



Non-pharmacological and non-surgical treatments for female urinary incontinence: an integrative review



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ABSTRACT

Review aim: To explore the outcomes of non-pharmacological and non-surgical resources used to treat female urinary incontinence (UI).

Design: It is an integrative review (IR) of literature.

Methods: The databases CINAHL, PubMed, PsycINFO, Sociological Abstracts, The Cochrane Library, Scopus, Lilacs, Scielo, IBECs, BDEFN, and Medcarib were explored. The grey literature, hand searching, and backtracking of references of primary studies were also explored. The fifteen studies that fulfilled the inclusion criteria were submitted to appraisal of methodological quality and one was excluded, resulting in 14 empirical studies included in this IR.

Results: All the treatments, the corresponding instrumental resources, and the support provided by health care providers resulted in the improvement or cure of UI. The pelvic floor muscle training (PFMT) exercise was the main way to treat UI. The multiprofessional involvement, close relationship with patients, continuous monitoring and support associated with PFM training were the factors associated with better adherence to UI treatment and its outcomes.

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1. Purpose

Urinary incontinence (UI) is defined as any involuntary loss of urine. UI can occur independently of age, and women are at greater UI risk than men (Tamanini, Lebrão, Duarte, Santos, & Laurenti, 2009). The prevalence of female UI is between 25% and 45%, and it increases with age (Buckley & Lapitan, 2010). UI is a public health concerning the current aging population worldwide. The adoption of preventive measures and adequate treatments minimizes the negative consequences (Tamanini et al., 2009) of this disease, which are not restricted to the medical dimension; it potentially affects quality of life and the social, physical, psychological, occupational, and sexual aspects of women's lives (Serati, Salvatore, Uccella, et al., 2009).

UI also interferes with health status due to the stigma associated with this condition (Tamanini et al., 2009). It is associated with depression, impaired emotional well-being, isolation, and difficulties in daily activities (Elbiss, Osman, & Hammad, 2013; Tamanini et al., 2009), and it interferes with the manner in which sexuality is experienced (Elbiss et al., 2013). The women affected by UI face difficulties in seeking medical care (Elbiss et al., 2013; Hunskar, Lose, Sykes, & Voss, 2004; Imamura, Abrams, Bain, et al., 2010). Poor social status, lack of

symptoms indicating the need for support, disinclination toward treatment options, and the perception of UI treatments as ineffective were the motives to avoid the search for support (Imamura et al., 2010).

Among the women living in Europe, the majority (75%) never sought or received UI treatment. The search for medical support was higher among women from France (33%) and Germany (40%) (Hunskar et al., 2004). Other study reported that half of United Arab Emirates women never asked for medical care related to UI. Hope for spontaneous resolution of this problem (61.9%), embarrassment of being examined by a male or female clinician (35.9%), views about urine leakage as normal episodes (31.5%), embarrassment of being examined by a male clinician (29.3%), and unawareness regarding treatment availability (23.9%) were the motives for not seeking care (Elbiss et al., 2013). The women who ask for UI treatments have their preferences. Less invasive options, including non-surgical options, such as lifestyle changes and physical therapies (e.g., electronic devices and vaginal cones) were their preferred treatments (Imamura et al., 2010).

The outcomes of non-pharmacological and non-surgical treatments of all types of female UI were the focus of this integrative review (IR). The healthcare providers should consider the current premise related to the evidence-based practice (EBP) in UI related health services. EBP is a process composed by several steps, considering the best appraised and compiled international evidence as part of the daily health care decision making. The EBP consists on the generation of knowledge, the synthesis of the best evidence, and its application in health care. It also presumes the association among clinical expertise, background factors involved in the health issues and patients' choices. An up-to-date

This manuscript reports all the non-pharmacological and non-surgical resources used to treat the female urinary incontinence, and the main outcomes of empirical studies done to analyze the effects of the treatments.

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guideline is also essential to provide clear practical guidance on the clinical care of people with UI (Lucas, Bosch, Burhard, et al., 2012).

The aim of this IR was to answer the following question: What are the outcomes of the application of non-pharmacological and non-surgical resources to treat female UI?

This IR involves no conflicts of interest.

2. Methods

An IR, a summary and synthesis of findings allowing the inclusion of empirical studies done using diverse methodologies, is done to fully understand a particular phenomenon (Whittemore & Knafl, 2005). The five stages of IR proposed by these authors were performed: (a) problem identification; (b) literature search; (c) data evaluation; (d) data analysis; and (e) presentation of the results.

2.1. Inclusion and exclusion criteria

Empirical studies written in English, French, Portuguese, and Spanish were considered for inclusion. Studies with women participants aged 18 years or more, from any country or sociocultural context, affected by any type of UI (stress, urge, and mixed), and treated in any care setting (community-dwelling, nursing homes, hospitals, outpatient departments) were also considered.

Empirical studies conducted using qualitative, quantitative, or mixed methods were included. Editorials and commentaries were not included. Empirical studies including pregnant women and/or people with neurological or psychiatric disorders were excluded. Studies that did not meet the above criteria or were not directly relevant to this review were also excluded.

