







Effect of an educational booklet on postoperative care after hospital discharge: a clinical trial

Efeito de uma cartilha educativa sobre cuidados pós-operatórios após alta hospitalar: ensaio clínico

Efecto de un folleto educativo sobre cuidados postoperatorios después del alta hospitalaria: ensayo clínico

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ABSTRACT

Objective: to assess the effect of an educational booklet on postoperative care for general surgeries, focusing on knowledge and adherence to care. **Method:** a randomized controlled clinical trial with 42 participants, allocated to a control group and an intervention group (1:1). Data collection occurred between January and February 2023, in two phases: at discharge, the control group received the institution's protocol, while the intervention group was exposed to the booklet. After seven days, both groups answered questions regarding knowledge and adherence to postoperative care. The research was approved by the Research Ethics Committee. **Results:** there was an improvement in the experimental group's knowledge across all items. In the control group, improvement was observed only in care related to diet ($p=0.032$) and medication ($p=0.000$). Regarding adherence, the intervention group demonstrated better assimilation of the care. **Conclusion:** The educational booklet had a positive impact on patients' knowledge and adherence to postoperative care.

Descriptors: Nursing; Postoperative Care; Educational Technology; Randomized Controlled Trial.

RESUMO

Objetivo: testar o efeito de uma cartilha sobre cuidados pós-operatórios de cirurgias gerais, em relação ao conhecimento e adesão aos cuidados. **Método:** ensaio clínico randomizado controlado, com 42 participantes alocados em grupo controle e intervenção (1:1). A coleta ocorreu entre janeiro e fevereiro de 2023, em dois momentos: durante a alta: o grupo controle recebeu o protocolo da instituição e o grupo intervenção foi exposto à cartilha; após sete dias - os dois grupos responderam às perguntas sobre conhecimento e adesão aos cuidados pós-operatórios. A pesquisa foi aprovada pelo Comitê de Ética em Pesquisa. **Resultados:** houve melhora no conhecimento no grupo experimental em todos os itens. No grupo controle apenas os cuidados com a dieta ($p=0,032$) e medicamentos ($p=0,000$). Sobre a adesão, os cuidados foram mais assimilados pelo grupo intervenção. **Conclusão:** A cartilha produziu efeitos positivos no conhecimento e adesão dos pacientes acerca dos cuidados pós-operatórios.

Descritores: Enfermagem; Cuidados Pós-Operatórios; Tecnologia Educacional; Ensaio Clínico Controlado Aleatório.

RESUMEN

Objetivo: probar el efecto de un folleto sobre cuidados postoperatorios de cirugía general, sobre el conocimiento y la adherencia a los cuidados. **Método:** ensayo clínico controlado aleatorizado, con 42 participantes asignados a grupo control e intervención (1:1). La recolección se realizó entre enero y febrero de 2023, en dos momentos: durante el alta, el grupo control recibió el protocolo de la institución y el grupo intervención fue expuesto al folleto; después de siete días, ambos grupos respondieron preguntas sobre conocimiento y adherencia a los cuidados postoperatorios. La investigación fue aprobada por el Comité de Ética en Investigación. **Resultados:** el conocimiento del grupo experimental presentó mejoras en todos los ítems. El grupo control sólo recibió información sobre cuidados con la dieta ($p=0,032$) y los medicamentos ($p=0,000$). En cuanto a la adherencia, el grupo intervención asimiló más los cuidados. **Conclusión:** El folleto tuvo efectos positivos en el conocimiento y la adherencia de los pacientes a los cuidados postoperatorios.

Descriptores: Enfermería; Cuidados Posoperatorios; Tecnología Educacional; Ensayo Clínico Controlado Aleatorio.

INTRODUCTION

The postoperative period is considered one of the most critical stages for the safe recovery of a patient who has undergone surgery, requiring general care, specific interventions, and actions aimed at promoting self-care. As a result, various factors influence the body's responses and recovery, including the type of surgical procedure, the diagnosis that necessitated the intervention, the environment in which it was performed, the place of hospitalization, pre-existing conditions, among other variables¹.

The patient's discharge from the hospital to their home is often considered a stage of the postoperative period, marked by various uncertainties and insecurities. During this time, the patient requires specialized attention, provided through a set of techniques applied holistically, while respecting the individual's limitations. These actions should be

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Scientific Editor: Thelma Spíndola; Associate Editor: Renata Flavia Abreu da Silva

carried out through the implementation of activities that ensure greater safety for the patient and their family, and must continue after they leave the hospital environment, a moment often filled with tension, insecurity, fear, and fragility².

