

THE SATISFACTION OF THE PERSON WITH URINARY RETENTION IN THE USE OF DIFFERENT TYPES OF URINARY CATHETERS

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ABSTRACT

Objective: to assess the satisfaction of the person with urinary retention in the face of the use of different types of urinary catheters, as well as to compare and analyze different attributes of these after their use in clean intermittent catheterization (CIC). **Method:** descriptive exploratory cross-sectional study, developed in a reference clinic in the state of São Paulo, from February to March 2020. The sample consisted of 32 adults registered in the service, and who adopted the CIC as a form of bladder emptying. Data collection was performed through individual interviews using a semi-structured questionnaire. Data were analyzed using descriptive, inferential statistics and categorization of responses to open questions. **Results:** of the 32 users, 84% were male, with a mean age of 54.16 years, 81% performed the procedure between 1 and 5 years, with a frequency of 4 to 6 times a day (66%). Most respondents (73%) preferred the hydrophilic-coated polyurethane catheter, converging with the percentage of users satisfied with the same catheter. **Conclusion:** the most satisfying technology is the hydrophilic-coated polyurethane catheter due to several attributes such as lubrication, firmness, packaging, urethral slip, handling, rapid urine clearance and comfort.

DESCRIPTORS: Urinary catheterization. Neurogenic urinary bladder. Self-care. Health education. Stomatherapy.

A SATISFAÇÃO DA PESSOA COM RETENÇÃO URINÁRIA NO USO DE DIFERENTES TIPOS DE CATETERES VESICAIS

RESUMO

Objetivo: avaliar a satisfação da pessoa com retenção urinária diante do uso de diferentes tipos de cateteres vesicais bem como comparar e analisar diferentes atributos desses após a sua utilização no cateterismo intermitente limpo (CIL). **Método:** estudo exploratório descritivo de corte transversal, desenvolvido em um ambulatório de referência do estado de São Paulo, no período de fevereiro a março de 2020. A amostra constituiu-se de 32 adultos cadastrados no serviço, e que adotavam o CIL como forma de esvaziamento vesical. A coleta de dados foi realizada por entrevista individual com a utilização de um questionário semiestruturado. Os dados foram analisados por estatística descritiva, inferencial e categorização das respostas para as questões abertas. **Resultados:** dos 32 usuários, 84% eram do sexo masculino, com média de idade de 54,16 anos, 81% realizavam o procedimento entre 1 a 5 anos, com frequência de 4 a 6 vezes ao dia (66%). A maioria dos entrevistados (73%) preferiu o cateter de poliuretano com revestimento hidrofílico, convergindo com o percentual de usuários satisfeitos com o mesmo cateter. **Conclusão:** a tecnologia com maior satisfação é o cateter de poliuretano com revestimento hidrofílico

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devido a diversos atributos, como lubrificação, firmeza, embalagem, deslizamento na uretra, manipulação, eliminação rápida da urina e conforto.

DESCRITORES: Cateterismo urinário. Bexiga urinária neurogênica. Autocuidado. Educação em saúde. Estomaterapia.

LA SATISFACCIÓN DE LA PERSONA CON RETENCIÓN URINARIA EN EL USO DE DIFERENTES TIPOS DE CATÉTERES VESICALES

RESUMEN

Objetivo: evaluar la satisfacción de la persona con retención urinaria ante el uso de diferentes tipos de catéteres vesicales, así como comparar y analizar diferentes atributos de estos después de su utilización en el cateterismo intermitente limpio (CIL). **Método:** estudio exploratorio descriptivo de corte transversal, desarrollado en un ambulatorio de referencia del estado de San Pablo, en el período de febrero a marzo del 2020. La muestra se constituye de 32 adultos registrados en el servicio, y que adoptaban el CIL como forma de vaciamiento vesical. La recogida de datos fue realizada por entrevista individual con la utilización de un cuestionario semiestructurado. Los datos fueron analizados por estadística descriptiva, inferencial y categorización de las respuestas para las preguntas abiertas. **Resultados:** de los 32 usuarios, 84% eran del sexo masculino, con promedio de edad de 54,16 años, 81% realizaban el procedimiento entre 1 a 5 años, con frecuencia de 4 a 6 veces al día (66%). La mayoría de los entrevistados (73%) prefirió el catéter de poliuretano con revestimiento hidrófilo, convergiendo con el porcentual de usuarios satisfechos con el mismo catéter. **Conclusión:** la tecnología con mayor satisfacción es el catéter de poliuretano con revestimiento hidrófilo debido a diversos atributos, como lubricación, firmeza, embalaje, deslizamiento en la uretra, manipulación, eliminación rápida de la orina y comodidad.

