foot sensitivity, and foot pressure. Improved scores for risk of diabetic foot in the treatment group were observed. **Conclusion:** The educational intervention through operative group was efficient, for it encouraged self-care and reduced potential risk of diabetic foot. Brazilian Registry of Clinical Trials (*Registro Brasileiro de Ensaios Clínicos*): RBR- 753 Kcg.

DESCRIPTORS

Diabetes Mellitus; Diabetic Foot; Nursing Care; Health Education; Self Care.

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INTRODUCTION

Diabetes Mellitus (DM) is a heterogenic group of metabolic disorders with multiple etiology, characterized by high levels of blood sugar due to impaired insulin production and/or absorption. It may evolve, causing ocular, renal, vascular and neurological complications, among others⁽¹⁾.

Among other complications caused by DM, neuropathy predisposes to loss of pain and temperature sensitivity. Neuropathy contributes to trauma and ulcers which lead to the condition known as “diabetic foot”, characterized by lesions due to peripheral and/or neurological vascular alterations. It constitutes a triad: neuropathy, peripheral vascular disease and infection. Such disfunctions are the main risk factors for feet ulceration and amputation in subjects presenting DM⁽²⁾.

Preventing diabetic foot is the principal intervention for reducing severity and amputations of lower extremities (LE). An effective strategy must encompass early detection and identification of risk factors among the studied population. Since many DM patients still ignore the risk of foot lesions and the proper management of this problem, it is necessary to educate patients and their relatives⁽³⁾.

Concerning this issue, health professionals have not been focusing their efforts on providing early diagnosis of diabetic foot and preventing problems related to the lower limbs of DM patients⁽⁴⁾.

The representation of this sequel and its considerable relevance to public health – bearing in mind its costly, slow rehabilitation overload – implies that formulating educational strategies for diabetic foot prevention is of utmost importance⁽⁵⁾.

Therefore, the main challenge is ensuring an effective promotion of self-care. In such a context, educational activities play a fundamental role as tools for lowering DM-related complications⁽¹⁾.

Taking into account the meaningful facilitators of health promotion and severity prevention, group formation may promote interaction among people coping with similar problems, encouraging the elaboration of alternatives to improve the patients' life conditions⁽⁶⁾.

In this perspective, the operative groups dynamic, as conceived by Pichon-Rivière, emerges as an alternative. It regards the provenance of dialectics and the collective process to subject conception as determining the process and determined by it⁽⁷⁾. This dynamic is applied to health promotion through educational activities aimed at health improvement. Such groups present collective practices of problematizing and discussing, what increasingly generates learning opportunities⁽⁸⁾.

Therefore, the challenge of preventing the complications of diabetic foot lies in strengthening actions for the promotion of self-care through teaching skills and instructive attitudes, employing different dynamics in promoting learning to reduce the incidence of these complications.

In face of the positive results of operative groups as a learning promotion strategy⁽⁸⁾, this study intends to

encourage and teach foot care to people with DM by means of an operative group and an educational intervention named “teaching feet self-care”. These aim at preventing such complication, managing disease control and improving health potential, as well as contributing to the incorporation of this strategy to nursing clinical practice.

Studies dealing with this theme are scarce and there is no proof of the efficiency of operative groups in promoting foot self-care to DM patients. Hence, this research's rationale is providing scientific evidence to deepen knowledge on operative groups as an intervention tool in preventing peripheral alterations in such patients.

Taking this into account, the study aimed at evaluating the effect of an operative group in teaching foot self-care for preventing diabetic foot.

METHOD

STUDY TYPE

Randomized, controlled, blinded clinical trial.