In this regard, during the process of change involving the patient and the environment where care will be provided, healthcare professionals, including nurses, must develop a care plan for the patient and caregivers to follow at home, ensuring a better quality of life during the postoperative period³. However, it is observed that, in many situations, due to the stressful routine and ongoing demand for services, the transfer of information from healthcare professionals to patients and caregivers becomes inadequate, hindering its implementation and increasing the risk of complications due to communication breakdowns⁴.

The instructions provided by healthcare professionals regarding postoperative care include simple actions that promote a more effective and faster recovery, such as surgical wound care, focusing on cleaning the incision site and the frequency of dressing changes, as well as guidance on bathing, medication administration, and other aspects. However, doubts persist both for the patient and for those responsible for providing care at home⁵.

Thus, in an effort to address the gaps caused by difficulties in conveying information relevant to postoperative care, the implementation of low-tech solutions emerges, facilitating a didactic and complementary understanding of the instructions provided by healthcare institutions⁶. Therefore, the implementation and effectiveness of an educational booklet on home care following general surgery are assessed. The booklet consists of 16 pages, featuring images and clear, easy-to-understand language to facilitate accurate interpretation of the content.

In this context, the aim of this study is to assess the effect of an educational booklet on postoperative care for general surgeries, focusing on knowledge and adherence to care.

METHOD

This is a Randomized Controlled Clinical Trial (RCT), registered on the Brazilian Clinical Trials Registry (Portuguese Acronym: REBEC) platform under No. 7cc397, following CONSORT guidelines. The study was conducted at a medium-sized public hospital in the city of Picos, state of Piauí, between January and February 2023.

A probabilistic sampling method was used, where all individuals meeting the inclusion criteria had the same chance of being participants in the study. For the sample size calculation, the following formula for comparing two groups was used⁷:
$$= (Z_{\alpha/2} + Z_{1-\beta}) \cdot (S)^2 / d^2$$
, where $Z_{\alpha/2}$ represents the value of the α error, usually 1.96 (5%); $Z_{1-\beta}$ represents the value of the β error, 0.84 (20%); S is the standard deviation of the difference between pairs, 3; and d is the mean difference between pairs, 2. The calculation determined a sample size of 42 participants, with 42 individuals allocated in a 1:1 ratio between the groups (21 in the control group and 21 in the experimental group).

The inclusion criteria were as follows: patients in the immediate postoperative period following general surgeries, transitioning from hospital to home, with access to a viable means of communication (landline or mobile phone) for an interview after the booklet was administered in the hospital, and aged over 18 years. Participants who were unable to read were excluded, as the use of the educational booklet requires literacy, meaning at least the completion of elementary school. The following discontinuation criteria were established: withdrawal from participation after data collection began, death, or inability to establish contact after the scheduled evaluation day or after two attempts on different days and times, beyond the seven-day deadline (on the 8th day in the morning and the 9th day in the afternoon).

Data collection was divided into two stages: the first was conducted in the hospital setting, and the second was carried out through telephone calls and/or operator calls and message exchanges via *WhatsApp*® to verify whether the information provided was understood and implemented by the patient. All stages were carried out by the same researcher.

Operationally, patients were identified through prior contact with the ward nurse, who provided information about the discharges for the day. The researcher then reviewed the medical records to identify the type of surgery and determine whether the participants met the inclusion criteria, after which the researcher approached the patient.

Randomization was performed by dividing the participants into two groups, designated as the Control Group (CG) and the Experimental Group (EG). The experimental group consisted of patients who were discharged until the sample size for that group was reached, after which data were collected from control group patients who met the same criteria.

In the first phase of the study, the control group, after undergoing the hospital discharge routine (verbal instructions provided by nursing staff and the doctor), completed only the sociodemographic and clinical-surgical history questionnaires, as well as a questionnaire assessing their knowledge of postoperative care, with no intervention using the educational material. In contrast, the experimental group, in addition to following the institutional routine and completing the same instruments, was exposed to the intervention with the booklet at the bedside in the ward, with an average duration of twenty minutes. Figure 1 presents the flowchart mentioned above.