DESCRIPTORES: Cateterismo urinario. Vejiga urinaria neurogénica. Autocuidado. Educación en salud. Estomaterapia.

INTRODUCTION

Some diseases in the nervous system can affect and hinder or prevent regular emptying of the bladder, favoring partial, total, temporary or permanent urinary retention, as in the cases of patients who experience neurological or idiopathic problems of the lower urinary tract¹.

The simplest and safest way to treat incomplete bladder emptying is clean intermittent catheterization (CIC), considered the gold standard, with a frequency of 4 to 6 times a day. The procedure is performed between 16 to 56% of the population with spinal cord injury, aiming to improve the functionality of the bladder and protect the upper part of the urinary tract, in addition to the positive impact on quality of life, but paradoxically the most prominent consequence is still relapse of urinary tract infections²⁻⁴.

It is a simple technique in which the user or his/her caregiver introduces the catheter into the bladder, through the urethra or catheterized conduit, without the use of antiseptics or sterile gloves. The procedure was described in 1970 by Jack Lapidés et al., who demonstrated that the prevention of urinary tract infection in these patients occurs through the prevention of bladder distension and elimination of waste, and not through the asepsis of the technique. Hence the name of clean and non-sterile technique^{5,6}.

In the Nursing category, the person responsible for carrying out the training of the CIC is the qualified generalist nurse or with a specialization in stomatherapy or rehabilitation, being the professional trained to take care of this patient profile with dexterity and safety, whether in the hospital, outpatient or in the home care. As well as acting in the training of patients regarding the best conduct and existing technologies for the practice of CIC, favoring their independence and better quality of life^{7,8}.

Currently, in the national and global scenario, there are different types of bladder catheters for performing CIC. There is a growing number of publications comparing these technologies, given the importance of the topic. It is also emphasized

that the indication of the most appropriate catheter to the client's needs and preferences is a determining factor for their adherence to the technique^{9,10}.

In Brazil, users of intermittent urinary catheterization do not have, so far, a specific policy that guarantees the necessary resources for excellent care. The patient who uses a catheter has the same care as any citizen who uses the unified health system Sistema Único de Saúde (SUS): they are entitled to the materials necessary for the procedure, but these are not always obtained⁹.

The most frequently used catheters are uncoated polyvinylchloride (PVC) catheters, which require manual application of lubricant to facilitate introduction and reduce friction. When this reality is compared to that of other countries, changes in these policies are observed, which seem to support with greater intensity the use of more advanced technologies in carrying out the procedure^{4,9}.

Given the above scenario, considering the fact that the CIC is the gold standard for emptying for urinary retention, because there are more advanced technologies that favor adherence to the procedure and, consequently, impact on the quality of life and autonomy of patients as well as on the reduction of risks of complications associated with the procedure, it is considered relevant to analyze the satisfaction of users in the use of different vesical catheters.

Thus, the objective of this study is: to assess the satisfaction of people with urinary retention in relation to different types of urinary catheters, and to compare and analyze their different attributes after their use in the CIC.

METHOD

This is an exploratory descriptive cross-sectional study with a quali-quantitative approach, involving users with urinary retention registered in an Outpatient Clinic for Wounds, Incontinence and Stomies in the State of São Paulo.

The inclusion criteria were: users registered in the service, over 18 years old, of both sexes, with urinary retention and who underwent CIC as a form of bladder emptying, regardless of the time of beginning of the procedure, in addition to being registered in the outpatient clinic and have a link with the collection site, autonomy in performing self-catheterization and use of catheters with gauges No. 10 or No. 12 provided by the health service.

Users who presented contraindications for the use of the technologies of the study, who did not perform self-catheterization, who were dependent on third parties (family, caregivers, friends and others) and who did not use a catheter with a diameter of 10 or 12 were excluded. The calibers n°10 or n°12 of the catheters were used as inclusion criteria as they were produced by all companies included in the research.

Of the total of 88 patients with urinary retention registered in the service, 65 were using catheters with calibers n°10 or n°12, but only 32 patients met all the inclusion criteria. All patients over 18 years of age, with urinary retention and who performed the CIC as a form of bladder emptying, registered in the service, using a catheter with calibers n°10 or n°12, performed self-catheterization, 27 of the patients (84%) were male.

In the pre-collection stage, users included in the study were randomized so that each researcher was responsible for guiding, monitoring and collecting information from four patients. The researchers organized the "research kits" composed of catheters included in the study in a sufficient number to be used for 24 hours, due to the amount received through a donation from the manufacturing companies and respecting the recommended interval between catheterizations; instruction for use of each catheter; the "step by step" form; the "note" form; in addition to scheduling a return for the third moment.