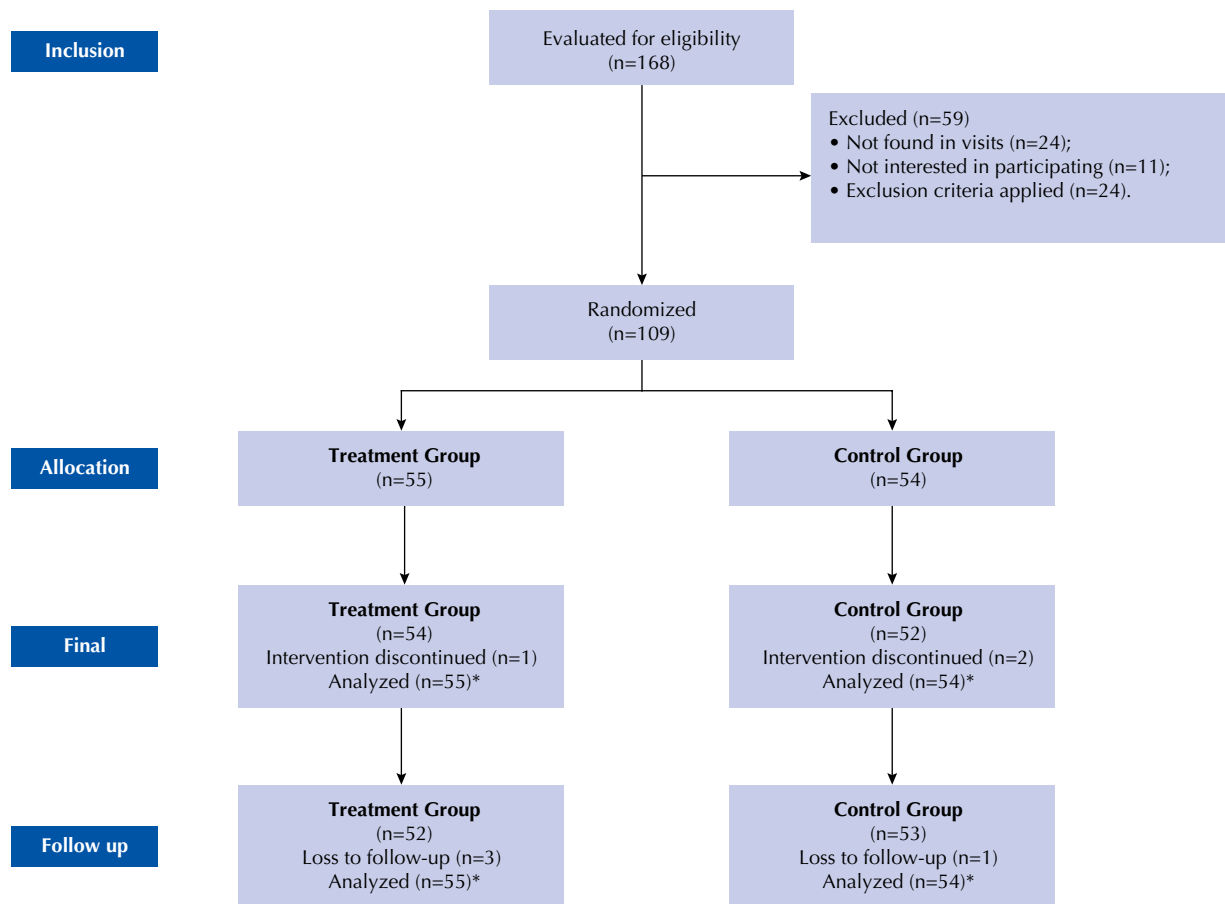
SCENARIO

The study was conducted in a Family Health Strategy Unit (*Unidade de Estratégia de Saúde da Família*) in a municipality in the south of Minas Gerais state, from January to June 2017.

The study population comprised 209 DM patients registered in the Basic Care Health Information System (e-SUS/SISAB – *Sistema de Informação em Saúde para a Atenção Básica*). The inclusion criteria were a minimum of five years from type 2 DM diagnosis and age over 18. The exclusion criteria were active foot ulcers, thrombosis, amputation of lower limbs and cognitive deficit, as defined by the Mini-mental State Examination⁽⁹⁾.