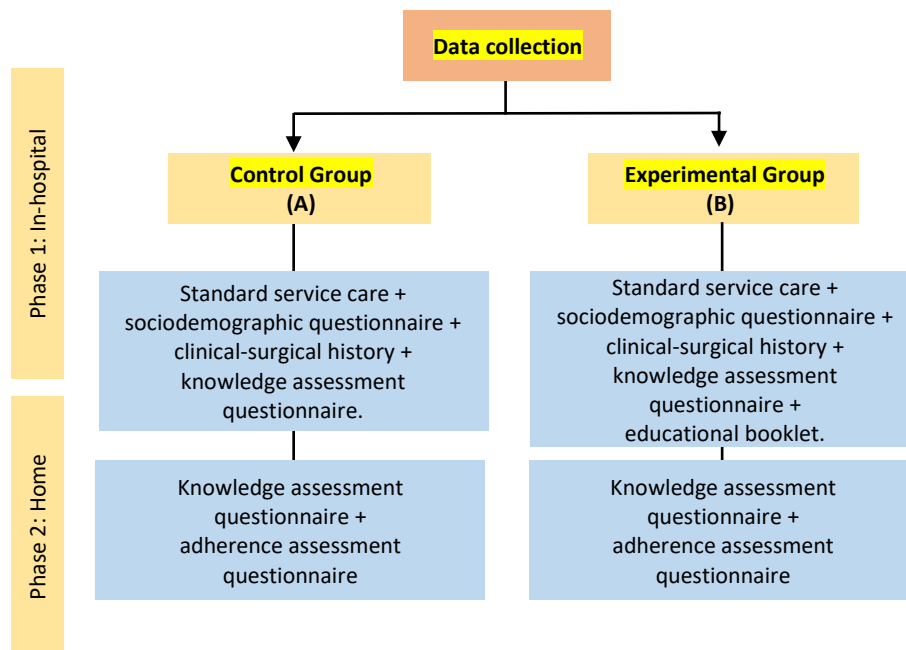


Figure 1: Flowchart of the RCT stages. Picos, PI, Brazil, 2023.

The data collection instruments used were as follows: a questionnaire for sociodemographic and clinical characterization (including age, gender, level of education, family income, current occupation, marital status, race, and religion; as well as questions about procedures, personal and family history, signs and symptoms, and prior medication use), and questionnaires assessing knowledge and adherence to postoperative care, each containing seven objective questions related to the care presented in the booklet. The participant could respond with “yes”, “no”, or “partially”, depending on their level of knowledge and adherence to the question asked.

The collected data were organized in a spreadsheet using Microsoft Excel and subsequently transferred for analysis using the *Statistical Package for the Social Sciences* (SPSS®), version 26.0. Data analysis was performed in phases. In the exploratory phase, descriptive statistics were applied according to the type of variable analyzed. Numerical variables were analyzed using the mean and standard deviation. In the categorical phase, simple frequency and percentage calculations were performed. In the inferential phase, bivariate analyses were conducted to assess homogeneity and compare the groups (control group vs. experimental group). The Wilcoxon test, Chi-square test, and Fisher's Exact test were used to analyze the data.

The study was approved by the Ethics Committee of the referred institution, and all participants signed the free and informed consent form.

RESULTS

The profile of participants in the experimental group (EG) consisted predominantly of women ($n=12$; 57.16%), with an average age of 20.26 (± 17.55) years and an average of 11.44 (± 6.67) years of education. They had an income of up to one minimum wage ($n=17$; 81.0%), were unemployed ($n=12$; 57.2%), married ($n=11$; 52.4%), self-identified as white ($n=10$; 46.6%), and identified as Catholic ($n=16$; 76.2%). Regarding clinical-surgical data: most participants were undergoing surgery for the first time (33.3%); traumatic surgeries were the most frequent (57.4%); the average number of postoperative days was 6.22 (± 5.04); and in 57.1% of cases, the surgery was elective. For 71.4%, no family member had undergone the same or a similar surgery, and 71.4% had not received any instructions to take home. However, those who did receive instructions reported that the professionals who provided them were doctors (47.6%) and nurses (4.8%).

The control group (CG) was predominantly female (n=15; 71.3%), with an average age of 40.27 (± 14.2) years and an average of 12.45 (± 6.12) years of education. An income of up to one minimum wage was the most common among participants (n=10; 47.6%). They also had informal jobs (n=8; 37.8%), were single (n=10; 47.6%), identified as white (n=12; 57.1%), and as Catholic (n=12; 57.1%). Regarding the clinical-surgical profile, 38.1% were undergoing surgery for the first time, 47.7% were undergoing traumatic surgeries, the average number of postoperative days was 6.11 (± 4.97), and in 52.2% of the cases, the surgery was elective. For 71.4%, no family member had undergone the same or a similar surgery, and 57.1% had not received any instructions to take home. However, among those who did receive instructions, the professionals who provided them were doctors (23.8%) and nurses (19.0%).

