



Women's knowledge, attitude and practice related to urinary incontinence: systematic review

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Abstract

Introduction Knowledge, attitude and practice (KAP) investigations lead to an understanding of what a particular population group knows, thinks and does in relation to a certain subject.

Methods This systematic review was conducted to identify women's KAP related to urinary incontinence (UI) described in the literature and the measurement/evaluation instruments used. A literature search, up to July 2017, was conducted in PUBMED, SCOPUS and BVS (Virtual Health Library) for articles dealing with women's KAP related to UI that described the validation procedure of any data collection instrument. Articles that investigated exclusively male subjects, provider performance or academic teaching strategies were excluded. Relevant studies were analyzed and briefly summarized.

Results Initially, 799 articles were retrieved. After applying the inclusion and exclusion criteria, 19 remained for reading and summarizing. There has been interest in identifying and evaluating some of the KAP elements related to UI since 1994, with a wide variety of validated instruments used. Knowledge was evaluated in 15 articles and all concluded that there was misinformation about UI in the populations studied. Seven articles studied the intention to seek healthcare for UI, among which only one evidenced an adequate attitude in more than 70% of the participants. All the articles that investigated practice revealed low rates of seeking care.

Conclusions The KAP elements are influenced by specific questions in each of the studied populations, leading to unique results, which indicates the importance of investigations using standardized data collection instruments that have psychometric validity tested in the target populations.

Keywords Knowledge · Attitudes and practices · Urinary incontinence · Women · Validated questionnaires

Introduction

Urinary incontinence (UI) is defined by the *International Continence Society* (ICS) as “the complaint of any involuntary leakage of urine” [1]. Most epidemiological studies report a prevalence of any UI in the range of 25 to 45% [2]. An increase in body mass index (BMI), weight gain and parity were found to be associated with increased chances of UI incidents [3]. Despite its high prevalence, incontinence is also

associated with low rates of seeking care [4–7]. This is possibly due to stigma, embarrassment in talking about the subject, behavior to minimize the problem and not knowing of the existence of effective treatment [5, 8], which may indicate a lack of knowledge related to UI management. Without professional help, women with UI are more susceptible to embarrassing, stressful and uncomfortable situations, which can lead to decreased self-esteem and social isolation. As a result, quality of life is adversely affected, especially in the physical, mental, sexual and social domains [9].

Faced with evidence of a high prevalence of UI among women and a serious impairment in the quality of life, it is necessary to investigate the behavior of women suffering from UI. In this sense, some studies have explored women's knowledge, attitude and practice (KAP), individually or jointly, in relation to UI, investigating their understanding of this disease, specifically whether they recognize the cause [10–15],

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prevention and treatment possibilities [10, 11, 14, 15], how they live with UI [8] and evaluation of help-seeking behaviors [6, 12, 13, 16–18]. From this, the following question emerged: what are the knowledge, attitudes and practices of women in relation to UI described in the literature and how are these domains being evaluated?

KAP investigations lead to an understanding of what a particular population group knows, thinks and does in relation to a certain subject [19]. Therefore, this systematic review was conducted to identify women's knowledge, attitudes and practices related to UI described in the literature and the instruments used to measure/evaluate each of these domains. This information, once compiled and critically evaluated, can support the planning of educational interventions.

Methods

The focus of this review was to identify articles dealing with women's KAP in relation to UI. For this, a literature search was performed in July 2017 in the BVS (Virtual Health Library), PUBMED and SCOPUS databases. The controlled descriptors "Health Knowledge, Attitudes, Practice" and "Urinary incontinence" and their equivalents in Portuguese and Spanish were used, available in the Health Sciences Descriptors (DeCS) and in the Medical Subject Headings (MeSH/PubMed) databases.

All the articles published in English, Spanish or Portuguese that evaluated women's KAP in relation to UI were included in this review. There was no temporal limitation. Articles that investigated exclusively male subjects, professional performance or academic teaching strategies were excluded as they did not answer the research question, as were studies that did not describe a validation procedure (expert evaluation and/or pilot test with target public and/or evaluation of internal consistency of items) for any instrument used in the study to collect knowledge, attitude or practice data.

