Factors associated with the knowledge of patients and caregivers about clean intermittent urethral catheterization: an integrative review

Fatores associados ao conhecimento de pacientes e cuidadores acerca do cateterismo vesical intermitente limpo: revisão integrativa

Factores asociados con el conocimiento de pacientes y cuidadores acerca del cateterismo vesical intermitente limpio: revisión integrativa

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ABSTRACT
Objective: To identify the factors associated with the knowledge of patients and caregivers about Clean Intermittent Urethral Catheterization in the literature which hinder or facilitate the procedure. Method: An integrative review of the literature conducted in the MEDLINE/PubMed, CINAHL, Cochrane, Web of Science, SCOPUS and LILACS databases. Results: 13 primary studies were included in the sample after the peer review. A synthesis of knowledge was performed in two categories: Factors associated with the knowledge of patients and caregivers which hinder the procedure and Factors associated with the knowledge of patients and caregivers which facilitate the procedure. Factors that hinder and facilitate the procedure respectively related to the need of information and negative feelings, use of easy-to-understand language, and application of information leaflets, among others. Conclusion: There is a shortage of published articles on the subject, and those which were identified had a low level of evidence, therefore requiring greater commitment and effort on the part of health professionals and researchers to use more robust designs.

DESCRIPTORS
Intermittent Urethral Catheterization; Patients; Caregivers; Nursing Care; Health Knowledge, Attitudes, Practice; Review.
INTRODUCTION

Intermittent Urethral Catheterization (IUC) is an effective and safe technique that promotes bladder emptying, and it is considered the treatment of choice for patients with neurological or idiopathic lower urinary tract dysfunction resulting from incomplete emptying of the bladder. The technique is also practiced by patients of varied age groups or caregivers who deal with the need to promote urinary elimination by an accessory pathway, requiring knowledge and skill to perform it[1-3].

An IUC seeks to preserve the upper urinary tract, prevent and control urinary tract infections, and improve quality of life, in addition to favoring the regression or stabilization of present lesions and important anatomical alterations such as vesicoureteral reflux[1-3].

Although this procedure was described by Lapides in 1972 and has been standardized since World War II, it still raises resistance and doubt both from health professionals and users, because this care strategy requires introducing a catheter into the bladder through the urethra or continent stoma (surgically made when there is urethral involvement) at pre-established periods of the day, and with its removal after urinary drainage(4).

Since 2002, the specific terminology urethral intermittent catheterization has been used to refer to drainage or aspiration of the bladder or urinary reservoir with subsequent removal of the catheter(5). However, this study will adopt the terminology Intermittent Urethral Catheterization (IUC).

Among the four types of IUC techniques, we can point out the sterile technique used in surgical environments and to elucidate diagnoses, which implies in adopting sterilized materials, requiring the use of a medical gown and sterile gloves, as well as personal protective equipment such as a cap, mask and shoe covers[6].

For the aseptic technique, the following materials and procedures are required: sterile catheter; disinfection or cleansing of the genitals; sterile gloves; the use of tweezers and sterile lubricant (if the catheter is not pre-lubricated) may also be used. The no-touch technique uses a ready-to-use catheter[6].

Finally, the clean technique or Clean Intermittent Urethral Catheterization (CIUC) is only used by patients or caregivers at home. In some countries, it is only used if the aseptic technique is not possible, for example if the patient has cognitive dysfunction or functional disability[6]. Most patients perform this technique independently, not requiring any caregiver or professional assistance, however many have difficulty in performing it adequately regarding the recommended frequency, favoring the development of complications such as urinary tract infections[7].

Therefore, the CIUC (as one of the subtypes of IUC) presents advantages in comparison to the use of permanent urinary catheters, such as reducing the frequency of urologic complications related to bladder changes, and there is consequently less deterioration of renal function. In addition, CIUC provides comfort to patients and caregivers, favoring biopsychosocial well-being, improving self-esteem, and the return to the daily routine of urination and also to daily activities[8-9].

It is believed that patients and/or caregivers would present more risks if they used any other type of IUC technique other than the clean technique. The use of the sterile technique could be considered a complicating factor during catheterization, since it requires greater knowledge and accuracy during the use of sterile equipment and materials. Also, the CIUC is simpler to be performed by patients and caregivers as there is no need to use personal protective equipment.