Also in this phase, there was theoretical and practical training, totaling 16 hours spread over 4 afternoons, carried out with the support of companies and with the participation of all members included in the project, with the aim of aligning knowledge on the topic and the particularities of each catheter used in the study.

Each participant evaluated four bladder catheters of different technologies, provided according to their records in the service, respecting the number of catheterizations performed on the day, following a sequence of use determined

by randomization, conducted by the researcher together with the person responsible for the health unit, which had spontaneous participation, and in the presence of the participants involved in the study.

The sequence of use of the catheters was as follows:

Day 1 – Urethral catheter, made of PVC, provided with a substance with lubricating properties, by Bbraun-Actreen Lite Cath, respective brand and model. It is a pre-lubricated, single-use, sterile, water- and glycerin-based catheter. Available in male and female versions.

Day 2 – Urethral catheter with hydrophilic coating, made of polyurethane, provided with substances with lubricating properties based on polyvinylpyrrolidone and instantly ready for use, by Coloplast – SpeediCath Standard, available in male, female and pediatric versions.

Day 3 – Urethral catheter, made of polyolefin elastomers (Carbon, Hydrogen and Oxygen), in which the packaging keeps the water separate from the catheter until activation, of WellSpect – Lofric Primo, available in male, female and pediatric versions.

It is noteworthy that of the catheters involved in the research, only two were standardized and provided by the service regularly: the urethral catheter with a hydrophilic coating, made of polyurethane and ready for use, and the conventional PVC urethral catheter without lubrication.

The research was carried out in three stages: first, second and third. At first, the individuals were informed that the present study was part of a Nursing Graduation Course Completion Paper, submitted to the Research Ethics Committee of Faculdades Integradas Einstein de Limeira – (CEP – FIEL) and approved under number 3,785,429, and signed the Free and Informed Consent Form, in accordance with Resolution CNS/MS466/12, after clarification on the purpose of the study and acceptance to participate, at the time of the individual interview

Then they received guidance from the researchers themselves on the use of each of the catheters, the schedule and sequence of use, taking home a “research kit”; the “step by step” form; the “notes” form; and scheduling a return for the third moment – interview.

In the second moment, the patients, at their homes, underwent the CIC, following their daily routine, using the different types of catheters included in the research, according to the established sequence, adopting the guidelines received from the researchers, at first, as well as the written guidelines provided within the “research kit”. At the end of each day, after having performed all catheterization procedures using the catheter determined for use on the day, they recorded the device’s specificities in the “notes” form in order to record their perception.

In the third moment, after the period for using the different catheters, the individuals returned to the study site, or as needed, those involved in the project went to the user’s home, on a pre-scheduled date at the time of delivery of the catheters (first moment) to answer the questions of the research instrument “satisfaction” through the interview that was carried out by the researchers. At this time, the “annotation” forms were also collected, recording the specifics of each of the devices.

Those who for some reason were unable to develop the actions relevant to the moments of the research were instructed to return to the health unit on a scheduled date for a new interview. If the situation persisted, they would be classified as “impossible for the research procedure”, and would then be excluded from the study along the way. There was no impediment to participation for the reason in question.

The research kit included the quantity of catheters included in the study, sufficient for use within 24 hours, according to the registration in the service, according to the frequency of catheterizations performed by the patient in one day.

Data collection took place through individual interviews with users at the health service or at their own homes, carried out from February to March 2020, being held on Mondays and Tuesdays, from 1:00 pm to 5:00 pm or from according to the need for the service and availability of the researchers involved.

A semi-structured questionnaire already validated in Brazil was used as a reference for the construction of the collection instrument: “Instrument for the Assessment of User Perception in the Use of Vesical Catheters”¹¹.

This questionnaire was constructed by the researchers and nursing professionals of the service with the participation of the stomatherapist nurse from that unit. Seeking a good interpretation and understanding of the elaborated instrument, a pilot study was carried out in three stages, with research members, health unit employees and users registered in the service, thus allowing adjustments to be made for a better understanding of the interviewee and the interviewer before your application.

The closed questions presented alternatives to be chosen by the users at the time of the interview, while the open questions were answered according to the interviewee's expectations and perceptions. The data collection instrument includes aspects related to the four catheters, including opening the package, handling, sliding it into the urethra, its removal, procedure time, perception of procedure time and positive and negative points of each technology evaluated.