From 209 subjects with DM, only 168 presented type 2 DM and were considered eligible. Out of these, 11 people were not interested in participating, 24 did not meet the inclusion criteria (cognitive deficit and/or history of foot ulcers) and 24 people were not found in their houses after three contact attempts. Therefore, 109 volunteers were randomized into Treatment Group (TG) (n= 55), to whom the educational intervention was applied through operative group, and Control group (CG) (n= 54), which received no intervention. Three people were lost to follow-up between the first and second evaluations (one due to death and two post-operational) and four people were not present in the second or third evaluations (Figure 1).

The randomization was conducted in three blocks containing thirty subjects and a block of nineteen subjects by a researcher who took no part in the evaluations nor in the intervention. Each block was assigned a random number sequence by the application RANDOM.ORG. Each person, when arriving for the initial evaluation, received a random number. By the end of this evaluation, the subject handed the number to the interventionist, who matched it against a list to find out their group correspondence according to the previous randomization.



Source: Adapted from the Consort model⁽¹⁰⁾.

Note: *Analysis by Intention-to-treat (ITT)⁽¹¹⁾.

Figure 1 – Sample tracking flowchart.

DATA COLLECTION

A subject characterization questionnaire was applied. It was assembled by this study's researchers to collect information on sociodemographic aspects, life habits and clinical aspects. The sociodemographic aspects identified the research volunteers' gender, age and schooling. Regarding life habits, physical activity practice and tobacco and/or alcohol consumption were verified. Finally, as clinical information, Glycosylated Hemoglobin (HbA1c), time since type 2 DM diagnosis, weight and height were registered.

"Tissue Integrity Evaluation Scale: Feet Skin and Mucosae in Patients with type 2 Diabetes Mellitus (DM2)"⁽¹²⁾, adapted from indicators by NOC – Nursing Outcomes Classification⁽¹³⁾, was also applied to evaluate the integrity of the volunteer's feet.

This instrument contains five domains and consists of twenty indicators: eleven of them characterize skin and annexes conditions; five refer to blood flow; two are related to sensitivity; one concerns temperature; and one concerns plantar pressure.

For this study, the following indexes from the scale were used: tissue lesion, hair, skin flaking, hydration, sweating,

texture, breadth, color, color after ten seconds of thirty-centimeter rising, pigmentation, tissue perfusion, "dorsalis pedis", tibial pulses, edema, varices, score of neuropathic symptoms, monofilament test (tactile sensitivity), temperature and plantar pressure.

The answers to the instrument range within five points in a Likert-type scale, in which "1" represents extremely compromised; "2", substantially compromised; "3", moderately compromised; "4", slightly compromised; and "5", not compromised⁽¹²⁾.

In the end, the scale presents a five-level compromise score: from 20 to 35 points, extremely compromised; 36 to 51, substantially compromised; 52 to 66, moderately compromised; 67 to 84, slightly compromised; and above 85 points, not compromised⁽¹²⁾. In the present study, the mean and standard deviation in compromise levels were obtained.

In the "Skin and Annexes" and "Blood flow" domains, the volunteers were evaluated by techniques of inspection and palpation.

Foot tactile sensitivity was evaluated with 10 grams Semmes-Weinstein Monofilament (5.07U) and, to complement the research on peripheral neuropathy, vibration

sensitivity evaluation was conducted with a 128 Hz tuning fork, as recommended⁽¹⁴⁾.

For evaluating of Neuropathic Symptoms Score, an instrument validated with remarkable integral consistency (0.74 Cronbach's alpha) was employed. It enables the identification of sensation area and severity periods, as well as maneuvers to mitigate neuropathic symptoms. This instrument's scores range from 1 to 9: from 3 to 4, it represents light symptoms; from 5 to 6, moderate symptoms; and from 7 to 9, severe symptoms⁽¹⁵⁾.

To evaluate feet temperature, images were registered with a thermographic camera (E-60 bx, ESTONIA) with 320x240 resolution (76,800 pixels) in infrared spectral range (7-13 μm) for a dynamic study (60 Hz), and 25° x 19° lens resolution.