Five participants from the experimental group (EG) and nine from the control group (CG) were discontinued for not answering the calls after the first contact in the hospital. These participants were promptly replaced by new ones in each group.

Table 1 presents the frequencies of “yes” responses to questions about the knowledge acquired on postoperative care before (in-hospital) and after (at home) the intervention was applied.

Table 1: Intragroup comparison of the knowledge acquired on postoperative care at home. Picos, PI, Brazil, 2023.

Variables	Experimental Group (n=21)			Control Group (n=21)		
	Before	After	p-value*	Before	After	p-value*
General Care	17 (80.9%)	21 (100.0%)	0.040	18 (85.7%)	21 (90.4%)	0.310
Hygiene care	7 (33.3%)	21 (100.0%)	0.000	2 (9.5%)	6 (28.5%)	0.105
Surgical wound care	7 (33.3%)	20 (95.2%)	0.001	2 (9.5%)	5 (23.8%)	0.110
Care in the Use of Medications	3 (14.2%)	20 (95.2%)	0.000	2 (9.5%)	8 (38.0%)	0.000
Diet Care	0 (0.0%)	19 (90.4%)	0.000	3 (14.2%)	7 (33.3%)	0.032
Circulation Care	0 (0.0%)	18 (85.7%)	0.000	1 (4.7%)	3 (14.2%)	0.231
Breathing Care	0 (0.0%)	19 (90.4%)	0.000	1 (4.7%)	2 (9.5%)	0.100

Note: * Wilcoxon Test.

It was noted that the booklet had a positive effect on the knowledge of the experimental group for all items ($p < 0.05$), whereas in the control group, only the variables diet care ($p = 0.032$) and medication use care ($p = 0.000$) reached statistically significant values. The intergroup comparison of responses regarding adherence to postoperative care is shown in Table 2.

Table 2: Intergroup comparison of the responses regarding adherence to postoperative care between participants in the control group and the experimental group. Picos, PI, Brazil, 2023.

Variables		Experimental Group (n=21)	Control Group (n=21)	p-value
In the first few weeks after surgery, did you avoid driving, climbing stairs, lifting weights, engaging in sexual intercourse, and consuming alcoholic beverages?	Yes	20	13	0.021*
	Partially	01	04	
	No	00	04	
Did you shower daily, wash the surgical wound site with water and mild soap, and avoid using towels to dry the area?	Yes	20	13	0.010*
	Partially	01	03	
	No	00	05	
Did you follow the proper care procedures for the surgical site, such as keeping the bandage clean and dry, changing it at least once a day, and protecting it from insects?	Yes	20	11	0.002*
	Partially	01	05	
	No	00	05	
Did you take the medications prescribed by the doctor?	Yes	20	19	1.001*
	Partially	01	01	
	No	00	01	
Did you make sure to eat at least 3 times a day, including healthy foods in your diet?	Yes	16	06	0.001*
	Partially	05	12	
	No	00	03	
Did you make small movements with your limbs (arms and legs) to stimulate circulation and keep your body active?	Yes	12	05	0.034*
	Partially	09	13	
	No	00	03	
Did you perform breathing exercises, such as inhaling slowly through your nose and exhaling slowly through your mouth?	Yes	12	02	0.000**
	Partially	06	04	
	No	03	15	

Key: * Fisher's Exact Test; ** Chi-Square Test

It was possible to verify that adherence to postoperative care regarding aspects such as avoiding driving vehicles, climbing stairs, lifting weights, engaging in sexual intercourse, consuming alcoholic beverages, maintaining hygiene, changing the bandage, following a proper diet, and performing breathing and body exercises, showed statistical significance ($p < 0.05$) in terms of adherence to care at home. The variable that did not show statistical significance was related to the use of medications, with a p -value of 1.001.

DISCUSSION

The booklet demonstrated promising results in both improving knowledge and enhancing patient adherence to postoperative care at home. This finding highlights the positive impact of the educational material in promoting better health outcomes among patients undergoing surgical procedures.

The predominance of women is a common characteristic in several studies conducted in Brazil. In a prospective and analytical study conducted in a public hospital in Minas Gerais, which analyzed nursing demand in postoperative care, the sample consisted of 100 patients, 67 of whom were women⁸. Similarly, a descriptive and retrospective study analyzing the profile of 824 patients treated for suicide attempts at a general hospital in Alagoas included 522 women in its sample⁹. In this regard, it is also important to highlight that the most recent population census indicated that the female population in Brazil exceeds the male population by approximately six million¹⁰.