To establish criteria for analysis, KAP elements were defined as follows: (1) knowledge: knowledge about UI as a condition that can be treated, its etiology, forms of prevention and treatment options; (2) attitude: understanding about the need to seek professional help for UI treatment or prevention; (3) practice: help-seeking behavior and performing treatment or taking preventive action. The summary information for the selected articles was compiled using a data collection form elaborated from a review protocol, containing the following items: database, article title, publication year, authors, research place, aim, type of study, sample characterization, data collection instrument details, KAP element used in the data collection instruments, results and conclusions. The articles were identified numerically in ascending order according to the publication year. Data analysis involved evaluation of the

studied variables for the interpretation and description of the results obtained.

Results

A total of 799 articles were found. After applying the inclusion and exclusion criteria, 19 articles remained for reading and summarizing (Fig. 1). The articles were found in the following specialized journals: urogynecology [5, 12, 14, 15], gynecology and obstetrics [5, 12, 14, 15], community health [22], geriatrics [10], general medical [11], general nursing [13, 17, 18, 23] and urology and ostomy nursing [24–27].

The studies were mainly performed in North America ($n = 7$) and Asia ($n = 9$). The populations most studied were those of the USA [10, 14, 15, 24–26] and China [13, 17, 21, 22, 27]. Regarding the methodological designs, 15 were cross-sectional [5, 10–12, 14–17, 22–28] and three quasi-experimental studies, the aims of which were to evaluate the effects of educational interventions [13, 18, 20]. One article was a randomized trial [21], which evaluated the effectiveness of an educational intervention regarding UI knowledge, attitudes and practices.

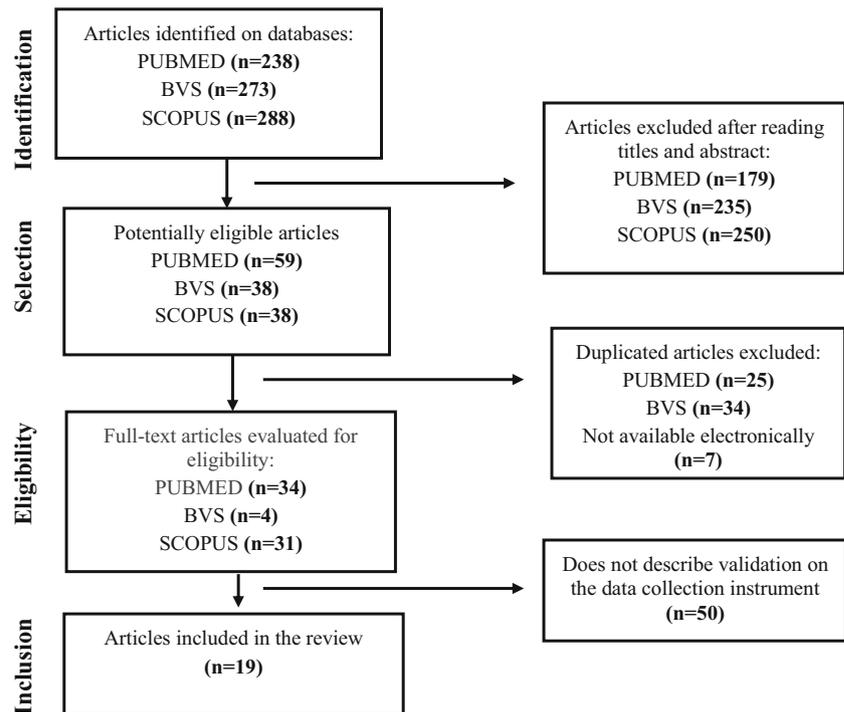
The articles included samples with diverse characteristics. Having UI was an inclusion criterion for four studies [13, 16, 17, 26]. Many articles included samples restricted to older adult women [10–12, 14, 17, 18, 21, 22, 27] or women of reproductive age [21]. The articles investigated were set in urban [5, 10, 11, 13, 14, 22, 23, 26, 27] and rural environments [14, 18, 25], hospitals [11], primary health services [12, 17] and a specialized outpatient clinic [5, 28]. Cultural variables were studied from race [15] and ethnicity [14].

There has been an interest in identifying and evaluating some of the KAP elements related to UI since 1994, and a wide variety of validated instruments has been used for this (Tables 1 and 2). Of the 19 selected articles, only 2 evaluated all the KAP [12, 21] elements. Both reported face and content validation of the data collection instrument, however, did not describe the reliability testing.