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Statistical analysis was performed using the SPSS Statistics software (version 23), the comparison of catheters was performed using the nonparametric Mann-Whitney test, in which statistical significance was considered for values of ($P < 0.05$). In the assessment of qualitative data, for the open questions, two categories were created: "positive points" and "negative points", from the previous reading of the entire content of the answered questionnaire and grouping by similarity of response. The category "positive points" was considered when, in our perception, the person interviewed pointed out some positive characteristic in relation to the aspect addressed. The category "negative points" was accepted when, in our perception, the respondent pointed out some negative characteristic in relation to the aspect addressed.

RESULTS

In total, 32 patients with urinary retention registered in a reference clinic in the State of São Paulo were approached, with 84% of the sample being predominantly male. Table 1 shows the data on the profile of the sample, which was predominantly aged over 60 years (40.63%) and the average age of the total sample was 54.16 years. All those registered had been linked to the service for more than 500 days. Of the total number of patients, 40.62% reported undergoing the procedure within a time interval of 1,501 to 3,000 days and 87% performed 4 to 6 catheterizations daily.

Table 1. Distribution of interviewed patients with urinary retention, according to demographic and clinical profile. Limeira (SP) – 2020.

Variables and Categories	n= 32 (%)	
Age		
Up to 40 years old	7 (21.88)	
41 to 50 years old	7 (21.88)	
51 to 60 years old	5 (15.63)	54.16 ± 13.65 (76-32) * anos
> 60 years old	13 (40.63)	
Total	32 (100.00)	

continue...

Table 1. Continuation...

Variables and Categories		
Program Registration Time (Days)		n= 32 (%)
Up to 500 days	6 (18.75)	
501 to 1500 days	6 (18.75)	
1501 to 3000 days	14 (43.75)	2042.31 ± 1504.97 (5400-14) * dias
> 3000 days	6 (18.75)	
Total	32 (100)	
CIC Time (Days)		
Up to 500 days	6 (18.75)	
501 to 1500 days	6 (18.75)	
1501 to 3000 days	13 (40.625)	2293.56 ± 1994.29 (9360 -14) * dias
> 3000 days	7 (21.875)	
Total	32 (100)	
N° CIC/DAY		
4	7 (21.875)	
5	10 (31.25)	
6	11 (34.375)	5.44 ± 1.11 (8-4) * n° CIC/dia
7	2 (6.25)	
8	2 (6.25)	
Total	32 (100)	

*Mean and standard deviation ± (maximum-minimum); CIC = Clean Intermittent Catheterization.

Table 2 shows the attributes evaluated with values for the mean and the statistical difference between the evaluated catheters. Regarding the question of opening the package, the answer “very easy” was mentioned more frequently by respondents when evaluating the polyurethane catheter (47%), which showed a statistically significant difference when compared to the PVC catheter with lubricating properties ($P=0.014$), the polyolefin elastomer catheter ($P=0.006$) and the conventional PVC catheter ($P=0.003$). It is noteworthy that, still, in this regard, catheter 1 showed a statistically significant difference in relation to catheter 4 ($p=0.039$), and 28% of respondents considered handling the conventional PVC catheter “very difficult”.

As for the perception of catheter manipulation, the answer “very easy” was mentioned by 47% of respondents when evaluating the polyurethane catheter, showing significance when compared to the PVC catheter with lubricating properties ($p=0.002$), to the polyurethane catheter. polyolefins ($p=0.012$) and to the conventional PVC catheter ($p=0.001$). The difference between the polyolefin and conventional PVC elastomer catheter was also significant ($p=0.024$).

Regarding the analysis of urethral slippage, most respondents (41%) considered the sliding of a PVC catheter with lubricating properties “easy”, and the same perception was found in relation to the polyurethane catheter, but by a larger number of patients (53%), with statistical significance when compared to the PVC catheter with lubricating properties ($p=0.001$), the polyolefin elastomer catheter ($p=0.002$) and the conventional PVC catheter ($p=0.000$). In this same analysis, catheter 1 compared to 4 was also statistically significant ($p=0.007$), and catheter 3 compared to 4 ($p=0.002$).

In the evaluation of removal from urethra, the 'easy' response was most frequently mentioned by respondents in the evaluation of all studied catheters, with the PVC catheter with lubricating properties (50%) and with significance when compared to catheter 4 ($p=0.008$). The hydrophilic coated polyurethane catheter (47%) is compared to catheter 1 ($p=0.015$) and catheter 4 ($p=0.000$). As for the polyolefin elastomer catheter (41%), and significance when compared to catheter 4 ($p=0.002$). And finally the conventional PVC catheter (28%), with no relevance when compared to the others.

At the time of the procedure, the answer "very easy" was reported more frequently among respondents when evaluating the polyurethane catheter (81%), being relevant in minutes when compared to catheter 4 ($p=0.003$). For this same analysis, catheter 1 when compared to 4 had significance ($p=0.002$) and catheter 3 when compared to 4 ($p=0.035$).

