

NURSING EDUCATIONAL INTERVENTION TO THE CLIENT SUBJECTED TO CARDIAC SURGERY

INTERVENÇÃO EDUCATIVA DE ENFERMAGEM AO CLIENTE SUBMETIDO À CIRURGIA CARDÍACA

INTERVENCIÓN EDUCATIVA DE ENFERMERÍA AL CLIENTE SOMETIDO A LA CIRUGÍA CARDIACA

Kassia Regina de Castro Rosseto¹
Karolini Zuqui Nunes²
Walckiria Garcia Romero³
Lorena Barros Furieri⁴
Leila Massaroni⁵
Mirian Fioresi⁶

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Objective: to analyze if a nursing educational program favors knowledge and guides the adopted conduct by clients in the cardiac surgery postoperative. **Method:** intervention study carried out with 51 patients. Data collection was done by applying a structured form. **Statistical analysis:** chi-squared test, Fisher's exact test, Mann-Whitney or Spearman's correlation coefficient, when appropriate. **Results:** nursing educational program was considered important to ensure tranquility, treatment adherence and recovery support. However, clients presented limited comprehension regarding some regular postoperative procedures. Inadequate answers were associated to low education ($p < 0.05$). There was moderate and negative correlation ($p = -0.314$; $p < 0.05$) between answer coherence and time within guidance and surgery. **Conclusion:** the educational program favor the knowledge and guided the adopted conducts by the clients in postoperative phase.

Descriptors: Cardiac surgery. Perioperative nursing. Nursing assistance. Education in health.

Objetivo: analisar se um programa educativo de enfermagem favorece o conhecimento e orienta as condutas adotadas pelos clientes no pós-operatório de cirurgia cardíaca. Método: estudo de intervenção realizado com 51 pacientes. A coleta de dados foi realizada através da aplicação de um formulário estruturado. Análise estatística: foram usados os testes qui-quadrado, exato de Fisher, Mann-Whitney ou coeficiente de correlação de Spearman, quando apropriados. Resultados: o programa educativo foi considerado importante para garantir tranquilidade, adesão ao tratamento e auxílio na recuperação. Entretanto, os clientes apresentaram compreensão limitada quanto a alguns procedimentos comuns do pós-operatório. As respostas inadequadas foram relacionadas à baixa escolaridade ($p < 0,05$). Houve

¹ Mestre pelo Programa de Pós-graduação em Enfermagem do Centro de Ciências da Saúde da Universidade Federal do Espírito Santo, Vitória, Espírito Santo, Brasil. kassia_castrorosseto@yahoo.com.br

² Mestre. Universidade Federal do Espírito Santo, Vitória, Espírito Santo, Brasil. karol-zuqui@hotmail.com

³ Doutora em Ciências Fisiológicas. Professora do Departamento de Enfermagem e do Programa de Pós-Graduação em Enfermagem do Centro de Ciências da Saúde, da Universidade Federal do Espírito Santo, Vitória, Espírito Santo, Brasil. walckiriagr@uol.com.br

⁴ Doutora em Ciências Fisiológicas. Professora do Departamento de Enfermagem e do Programa de Pós-Graduação em Enfermagem do Centro de Ciências da Saúde, da Universidade Federal do Espírito Santo, Vitória, Espírito Santo, Brasil. lorafurieri@yahoo.com.br

⁵ Doutora em Ciências Fisiológicas. Professora do Departamento de Enfermagem e do Programa de Pós-Graduação em Enfermagem do Centro de Ciências da Saúde, da Universidade Federal do Espírito Santo, Vitória, Espírito Santo, Brasil. leilamassaroni53@gmail.com

⁶ Doutora em Enfermagem. Professora do Departamento de Enfermagem e do Programa de Pós-Graduação em Enfermagem do Centro de Ciências da Saúde, da Universidade Federal do Espírito Santo, Vitória, Espírito Santo, Brasil. mirianfioresi@hotmail.com

correlação moderada e negativa ($\rho = -0,314$; $p < 0,05$) entre a coerência das respostas e o tempo entre a orientação e a cirurgia. Conclusão: o programa educativo favoreceu o conhecimento e orientou as condutas adotadas pelos clientes na fase pós-operatória.

Descritores: Cirurgia cardíaca. Enfermagem perioperatória. Assistência de Enfermagem. Educação em saúde.

