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ORIGINAL ARTICLE

# FACTORS ASSOCIATED WITH SUCCESSFUL PERIPHERAL INTRAVENOUS CATHETERIZATION IN HOSPITALIZED CHILDREN

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## ABSTRACT

**Objective:** To identify factors influencing the success of peripheral intravenous catheterization in hospitalized pediatric patients. **Method:** A post-hoc, cross-sectional, analytical, and exploratory study, secondary to a randomized clinical trial conducted at a private pediatric hospital in Bahia. The sample included 310 children receiving care in either emergency or clinical units. Data for the clinical trial were collected between February 24 and June 23, 2021. For this analysis, data were extracted from the database and analyzed using descriptive statistics, Chi-square tests, and Fisher's exact tests, with a significance level set at 5%. This study was approved by the Human Research Ethics Committee. **Results:** The success rate was 70.3%, with key factors influencing this outcome, including vein palpability (PR - 2.60; 95% CI: 1.70-3.99), absence of movement until immobilization (PR - 1.95; 95% CI: 1.10-3.48), and the child's protest (PR - 1.78; 95% CI: 1.01-3.13). **Conclusion:** A high prevalence of successful catheterization was observed in the pediatric patients studied. The multivariate analysis confirmed that this success was primarily associated with modifiable factors, such as palpable veins, the absence of movement until immobilization, and the child's protest.

**Keywords:** Pediatric Nursing; Hospitalized Child;Catheters. Catheterization Peripheral.

## INTRODUCTION

Peripheral intravenous catheterization (PIC) is typically the first procedure performed in modern healthcare settings, particularly in pediatric units, and is regarded as one of the most challenging and labor-intensive[1-6] interventions for healthcare professionals. For children, it is often a frightening experience, making it essential for the procedure to be successfully completed on the first attempt[7].

The success rate of PIC varies widely across studies, with pediatric literature reporting values ranging from 40% to 93.5%, depending on whether the traditional clinical method or technologies that enhance vein visualization are used[3-4,8-12].

When PIC is performed using the traditional clinical method, characterized by the use of anatomical landmarks, conventional room light, and the inspection and palpation of the peripheral vein, along with the 'blind' insertion of the catheter, the success of obtaining intravenous access on the first attempt may be compromised depending on the child's condition, potentially leading to multiple attempts at catheterization[3].

In this context, multiple attempts of peripheral intravenous catheterization (PIC) result in anxiety, fear, stress, and pain[11,13] for the child. Additionally, catheterization may become increasingly difficult in children with poor peripheral circulation who have previously undergone unsuccessful attempts. As a result, venous sclerosis or damaged veins become more challenging to access[13].

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Therefore, ensuring the success of PIC can improve clinical and healthcare outcomes for hospitalized children, as well as enhance the health and protection of their blood vessels. It is worth noting that multiple attempts at catheterization can lead to depletion of the venous network over time, making its visualization and palpation[13] more difficult throughout life.

Moreover, it is an ethical and moral duty for these professionals to identify factors that may predict the likelihood of success before performing the procedure, thereby contributing to substantial improvements in the care of hospitalized children.

However, the factors associated with the success of PIC are not clearly defined in the literature and have not been fully investigated[4]. It is important to note that studies show discrepancies regarding these predictors, which underscores the need for further scientific investigations to elucidate the requirements associated with this outcome.

Therefore, this study aimed to identify factors associated with the success of PIC in hospitalized children.

## METHODS

This is a *post-hoc*, cross-sectional, analytical, and exploratory analysis, secondary to a properly registered randomized clinical trial (RBR-838r987)[14]. The writing of this article followed the recommendations of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE).

The clinical trial was conducted in the emergency and clinical units of a private pediatric hospital in Bahia. The sample was probabilistic, and for this *post-hoc* analysis, the OpenEpi tool (http://www.openepi.com/SampleSize/SSPropor.htm) was used to calculate the sample size, considering a 79% prevalence of PIC success using the traditional clinical method[11], a significance level of 5%, a 95% confidence interval, and a study power of 80%. The need for 255 children was estimated, but 310 participants recruited for the clinical trial were included in the analysis.