Knowledge about UI

Data collection instruments

The oldest study found in this review sought to investigate the pre-intervention knowledge about UI in 1140 men and women over 65 years of age [10]. The authors used the Incontinence Quiz, an instrument developed and validated by the authors, in partnership with the Massachusetts Department of Public Health to evaluate educational interventions. The Incontinence Quiz has also been used in other later studies [11, 23, 25, 26] (Table 2).

Fig. 1 Prisma Diagram in identifying the literature

In Lima, Peru, men and women in a hospital setting were investigated [11], and in Korea women aged over 55 years in the community comprised the sample [23]. To apply the same instrument to a population of Korean women living in the USA, experts submitted the original instrument in English and the Korean version to reliability testing, based on the analysis of Cronbach's alpha [26].

The Prolapse and Incontinence Knowledge Questionnaire (PIKQ) instrument was originally validated by Shah et al. [29], in a study with American women, and presented excellent internal consistency. This questionnaire was applied in two other studies performed in the USA [14, 15], both with the aim of evaluating knowledge among different races and ethnicities.

The Urinary Incontinence Knowledge Scale (UIKS), an instrument developed and validated by Yuan & Williams [22], had its internal consistency tested among nurses working in communities and among older adults in China. The study by De Gange et al. [18] validated the UIKS for application to Korean women.

The instrument used by Zhang et al. [21] covered knowledge about stress urinary incontinence (SUI) and the significance of a postpartum pelvic floor muscle strength test, attitudes toward SUI and the need for a postpartum pelvic floor muscle strength test and also assessment of behavior related to SUI, acceptance of a postpartum pelvic floor muscle strength test, seeking medical help and training of the pelvic floor muscles during the postpartum period (Table 2).

Identification and evaluation of studies

Misinformation on the etiology of UI was highlighted in eight of the selected articles [10, 12, 13, 15, 22–25]. The assertion that UI is a normal part of aging was found to be recurrent in the data collection instruments, and 40 to 75% of the individuals studied agree with this statement [10, 12, 13, 22–25]. Labor and menopause were mentioned as UI causes by the participants in several investigations [12, 13, 15, 23]. The studies show realities where approximately 50% of the women were unaware of the cause of the UI and did not recognize that treatment can improve the quality of life [5].

Misconceptions about treatment and prevention were also investigated [10, 11, 23–26]. Among the studies that investigated knowledge regarding exercises to strengthen pelvic floor muscles, between 30 and 63% of the samples studied were unaware of the UI treatment and prevention possibility [10, 11, 24, 26]. Among the studies that included the statement “the best treatment for involuntary loss of urine is usually surgery,” one showed that more than 50% of the population agreed with this statement [11], and in the other four articles, 40 to 60% of the respondents disagreed with this statement [10, 23, 24, 26]. For the statement “once people begin to lose control of their urine they will usually never be able to regain complete control again,” there was a rate of disagreement below 50% in three studies [10, 23, 26] and rates of 65% [25] and 83% [11] in two others.

Only one study demonstrated an association between continence status and level of UI knowledge. Perera et al. [5] revealed that UI is understood as a normal phenomenon by