Objetivo: analizar si un programa educativo de enfermería favorece el conocimiento y orienta las conductas adoptadas por los clientes en el postoperatorio de cirugía cardíaca. Método: estudio de intervención realizado con 51 pacientes. La recolección de datos se realizó mediante la aplicación de un formulario estructurado. Análisis estadístico: se utilizaron las pruebas, Qui-Quadado, exacto de Fisher, Mann-Whitney o coeficiente de correlación de Spearman, cuando eran apropiados. Resultados: el programa educativo fue considerado importante para garantizar tranquilidad, adhesión al tratamiento y ayuda en la recuperación. Sin embargo, los clientes presentaron una comprensión limitada de algunos procedimientos comunes del postoperatorio. Las respuestas inadecuadas se relacionaron con la baja escolaridad ($p < 0,05$). Se observó una correlación moderada y negativa ($\rho = -0,314$, $p < 0,05$) entre la coherencia de las respuestas y el tiempo entre la orientación y la cirugía. Conclusión: el programa educativo favoreció el conocimiento y orientó las conductas adoptadas por los clientes en la fase postoperatoria.

Descriptores: Cirugía cardíaca. Enfermería peri operatoria, Asistencia de enfermería. Educación en salud.

Introdução

Cardiac surgery is a high-risk intervention and the patients subjected to this procedure need specific care from the health team during the perioperative period. Cardiac surgeries can be done aiming correction of congenital valvular and other heart diseases, myocardial revascularization, among others. Cardiac intervention is performed when the perspective of a healthy life is bigger with the surgical therapeutics, than with clinical treatment^(1,2).

By being subjected to cardiac surgery, the user undergoes through an experience with many doubts, fears and insecurities. However, it is known that the patient with knowledge over his or her disease and the paths he or she needs to go through, acts with more confidence and tranquility, cooperating with the treatment, and consequently with early hospital discharge⁽³⁾. In this context, it is imperative to adopt educational practices in health, for this client group. Such practices refer to educational actions in health, aiming at developing skills with the objective of improving quality of life in individual and public health^(4,5). Different authors refer that the educational activity is intrinsic to nursing, and through preoperative contact, the nurse can assess the client, perceive their needs, fears and wishes,

and intervene in order to improve care when providing such information^(3,6,7,8).

Considering the exposed theme, the objective of this study was to analyze if a nursing educational program favors the knowledge and guides the adopted conducts by the clients in postoperative phase.

Method

This is an intervention study. Data were collected in period from April to December of 2012, in the Cardiology Outpatient Unity in the University Hospital Cassiano Antonio de Moraes, located in Vitória, state of Espírito Santo.

Population comprised clients participating in the "Preoperative guidance for patients eligible for cardiac surgery project". This mentioned project consists in providing nursing guidance, as dialog and handing a primer with information regarding the cardiac surgery perioperative period, to the client whenever the surgery indication is confirmed. It is noteworthy that the guidance, during the data collection period, were made by the main author of this study, which is a nurse in the project. Nursing consultation lasted approximately one hour and it happened during the preoperative period. During the consultation, a phone number was made available for clarifying any doubts or to schedule another appoint for

guidance, if needed. At last, the guidelines were reinforced by the other nurses of the program, at the hospital admission for the surgery.

Clients participating in the guidance project receive information regarding to: the surgery they will be subjected; orotracheal intubation; general anesthesia; the importance of respiratory exercises; mobility and early ambulation; measures for pain relief; hygiene and skin preparation; among other general guidelines^(9,10).

Clients over 18 years old, participating in the guidance project, which were subjected to cardiac surgery via sternotomy and that spontaneously returned or contacted by phone to the postoperative consultation, were included in the study.

During the study period, the cardiac surgery, via sternotomy, was indicated to 95 patients. From these, six were not referred to the guidance project, for reasons unknown to the researchers, and consequently, could not receive the orientations and were excluded from the sample. Thus, the population was of 89 clients involved in the guidance project. From these, 38 were excluded from the study after the analysis of exclusion criteria (15 clients were not subjected to the surgery, two loose interest in receiving guidance, eight patients died, six did not accept to participate in the research, five did not answer phone contact for schedule the interview and two did not show at the interview). Therefore, the sample consisted of 51 patients.

Data collection was made by an individual interview applying a structured form composed by closed-ended questions. Researched sociodemographic variables were: age, sex, color/race, education and origin. Perioperative routine procedures considered for the analysis were: intensive care unit (ICU) admission, orotracheal intubation, thoracic and mediastinal drain and urinary catheter. At last, adopted conduct facing ICU monitoring, early mobility and respiratory exercises, were studied.