The Thermographic Camera was horizontally placed at a 0.98 cm distance from the person and vertically at a 0.95 cm distance from the floor, so as to capture both feet isolated from the rest of the body, after a 23 °C climatization for 20 minutes. Eighteen specific points were determined and standardized for evaluating the feet's thermographic images and were analyzed in the software FLIR Tolls Version 5.2.15161.1001, which ranks the score of this domain in a 36° to 38° C regular temperature and between 35 and 37 °C for the elderly⁽¹²⁾.

For evaluation of plantar pressure, an Electronic Baropodometer by Arkipélago® running the Foot Work software was used. The volunteers were required to stand in a platform, keep a straight posture with their upper limbs stretched parallel to the body and fixed glance against a wall at a one-meter distance. This analysis concerns the score of maximum static plantar pressure under 89.22 KG/cm² in both feet⁽¹²⁾.

All volunteers were evaluated before the educational intervention in Time 1 (T1), named initial evaluation; seven days after the educational intervention, named final evaluation, in Time 2 (T2); and in Time 3 (T3), fifteen days from the final evaluation, named follow-up. During the evaluations, the data collection questionnaire was applied. Also, physical examination on DM2 patients' feet directed by the domains of the evaluation scale "Tissue Integrity: Skin and Mucosae" was performed. This was done by two independent evaluators, both duly trained nursing graduates unaware of group allocations. They had no participation in the educational interventions. One evaluator collected data concerning sociodemographic factors and life habits, whereas the other performed clinical evaluation, i.e., instrument application.

The foot self-care educational intervention, directed at the TG, was based on activities proposed by the *Nursing Interventions Classification* (NIC), "Teaching: Foot Care (5603)", by the Ministry of Health and others drawn from literature⁽¹⁶⁻¹⁷⁾.

The intervention was conducted through operative group twice a week, in six sessions, in the Family Health Strategy meeting room for one month. The treatment group was subdivided in five groups with eight to fifteen

volunteers. An illustrative and didactic folder was used for written orientation. It was developed by this study's authors to provide the volunteer with a resource in case of questions.

In the six sessions of the operative group with dialogued expositive methodology, the TG volunteers received information included in the printed educational material, visual demonstrations, frames, booklet, image projection and ludic drawings.

The CG volunteers received routine care in the health unit, which consists of the clinical habitual procedures conducted in the outpatient ward by the family health team, with no knowledge of the educational intervention taking place in the TG. By the end of the study, CG subjects were invited to receive the same sessions of educational intervention on foot self-care teaching received by the TG through the operative group.

Volunteers integrating the CG were evaluated in three moments: T1, T2 and T3, by means of the same instruments used for the TG.

DATA TREATMENT AND ANALYSIS

The results were tabulated into an electronic sheet, with double entry and validation. For the analysis, statistical software GPower, version 3.1, and R Project 3.3.1 were used.

The Shapiro-Wilk test was used to analyze data distribution. Subsequently, for intergroup evaluation, the Chi-squared test was employed for qualitative dichotomic variables. Mann-Whitney test was used for non-parametric data and paired t-Student test was applied to the parametric data. For intragroup evaluation, the McNemar test was used for dichotomic qualitative variables and the Wilcoxon test was employed for two samples paired by ordinal variables. All the tests were applied, considering a significance level of 5%.

ETHICAL ASPECTS

The study was approved by the Research Ethics Committee in Opinion number 1.566.443, May 2016, and volunteer consent was declared by signing the Informed Consent Form, following Resolution number 466/12, by the National Health Council, on directives and norms for research involving human subjects⁽¹⁸⁾. Subsequently, it was registered in the Brazilian Registry of Clinical Trials (*Registro Brasileiro de Ensaio Clínicos*) as number RBR- 753 Kcg.

