Educational video: a training strategy for caregivers of children with cleft lip and palate

Vídeo educativo: estratégia de treinamento para cuidadores de crianças com fissura labiopalatina

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Abstract

Objective: To check the knowledge informal caregivers of children with cleft lip and palate acquire about the postoperative care of cheiloplasty and palatoplasty through the use of an educational video.
Methods: Randomized clinical trial conducted with 80 caregivers of children with cleft lip and palate, arranged into two groups: experimental (G1) and control (G2). Data collection occurred during the child's hospital stay, in three stages, using a structured questionnaire and an educational video developed and validated for this study.
Results: There was evidence of improvement in the acquisition of knowledge about postoperative care in both groups ($p < 0.001$), but it was higher in G1 compared to G2.
Conclusion: The educational video was shown to be effective to train caregivers of children with cleft lip and palate after cheiloplasty and palatoplasty.

Resumo

Objetivo: Verificar o conhecimento adquirido por cuidadores informais de crianças com fissura labiopalatina sobre os cuidados pós-operatórios de queiloplastia e palatoplastia por meio da utilização de um vídeo educativo.
Métodos: Ensaio clínico randomizado, realizado com 80 cuidadores de crianças com fissura labiopalatina, dispostos em dois grupos: experimental (G1) e controle (G2). A coleta de dados ocorreu durante o período de hospitalização da criança, em três etapas, utilizando um questionário estruturado e um vídeo educativo construído e validado para o presente estudo.
Resultados: Foi evidenciada melhora na aquisição de conhecimento sobre os cuidados pós-operatórios em ambos os grupos ($p<0,001$), porém, foi maior o G1 em comparação a G2.
Conclusão: O vídeo educativo mostrou-se eficaz no treinamento de cuidadores de crianças com fissura labiopalatina em situação pós-operatória de queiloplastia e palatoplastia.

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Introduction

Cleft lips, associated or not with cleft palates, are congenital deformities characterized by the lack of continuity of central facial structures and palatine processes, which can cause functional and cosmetic changes, and psychological disorders.[1,2]

The rehabilitation process of patients with cleft lip and palate begins with the primary plastic surgeries named cheiloplasty and palatoplasty, which are performed in the first months and years of life, respectively. Cheiloplasty is the reconstructive surgery of the cleft lip, and palatoplasty is the reconstruction of the cleft palate.[3]

In the postoperative period, parents are guided about care by the nursing staff, according to the surgery performed, including: observation of the general state; control of bleeding, swelling, bruising and scarring; immobilization of the humeroradial joint; cleaning of the surgical wound; provision of a liquid diet, and mouthwashes with antiseptics.[4] Parents' or caregivers' awareness about the importance of this care has a positive impact on the rehabilitation process.[5-7]

Thus, the educational role of nurses should be emphasized through the promotion of clarification and proper communication, with the need to meet the demands of information from parents or guardians about the surgical procedures, to facilitate adaptation to clinical situations, attenuate anxiety when facing painful procedures, promote self-care, change risky habits, or promote adherence to short- and long-term treatments.[8]

Interactive forms of health education have been identified as productive in the teaching-learning process because they use effective methods of coordination, dissemination of advances related to care in different specialties and professions, involving information and communication resources, including the development of materials to support this interaction.[9]

The use of educational materials by caregivers to obtain relevant information sets a pattern of acquisitions that can become adaptive actions beneficial to children with cleft lip and palate, providing favorable conditions to prevent risks and complications during the postoperative period. However, the quality of material should be ensured, as well as that of the evaluation tools[10].

Therefore, the objective of this study was to verify the knowledge acquired by informal caregivers of children with cleft lip and palate on the postoperative care of cheiloplasty and palatoplasty through the use of an educational video.

Methods

This is a randomized clinical trial conducted in a hospital specialized in the care of children with cleft lip and palate, and craniofacial anomalies, between August and October 2014.

The sample consisted of 80 informal caregivers who accompanied children with isolated cleft lip and palate who underwent primary surgeries of cheiloplasty and/or palatoplasty, forming two groups (G1 and G2). G1 was the experimental group that participated in the proposed training about postoperative care, which was applied by the researcher with the use of audiovisual aid created and validated for this research; and G2 was the control group, which also received postoperative guidelines, but that were given by nurses in the routine of the participating hospital.