Statistical analysis were made with SPSS 20.0® and BioEstat 5.3® programs. Categorical variables were expressed in relative and absolute

frequencies. To evaluate the association of answers and conducts with categorical variables of gender, age bracket and education the chi-squared or Fisher's exact tests were used. Non-parametric test of Mann-Whitney was used for correlations between the answers and conducts with the metrical variable of elapsed time from the guidance until the surgery, as well as to the correlation between the answers and conducts and the categorical variables of gender, age bracket and education (to the variables with two categories). It was considered significant p-value < 0.05. Spearman's correlation coefficient (non-parametric) was used for crossing the number of answers and conducts according to the suggested practices with the metric variables of age and elapsed time from the guidance until the surgery. Correlation coefficient can be qualitatively evaluated as follows: if $0.00 < \rho < 0.30$, there is a weak correlation; if $0.30 \leq \rho < 0.60$, there is moderate correlation; if $0.60 \leq \rho < 0.90$, there is strong correlation; if $0.90 \leq \rho < 1.00$, there is a very strong correlation.

The present study had approval from the Ethics committee of Health Sciences Center of the Federal University of Espírito Santo under the Resolution n. 097/11.

Results

Patients' characterization

Sociodemographic profile is presented in Table 1. Approximately 70% of the clients participating in the study had 50 years of age or higher, predominance of male patients and original from the state where the research was carried out. In relation to race and to education, 82.3% self-appointed themselves as white or pardo and 78.4% has less than eight years of education. Regarding the type of surgical procedure, 33 patients (64.7%) were subjected myocardial revascularization, 15 (29.4%) underwent valve surgeries (implants/exchange/valvuloplasty) and the other patients (5.9%) were subjected to surgical correction of ventricular septal defect (VSD).

The nursing educational program: knowledge and practices

Clients were questioned regarding the contribution of the guidelines provided by the nurse in the preoperative for the surgery, as well as about the guidance primer, handed previously to the surgical procedure. Data are listed in Table 2.

Patient understanding regarding routine procedures in the perioperative

Taking as a principle that knowledge is constructed through critical reflection, from beliefs and previous experience, in which there is no absolute truth, and that reality is established by the subject that learns^(4,5). Patients' answer over knowledge regarding the procedures were classified "according to the suggested practices" and "other answers", based in the information discussed in the preoperative guidance. Answers are compiled in Table 3.

Answers presented by the patients concerning routine questions in the perioperative were categorized in, according to suggested clinical practices (according to suggested practices) and

other answers (Other answers), upon guidelines received in the preoperative period. Same categorization repeats in Table 4, 5 and 6.

Both in the preoperative guidelines and in the written and illustrated content in the primer, focused in the client's necessity to be subjected to the regular procedures in the perioperative of cardiac surgery. Among these procedures, it was explained in the ICU admission, the use of invasive tubes and catheters, such as: orotracheal tube, thoracic drain, mediastinal drain and urinary catheter. This study revealed that the clients demonstrated adequacy of the knowledge regarding the routine procedures through the answers that were in accordance with the suggested practices, since of the four studied procedures, three had more than 70% of the answers "according to the suggested practices" (Table 3). However there was a higher frequency of "other answers", in detriment to those oriented in the educational program, in relation to the necessity of admission in the ICU (27.4%) and regarding the use of urinary catheter in the postoperative (59.4%).

For better evaluation of the educational practice effects in the studied sample, it was pursued to establish an association between

Table 1 – Sociodemographic characterization of the patients involved in the "Preoperative guidance for patients eligible for cardiac surgery project". Vitória, ES, Brazil, 2012 (N = 51)

Variable		F (n)	FR (%)
Age	30 to 39	8	15.7
	40 to 49	9	17.6
	50 to 59	10	19.6
	60 or over	24	47.0
Sex	Male	32	62.7
	Female	19	37.3
Color/Race	White	22	43.1
	Black	6	11.8
	Pardo	20	39.2
	Indigenous	3	5.90
Education	No instruction or less than 1 year of education	7	13.7
	1 to 3 years of education	7	13.7
	4 to 7 years of education	26	51.0
	8 to 10 years of education	3	5.90
	11 or more years of education	8	15,7
Origin	Espírito Santo	38	74,5
	Other states	13	25,5
Total		51	100

Source: Developed by the authors.

the answers given by the clients concerning ICU admission, orotracheal intubation thoracic and mediastinal drain and urinary catheter with the variables of sex, age bracket and education (Table 4).