RESULTS

The comparison of sociodemographic and clinical aspects of the 109 volunteers participating in the study showed homogeneity in TG and CG regarding the variables age, weight, height, glycosylated hemoglobin, and time since diagnosis, as presented in Table 1.

Table 1 – Characterization of sample regarding age, weight, height, glycosylated hemoglobin and time since diagnosis – Minas Gerais, Brazil, 2017.

VARIABLES	Groups		P-Value
	Treatment (n=55)	Control (n=54)	
	$\mu \pm sd$ (95% CI)	$\mu \pm sd$ (95% CI)	
Age (years)	60.05 \pm 10.00 (57.35 - 62.76)	61.20 \pm 13.53 (57.51 - 64.90)	0.448**
Weight (Kg)	75.99 \pm 13.42 (72.37 - 79.62)	77.45 \pm 14.58 (73.47 - 81.43)	0.589*
Height (cm)	1.64 \pm 0.07 (1.62 - 1.66)	1.62 \pm 0.09 (1.60 - 1.65)	0.590*
Glycosylated Hemoglobin (%)	8.83 \pm 1.57 (8.40- 9.26)	8.73 \pm 1.62 (8.28-9.18)	0.487**
Time since diagnosis (years)	9.81 \pm 5.63 (8.30- 11.34)	10.51 \pm 5.46 (9.03- 12.01)	0.346**

Note: ** Mann-Whitney test; * t-Student test; μ : mean; sd: standard deviation; CI: Confidence interval.

Most of the volunteers constituting the study sample are female and both genders present low levels of education ($p=0.808$). Homogeneity was verified between the groups also concerning life habits variables: smoking ($p=0.129$), consuming alcohol ($p=0.457$) and practicing physical activity ($p=0.932$).

In the analysis of Risk for Foot Tissue Integrity, the TG means were statistically significant when the global risk of diabetic foot was evaluated in intragroup comparison, as opposed to the CG, which presented no significance. In intergroup comparisons, homogeneity in T1 was identified for both groups, as well as a statistical difference in T2 and T3 regarding the TG (Table 2).

Table 2 – Comparison of means and standard deviation, intra and intergroup, of diabetic foot risk – Minas Gerais, 2017.

RISK FOR FEET TISSUE INTEGRITY						
Groups	Times [#]	$\mu \pm sd$ (95% CI)	Intragroup	P-Value*	Intergroup	P-Value**
Treatment (n=55)	T1	76.05 \pm 6.83 (74.21-77.90)	T1 –T2	<0.001	TG - CG (T1)	0.457
	T2	79.95 \pm 6.28 (78.25-81.64)	T2 – T3	<0.001	GT - GC (T2)	0.001
	T3	83.47 \pm 5.59 (81.96-84.98)	T1 – T3	<0.001	TG - CG (T3)	<0.001
Control (n=54)	T1	75.39 \pm 5.97 (73.76-77.02)	T1 –T2	0.819	—	—
	T2	75.54 \pm 7.28 (73.55-77.52)	T2 – T3	0.087	—	—
	T3	76.61 \pm 7.21 (74.64-78.58)	T1 – T3	0.029	—	—

Note: [#]Times of Evaluation: T1- before treatment; T2- after treatment; T3- Follow-up; μ : mean; sd: standard deviation; CI: Confidence interval; *Paired Wilcoxon test, **Mann-Whitney test.

By offering an analysis of the items in the foot tissue integrity evaluation for people with DM2, which includes the domains Skin and Annexes, Blood Flow, Sensitivity, Temperature and Plantar Pressure, Table 3 presents rising TG means through evaluations T1, T2 and T3 for all variables, except for tissue temperature and plantar pressure.

Concerning intergroup analysis in the Evaluation Scale “Foot Tissue Integrity in People with DM2”, the data present homogeneity among the groups during evaluation T1 for most items. In T2, the items presenting statistical

significance were tissue lesion, hydration, sweating, texture, skin flaking, tissue perfusion and tibial pulsation. In T3, most items presented statistically significant results, except for color, varices, monofilament and vibration sensitivity test and tissue temperature. Although the evaluation of sensitivity is of no statistical significance, an evolution of monofilament test means in the TG is observed.