The sample of the clinical trial consisted of children aged between 29 days and 12 years, with an elective indication for PIC using a needle-over-cannula catheter, clinically stable, and undergoing their first catheterization with the consent of one of their legal guardians (ICF) and their assent (IAF) when applicable. Children hospitalized in wards requiring specific contact or respiratory precautions, those in preoperative care needing immediate PIC before transfer to the surgical center, and those with a fee-for-service health plan (where all supplies used in patient care are billed) or private healthcare were not included. Children who refused to continue participating in the study after the first attempt at PIC or whose participation was withdrawn by one of their legal guardians were excluded.

The clinical trial was conducted from February 24th to June 23rd, 2021, and the data for this *post-hoc* analysis were obtained secondarily from the main study database on June 10th, 2022. Additionally, the data from this clinical trial were collected using a form that surveyed demographic, clinical variables, and the history of previous accesses and the current catheterization of the children. This questionnaire was applied by one of the researchers to the child's parents during the PIC procedure.

For this *post-hoc* analysis, the following exposure variables were used: demographic (age in months, sex, skin shade, and manual lateral dominance), clinical (history of prematurity, weight, height/length, and nutritional status), previous PIC (intravenous puncture for blood collection performed before the current hospitalization, previous PIC for intravenous therapy use, history of difficult intravenous access, and signs of trauma in the venous network), current PIC (final classification of the DIVA score, procedure site, catheter pathway, mobility, visibility and palpability of the vein, and catheter size), and child behaviors, classified into those that interfere with PIC (fights with the professional, whines, cries, is anxious, screams, fights until being immobilized, and protests) and non-interfering (assists with PIC, speaks, responds verbally, and asks for information)

Weight and height/length dimensions were used to assess nutritional status, as described in

the clinical trial[14]. The DIVA score (Difficult Intravenous Access Score) was adapted for use in Brazil and evaluates vein visibility (visible = 0 points, not visible = 2 points), palpability (palpable = 0 points, not palpable = 2 points), age (≥36 months = 0 points, 12-35 months = 1 point, and <12 months = 3 points), prematurity (not premature = 0 points, premature = 3 points), and skin shade (light = 0 points, dark = 1 point). A final score of 4 or more points indicates a 50% or greater probability of failing to succeed on the first catheterization attempt[15]. The vein was classified in this study as either easy or difficult to perform catheterization.

The outcome considered was successful PIC, defined as achieving intravenous access on the first attempt, with confirmation of blood return within the device and no signs of infiltration or hematoma around the catheterization site after the infusion of 2 ml of 0.9% sodium chloride[7].

PIC was performed by nurses and nursing technicians trained to follow the clinical trial protocol. They used a polyurethane needle-over-cannula catheter equipped with a multi-access septum, stabilization platform, and double flashback technology (dual confirmation). All children were prepared through therapeutic communication, instructional therapeutic play, or the use of an educational booklet, based on their age[14].

The data were processed using SPSS version 22.0. Descriptive analysis was conducted, including the calculation of absolute and relative frequencies. To assess the factors associated with the outcome, either the Chi-square test or Fisher's exact test was used, with a significance level set at 5%. Prevalence ratios and their corresponding 95% confidence intervals were also estimated.

Confirmation of predictors for PIVC success was assessed using Poisson regression with robust variance, employing the Forward method (which includes variables with p-values up to 0.20 from the bivariate analysis), while maintaining a statistical significance level of 5%.

The research adhered to ethical guidelines and received approval from the Ethics Committee of the Federal University of São Paulo, under Opinion No. 3,234,517 and the Certificate of Ethical Consideration (CAAE) 08110318.5.0000.5505

## RESULTS

The sample comprised 310 children who underwent PIC. A higher proportion of preschool-aged children (25 to 72 months), boys, with brown skin, right-hand dominance, no history of prematurity, normal nutritional status, and no signs of vascular trauma were observed (Table 1).