A pilot study was conducted to set the sample, including 20 participants. Based on this study, an improvement of 35% was seen in G1, and an improvement of about 10% in G2, for a test power of 80% and alpha of 5%, estimating 40 caregivers per group. The group formation was undertaken from the surgical map, where children that met the inclusion criteria were consecutively numbered; with the use of a table of random numbers, group randomization took place. Thus, the sample consisted of 40 caregivers at random in the experimental group, and 40 caregivers in the control group. Caregivers of children with psychomotor impairment, genetic syndromes and other abnormalities or comor-

bidities were excluded, because these patients require special care.

Data collection took place during the period of hospitalization of children in the perioperative phase of the primary surgery, and included three stages:

- 1. Pre-training: interviews occurred in the perioperative period, at which the children were undergoing the surgical procedure, with the application of a structured questionnaire containing questions regarding the sample characterization and identification of information about postoperative care in cheiloplasty and palatoplasty. The characterization of the participants was aimed to identify, in relation to children: age, type of cleft and surgical procedure. Regarding the caregiver: age, number of children, socioeconomic classification, marital status, and degree of kinship with the child were verified. To identify the information about postoperative care, the questionnaire consisted of five categories: a) General care: related to child positioning on the caregiver's lap, permission to suck fingers and/or use a pacifier, child putting the hand in the mouth, care in the bedroom, toys and games, sun exposure, and the period that such care should be given in the postoperative period; b) Food: related to food consistency and temperature, more suitable utensils, and the period of supply of this food postoperatively; c) Hygiene and surgical healing: related to the removal or not of surgical stitches, dental and surgical hygiene, and daily frequency of this cleaning; d) Complications of surgical site: bleeding, trauma, injuries, respiratory distress, infection at the site, fever and pain that may happen at home; e) Behavioral state: caregiver's behavior with the child in the care provided, and consequent mood of dedication to the task. The instrument was built for this study, being tested previously (pilot study), and was suitable for the procedures of application, vernacular, and purpose.
- 2. Training: in the postoperative period, at the day of discharge (24 hours after surgery), G1 caregivers received training based on the prior planning of the research, which consisted of the exhibition of an educational video, with basic information about general care, food and hygiene to maintain surgical wound integrity, and surgical healing, necessary for recovery, and similar to those adopted by the institution without the visual aid (G2). However, in addition to that, G1 received guidance on child management, and on other protective care in the return to routine, involved in the affective aspects of mother-infant relationship, and those arising from the vulnerability state of facing an illness. During the procedure, within about 10 minutes, there was no interference of the researcher, who remained present full-time, ensuring possible learning through the tool adopted. G2 watched the oral presentation by the nursing staff of the hospital, with the average time of 10 minutes, where routine postoperative guidelines were provided and, at the time of hospital discharge, a manual of guidelines related to such postoperative care was given.

The steps recommended in the literature were used for the preparation of the educational video,[11] including planning, proper selection of images, production of easy-to-understand texts, creation of a guide with methodological accuracy, as well as the combination of creativity to transform the challenge of the transmission of technical and scientific language into an appropriate message to the target audience. Validation was performed according to the content. Thus, the evaluation by experts from different areas was obtained, which included: Nursing, Health Communication and Visual Communication.[12,13] Six experts participated, who mastered the theoretical and analytical assumptions of the reliability of constructs related to the instrument, and who met the inclusion criteria, i.e., to have ten or more years of experience in their fields or minimum specialist title. The analyzed criteria included: familiarity, plausibility and linguistic clarity.

The content validity index (CVI) was the tool chosen to evaluate the items separately.[14] The index score was calculated by the sum of expert agreement about the items, allowing the identification of the overall score and ranking of product suitability. To evaluate the material as a whole, the criteria of concordance percent was used, which was obtained by dividing the total number of items considered relevant by the experts by the total number of items. A minimum percentage of concordance of 90% was considered.[12] In this study, the concordance percent was 98%.

After its completion, the educational video was recorded on DVD and presented to the nursing staff of the participating institution so that they could validate their guidelines, and later it was made available to parents and caregivers of children with cleft lip and palate after cheiloplasty and palatoplasty. Access to the video was available only for participants, returning, in part, the collaboration provided to the study.

- 3. Post-training: after orientation training, the structured questionnaire on the guidelines provided was reapplied to both groups, aiming to identify the pattern of information acquired about postoperative care.

For the analysis of identification of the pattern of information on postoperative care in the pre- and post-training period of G1 and G2, the Wilcoxon test was used. The comparison between the groups in the pre-training, and regarding the difference of correct answers was carried out using the Mann-Whitney test, and for the comparison of the pattern of information about each related item in the pre- and post-training of G1 and G2, McNemar test was applied. For all tests, a 5% significance level was adopted.