From the items with significant statistical results, the differences in evaluation time took place mostly from T2. This suggests that the educational intervention led to improvements in the TG.

Table 3 – Presentation of means, standard deviation and intergroup analysis for items in the Evaluation Scale “Foot Tissue Integrity in People with DM2” – Minas Gerais, 2017.

EVALUATED ITEMS	TG	CG	P-value	TG	CG	P-value*	TG	CG	P-value	
	T1 ^z (μ)			T2 ^z (μ)			T3 ^z (μ)			
Skin and Annexes	Tissue Lesion	4.80	4.87	0.574*	4.85	4.5	<0.001*	4.94	4.72	0.017*
	Hair	2.96	2.79	0.562*	2.89	2.77	0.760*	3.54	2.77	<0.001*
	Hydration	4.34	4.24	0.454*	4.63	4.29	0.015*	4.83	4.25	<0.001*
	Sweating	4.36	4.31	0.606*	4.6	4.25	0.010*	4.70	4.38	<0.001*
	Texture	3.89	3.87	0.638*	4.47	4.09	<0.001*	4.67	4.16	<0.001*
	Breadth	4.83	4.79	0.740*	4.90	4.77	0.094*	4.96	4.77	0.040*
	Pigmentation	4.25	3.94	0.018*	4.23	3.88	0.069*	4.6	3.81	<0.001*
	Cutaneous flaking	4.09	3.87	0.129*	4.65	3.87	<0.001*	4.69	3.83	<0.001*
	Color	4.92	4.92	0.987*	4.90	4.83	0.087*	5.00	4.9	0.105*
	Color after 10 sec. rising	4.87	4.92	0.984*	4.94	4.83	0.138*	4.96	4.70	0.014*
Blood Flow	Tissue Perfusion	4.00	3.72	0.047*	4.01	3.46	<0.001*	4.27	3.77	<0.001*
	Pedal pulses	3.72	3.70	0.972*	3.9	3.92	0.830*	4.2	3.74	0.013*
	Tibial pulses	2.89	2.57	0.191*	3.34	2.75	<0.001*	3.4	2.94	0.01*
	Edema	4.01	3.85	0.325*	4.34	4.12	0.149*	4.52	4.12	0.013*
	Varices	3.81	3.81	0.694*	4.05	4.01	0.506*	4.43	4.81	0.053*
Sensitivity	Neuropathy Symptoms	2.29	2.72	0.119*	3.07	2.70	0.170*	3.49	2.79	0.017*
	Monofilament Test	3.2	3.70	0.451*	3.27	3.75	0.302*	3.29	3.77	0.540*
	Vibrational			0.484**			1.000**			1.000**
Temperature	1.00	1.00	1.000*	1.00	1.00	1.000*	1.00	1.00	1.000*	
Plantar Pressure	2.87	3.00	0.835*	2.90	3.00	0.173*	2.98	3.60	<0.001*	

Note: ^zEvaluation Time: T1- before treatment; T2- after treatment; T3- Follow-up; μ = mean, *Mann-Whitney Test, **Chi-squared Test.

DISCUSSION

In this study, by evaluating the outcomes of the operative group “on teaching feet care”, the effectivity of this strategy for preventing diabetic foot was detected. In this regard, the educational health intervention, carried out through operative groups, becomes an objective measure and works as an efficient strategy for achieving positive results in the promotion of health and severity prevention, since it stimulates self-care and improves lifestyle⁽⁸⁾.

Also, in a systematic review⁽¹⁹⁾ on educational methodologies for people with DM, hypertension and obesity, the authors pointed the educational interventions of prevention conducted in the community level as the most efficient ones, since they are the easiest way of disseminating knowledge while focusing on reducing complications.