**Table 1.** Clinical and demographic characteristics of children undergoing PIC. Feira de Santana, Bahia, Brazil, 2021

| Variable | n = (310) (%) |
|---|---|
| **Age in months** | |
| Up to 24 months | 83 (26.7) |
| 25 to 72 months | 131 (42.3) |
| 72 to 119 months | 67 (21.6) |
| >=120 months | 29 (9.4) |
| **Sex** | |
| Female | 138 (44.5) |
| Male | 172 (55.5) |
| **Race/Skin color** | |
| White | 76 (24.5) |
| Black | 46 (14.8) |
| Brown | 188 (60.6) |
| **Hand dominance** | |
| Left | 23 (7.4) |
| Right | 188 (60.6) |
| Unidentified | 99 (32.0) |
| **History of prematurity** | |
| Yes | 51 (16.5) |
| No | 259 (83.5) |

| | |
|---|---|
| **Nutritional status** | |
| Eutrophy | 174 (56.1) |
| Severe thinness | 5 (1.6) |
| Thinness | 11 (3.5) |
| Risk of overweight | 32 (10.3) |
| Overweight | 43 (13.9) |
| Obesity | 33 (10.6) |
| Severe obesity | 12 (3.9) |
| **Signs of vascular trauma** | |
| Yes | 60 (21.0) |
| No | 250 (79.0) |

The prevalence of success was 70.3%. As shown in Table 2, the bivariate analysis did not reveal any statistical significance between the sociodemographic and clinical characteristics of the children with this outcome.

**Table 2.** Association of sociodemographic and clinical characteristics of children with successful PIC. Feira de Santana, Bahia, Brazil, 2021

| Variáveis | Successful PIC | | P* | RP | CI (95%) |
|---|---|---|---|---|---|
| | Sim (%) | Não (%) | | | |
| **Age** | | | | | |
| >= 72 months | 74 (77.1) | 22 (22.9) | 0.081 | 0.87 | 0.76 – 1.10 |
| 1-71 months | 144 (67.3) | 70 (32.7) | | | |
| **Sex** | | | | | |
| Female | 102 (73.9) | 36 (26.1) | 0.215 | 1.10 | 0.95 – 1.30 |
| Male | 116 (67.4) | 56 (32.6) | | | |
| **Race/skin color** | | | | | |
| Black/Brown | 165 (70.5) | 69 (29.5) | 0.898 | 1.01 | 0.85 – 1.20 |
| White | 53 (69.7) | 23 (30.3) | | | |
| **Hand dominance **** | | | | | |
| Left | 13 (56.5) | 10 (43.5) | 0.090 | 0.77 | 0.53 – 1.11 |
| Right | 138 (73.4) | 50 (26.6) | | | |
| **History of prematurity** | | | | | |
| No | 181 (69.9) | 78 (30.1) | 0.703 | 0.96 | 0.80 – 1.16 |
| Yes | 37 (72.5) | 14 (27.5) | | | |
| **Nutritional status** | | | | | |
| Non-eutrophic | 97(71.3) | 39(28.7) | 0.733 | 1.03 | 0.90 – 1.19 |
| Eutrophic | 121 (69.5) | 53 (30.5) | | | |

*Chi-square test. **In 99 children, hand dominance could not be assessed due to the lack of definition of this body characteristic.

Variables related to previous intravenous therapy were also not statistically associated with PIC success (Table 3).