However, it is not clear what is the exact meaning of the technique mentioned in the literature, whether sterile or clean, since although the same name can be used for both, there is great difference between them in practice[10]. This fact is reinforced by insufficient scientific production on the subject, as no articles that address the proposal suggested by this study have been found.

Although there is no standardization or even consensus among professionals and institutions regarding the procedural steps, it is emphasized that the Center for Disease Control and Prevention (CDC) published some recommendations in the Guideline for Prevention of Catheter Associated Urinary Tract Infections in 1981 which aim at the prevention of Urinary Tract Infection (UTI)[11]. Thus, it can be inferred that there is still a gap in the literature on the subject regarding the factors associated with patients’ and caregivers’ knowledge about CIUC, thus requiring research in order to provide more subsidies for practitioners and patients who use this procedure, and at the same time favoring a proposition of strategies by health managers which would enable improvements in the quality of life of patients who depend on this procedure. Thus, our objective was to identify the factors in the literature associated with patients’ and caregivers’ knowledge about Clean Intermittent Urethral Catheterization (CIUC) which hinder or facilitate the procedure.

METHOD

An integrative review of literature was conducted in six stages: 1) definition of the research question; 2) sampling or search in the literature; 3) data extraction from the included studies; 4) evaluation of the productions; 5) interpretation of results; and 6) synthesis of knowledge or presentation of the review(12).

For elaborating the guiding question, the PICo strategy was used by defining: P = population: “patients and caregivers”, I = interest: “knowledge” and Co = context: “Clean Intermittent Urethral Catheterization”[13]. Thus, the question of this study was: What are the factors associated with patients’ and caregivers’ knowledge about CIUC which hinder or facilitate the procedure?

Primary source studies published in English, Portuguese or Spanish until December 2016 which addressed Clean Intermittent Urethral Catheterization were included in the review. Exclusion criteria were defined as dissertations, theses, editorial or duplicate articles in the databases.
The search was carried out between September 2016 and June 2017 by consulting the following databases: MEDLINE/PubMed, CINAHL, Cochrane, Web of Science, SCOPUS and LILACS.

The descriptors were selected through consulting the Medical Subject Headings (MeSH), Health Sciences Descriptors (DeCS – Descriptores em Ciências da Saúde) and List of Headings of CINAHL Information Systems, as shown in Chart 1.

<table>
<thead>
<tr>
<th>Controlled descriptors</th>
<th>Uncontrolled descriptors</th>
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<tbody>
<tr>
<td><strong>P</strong></td>
<td>Patients; Outpatients; Homebound Persons; Caregivers.</td>
</tr>
<tr>
<td><strong>I</strong></td>
<td>Knowledge; Health Knowledge, Attitudes, Practice.</td>
</tr>
<tr>
<td><strong>Co</strong></td>
<td>Urinary Catheters; Catheterization; Intermittent Urethral Catheterization; Urinary Catheterization.</td>
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A combination of the descriptors enabled designing the search strategy, which was adapted according to the access specificities of each database, using the research question and the previously defined inclusion criteria as the guiding axes. It should be noted that the descriptors *Intermittent Urethral Catheterization*, *Self-catheterization* and *Self-catheterization* were included in order to extend the search, considering the possibility of limitations by using descriptors with just the word “clean”, and also because the IUC and CIUC techniques were presented in a non-standardized way in many studies. Chart 2 presents the search strategy performed in the PubMed database, which was adapted to the other analyzed databases.