There was no association between the variables sex and age and the answers given by

the clients, however it was observed association between education and the answers relating to orotracheal intubation ($p = 0.017$), and regarding urinary catheter ($p = 0.037$). It was verified that those who have had four or more years of education, presented greater percentage of answers of according to provided guidance.

Table 2 – Assessment by patients involved in the “Preoperative guidance for patients eligible for cardiac surgery project”, regarding the nursing educational program. Vitória, ES, Brazil, 2012 (N = 51)

Variable	F	FR (%)
Promoting tranquility during hospitalization		
Important	51	100
It was not important	0	0
Reduction of doubts in the postoperative		
It did contribute	49	96.0
It did not contribute	2	4.0
Adherence to the correct use of prescribed medicines		
It did cooperate	49	96,0
It did not cooperate	2	4.0
Adherence to early mobility in the postoperative		
It did cooperate	51	100
It did not cooperate	0	0
Adherence to respiratory exercises in the postoperative		
It did cooperate	50	98.0
It did not cooperate	1	2.0
Language used in the Guidelines Primer		
Comprehensible	47	92.2
Non-comprehensible	0	0
Did not read the primer	4	7.80
Information content		
Adequate	47	92.2
Inadequate	0	0
Did not read the primer	4	7.8
Contribution to postoperative recovery		
It did facilitate	51	100
It did not facilitate	0	0

Source: Developed by the authors.

Table 3 – Interviewed patients’ answers over the understanding concerning routine procedures in the perioperative, categorized in “according to the suggested practices” and “Other answers”, according to the guidelines received in the preoperative period. Vitória, ES, Brazil, 2012 (N = 51)

Guidelines content	According to the suggested practices		Other answers		Total	
	F	FR (%)	F	FR (%)	F	FR (%)
ICU admission	37	72.5	14	27.4	51	100
Orotracheal intubation	46	90.2	5	9.8	51	100
Thoracic and mediastinal drain	47	92.1	4	7.9	51	100
Urinary catheter	23	45.1	28	54.9	51	100

Source: Developed by the authors.

Adopted conducts by patients in the postoperative period

Both in the preoperative guidelines and in the written and illustrated content in the primer was emphasized the necessity of conducts to be adopted by the client in the postoperative period. Among these information, was clarified the need of monitoring and registering cardiac rate, electrocardiogram and temperature, and how could be the conduct through the sound of possible alarms. Early mobility need in the postoperative and the performing of respiratory exercises, were also elucidated.

Adopted conducts by the patients were also classified in “according to the suggested practice” and “other conducts”, based in the information

worked in the guidance. Table 5 bring together these results.

Most of the clients adopted conducts in accordance with suggested practices in the preoperative, however there was a lower adherence to the performing of respiratory exercises, since close to 35% of clients referred answers in disagreement with the guidelines worked in relation to the conducts over these exercises.

We sought to establish correlations between the adopted conducts by clients in the postoperative with the variables sex, age bracket and education, aiming to evaluate if there was any influence of these variables in the conducts presented by the client in the postoperative. Studied variables had no direct implications in the adoption of conducts by clients (Table 6).

Table 4 – Association between the answers presented by the patients regarding the routine questions of the perioperative with the sociodemographic variables of sex, age bracket and education. Vitória, ES, Brazil, 2012 (N = 51)

	Answers over Orotracheal intubation		Answers over Thoracic and mediastinal drain		Answers over Urinary catheter		Answers over ICU Hospitalization	
	Other Answers n (%)	According to n (%)	Other Answers n (%)	According to n (%)	Other Answers n (%)	According to n (%)	Other Answers n (%)	According to n (%)
Sexo								
M	4(80.0)	28(61.0)	4 (100)	28(60.0)	18(64.0)	14 (61.0)	7(50.0)	25(68.0)
F	1(20.0)	18(39.0)	0(0)	19(40.0)	10(36.0)	9(39.0)	7(50.0)	12(32.0)
Faixa etária (anos)								
30–39	0(0)	8(17.0)	0 (0)	8(17.0)	2(7.1)	6(26.0)	1(7.1)	7(19.0)
≥ 40	5(100)	38(83.0)	4 (100)	39(83)	26(93.0)	17(74.0)	13(93)	30(81.0)
Tempo de estudo (anos)								
≤ 3	4(80.0)	10(22.0)	1(25.0)	13(28.0)	11(39.0)	3(13.0)	5(36)	9(24.0)
> 4	1(20.0)	36(78.0)*	3(75.0)	34(72.0)	17(61.0)	20(87.0)*	9(64)	28(76.0)
Total	51 (100)		51 (100)		51 (100)		51 (100)	

Source: Developed by the authors.