**Table 3.** Association between variables related to previous intravenous therapy and PIC success. Feira de Santana, Bahia, Brazil, 2021.

| Variables | Successful PIC | | p* | PR | CI (95%) |
|---|---|---|---|---|---|
| | Yes (%) | No (%) | | | |
| **Intravenous puncture before hospitalization for blood collection** | | | | | |
| No | 21 (70.0) | 9 (30.0) | 0.968 | 1.00 | 0.78 – 1.27 |
| Yes | 197 (70.4) | 83 (29.6) | | | |
| **PIC before intravenous therapy** | | | | | |
| No | 90 (73.8) | 32 (26.2) | 0.284 | 1.08 | 0.94 – 1.25 |
| Yes | 128 (68.1) | 60 (31.9) | | | |
| **History of difficult IV access** | | | | | |
| No | 180 (72.0) | 70 (28.0) | 0.187 | 1.14 | 0.92 – 1.40 |
| Yes | 38 (63.3) | 22 (36.7) | | | |
| **Signs of vascular trauma** | | | | | |
| No | 179 (71.6) | 71 (28.4) | 0.315 | 1.10 | 0.90 – 1.35 |
| Yes | 39 (65.0) | 21 (35.0) | | | |

* Chi-square test.

A higher prevalence of successful PIC was observed among children with visible and palpable veins, who did not have behaviors such as aggression towards the professional, crying, anxiety, shouting, movement until immobilization, protesting, and who assisted the professional during the procedure (Table 4).

**Table 4.** Association between variables related to current catheterization and successful PIC. Feira de Santana, Ba, Brazil, 2021

| Variables | Successful PIC | | p | PR | CI (95%) |
|---|---|---|---|---|---|
| | Yes (%) | No (%) | | | |
| **Final classification of the DIVA score** | | | | | |
| Easy venous network | 164 (73.5) | 59 (26.5) | **0.047*** | 1.19 | 1.00 – 1.42 |
| Difficult venous network | 54 (62.1) | 33 (37.9) | | | |
| **Catheterization site** | | | | | |
| Upper Limbs | 215 (70.3) | 91 (29.7) | 0.013** | 1.33 | 0.75 – 2.34 |
| Lower LimbsI | 3 (75.0) | 1 (25.0) | | | |
| **Vein visibility** | | | | | |
| Visible | 182 (74.0) | 64 (26.0) | **0.006*** | **1.31** | **1.05 – 1.65** |
| Not visible | 36 (56.2) | 28 (43.8) | | | |
| **Vein palpability** | | | | | |
| Palpable | 197 (75.5) | 64 (24.5) | **<0.001*** | **1.76** | **1.27 – 2.45** |
| Not palpable | 21(42.9) | 28 (57.1) | | | |
| **Catheter gauge** | | | | | |
| 22 - gauge | 152 (69.7) | 66 (30.3) | 0.723* | 0.97 | 0.83 – 1.13 |
| 24 - gauge | 66 (71.7) | 26 (28.3) | | | |
| **Catheterization method** | | | | | |
| Indir0ect | 29 (72.5) | 11 (27.5) | 0.747* | 1.04 | 0.84 – 1.27 |
| Direct | 189 (70.0) | 81 (30.0) | | | |
| **Fights with the care provider€** | | | | | |
| No | 183(71.5) | 73 (28.5) | **0.018*** | **1.50** | **0.97 – 2.31** |
| Yes | 11 (47.8) | 12 (42.2) | | | |
| **Whining** | | | | | |
| No | 145 (69.7) | 63 (30.3) | 0.737* | 0.97 | 0.84 – 1.13 |
| Yes | 73 (71.6) | 29 (28.4) | | | |
| **Cries** | | | | | |
| No | 130 (76.5) | 40 (23.5) | **0.009*** | **1.22** | **1.04 – 1.42** |
| Yes | 88 (62.9) | 52 (37.1) | | | |
| **Anxious€** | | | | | |
| No | 113 (78.5) | 31 (21.5) | **0.001** | **1.31** | **1.11 – 1.54** |
| Yes | 79 (59.8) | 53 (40.2) | | | |
| **Screams** | | | | | |
| No | 152 (76.8) | 46 (23.2) | **<0.001*** | **1.52** | **1.20 – 1.91** |
| Yes | 40 (50.6) | 39 (49.4) | | | |
| **Moves until immobilization** | | | | | |
| No | 165 (80.5) | 40 (19.5) | **<0.001*** | **1.60** | **1.30 – 1.95** |
| Yes | 53 (50.5) | 52 (49.5) | | | |
| **Protests€** | | | | | |
| No | 143 (78.6) | 39 (21.4) | **<0.001*** | **1.72** | **1.28 – 2.31** |
| Yes | 26 (45.6) | 31 (54.4) | | | |
| **Helps€** | | | | | |
| No | 151 (79.5) | 39 (20.5) | **<0.001*** | **1.48** | **1.23 – 1.79** |
| Yes | 59 (53.6) | 51 (46.4) | | | |
| **Speaks€** | | | | | |
| No | 114 (68.7) | 52 (31.3) | 0.252 | 0.90 | 0.77 – 1.07 |
| Yes | 54 (76.1) | 17 (23.9) | | | |
| **Responds verbally €** | | | | | |
| No | 112 (68.3) | 52 (31.7) | 0.188 | 0.89 | 0.76 – 1.05 |
| Yes | 56 (76.7) | 17 (23.3) | | | |
| **Requests information €** | | | | | |
| No | 75 (72.1) | 29 (27.9) | 0.713 | 1.03 | 0.88 – 1.21 |
| Yes | 93 (69.9) | 40 (30.1) | | | |