<table>
<thead>
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<th>Controlled descriptors</th>
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<tr>
<td><strong>P</strong></td>
<td>Patients; Nursing Home Patients; Outpatients; Ambulatory Care Facilities; Caregivers; Caregiver Support; Caregiver Burden.</td>
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<tr>
<td><strong>I</strong></td>
<td>Catheters, Urinary; Suprapubic Catheters; Catheter Care, Suprapubic; Urinary Catheterization, Intermittent; Urinary Catheterization.</td>
</tr>
<tr>
<td><strong>Co</strong></td>
<td>Knowledge; Health Knowledge.</td>
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The productions were accessed through the Coordination for the Improvement of Higher Education Personnel (CAPES – Coordenação de Aperfeiçoamento de Pessoal de Nível Superior) periodicals portal, and the search and selection were performed by two independent reviewers who reached an agreement index higher than 80% after reading titles, abstracts and the inclusion of the studies. Nineteen (19) of 469 initially-retrieved productions met the inclusion criteria and were selected for the study. After reading the full text, six were excluded due to duplication in the databases, resulting in a sample of 13 articles. Figure 1 describes the course taken to identify, include and exclude the studies, according to the databases used.
Factors associated with the knowledge of patients and caregivers about clean intermittent urethral catheterization: an integrative review

Data extraction was performed using an instrument developed for this purpose containing information about authors, publication year, study design and sample, type of screening (instrument), main results of the study and level of evidence (LE).

The concepts proposed by Melnyk and Fineout-Overholt were adopted for analyzing the Level of Evidence (LE), which consider: level I – evidence of cohort study synthesis or case-control studies; level II – evidence from a single cohort study or case-control study; level III – evidence of meta-synthesis of qualitative or descriptive studies; level IV – evidence of a single qualitative or descriptive study; and level V – evidence from expert opinion.\(^{(15)}\)

The data were analyzed and synthesized in a descriptive way, and the selected productions were organized in spreadsheets in Microsoft Excel, proceeding with creating charts according to the identified variables. Also, ordering the material and classifying it were carried out by semantic similarity, which enabled constructing two thematic categories.

RESULTS

The results are shown in Chart 3 according to reference, main author, journal, publication year, study design, sample, type of screening (instrument), main results and LE.

The year with the highest number of published articles was 2011 with three studies\(^{(16-18)}\), followed by 2002 and 2015\(^{(19-22)}\), both with two studies each. It should be noted that the earliest study that addresses the theme dates back to 1990\(^{(23)}\), and the most recent is from 2016\(^{(24)}\).

Regarding the language, nine articles\(^{(16-17,19,21-22,24-27)}\) were published in English, and four in Portuguese\(^{(18,20,23,28)}\). In relation to the databases, five were identified in the MEDLINE/PubMed\(^{(21,24-27)}\), five in the LILACS\(^{(17-18,20,23,28)}\), two in the CINAHL\(^{(16,19)}\) and one in the SCOPUS\(^{(22)}\). It should be noted that the four studies identified in Portuguese were carried out in Brazil.

For the design, seven are cross-sectional studies\(^{(17-19,21-22,24,26)}\) and five are qualitative studies\(^{(16,20,21-22,26-27)}\). Of these, two are intervention\(^{(20,23)}\) and one is a prospective randomized study\(^{(27)}\), classified as having a LE of IV and II, respectively.

In order to evaluate the quality of life as a form of screening, the studies have used questionnaires\(^{(17,24,26)}\), interviews\(^{(16,18,20,25)}\), questionnaires prepared by the researchers or institutions\(^{(19,21-22,26-27)}\), urinary bladder daily questionnaire\(^{(17)}\) and clinical evaluation by urological physicians through physical examinations, laboratory exams, imaging and urodynamistudy\(^{(23)}\).

The results were grouped into the following categories: 1) Factors associated with patients’ and caregivers’ knowledge about CIUC which hinder the procedure; and 2) Factors associated with patients’ and caregivers’ knowledge about CIUC which facilitate the procedure. The studies presented in Chart 3 address the clean catheterization technique. Although at least one study\(^{(24)}\) does not use the terminology “clean” in its text, the text corresponds to the context focused on the clean technique.
### Quadro 3 – Artigos identificados com especificação individual por categorias – Teresina, PI, Brasil, 2017.