Table 5 – Adopted conducts by patients in the postoperative, categorized in, according to the suggested practices and other answers, through received guidance in the preoperative period. Vitória, ES, Brazil, 2012 (N = 51)

Conducts	According to the suggested practice		Other conducts		Total	
	F	FR (%)	F	FR (%)	F	FR (%)
ICU monitoring	44	86.3	7	13.7	51	100
Early mobility	41	80.4	10	19.6	51	100
Respiratory exercises	33	64.7	18	35.3*	51	100

Source: Developed by the authors.

Table 6 – Association between the conducts presented by patients in the postoperative with the sociodemographic variables sex, age bracket and education. Vitória, ES, Brazil, 2012 (N = 51)

	Adopted conduct facing		Condutas adotadas frente à mobilização precoce		Condutas adotadas frente aos exercícios respiratórios	
	Other answersn (%)	According to n (%)	Other answersn (%)	According to n (%)	Other answersn (%)	According to n (%)
Sex	exercises					
M	4 (57.1)	28 (63.6)	5 (50.0)	27 (65.9)	11 (61.1)	21 (63.6)
F	3 (42.9)	16 (36.4)	5 (50.0)	14 (34.1)	7 (38.9)	12 (36.4)
Age bracket (years)						
30–39	0 (0)	8 (18.2)	2 (20.0)	6 (14.6)	3 (16.7)	5 (15.2)
≥ 40	7 (100)	36 (81.8)	8 (80.0)	35 (85.4)	15 (83.3)	28 (84.8)
Education (years)						
≤ 3	1 (14.3)	13 (29.5)	3 (30.0)	11 (26.8)	5 (27.8)	9 (27.3)
> 4	6 (85.7)	31 (70.5)	7 (70.0)	30 (73.2)	13 (72.2)	24 (72.7)
Total	51 (100)		51 (100)		51 (100)	

Source: Developed by the authors. M: Sex female; F: Sex Male. Fisher's exact test

Correlation between the answers and conducts in accordance with the preoperative guidelines and the elapsed time between the guidance and the date of surgery was also investigated. There was moderate and negative correlation (correlation coefficient = -0.0314; $p = 0.025$) with the elapsed time between guidance and surgery, thus, as higher the elapsed time between the guidance and the surgery, lower was the number of answers according to the guidelines.

Discussion

Nursing educational program, implemented in the preoperative phase, promoted the knowledge regarding the procedures and favored the adopted conducts by patients in the postoperative phase. The program was considered important to ensure tranquility, treatment adherence and recovery support. Results praise the nurse as an educator in health and do stimulate them to keep, as routine, the guidance for patients eligible for cardiac surgery.

Concerning the sociodemographic profile, the predominance of males was expected already, and indicated in previous studies carried out in hospitals in the cities of Goiânia and São Paulo^(1,2,3,4,5,6,7,8,9,10,11). In other countries, this finding can be confirmed as well. In researches with similar audiences, carried out in United

Kingdom and Argentina, 90% and 74.9% of patients were male, respectively^(12,13). In relation to the variable age, the sample components have a similar mean age of other studies with cardiac surgical patients^(12,13,14,15).

Patients indicated the nursing guidelines project as an important instrument to guarantee tranquility, adherence to the proposed treatment and support in the recovery process. In the client's view, information given in the preparatory period for the cardiac surgery, provided them with necessary knowledge over the surgical procedure, as well as resulting in the desired effect, which was of facilitating the recovery process.

Such data are corroborated by many studies which suggest that nursing educational intervention aim at diminishing the knowledge deficit of the patients regarding the procedure to which they will be subjected, improving conducts for self-care and provide calm, tranquility and courage to face the surgical process during all perioperative period^(2,10,14). Thus, different authors mention education as a mean of caring in nursing, and make reference to care and educate as inseparable, stating that, by educating the nurse interfere in a constructive manner in the relations between individuals^(16,17).

More than 90% of the interviewees declared the guidance primer has adequate information and that it uses clear and comprehensible

language. The evaluated educational program prioritizes quality over the amount of information transmitted, and tries to use clear, objective language, with simple vocabulary, and considering the guidance primer, to be of pleasant reading^(3,6,7,8).