When analyzing the same item, without considering the minutes, the polyurethane catheter also maintained a significant difference when compared to the PVC catheter with lubricating properties ($p=0.002$), the polyolefin elastomer catheter ($p=0.002$) and the conventional PVC catheter ($p=0.000$). There was also a significant difference between the PVC catheter with lubricating properties compared to the conventional PVC catheter ($p=0.022$) and the polyolefin elastomer catheter compared to the conventional PVC catheter ($p=0.025$).

Table 2. Satisfaction of interviewed patients with urinary retention in relation to the evaluation of bladder catheters of different technologies. Limeira (SP) – 2020.

Rated Attribute (values for average)	C1	C2	C3	C4	P value for difference C1 x C2	P value for difference C1 x C3	P value for difference C1 x C4	P value for difference C2 x C3	P value for difference C2 x C4	P value for difference C3 x C4
Scale for evaluating the client's perception of the catheter in the CIC										
Opening (01 to 05)	2.4	1.8	2.6	2.8	0.014	0.212	0.039	0.006	0.003	0.464
Manipulation (01 to 05)	2.7	1.9	2.6	3.3	0.002	0.969	0.091	0.012	0.001	0.024
Sliding on the Urethra (01 to 05)	2.4	1.6	2.3	3.3	0.001	0.540	0.007	0.002	0.000	0.002
Withdrawal (01 to 05)	2.2	1.7	2.0	3.0	0.015	0.257	0.008	0.061	0.000	0.002
Procedure Time in Minutes (01 to 05)	1.3	1.3	1.6	2.0	0.527	0.074	0.002	0.075	0.003	0.035
Procedure Time II (01 to 05)	2.2	1.5	2.3	2.9	0.002	0.804	0.022	0.002	0.000	0.025

Wilcoxon's Nonparametric Test, $p < 0.05$; CIC=Clean Intermittent Catheterization; C1= Polyvinylchloride catheter with lubricating properties; C2= Polyurethane catheter with hydrophilic lubrication; C3= Polyolefin elastomer catheter; C4= Conventional polyvinylchloride catheter.

The open questions were categorized into "positive points" and "negative points", as shown in Table 3. Among the positive points mentioned by respondents in relation to the evaluation of the different catheters studied, the following stood out: ease of opening the package, good lubrication, the firmness and easy slippage in the urethra, present in PVC catheters with lubricating properties, polyurethane catheter and polyolefin elastomer catheter. The PVC catheter with lubricating properties also received praise as being "easy" to handle, transport and remove from the urethra. It was mentioned that the hydrophilic-coated polyurethane catheter presents qualities such as practicality, handling, independence, ease and speed in the elimination of urine and removal of the urethra. Regarding the positive points mentioned for the conventional PVC catheter, the following stood out: the fact that it has a cap that facilitates handling and makes transport easier.

Table 3. Positive and negative points mentioned by the interviewed patients with urinary retention in relation to the evaluation of the different catheters studied. Limeira (SP) – 2020.

Categories	Catheter 1	Catheter 2	Catheter 3	Catheter 4
Positive points	Lubrication	Lubrication	Lubrication	Practicality
	Packaging	Packaging	Packaging	Packaging
	Firmness	Firmness	Firmness	It has a lid
	Used the packaging as a guide	Easy opening of the package	Good slip	Rapid elimination of urine
	Easy handling	Practicality		Handling
	Easy transport	Does not hurt during the procedure		Easy transport
	Good slip	Easy removal		
	Easy withdrawal	Material quality		
			Rapid elimination of urine	
			Handling	
Negative points			Good slip	
			Independence	
	Packaging	Packaging	Difficulty activating the package	Time-consuming procedure
	Difficulty opening the package	Lack of end cap	Difficulty in opening	Pain and discomfort during procedure
	Difficulty in unpacking	Difficulty in transport	Lack of firmness during the procedure	Lack of lubrication
	Lack of firmness in the probe during the procedure	Lack of guide	Difficulty in removing the probe	Difficulty in handling
	Difficulty in handling	Low lubrication	Lubrication	Difficulty in removing the urethral probe
	Lack of end cap	Lack of availability of the catheter in the healthcare network.	Lack of end cap	
	Difficulty in transport		Difficulty in transport	
	Lack of guidance		Small Catheter Length	
Small Catheter Length				

The negative points of the PVC catheter with lubricating properties were the difficulty in opening the package and removing the catheter, lack of firmness in handling and the lack of a cap on the catheter. Regarding the polyurethane catheter, the fact that the packaging was too large, the lack of a guide and cap on the catheter were pointed out. In the polyolefin catheter, opening and handling of the package, activation of lubrication, lack of cap and difficulty in transport. In the conventional catheter, the delay in the procedure, lack of lubrication and difficulty in handling and removing the catheter were highlighted.