<table>
<thead>
<tr>
<th>Category 1: Factors associated with patients’ and caregivers’ knowledge about CIUC which hinder the procedure.</th>
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<tr>
<td><strong>Main author, journal and year</strong></td>
</tr>
<tr>
<td>Carpenter JS**, Neurolour. Urology Periodicals, 2016.</td>
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<tr>
<td>Ramm D**, Journal of Clinical Nursing, 2011.</td>
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<td>Girotti ME**, Int Braz J Urol 2011.</td>
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<td>Van Achterberg T*, J Clin Nurs, 2008.</td>
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<tr>
<td>McConville A**, Nursing Times Journal Article pictorial research, 2002.</td>
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</table>

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<tr>
<th>Category 2: Factors associated with the knowledge of patients and caregivers about CIUC which facilitate the procedure.</th>
</tr>
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<tbody>
<tr>
<td><strong>Main author, journal and year</strong></td>
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<tr>
<td>McConville A**, Nursing Times Journal Article pictorial research, 2002.</td>
</tr>
<tr>
<td>Campos CVS**, REME (Re-vista Mineira de Enfermagem), 2013.</td>
</tr>
<tr>
<td>Lopes MAL**, Revista Latino Americana de Enfermagem, 2014.</td>
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<tr>
<td>Jeon HG**, Korean Journal of Urology, 2004.</td>
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<tr>
<td>Moročka M**, Rev Esc Enferm USP, 2002.</td>
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<tr>
<td>Azevedo MAJ**, Rev. Bras. Enf., 1990.</td>
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DISCUSSION

Factors associated with patients’ and caregivers’ knowledge about CIUC which hinder the procedure

Factors associated with patients’ and caregivers’ knowledge about the CIUC which hinder the procedure were related to the inability or uncertainty regarding the CIUC technique and embarrassment, a potential increase of resilience between patients and caregivers who practice CIC (Clean Intermittent Catheterization), pain and feelings of loss, a lack of knowledge regarding the female anatomy, bladder dysfunction and catheter use, associated with negative stigma, psychological aversion, embarrassment, and coping mechanisms.

The study insertion in this category is justified as it considers resilience as a positive reaction to adversity, thus possibly constituting a limiting factor in the search for new knowledge by patients and caregivers about the studied procedure.

The report of patients who fear performing the urethral self-catheterization is highlighted, thus who cannot be referred to the CIUC program because they feel insecure and unable to perform the procedure. In another study, the complexity of the procedure was related to doubts, fears, shame, lack of motivation, quality and continuity of professional care, and finally to stress and concern when patients learn to perform the procedure by themselves.

According to this data, it was observed that the factors associated with patients’ and caregivers’ knowledge about CIUC which hinder the procedure are quite diversified, and can be grouped into: 01 – factors related to aspects inherent to the need for information, and 02 – factors that involve negative feelings. It should be noted that both aspects were not observed in only three studies.

All articles in this category were published in English with a LE of IV. Therefore, the evidence is weak, as the scale used in this study covers studies of strong evidence which are those that are at a level of evidence I strength.

It should be noted that one study was inserted into both categories (1 and 2), since it presented factors that hindered and facilitated the procedure at the same time. In this study the attitudes of 46 patients and caregivers were evaluated according to the age range (0 to 100 years). All participants/caregivers were aware of the reason why they had to perform the CIC, however the majority stated that they could not adequately empty their bladder, had multiple sclerosis, had spinal cord injury and performed the procedure. Of the total, 85% of the participants performed the procedure themselves, while 9% had the help of a partner, 4% of a caregiver and 2% of a nurse. Also, 7% reported that they learned (the technique) on their own and considered this experience as “stressful and worrying”, 20% reported that they did not receive enough information, and 3% said that they were told in the hospital to try to perform the CIC by themselves.

Despite being carried out in 2002 and considering the percentages shown, this study still reflects the current scenario of the CIUC practice, in which a lack of approximation between patients who perform it and professionals who need to guide this procedure is evidenced. This fact can be especially confirmed by another study, a recent publication from 2016, which aimed to discuss and modify items based on knowledge of clinical experiences and practices (ISCQ) of 178 women (108 with transurethral catheters and 70 with suprapubic catheters) identified technical difficulties with the procedure and embarrassment.

Thus, it is important to recognize that nurses play an essential role in preparing the patient and/or the caregiver in relation to training, management and acquisition of material during the rehabilitation of patients who require CIUC, since their performance is more efficient when they develop self-confidence to perform the procedure and it motivates the rehabilitation process.