The study was registered in Brazil under the *Plataforma Brasil* of *Certificado de Apresentação para Apreciação Ética* (CAAE): 09750212.8.0000.5441.

Results

The sample consisted of 80 caregivers, distributed into 40 caregivers in G1, and 40 caregivers in G2. Nonprogrammed homogeneity was found in the distribution of caregivers participating in G1 and G2. This condition showed that the use of a random number table was an effective procedure, considering that there was no statistically significant difference between the groups.

There was a predominance of mothers (97.5%), mean age of 28.4 years (± 6.2), with an average of 2 children (± 1.1), married (47.5%), with secondary education (46 3%) and low socioeconomic classification (78.8%). Regarding the children, according to gender, women prevailed (52%), with mean age of 10.8 months (± 8.6). Regarding the type of cleft, 20% had cleft lip, 40% isolated cleft palate, and 40% cleft lip and palate, where 32.5% underwent cheiloplasty, 40% palatoplasty, and 27.5% cheiloplasty and palatoplasty.

Regarding the identification of information pattern by the caregivers of postoperative care after the primary surgeries, a condition of similarity in the pattern of initial information by caregivers within the groups was observed in the pre-training. However, in the increment of accuracy, G1 showed higher knowledge acquisition after the intervention with the educational video when compared to G2 (Table 1).

Concerning information pattern by caregivers on the postoperative care of primary surgeries before and after training, it was observed that both groups had their knowledge improved in the variables related to postoperative care in the post-training, either after the guidelines provided by the nursing staff of the institution or the intervention with the educational video. These data were presented according to the mean, percentage and standard deviation in G1 and G2 before and after training, as well as their p-value, where statistically significant results were evident (Table 2).

Table 1. Comparison between the G1 and G2 groups in the pre-training and difference of accuracy on postoperative care of the primary surgeries

Variables	G1		G2		p-value*
	Mean (%)	Standard deviation (%)	Mean (%)	Standard deviation (%)	
General care					
Pre-training accuracy	36.1	13.3	40.0	18.4	0.264
Difference of accuracy	56.1	15.0	29.3	21.9	<0.001
Food					
Pre-training accuracy	75.6	25.6	74.4	26.8	0.879
Difference of accuracy	23.1	26.2	23.7	25.3	0.846
Hygiene and surgical healing					
Pre-training accuracy	44.4	23.7	46.3	23.7	0.802
Difference of accuracy	47.5	25.2	35.6	26.5	0.037
Complications at surgical site and behavioral state					
Pre-training accuracy	41.2	22.3	35.0	25.8	0.236
Difference of accuracy	38.8	31.0	16.3	23.7	<0.001

*Mann-Whitney test

Table 2. Identification of the pattern of information about postoperative care in the pre- and post-training of the G1 and G2 groups

Variables	G1			G2		
	Mean (%)	Standard deviation (%)	p-value*	Mean (%)	Standard deviation (%)	p-value*
General care			<0.001			<0.001
Pre-training	36.1	13.3		40.0	18.4	
Post-training	92.1	11.2		69.3	19.6	
Food			<0.001			<0.001
Pre-training	75.6	25.6		74.4	26.8	
Post-training	98.8	5.5		98.1	8.8	
Hygiene and surgical healing			<0.001			<0.001
Pre-training	44.4	23.7		46.3	23.7	
Post-training	91.9	14.3		81.9	15.0	
Complications at surgical site and behavioral state			<0.001			<0.001
Pre-training	41.2	22.3		35.0	25.8	
Post-training	80.0	24.8		51.2	7.9	

*Wilcoxon test

When analyzing the individual items related to postoperative care of the primary surgeries in G1, it was observed that, of the five variables addressed, four showed a statistically significant difference, where only in the item of the variable "food", about most suitable utensils for the provision of infant feeding after surgery, there was no significant difference. It was noted, however, that 36 caregivers already knew this information, and that only four caregivers obtained increment of this information after the intervention with the educational video (Table 3).

In the analysis of information pattern of postoperative care of G2 about each item of the variables, no significant difference was observed in six items (Table 3). Regarding "general care" of child putting the hand in the mouth and sucking a finger/pacifier, seven caregivers answered the question correctly after training. However, six caregivers were unable to answer this question. Regarding the use of bracelets at the elbow joint to prevent flexion, and not to compromise the postoperative rehabilitation or lead to rupture of surgical stitches, six caregivers showed an improvement of this information after training with the institution's nursing staff.