Regarding catheter preference after the survey, most respondents (73%) reported preferring a ready-to-use polyurethane catheter with hydrophilic coating, converging with the percentage of users satisfied with the same catheter in all aspects evaluated. The preference is justified by good lubrication, firmness, easy opening of the package, practicality, the fact that it “doesn’t hurt”, sliding in the urethra, handling, manipulation, rapid elimination of urine and comfort. It is noteworthy that 20 respondents (62.5%) already use the polyurethane catheter in the practice of CIC.

DISCUSSION

There are few studies that focus on user satisfaction, the greatest emphasis is on research that proves the efficiency and cost-effectiveness of the devices. Thus, to discuss the results of the evaluation carried out, works conducted in the same line of research were incorporated, however with different objectives and outlined methods.

A study that sought to assess the satisfaction of people with spinal cord injury in relation to the use of a conventional, hydrophilic and pre-lubricated catheter with a bag in the performance of CIC showed results similar to those of this work, pointing out that the hydrophilic catheter was considered superior to the conventional one for opening the packing and slip on insert. The pre-lubricated catheter with a bag was superior to the conventional one in terms of opening the package, introducing, sliding and removing. The evaluation of the conventional catheter was divergent from this study, as it mentioned as a positive point of the PVC catheter the fact that it has a lid that facilitates handling and transport¹².

When the catheter with hydrophilic polyurethane coating was compared with the conventional catheter and the lubricated PVC catheter in relation to user satisfaction in a survey carried out, it gained prominence in the packaging opening item, which was also demonstrated in the data obtained in this study¹².

The research showed similar results to this study, concluding that the risk reduction for the development of urinary tract infections (UTI), ease of insertion and convenience are the most appreciated attributes for intermittent catheters among patients¹³.

Another recent meta-analysis demonstrated the advantages of hydrophilic catheters in reducing the risk of UTI and urethral trauma, in addition to patient satisfaction¹⁴.

Results of a randomized controlled clinical trial comparing hydrophilic and uncoated catheters in children with neurogenic bladder also showed similar aspects to this study about satisfaction with the hydrophilic catheter, however with some reservations, according to the user profile, on the hard-to-handle slippery cover¹⁵.

Another study with a result similar to this research shows when identifying the main difficulties reported by patients and caregivers in the practice of CIC that catheter insertion, pain, discomfort, urethral trauma, public restrooms with inadequate facilities, physical difficulties and lack of access to necessary supplies are aspects related to the degree of satisfaction and adherence to bladder rehabilitation programs, with an impact on the quality of life of patients¹⁶.

Some patients consider that the time spent preparing the materials and performing the procedure are factors of difficulty in performing and complying with the CIC, as they change the routine, limiting the activities of daily living¹⁷.

Studies indicate that the greatest difficulty in performing the CIC is the lack of mastery of the technique by patients and/or their caregivers. The positioning of the patient during the procedure, the adequate visualization of the urethral meatus, the knowledge of the method and the urethral anatomy allow patients and their caregivers to perform a urethral probe without trauma and without pain, avoiding maneuvers that could injure the urethra^{16,18}.

Difficulty in handling the devices and performing the correct CIC technique, as well as the lack of prior educational guidance were mentioned as obstacles to the correct and safe adherence to the procedure, in a research carried out involving 11 patients who undergo the CIC for the bladder emptying¹⁹.

Although catheter technologies have advanced and are scientifically supported, and CIC is the gold standard, the non-adherence rate among patients remains alarmingly high.^{2,4,10,20}

Non-adherence can lead to serious complications. It is recommended that the drained volume should not exceed 400 mL and a reduced frequency of catheterizations in 24 hours can result in an increased risk of urinary infections, in addition to bladder distension and risk of long-term renal impairment²⁰.

It is of fundamental importance that the specialist or qualified nurse performs the training of the patient, family members and caregivers on the need for intermittent catheterization and the correct execution technique, as well as the risks inherent in its non-performance and potential complications²⁰.

Among the limitations of this research, we highlight the development of the study with patients already registered in the service, therefore, with their own vices in the procedure, in the preference for the device, and in the use of catheters involved in the evaluation, in addition to the time available for experimentation with different catheters. Added to this, errors in the registration of patients, with loss of possible inclusions in the study with an increase in the number. Perhaps the patient's subjective interpretation of the different devices needs to be better explored in future studies including newly registered patients.