*Chi-square test.**Fisher's exact test €Due to age less than 12 months, some reactions could not be evaluated: aggression towards the professional (31), nervousness (34), shouting (33), protesting (71), helping in the CIP (10), speaking (73), responding verbally (73) and requesting information (73).

Multiple analyses confirmed that the success of PIC in the investigated sample was primarily explained by the vein's palpability and the absence of movement until immobilization and protest (Table 5).

**Table 5.** Poisson Regression Analysis with robust variance of factors associated with the successful PIC in hospitalized children. Feira de Santana – Bahia, 2021.

| Variables | P | PR | CI (95%) |
|---|---|---|---|
| **Vein palpability** | | | |
| No | | 1 | |
| Yes | 0.00 | 2.60 | 1.70 – 3.99 |
| **Moves until immobilization** | | | |
| No | 0.04 | 1.95 | 1.10 – 3.48 |
| Yes | | 1 | |
| **Protest** | | | |
| No | 0.02 | 1.78 | 1.01 – 3.13 |
| Yes | | 1 | |

## DISCUSSION

In this study, the successful rate of PIC was consistent with that of other studies addressing the subject[3-4, 8-12, 16-18] and was attributed to factors such as vein palpation, absence of mobility, and the child's lack of protest. The prevalence of successful procedures in children with palpable veins was 2.60 times higher than in those without this venous characteristic, a finding also observed in other studies[2, 7].

In the univariate analysis, the classification of the venous network using the DIVA score and its visibility showed statistically significant differences between the groups. However, these variables did not remain in the multiple regression model explaining the success of the PIC. Nevertheless, an increase of one point in the DIVA score reduces the probability of success on the first attempt by 56.1%[19], probably due to the lower scores related to vein visibility and palpability.

In Brazil, those responsible for PIC mention vein palpation as one of the most commonly used criteria for selecting peripheral veins, even surpassing the visibility[20]. We postulate that accurately locating the vein through palpation provides the person performing the catheterization with greater precision regarding its position, width, and depth. The width of the saphenous vein has also been associated with successful first-attempt PIC in Chinese children[12].

Through palpation, it is possible to assess, even indirectly, the venous diameter or detect a vein with specific diameter[1], as it is known that the success of PIC is greater in veins with larger diameters (> or = 0.4 cm, compared to those with smaller diameters) and moderate depth (0.3-1.5 compared to veins with depth < 0.3 or > 1.5 cm), as they are easily palpable[21].