2.2. Literature search and data evaluation

A systematic search of both published and unpublished literature was conducted in April, 2014. The following databases were explored: CINAHL, PubMed, (PsycINFO), Sociological Abstracts, The Cochrane Library, Scopus, Lilacs, Scielo, IBECs, BDNF, and Medcarib. The search terms included 'alternative therapies', 'complementary therapies', 'treatment', and 'urinary incontinence'. Studies published after 1998 were considered for inclusion. This limit was established due to the inclusion of UI in the International Classification of Diseases and Related Health Problems (ICD-10) in that year. The grey literature, namely, studies not formally published, such as electronic research reports, policy documentations, dissertations, and conference abstracts, was explored to identify potential studies. The references listed in the retrieved studies were also explored, and the hand searching of the literature not available in electronic databases was done.

The systematic search was initially conducted independently by two reviewers. Then, the titles and abstracts of the articles were screened, and a copy of the full paper of potentially relevant studies was examined. The inclusion criteria for the review were independently applied to the potentially relevant papers by two reviewers, and the data were extracted according to predefined criteria. Both reviewers discussed any discrepancies before the final decision regarding the inclusion or exclusion of an empirical study using the database exploration process (Harrison et al., 2014). Disagreements between reviewers did not arise in any step of the primary study assessment.

The assessment of empirical studies was conducted using the Framework for Research Critique (Caldwell, Henshaw, & Taylor, 2011). This framework is composed of 16 items for qualitative studies and 17 items for quantitative studies. Items requiring 'yes' or 'no' responses included the rationale for performing the research, appropriateness of the research design and sample, validity, reliability or auditability of the data collection, credibility/confirmability of the data analysis, results reporting, comprehensiveness of the discussion and conclusions, and the generalization or transferability of the study findings.

The study designs were heterogeneous, but only quantitative studies were found. A cut-off value of 80% (14 'hits' among 17 items) was established as the inclusion criterion. Usually, this value is sufficient for study inclusion in systematic reviews. The following study characteristics were recorded on data-coding sheets: author, year, country, setting, treatment analyzed, study design, participants and respective years of age, assessment parameters related to the treatment outcomes, and the main findings and conclusions.

2.3. Data analysis

The studies included in this review were conducted using quantitative methods. The results were described, compared item-by-item, and explored for similarities, differences and relationships between data (Whittemore & Knafl, 2005). The designs were as follows: cohort ($n = 1$), randomized controlled trial ($n = 8$), non-randomized clinical trial ($n = 3$), case series of a single-case experimental study ($n = 1$), and quasi-experimental study ($n = 1$). The data were synthesized to answer the review question by considering the nature of the primary studies' findings and the entire set of outcomes reported by the researchers.

3. Results

The exploration of databases resulted in 1592 empirical studies after removing duplicates. The review of titles resulted in 198 potentially relevant references. The screening of abstracts resulted in 51 studies, and after fully reading these studies, 15 were selected for critical appraisal. Two reviewers independently appraised each empirical study (Harrison et al., 2014). No disagreements arose between them, and the inclusion of a third reviewer was not necessary.

Only one study (Bernardes, Pêres, Souza, & Souza, 2000) was excluded from this review. This decision was made based on the lack of matches in 4 items of the appraisal instrument (reliability of data analysis, lack of clarity in result reporting, lack of a comprehensive conclusion, and non-generalizable results). A total of 14 studies fulfilled the eligibility criteria and were included in this IR.

The results of the literature search and selection process are shown in Fig. 1.

Although few studies have been conducted worldwide, the existence of empirical studies indicates the international relevance of this theme. Studies were conducted in 10 countries: 1 each from Australia, India, Japan, Spain, Norway, United Kingdom, Turkey, and Portugal; 3 from Brazil; and 3 from Taiwan. The scale and dispersion of these studies indicates the need for further studies on this topic. The definitions of all the types of treatments utilized in the 14 studies are summarized below to aid in the understanding of the treatment outcomes presented in Tables 1 and 2. These definitions are based on the primary researcher's own reports.

Electrical stimulation (ES) – applied through percutaneous, intravaginal, or intrarectal methods. These routes activate the afferent pudendal nerve, facilitate the efferent response, and cause the contraction of smooth and striated muscles of the paraurethral and pelvic floor area. The percutaneous application through sacral roots or the posterior tibial nerve facilitates neuromodulation of detrusor urinae muscle activities (Santos et al., 2009).

Transvaginal electrical stimulation (TES) - non-painful application of electrical current using a sensor with electrodes placed in the vagina to directly stimulate the pelvic floor muscles (PFMs) to contract and relax. This stimulation improves muscle strength and control of stress UI through better control of urinary urgency. This improvement occurs because the stimulus acts on the nerves, and bladder irritability decreases (Herrmann et al., 2003).

Vaginal cone (VC) - The PFMs are activated to retain the cone. This treatment increases the sensorial feedback because the feeling of weight on the pelvic floor is perceived (Bø et al., 1999).

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