The variable "food", about food consistency and the most suitable utensils to give food to the child

Table 3. Comparison of information pattern about each related item in the pre- and post-training of G1 and G2 groups

Variables	G1 (n)					G2 (n)				
	Yes/Yes	Yes/No	No/Yes	No/No	p-value*	Yes/Yes	Yes/No	No/Yes	No/No	p-value*
General care										
Child's position on the lap	2	0	34	4	<0.001	5	0	21	14	<0.001
Finger/pacifier sucking	27	0	9	4	0.008	24	3	7	6	0.343
Use of bracelets	31	0	9	0	0.008	33	1	6	0	0.131
Care in the bedroom	1	0	38	1	<0.001	3	0	15	22	<0.001
Toys and games	4	0	29	7	<0.001	2	0	17	21	<0.001
Sun exposure	7	0	27	6	<0.001	10	0	12	18	0.001
Time of care	29	0	11	0	0.003	31	0	8	1	0.013
Food										
Consistency	33	0	7	0	0.023	36	0	4	0	0.134
Temperature	25	0	13	2	<0.001	24	0	15	1	<0.001
Utensil indicated	36	0	4	0	0.134	35	0	4	1	0.134
Period of offer	27	0	13	0	0.001	24	0	15	1	0.001
Hygiene and healing										
Surgical stitches	24	0	15	1	<0.001	26	1	13	0	0.003
Buccal hygiene	32	0	8	0	0.013	30	4	6	0	0.752
Surgical hygiene	6	0	32	2	<0.001	7	0	29	4	<0.001
Frequency of hygiene	7	23	2	8	<0.001	5	1	15	19	0.001
Surgical site complications	32	0	7	1	0.023	27	0	13	0	0.001
Behavioral state	1	0	24	15	<0.001	1	0	0	39	-

*McNemar test

after the surgery, four caregivers had their information updated after training. Regarding care relative to "hygiene and surgical healing", 30 caregivers responded properly to how oral hygiene of children should be performed, before training, and six caregivers had an enhancement of this information, after training.

Regarding "behavioral state of the caregiver," there was no significant difference in this variable from pre- to post-training due to lack of guidance from the nursing staff in this respect, where 39 caregivers were unable to answer, at post-training, what behavior the mother should have with the child in the postoperative period.

Discussion

The limitations of this study refer to the fact that it was performed with caregivers of children with cleft lip and palate of a single institution, which does not allow a generalization of results, and the possibility of measurement bias regarding the use of the interview as a data collection tool, because it is dependent on memory. However, it is important to emphasize that the results offer interesting contributions to the understanding of how these caregivers interpreted the message about postoperative care, employed through the use of an educational video. In addition to training of caregivers, the findings may extend to nursing professionals and others of related fields, including those related to telenursing, classes by videoconference, training and improvements related to postoperative care, and cheiloplasty and palatoplasty.

This study found that the group using the educational video as a teaching proposal presented better acquisition of knowledge regarding the information obtained about the postoperative care of primary surgeries of cheiloplasty and palatoplasty compared to the control group, indicating its efficacy for this purpose.

Learning based on audiovisual resources is considered an important teaching tool in nursing, because it contributes to the quality of care, with emphasis on the training of patients and caregivers, also being a vehicle for the dissemination of advances in care.[8,15,16]

Based on caregivers' characterization data, there was a predominance of mothers, corroborating other investigations.[4,17,18] The presence of

the mother during hospitalization has been associated with less stress for the child. In addition, the mother, the main caretaker, receives training on the care, ensuring its continuity after hospital discharge.[4,17,19]

Regarding the age of caregivers, the mean age was 28 years, which means young age. In the context of learning that is necessary to postoperative care, young people have greater willingness to learn. The use of an educational video as a teaching strategy is evidenced, because it is a very attractive method to this public.[20,21]

Regarding the number of children, most reported having two children, and regarding marital status, there was a predominance of "stable unions". There is a consensus that children with cleft lip and palate whose families are structured show better results regarding the rehabilitation process, considering that the care and responsibilities are divided between the parents.[4,17]

Regarding caregivers' education, there was a predominance of high school level. Education level is related to the learning capacity required for the acquisition of skills related to postoperative care and access to information, as well as to their quality.[4] As to the socioeconomic classification, there was a predominance of the lower class, corroborating the literature.[4,17,18]