Applying local heat can enhance palpation, as it causes the vein to increase in diameter[22-23], affecting blood flow and promoting local expansion[23-24]. This technique can make the vein more superficial[22] and visible for catheterization, potentially reducing insertion time, pain, and anxiety levels[23-24].

Therefore, proper palpation of the vein[2] to be catheterized, along with the assessment of its conditions, provides the healthcare professional performing the PIC with greater confidence regarding the catheter's angulation and its progression within the vein.

Thus, palpation is evidently a key predictor in clinical practice in pediatric units, as conditions that impair this vein property significantly decrease the success rate of PIC[25].

Therefore, the palpation technique traditionally used in PIC in children can be challenging[25], as it is known that in this age group the veins are small in size, in addition to being located deeper in the subcutaneous tissue, which makes their visualization[10,17] and palpation difficult.

Assessing vein palpability is easier in children when they are calm, as these patients tend to cooperate less with painful procedures[10, 17], this can cause

vasoconstriction and impair the evaluation of the venous network conditions.

In stressful situations like catheterization, children often make concurrent movements, such as mobilization and protest, which are behaviors that interfere with the professional's ability to perform the invasive procedure [26].

In this context, the absence of movement until immobilization and protest increased the success rate in the investigated sample by 95% and 78%, respectively, as these behaviors facilitate catheter insertion and progression. The absence of concurrent movements during PIC was also observed in a national study using musical intervention[27], with the child's cooperation being one of the factors associated with PIC success[2].

Circumstantial factors, such as the child being confrontational, having multiple people restraining them, and exposure to loud ambient noise (e.g., a screaming child), may contribute to the need for more than one PIC attempt[28].

Mobilization and protest are behaviors that cause the child to move from the supine position, traditionally used by healthcare professionals for PIC, to a seated position. This can compromise vein size during tourniquet application[29], making it more difficult to visualize and palpate the vessel.

To enhance venous visibility during the assessment prior to PIC, several technologies are available, such as ultrasound[9, 11-12], infrared-emitting equipment[3], near-infrared light devices[5-6], and transilluminators[6, 8, 10]. These technologies enable a rapid and comprehensive evaluation of the patient's vasculature, helping to identify the optimal catheter insertion site beyond what is visible to the naked eye or accessible through traditional methods[6].

To promote a less traumatic experience for the child and encourage more collaborative behaviors during PIC, healthcare professionals could use therapeutic toys. Notably, this intervention can reduce the child's nervousness during the procedure by 43%, the likelihood of movement by 51%, and the chances of protest by 51%, while also increasing the likelihood of assisting during catheterization by 27% [30]. By engaging in this structured play, the child has the opportunity to practice the procedure on dolls using hospital materials, becoming familiar with the hospital environment and benefiting from enhanced self-control, which helps reduce resistance and protest towards the PIC[30].

The factors explaining PIC's success in this research may offer new perspectives in clinical practice, potentially enhancing the efficiency of clinical work and the quality of healthcare for children in the future.

## CONCLUSION

The study revealed a high prevalence of successful PIC among the children investigated. Multivariate analysis confirmed that this outcome was influenced by modifiable factors, such as vein palpability, absence of movement until immobilization, and lack of protest.

However, some limitations should be highlighted. The identification of predictors of success was conducted secondarily through a *post-hoc* analysis extracted from the database of a randomized clinical trial. With this research design, there is an increased risk of selection bias. Therefore, the eligibility criteria from the major study were kept.

Additionally, the small number of predictors may be attributed to the limited sample size, which was initially estimated to detect statistical differences between children in the intervention and control groups regarding the primary outcome of the clinical trial, despite including all participants. The data were collected from a single private hospital, which may limit the generalizability of the findings to children treated in larger public hospitals.

Although this was a *post-hoc* analysis, potential confounding factors were controlled through the regression model used. Therefore, the results contribute to potential advancements in clinical practice by highlighting the influence of vein palpability, a predictor that can be preserved with the maintenance of vascular health throughout life. Additionally, they emphasize the relevance of adequate preparation for the child undergoing PIC and the use of non-pharmacological methods to alleviate pain, fear, stress, and anxiety associated with the procedure, ultimately reducing the occurrence of concurrent

behaviors.