Therefore, the educational intervention strategy evaluated in this study, by means of an operative group using participative communication, favored learning behavior for foot care in people with DM in comparison with the traditional method. This fact also corroborates the findings of a study⁽²⁰⁾ whose aim was understanding meaning assigned to the operative group by mothers fostering disabled children, in which it became evident that the operative group constituted an important learning tool, for it enabled mothers

to comprehend, reflect and reevaluate their experiences of raising disabled children.

Regarding diabetic foot risk, the people participating in the process of teaching self-care by means of the operative group had lower feet damage scores after the intervention when compared to other people. This corroborates experts who point group health education as an efficient learning strategy due to its providing a space for listening, exchanging information, presenting problems and seeking solutions along with professionals to promote knowledge circulation and effectuating the experience in practice⁽⁸⁾.

The intervention dealt with in this study granted an improved score regarding skin and annexes. Before “Teaching Foot Care”, the groups were homogeneous in this variable and, after the educational intervention, the TG presented higher preservation of skin and annexes, which held throughout the study, differently from what was observed in the CG.

It is possible to infer that orientations on activities for preventing risk to the integrity of damaged foot skin favored improvements, considering that they deal with important aspects of self-care, such as keeping feet clean, hydrating them, drying between toes, daily feet observation, not cutting calluses nor cuticles, seeking for the

health staff when detecting visible alterations in the feet, not using hot or cold chemical substances in the feet, using appropriate shoes, asking for family help in feet care, among others⁽¹⁴⁾.

Vascular conditions are also important indicators in feet evaluation. The deterioration of this condition may lead to complications that worsen Diabetic Foot, such as the Occlusive Peripheral Arterial Disease (OPAD)⁽²¹⁾. This dysfunction is characterized by a reduction in lower limb perfusion along with vascular dilation and permeability, based on the thickening of the capillary basal membrane⁽²²⁾. Hence, the results show improvements in tissue perfusion, pulsation and edema in TG participants which were not observed in the CG volunteers, reinforcing the educational intervention effectivity.

The volunteer's foot temperature was noticed not to vary for both groups, presenting parameters below what is considered normal in the scale employed for this study. The ideal foot temperature is between 36° C and 38° C for adults and 35° C to 37° C in the elderly⁽¹²⁾.

There are still many divergences regarding the regulation of plantar temperature in people with DM. Nonetheless, a study employing the thermogram technique to measure temperature of foot skin and people with DM has shown that peripheral vases and nerves, when damaged, lead to irregular thermoregulation for both feet. It has also shown that less blood flows through such vases in cold skin areas⁽²³⁾. Therefore, reduced peripheral blood may indicate consequent sensitivity loss, constriction or dilation of blood vases. Reduction in foot temperature for people with DM is concluded to be a possible risk for developing major complications.

Regarding plantar pressure, the volunteers receiving the educational intervention presented a better distribution of static feet support in orthostatic position, what became evident in the follow-up step. Such results were inferred to be due to the efficacy of the operative group indication of the appropriate type of shoe – neither too tight nor too loose – as well as manners of changing them throughout the day to reduce pressure in certain foot areas. Therapeutic shoes

and insoles contribute to lowering the peak pressure and the emergence of lesions^(14,24).

Considering the lack of assistance and educational activities to stimulate in particular the practice of physical activity, diet adherence and feet self-care⁽²⁵⁾, it is worth emphasizing that, during the interventions, orientations were provided regarding the importance of glycemic control, maintenance of physical activity for strengthening leg and feet muscles, as well as tobacco cessation or reduction.

Therefore, the results achieved highlight the effect of the operative group, considering it a space for subjectivities and objectivities, where listening and experience sharing are developed. Also, in such groups, information is drawn from technical and popular experiences, seeking a joint solution to knowledge production and change-oriented attitudes, which was effective for preventing diabetic foot.

As limitations, the short period of this study is emphasized as possibly affecting the identification of significant statistical differences in modifying the volunteers' foot tissue temperature. In this sense, longitudinal studies are recommended for confirming such results.