Regarding socioeconomic conditions, the results of the present study support the idea that users with lower economic status have greater dependence on the Brazilian Unified Health System (Portuguese Acronym: SUS)¹¹. As a result, the demand for health services under SUS increases, as individuals lack the financial resources to access private care, while SUS provides free and comprehensive services.

Regarding individuals' occupations, the findings support what has been highlighted in the scientific literature, which shows that informal labor rates have increased in recent decades, reaching 41.4% of the total workforce in 2019. This increase can be attributed to Brazil's classification as a developing country, where dignified living conditions are often unattainable without work, whether through self-employment or informal labor arranged by a contractor¹².

In terms of marital relationships, a randomized clinical trial found that 62.6% of the women interviewed in the experimental group (EG) and 37.4% in the control group (CG) did not live with their partners¹³, which differs from the findings of the present study. As for religion, Catholicism was the most prevalent among the other religions surveyed, reinforcing the results found by Eloia¹⁴, where Catholicism was predominant in both groups she studied, almost unanimously outpacing other beliefs.

Regarding the surgical clinical history, traumatic surgeries were notably more prevalent in the experimental group (EG), while no such distinction was observed in the control group (CG). A cross-sectional study conducted in the city of Rio Grande (RS) showed that 61.1% of the 1,791 trauma-orthopedic surgeries performed in 2014 were due to fractures¹⁵, which aligns with the data found in this study. There was a similarity in the number of preoperative days between the two groups, with only a one-day difference between them.

No difference was observed in the classification of surgeries between the two groups, as elective surgeries were the predominant type in both. Furthermore, a similar classification profile was found¹⁶, with scheduled (elective) surgeries also being more prevalent, accounting for 59.93% of the total sample, which aligns with the data from this study.

Finally, the study investigated the guidance provided by the healthcare team regarding home care instructions, with both groups showing that the majority did not receive such guidance. This finding corroborates the results of Paz's¹⁷ research, where she observed the absence of healthcare professionals in discharge planning and in providing instructions for continued home care. It is also worth noting that in this study, only a small number of participants received any guidance, with doctors being the most involved professionals in this regard.

When comparing the level of knowledge between the two groups, it is evident that the educational material was effective in enhancing the individuals' understanding of postoperative home care. This finding aligns with a study¹⁸ that assessed the effect of an educational intervention in patients who underwent radical prostatectomy, where a better understanding of the topic was observed. This validates the effectiveness of educational interventions as a health education tool, supporting the findings of the present study.

The effectiveness of an educational video for patients who underwent intestinal stoma formation surgery was evaluated. The use of this educational technology contributed to improving the skills and competencies necessary for self-care related to the stoma and its collection device. Additionally, it facilitated the contextualization of essential information and guidance for the continuation of postoperative care at home¹⁹.

Confirming the results of the present study, several studies have highlighted the benefits of using educational materials and interventions to enhance the understanding of patients, family members, and caregivers regarding health-related care²⁰⁻²².

It is also important to highlight both the challenges and the positive and negative aspects of telemonitoring adherence through phone calls or *WhatsApp*® messages. The use of the phone as a strategy for monitoring adherence to care proves effective for tracking purposes. However, there are limitations in accessibility, including poor signal, incorrect or nonexistent phone numbers, among other issues²³. Therefore, while it is a technology that facilitates patient access and monitoring, it still presents some device-related barriers, as demonstrated in this study.

Study limitations

A limitation of this scientific investigation was the difficulty in contacting patients by phone after hospital discharge, as many of them changed their phone numbers without notifying the research team. Other limitations include the lack of randomization, the exclusion of individuals with disabilities and illiteracy, the inclusion of individuals with previous surgical experience, as well as the context and location in which the research was conducted.

CONCLUSION

In conclusion, it was observed that the educational booklet had a positive impact on the improvement of knowledge and adherence to postoperative home care among patients, as demonstrated by the comparison of these factors before and after the intervention in the experimental group. This underscores its value as a tool for enhancing nursing care planning during the discharge process of surgical patients.

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Author's contributions

Conceptualization, M.L.C. and F.G.F.P.; methodology, M.L.C. and F.G.F.P.; formal analysis, F.G.F.P.; investigation, M.L.C. and M.L.C.; data curation, F.G.F.P.; manuscript writing, M.L.C., L.C.S., L.B.N., E.B.M.J., P.M.M.M. and F.G.F.P.; writing – review and editing, M.L.C.; L.C.S., L.B.N., E.B.M.J.; P.M.M.M. and F.G.F.P.; project administration, F.G.F.P. All authors read and agreed with the published version of the manuscript.