Finally, it is recommended that future multicenter studies address the limitations outlined and further investigate the factors contributing to success in pediatric patients in Brazil, offering a national overview and advancing knowledge in this field.

## FATORES ASSOCIADOS AO SUCESSO DO CATETERISMO INTRAVENOSO PERIFÉRICO EM CRIANÇAS HOSPITALIZADAS


### RESUMO

**Objetivo:** verificar fatores associados ao sucesso da cateterização intravenosa periférica em crianças hospitalizadas. **Método:** análise *post-hoc* do tipo transversal, analítica, exploratória, secundária a ensaio clínico e randômico realizado em hospital pediátrico privado da Bahia. A amostra foi composta por 310 crianças atendidas nas unidades de pronto atendimento ou hospitalizadas na unidade clínica. Os dados do ensaio clínico foram coletados de 24 de fevereiro a 23 de junho de 2021 e, para este estudo, foram obtidos dados do banco de dados e analisados por estatística descritiva e aplicação do Teste do Qui quadrado e Teste Exato de Fisher, considerando-se um nível de significância de 5%. Além disso, essa pesquisa foi aprovada pelo Comitê de Ética em Pesquisas com Seres Humanos. **Resultados:** a prevalência de sucesso foi de 70,3%, explicado pela palpabilidade da veia (RP - 2,60 IC95%: 1,70-3,99), ausência de movimentos até a imobilização (RP - 1,95 IC95%: 1,10-3,48) e de protesto da criança (RP - 1,78 IC95: 1,01-3,13). **Conclusão:** foi verificada elevada prevalência de sucesso da cateterização nas crianças investigadas, e a análise múltipla confirmou que este desfecho foi justificado por fatores passíveis de modificação como a palpabilidade da veia e a ausência de movimentos até a imobilização e protesto da criança.


**Palavras-chave:** Enfermagem Pediátrica. Criança Hospitalizada. Cateteres. Cateterismo Periférico..

## FACTORES ASOCIADOS AL ÉXITO DEL CATETERISMO INTRAVENOSO PERIFÉRICO EN NIÑOS HOSPITALIZADOS


### RESUMEN

**Objetivo**: verificar factores asociados al éxito del cateterismo intravenoso periférico en niños hospitalizados. **Método:** análisis post-hoc transversal, analítico, exploratorio, secundario a un ensayo clínico y aleatorizado realizado en un hospital pediátrico privado de Bahía. La muestra estuvo compuesta por 310 niños atendidos en unidades de atención de emergencia u hospitalizados en la unidad clínica. Los datos del ensayo clínico fueron recolectados del 24 de febrero al 23 de junio de 2021 y, para este estudio, los datos se obtuvieron de la base de datos y se analizaron mediante estadística descriptiva y aplicación de la prueba Chi-cuadrado y la prueba exacta de Fisher, considerando un nivel de significancia del 5%. Además, esta investigación fue aprobada por el Comité de Ética en Investigación en Humanos. **Resultados:** la prevalencia de éxito fue del 70,3%, explicada por la palpabilidad de la vena (PR - 2,60 IC95%: 1,70-3,99), ausencia de movimiento hasta la inmovilización (PR - 1,95 IC95%: 1,10-3,48) y protesta infantil (PR - 1,78 IC95%: 1,01-3,13). **Conclusión:** se observó alta prevalencia de cateterismo exitoso en los niños investigados, y el análisis múltiple confirmó que ese resultado fue justificado por factores modificables, como la palpabilidad de la vena y la ausencia de movimientos hasta que el niño fue inmovilizado y protestó.


**Palabras clave** Enfermería Pediátrica. Niño Hospitalizado. Catéteres.; Cateterismo periférico.

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