The findings of the study show that the different catheters were evaluated by the patients involved, both positive and negative aspects being identified in relation to each one of them. The preference of patients for the catheter with a hydrophilic polyurethane coating was confirmed, however we have to consider the limitations of this work and recognize that most patients were already using this device at the time of the research..

It is worth noting that the preferred technology in the current study was also the same one incorporated in 2019 by the National Commission for the Incorporation of Technologies (Comissão Nacional de Incorporação de Tecnologias-CONITEC) on SUS. And, also, in 2020 there was a process for the publication of a "Clinical Protocol of Therapeutic Guidelines for Neurogenic Bladder", further reinforcing the need and importance of the topic in question on the national scene²¹.

In Brazil, there is still no specific policy to guarantee the materials used in carrying out the CIC. However, the Brazilian population is assisted by the SUS, which sees health as a fundamental right of every human being and attributes to the State the duty to provide all the fundamental conditions for its full exercise, as well as ensuring a reduction in the risk of diseases and injuries. The SUS principles also provide for comprehensive therapeutic assistance. Thus, the development of public policies that ensure access to the device of choice of the patient to perform the procedure is imperative^{9,22}.

CONCLUSION

User satisfaction with the technology must be allied to better meeting their needs, and in this study, the most preferred polyurethane catheter with hydrophilic coating was identified, with positive attributes when compared to the others.

Finally, it was considered that the opportunity given to patients with urinary retention to know, use and evaluate the different devices was beneficial, since it should be the right of patients to have access to all technologies available on the market and choose the one that best corresponds to your needs and preferences.

Thus, it is necessary to improve the knowledge of professionals who indicate and guide this profile of patients, in addition to the development of public policies for access to the best technology, thus favoring the adherence of these patients to the correct technique, autonomy, reduction of risks of complications associated with the procedure, directly impacting their quality of life.

AUTHORS' CONTRIBUTION

Conceptualization: Bonello A; Methodology: Bonello A and Mello MP; Research: Bonello A and Faci MC; Writing – First version: Bonello A, Faci MC and Mello MP; Writing – Reviewing & Editing: Bonello A, Faci MC and Mello MP. Resources: Bonello A, Faci MC. Supervision: Bonello A.

DATA STATEMENT AVAILABILITY

All data were generated or analyzed in this study.