Factors associated with patients’ and caregivers’ knowledge about CIUC which facilitate the procedure

Among the factors associated with patients’ and caregivers’ knowledge about the CIUC that facilitate the procedure, we can point out the relationship between the use of easy-to-understand language, the use of information leaflets and the provision of practical instruction about the procedure to the patient, ensuring that they would not suffer any harm in the process.

In the other studies, factors that facilitated performing CIUC were attributed to the possibility of the positive meaning of CIUC performance in French general practice, hand and urinary meatus hygiene, the use of gloves and lubricants, catheter storage and its reutilization. Also, sufficient physical independence for the procedure, the technique adequacy, ease of execution and absence of pain, understanding the need and the cause for the voiding dysfunction, the use of images and related instruments, sufficient explanations of doubts and the overall satisfaction with the education and trust to perform the CIUC after training were identified as facilitating factors associated with patients’ knowledge of CIUC performance. Adequate performance of the CIUC at home, showing assimilation of the received guidelines, the way in which patients with spinal cord injury structured their procedure, as well as evidence of correct application of the self-catheterization technique and a consequent decrease of urinary infections and contaminations were also included in this category.

It should be noted that the eight studies included in this category were represented by Brazilian researchers, with an equal number for international production, among the latter, only one study was assigned an evidence level of II, being characterized as a prospective randomized study in which 122 patients were randomly divided into two groups (CIES group – Centralized intensive education system versus IWES group – Individualized ward educational system) during the urological consultation on voiding dysfunction. After the patients were informed about the CIUC, they were instructed by physicians or nurses in their wards to perform the self-catheterization under supervision.
The other studies that comprised category 2 were included in the level of evidence IV\(^{18-20,22-23,26,27}\), indicating fragility to apply their results in the professional practice if compared to the single randomized study. However, because they address essential aspects related to the theme, they represent a central axis for reflecting on the meanings of the knowledge associated to factors which are favorable to the CIUC procedure, thereby making it possible to point out the advances in acquiring and possessing the knowledge that permeates in favor of and enhancing improvements to the quality of life of patients who need this procedure.

In this category, the factors associated with patients’ and caregivers’ knowledge about the CIUC which facilitated the procedure were mainly related to aspects that facilitate the technique and independence regarding performing CIUC\(^{18-20,23-26-27}\). On the other hand, three studies focused on preventing complications caused by CIUC\(^{22-23,28}\).

The findings of this integrative review found that guidance and facilitation of the technique are relevant aspects, and reasons for concern on the part of health professionals, which is why they have received more attention.

Despite the positive results on the understanding and knowledge about performing the CIUC, efforts were suggested to make the procedure better and more detailed, increasing patient motivation\(^{27}\). These recommendations can be optimized by solving potential psychological barriers before approaching and learning the CIUC technique, improving the procedure’s acceptance by patients who (need to) perform it\(^{29}\).

Regarding limitations in elaborating this integrative review, we can point out the non-availability of some full articles in the databases, preventing their detailed reading and evaluation.

CONCLUSION

A shortage of published articles on factors associated with patients’ and caregivers’ knowledge about CIUC which facilitate or hinder the procedure has been found. Therefore, it should be noted that there is a gap regarding the aspects of using the technique by patients and caregivers.

In view of the analyzed studies, it was possible to conclude that although CIUC is a procedure that has been discussed and practiced for a long time, it still raises questions about various aspects inherent to it by both the patients and the caregivers who practice it, thus requiring greater emphasis on the subject in educational institutions and health care institutions.

This study also found that factors associated with patients’ and caregivers’ knowledge about the CIUC which hinder the procedure are related to the need for information and negative feelings, while the factors associated with patients’ and caregivers’ knowledge which facilitate the procedure are related to the use of easy-to-understand language and implementing information leaflets, among others.

The identified studies have a low level of evidence, therefore requiring greater effort and commitment on the part of health professionals and researchers to use more robust designs with greater scientific impact in investigating this theme in order to produce favorable significant results that will positively contribute to caring for patients who perform the CIUC.
Factors associated with the knowledge of patients and caregivers about clean intermittent urethral catheterization: an integrative review

REFERENCES


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