Despite these limitations, the study has shown that the operative group is effective for improving DM2 patients' health conditions. Teaching foot care through participative and dialogue-based pedagogical methodologies has led to self-care behavior favoring the reduction of potential risks of diabetic foot.

Hence, this study is expected to stimulate the development of educational groups by nurses, the continuity of such collective actions in the health area and, in spite of difficulties, reflections on the role and importance of providing training on all nuances of collective processes for diabetic foot prevention.

CONCLUSION

The foot self-care educational intervention through operative group was shown to have the potential of improving feet self-care for type 2 Diabetes Mellitus patients, contributing to reduce the risk of complications in their feet.

RESUMO

Objetivo: Avaliar o efeito do grupo operativo no ensino do autocuidado com os pés para prevenção do pé diabético. **Método:** Ensaio clínico controlado e cego, realizado com voluntários que apresentavam Diabetes *Mellitus* tipo 2, randomizados em grupo tratado (55 pessoas) e grupo controle (54 pessoas). O grupo tratado recebeu a intervenção educativa "Ensino do autocuidado com os pés" e o grupo controle foi somente avaliado. As avaliações dos pés ocorreram antes e após a intervenção, bem como 15 dias depois desta (*follow-up*). A intervenção foi realizada por meio do grupo operativo e desenvolvida com orientação escrita, expositiva dialogada e *role-playing*. Foram utilizados os testes: Shapiro-Wilk, Qui-quadrado, Teste T, Mann-Whitney, McNemar e Wilcoxon emparelhado. **Resultados:** Participaram 109 voluntários. Houve homogeneidade entre os grupos nas variáveis sociodemográficas. Na análise intergrupo, foi observada melhora após a intervenção educativa para: a maioria das variáveis dos domínios pele anexos; circulação sanguínea; sensibilidade plantar; e pressão plantar. Observou-se melhora nos escores do risco do pé diabético no grupo tratado. **Conclusão:** A intervenção educativa por meio do grupo operativo foi eficaz, pois estimulou o autocuidado e reduziu o potencial de risco para o pé diabético. Registro Brasileiro de Ensaio Clínicos: RBR- 753 Kcg.

DESCRITORES

Diabetes Mellitus; Pé Diabético; Cuidados de Enfermagem; Educação em Saúde; Autocuidado.

RESUMEN

Objetivo: Evaluar el efecto del grupo operativo en la enseñanza del autocuidado de los pies para prevenir el pie diabético. **Método:** Un ensayo clínico controlado y ciego realizado con voluntarios que padecían diabetes mellitus de tipo 2, asignados al azar a un grupo tratado

(55 personas) y a un grupo de control (54 personas). El grupo tratado recibió la intervención educativa “Enseñanza del autocuidado de los pies” y el grupo de control sólo fue evaluado. Las evaluaciones de los pies se realizaron antes y después de la intervención, así como 15 días después de la intervención (seguimiento). La intervención se llevó a cabo a través del grupo operativo y se desarrolló con orientación escrita, diálogo expositivo y juego de roles. Se utilizaron las pruebas: Shapiro-Wilk, Chi-cuadrado, T-test, Mann-Whitney, McNemar y Wilcoxon pareado. **Resultados:** 109 voluntarios participaron. Había homogeneidad entre los grupos en las variables sociodemográficas. En el análisis intergrupar, se observó una mejora después de la intervención educativa para: la mayoría de las variables de piel y anexos; la circulación sanguínea; la sensibilidad plantar; y la presión plantar. Se observó una mejora en las puntuaciones de riesgo del pie diabético en el grupo tratado. **Conclusión:** La intervención educativa a través del grupo operativo fue eficaz, porque estimuló el autocuidado y redujo el riesgo potencial para el pie diabético. Registro Brasileño de Ensayos Clínicos (*Registro Brasileiro de Ensaio Clínicos*): RBR- 753 Kcg.

DESCRIPTORES

Diabetes Mellitus; Pie Diabético; Atención de Enfermería; Educación en Salud; Autocuidado.

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