To evaluate the adequacy of the presented knowledge was a concern, in view of the guidelines regarding the cardiac surgery perioperative period, ascertaining if patients understood the information and recalled them, and practiced them in the postoperative period. A study that investigated patients' memories regarding nursing preoperative guidelines evidenced that the recollections were very limited, being necessary to stimulate in order to receive characteristic answers⁽¹⁸⁾.

Patients presented knowledge adequacy regarding the routine procedures through the answers which were in accordance with the suggested practices, although indicated gaps concerning indication of admission in ICU and relating to the use of long-term urinary catheter in postoperative, which indicates the heterogeneity in the comprehension over information in the studied group. Considering that the cardiac surgery post-operative brings anxiety to the patient, since he or she experiences to be hospitalized in an ICU, a sector seen as the place that receives the most serious clients, and arises the feeling of an imminent risk of death⁽¹⁹⁾, it becomes essential that the client retains information which allow him or her to ease the hospitalization in ICU experience, thus reducing such fear and anxiety^(20,21).

Likewise, it is essential to adapt the knowledge regarding the urinary catheter use in postoperative. Urinary catheterization is a routine procedure in the intraoperative of cardiac surgery. Scholars in the field mention as being essential to guide the patients over the importance of performing it in order to make it less traumatizing occurrence and that generates less anxiety in postoperative^(2,3,6).

Low education became evident in the studied group, once that 78.4% had up to seven years of education. Other Brazilian works indicate

this profile: studies carried out in university hospitals in Goiânia and Maranhão, indicated that 69.2% and 50%, respectively, of incomplete Elementary studies^(16,8). However, divergent results were presented in studies carried out in São Paulo and Colombia, in which more than 70% of the sample had, at least, complete elementary school^(11,14). Those who had four or more years of education presented higher percentage of answers according to provided guidelines. Such findings are supported by many authors that mention the education level as decisive aspect to adherence to treatment, as low education may result in difficulty in understanding the provided guidance, and influence in the comprehension of their actual health state. They also state that low education level should be considered when deciding over the guidance offered approach, as adherence to treatment is influenced by the understanding the patients have about their disease. An inadequate approach to this patient group may lead to an incomplete information acquisition over the indispensable aspects for maintain or improving their health^(22,23).

Regarding the adoption of conducts according to the suggested practices in preoperative period, 35% of patients referred to answers in divergence with the guidelines worked over the respiratory exercises. This answer can be related to the pain resulted from the surgical process, which is frequent in cardiac surgery postoperative. Pain favors the adoption of an inefficient respiratory pattern, which can facilitate the appearance of pulmonary complications. In addition to postoperative pain, drains and surgery and anesthesia implications make the patient uncooperative in performing the respiratory exercises by influencing the ability to cough, breathe and moving properly^(22,23,24,25). Still the variables sex, age bracket and education had no direct implications in the adoption of conducts corroborating our hypothesis that the low adherence to the respiratory exercises results from postoperative pain. This fact indicates the necessity of a better approach in the guidance relating to the performance of the respiratory exercises and to the handling of postoperative pain.

Our results elucidated that the longer the elapsed time between guidance and surgery, lesser was the number of answers according to the guidelines. This finding demonstrate that the guidelines should not be provided long before the surgery to any patient group. However, it is important to consider that guidelines provided only on the day before the surgery may not offer beneficial effects to the patient⁽²⁾.

This study contributed to the scientific development of nursing once it demonstrates that the nurse's educational practice, in addition to expanding their field of action and giving visibility to their work, collaborate to the client's autonomy and decision making, establishing therefore, instruments that favors the professional performance and adherence to the patient's therapeutics.

Regarding limitations, it is noteworthy the fact that no tests aiming to verify cognitive deficit of the patients involved in the study, were applied, as well as no pilot study was carried out.

Conclusion

The educational program has a satisfactory overall aspect, once it was evaluated by the client as being important to ensure tranquility, treatment adherence and recovery support. However, some adaptation needs of the program were demonstrated, once the study indicated gaps in the adequacy of the patient knowledge regarding routine questions in cardiac surgery postoperative and low adherence to the respiratory exercises, which should be reviewed, analyzed and served as basis for guiding adjustments in the process.

Colaborations:

1. design, project, analysis and interpretation of the data: Kassia Regina de Castro Rosseto, Leila Massaron e Mirian Fioresi.

2. article writing and critical review of the intellectual content: Kassia Regina de Castro Rosseto, Karolini Zuqui Nunes, Walckiria Garcia Romero e Lorena Barros Furiere.

3. final approval of the version to be published: Kassia Regina de Castro Rosseto.

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