With regard to the child's gender, there was a predominance of females. On the classification of clefts, there was equality between cleft lip and palate and cleft palate. The literature shows a prevalence of cleft lip and lip-palate in males, whereas cleft palate is prevalent in females.[1] The mean age was 10 months. The optimal age for a cheiloplasty and palatoplasty is no consensus; however, good results, especially regarding the quality of speech, have been evidenced in cases in which surgical correction occurred before 12 months of age.[22] According to the institution's protocol, cheiloplasty is performed at 3 months of age, whereas palatoplasty occurs between 10 and 12 months. In children with unilateral cleft lip and palate, cheiloplasty and palatoplasty have been concurrently performed from 3 months of age on.[17] Protocol stratification has been identified as an important quality indicator for the rehabilitation process of patients with cleft lip and palate, a fact that is evidenced in this study, related to surgery, demonstrating compliance to this recommendation.[2]

Regarding nursing care after cheiloplasty and palatoplasty surgeries, it became clear that both groups were similar concerning correct answers in the pre-training; after training, greater knowledge was evidenced, denoting that they were able to hold information.[23] However, in the group receiving the intervention through the educational video, it was observed that learning was significantly higher, reflecting its importance as a training tool.

The first item in the educational video was about general care, which included the child's position on the caregiver's lap, sucking of fingers and/or a pacifier, child's hand placement in the mouth, care in the room, toys and games, sun exposure and period when such care should be given in the postoperative period. This care is related to the maintenance of wound integrity, and prevention of complications, especially bleeding.[4]

The lip and palate are extremely irrigated areas, and traumas in these regions, which are already sensitized by surgery, can lead to bleeding. Sun exposure should be avoided, particularly at times when radiation is greater, because this interferes qualitatively in surgical wound healing, mainly in lip surgeries. Moreover, heat promotes vasodilation, which may cause bleeding. The period stipulated for such care is 30 days.[4]

In the item 'food' it was observed that, in both groups, caregivers previously had satisfactory knowledge. This result is associated with the fact that food is the main concern of parents and caregivers of children with cleft lip and palate, since the time of diagnosis, extending to the postoperative period, due to the involvement of the oral cavity.[4,17,24 25] This concern makes parents seek information about this care, justifying the previously established proper knowledge. Food should be liquid and cold, and offered in a cup or spoon, since sucking appliances such as baby bottles and straws

are prohibited. Such care also aims at maintaining the integrity of the wound and promoting wound healing.[4,17]

As for the cleaning of the surgical wound, in cheiloplasty it should be performed with the aid of swabs soaked in saline or filtered water, whereas in palatoplasty, at the end of the food supply, water should be offered aiming to clean the surgical wound. In both surgeries, oral hygiene should be methodically carried out. These interventions are directly related to the prevention of infections. Surgical stitches in cheiloplasty should be removed after seven and ten days, whereas those used in palatoplasty fall spontaneously when not absorbable.[18]

In cases of surgical complications such as bleeding, trauma, injuries, respiratory distress, infection at the site, fever and pain, the children should be immediately referred to medical evaluation at the place where they are. Later, after the child is stabilized, the situation shall be informed to the institution for appropriate procedures.[4,26]

In the procedures for caregiver guidance on the variable "behavioral state of the caregiver," the quality of affective and emotional interaction channeled in applied actions is as important as the attention to the practices of context and handling. G1 received guidance on facial and body expressions, reactions and voice tone, the message of which should be to convey peace and security, and to understand that the caregiver is the major reference of child well-being in the world. Nervousness, fear or indifferent actions could refer to a threatening world and to the child's anxiety. With such care, the body tends to react with more efficient plasticity, and allows faster recovery. Thus, the intervention with the educational video was effective for the improvement of this modality.

The effectiveness of the educational intervention was evidenced by an increase in the mean of correct answers, with a statistically significant difference, showing the consistency of the instrument used to measure the comparison of results. These findings corroborate other studies that evaluated effectiveness of educational programs, as a favorable technology to the teaching-learning process, contributing to the understanding of care, leading to motivation, curiosity, and encouraging the participation of caregivers in care.[27,28]

Conclusion

In this study, G1 showed better performance compared to the level of information obtained on postoperative care of primary surgeries of cheiloplasty and palatoplasty after training, compared to G2. In other words, caregivers showed changes in the acquisition of knowledge about the postoperative care of children with cleft lip and palate who underwent primary surgeries after training with the educational video, showing its efficacy as an educational resource for training informal caregivers in hospital settings.

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Collaborations

Razera APR contributed with the project design, research development, data interpretation, and article writing. Trettene AS, Mondini CCSD and Cintra FMR collaborated with data analysis and interpretation, article writing, and critical review of its intellectual content. Tabaquim MLM collaborated with the project design, relevant critical review of its intellectual content, and approval of the final version to be published.

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