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REFERENCES

1. Assis GM, Faro ACM. Autocaterismo vesical intermitente na lesão medular. *Rev Esc Enferm USP*. 2011;45(1):289-93. <https://doi.org/10.1590/S0080-62342011000100041>
2. Kennelly M, Thiruchelvam N, Averbek MA, Konstantinidis C, Chartier-Kastler E, Trøjgaard P et al. Adult Neurogenic Lower Urinary Tract Dysfunction and Intermittent Catheterisation in a Community Setting: Risk Factors Model for Urinary Tract Infections. *Adv Urol*. 2019;1-13. <https://doi.org/10.1155/2019/2757862>
3. Rognoni C, Tarricone R. Intermittent catheterisation with hydrophilic and non-hydrophilic urinary catheters: systematic literature review and meta-analyses. *BMC Urol*. 2017;17:4. <http://doi.org/10.1186/s12894-016-0191-1>
4. Truzzi JC, Teich V, Pepe C. Cateteres com revestimento hidrofílico podem ser benéficos para o sistema público de saúde no Brasil? Uma análise de custo-efetividade em pacientes com lesão da medula espinhal. *IBJU Int braz J urol*. 2017;43. <https://doi.org/10.1590/S1677-5538.IBJU.2017.0221>
5. Assis GM, Fraga R. Cateterismo intermitente limpo: manual ilustrado de orientação ao usuário (adulto). Curitiba: Universidade Federal do paran  - Hospital de Cl nicas, 2015. Available at: <https://quemcuida.com.br/blog/wp-content/uploads/2016/01/manual-cateterismo-vidas-secas.pdf>
6. Lapidus J, Diokno AC, Silber SJ, Lowe BS. Clean intermittent self-catheterization in the treatment of urinary tract disease. *J Urol*. 1972;107(3):45-61. [https://doi.org/10.1016/s0022-5347\(17\)61055-3](https://doi.org/10.1016/s0022-5347(17)61055-3)
7. Paula MAB, Thuler SR, Silveira NI, Azevedo GR. Interven es nas  reas de Abrang ncia da Estomaterapia. Lorena: CCTA, 2016. Available at: https://sobest.com.br/wp-content/uploads/2020/10/PDF_INTERVENCOES.pdf
8. Schoeller SD, Martins MM, Ribeiro I, Lima DKS, Padilha MICS, Gomes B. Breve Panorama Mundial da Enfermagem de Reabilita o. *RPER*. 2018;1(1):6-12. <https://doi.org/10.33194/rper.2018.v1.n1.01.4388>
9. Fumincelli L, Mazzo A, Martins JCA, Henriques FMD, Orlandin L. Qualidade de vida de pacientes usu rios do cateterismo urin rio intermitente. *Rev Latino-Am Enfermagem*. 2017;25:e2906. <https://doi.org/10.1590/1518-8345.1816.2906>
10. Norager R, Bogebjerg C, Plate I, Lemaitre S. Apoiando melhor a ades o entre os pacientes envolvidos em autocaterismo intermitente. *Br J Nurs*. 2019;28(2):90-5.
11. Assis GM, Negri AF, Veiga SA, Galli CF, Moser ADL, Azevedo GR. Elabora o e Valida o de um Instrumento de Avalia o da Percep o do Usu rio na Utiliza o de Cateteres Vesicais. *ESTIMA, Brazilian J Enteros Ther*. 2016;13(2):62-9. Available at: <https://www.revistaestima.com.br/estima/article/view/105>
12. Assis GM, Negri AF, Tung SAV, Saccomani CFG, Moser ADL, Azevedo GR et al. Uso de cateteres vesicais para cateterismo intermitente limpo: satisfa o da pessoa com les o medular. *Cogitare Enferm*. 2015;20(4):813-20. Available at: <http://revistas.ufpr.br/cogitare/article/view/41585>
13. Pinder B, Lloyd AJ, Nafees B, Elkin EP, Marley J. Patient preferences and willingness to pay for innovations in intermittent self-catheters. *Patient Prefer Adherence*. 2015;9:381-8. <https://doi.org/10.2147/PPA.S73487>
14. Feng D, Cheng L, Bai Y, Yang Y, Han P. Outcomes comparison of hydrophilic and non-hydrophilic catheters for patients with intermittent catheterization: An updated meta-analysis. *Asian J Surg*. 2020;43(5):633-5. <https://doi.org/10.1016/j.asjsur.2019.12.009>
15. DeFoor W, Reddy P, Reed M, VanderBrink B, Jackson E, Zhang B et al. Results of a prospective randomized control trial comparing hydrophilic to uncoated catheters in children with neurogenic bladder. *J Pediatr Urol*. 2017;13(4):373.e1-373.e5. <https://doi.org/10.1016/j.jpuro.2017.06.003>
16. Orlandin L, Nardi A, Costa RR de O, Mazzo A. Dificuldades de pacientes e cuidadores na realiza o do cateterismo intermitente limpo: revis o de escopo. *ESTIMA, Brazilian J Enteros Ther*. 2020;18:e1520. https://doi.org/10.30886/estima.v18.907_PT
17. Alencar VP. Cateterismo vesical intermitente limpo em crian as e adolescentes: an lise da qualidade de vida do bin mio cuidador-crian a e dos fatores envolvidos. [tese]. S o Paulo (SP): Faculdade de Medicina, Universidade de S o Paulo; 2016. <https://doi.org/10.11606/T.5.2016.tde-20092016-162358>
18. Faleiros F, Pelosi G, Warschausky S, Tate D, K ppler C, Thomas E. Factors influencing the use of intermittent bladder catheterization by individuals with spina Bifida in Brazil and Germany. *Rehabil Nurs*. 2018;43(1):46-51. <https://doi.org/10.1002/rnj.302>
19. Cobussen-Boekhorst H, Hermeling E, Heesakkers J, Gaal B. Patients' experience with intermittent catheterisation in everyday life. *J Clin Nurs*. 2016;25(9-10):1253-61. <https://doi.org/10.1111/jocn.13146>

20. Truzzi JC, Canalini AF, Prezotti JA, Resplande J. Recomendações Sociedade Brasileira de Urologia 2016: Cateterismo Vesical Intermitente.
21. Comissão Nacional de Incorporação de Tecnologias no SUS. Cateter hidrofílico para cateterismo vesical intermitente em indivíduos com lesão medular e bexiga neurogênica. 2019. Available at: http://conitec.gov.br/images/Consultas/Relatorios/2019/Sociedade/ReSoc140_SPEEDCATH__caterismo-vesical.pdf
22. Lei n. 8080 de 19 de Setembro de 1990 (BR). Dispõe sobre as condições para a promoção, proteção e recuperação da saúde, a organização e o funcionamento dos serviços correspondentes e dá outras providências. Diário Oficial da União [periódico na internet], Brasília (DF). 20 set 1990. Available at: <https://legis.senado.leg.br/norma/549956>