Table 1 Characterization of review articles

| Reference | KAP element | Conclusion |
|---|-------------|---|
| 1 Branch et al., 1994 [10] USA | K | There are substantial gaps in the knowledge of older adults about UI, especially in those with less education and age ≥ 85 years |
| 2 Keller et al., 1999 [25] USA | K/P | False ideas about the causes of UI and availability of treatment may hamper seeking care |
| 3 Bush et al., 2001 [24] USA | K/A | Although women state that they would seek care if they had UI, they have shown that more information is necessary |
| 4 Guillen Lopez et al., 2003 [11] Peru | K | Poor general knowledge about UI was demonstrated; therefore, health professionals need to intervene in the education of the population |
| 5 Kim et al., 2004 [23] Korea | K | Substantial misconceptions about UI were revealed among older women in the community, demonstrating the need for educational interventions to improve UI knowledge |
| 6 Saleh et al., 2005 [12] Qatar | K/A/P | Women have poor knowledge about the causes of UI and do not seek medical care because of shame, which causes the underreporting of cases |
| 7 O'Donnell et al., 2005 [16] France, Germany, Spain, UK | P | The willingness to accept long-term medication use and to have talked to others about UI are predictors for seeking help in the countries studied |
| 8 Liao et al., 2006 [13] China | K/A | Improving UI awareness and pelvic floor muscle exercises increase women's ability to manage UI. |
| 9 Kang e Crogan, 2008 [26] USA | K | Pelvic floor muscle exercise programs have positive effects on UI knowledge |
| 10 Geoffrion et al., 2009 [20] Canada | K | Korean women with UI tend to have less knowledge and more negative attitudes toward UI than the general population |
| 11 El-Azab & Shaaban, 2010 [28] Egypt | P | Workshops on pelvic floor health improve knowledge, symptoms and quality of life after 3 months |
| 12 Yuan & Williams, 2010 [22] China | K | Barriers to seeking consultation for UI were embarrassment (67.2%), assuming UI a normal part of aging or after giving birth to multiple children (46.7%), choice of self-treatment (39.2%), low expectations of medical care (38.2%), thinking UI may resolve spontaneously (15.8%) and thinking that treatment would be costly (12.6%); 29.6% of incontinent women reported that they can tolerate incontinence |
| 13 Yuan; Williams; Liu, 2011 [27] China | A | Older people with UI feel shame and guilt. |
| 14 Perera et al., 2014 [5] Sri Lanka | K/P | Despite these feelings, they think that UI cannot be avoided and that it is not serious enough to justify treatment |
| 15 Wang et al., 2015 [17] China | A | SUI is a neglected problem with inadequate healthcare-seeking behavior |
| 16 Dunitan et al., 2015 [14] USA | K/P | Attitudes toward seeking treatment for UI are usually negative and relate to social stigma |
| 17 Mandimika et al., 2015 [15] USA | K | Elderly Native American women's knowledge about UI was similar to historic gynecology controls but lower than urogynecologic controls. |
| 18 De Gagne et al., 2015 [18] Korea | K/A | Barriers to care seeking were significantly higher than those of historic controls, indicating more barriers to care |
| 19 Zhang et al., 2016 [21] China | K/A/P | There are significant racial disparities regarding knowledge about the etiology and treatment options for UI |
| | | The intervention program was well accepted and effective in changing knowledge and attitudes about UI |
| | | Young women in Shanghai have low KAP. Educational interventions should occur primarily with reproductive age women |

KAP = knowledge, attitudes, practices

Table 2 Characterization of data collection instruments

| KAP element | Reference | Data collection instrument (DCI) | DCI reference | Validation | Data collection instrument characteristics |
|------------------------|----------------------|--|-------------------------|----------------------|---|
| Knowledge | [10, 11, 23, 25, 26] | Incontinence quiz | Branch et al. 1994 | Content | This questionnaire contains 14 UI statements investigating etiology, treatment, UI effects, its association with aging and the patient/physician relationship. The answer options are “agree”, “disagree” and “do not know” |
| | [20] | Focused Knowledge Questionnaire | Prepared by the authors | Face and content | Consists of 15 questions that address urinary symptoms, 9 cover pelvic floor muscle exercises, 6 pelvic organ function, 3 pelvic anatomy, 3 pelvic organ prolapse and 3 constipation. The total score can vary between 0 and 39, with higher scores indicating better knowledge |
| | [18, 22] | Urinary Incontinence Knowledge Scale (UIKS) | Yuan et al. 2010. | Internal consistency | Questions are related to knowledge about risk factors, impact, prevention, treatment and management of UI. There are 30 items with dichotomous answers (1 = correct, 2 = false or I do not know), in which a correct response rate of < 60% indicates poor knowledge, from 60 to 80% moderate knowledge and > 80% good knowledge |
| | [14, 15] | Prolapse and Incontinence Knowledge Questionnaire (PIKQ) | Shah et al. 2008 | Internal consistency | The questionnaire consists of 12 items investigating etiology, diagnosis and treatment of UI and pelvic organ prolapse (POP), with three possible answers, “yes,” “no” and “I do not know.” One point should be assigned for each correct answer and zero for each “do not know,” incorrect or blank answer |
| | [18, 27] | Urinary Incontinence Attitude Scale (UIAS) | Yuan et al. 2011 | Internal consistency | It is composed of 15 items that measure attitudes regarding lower urinary tract symptoms, prevention, treatment and management. Each item is scored on a 4-point Likert-type scale ranging from completely disagree to completely agree |
| Attitude | [17] | Treatment-seeking attitudes related to UI and coping socially with UI | Prepared by the author | Internal consistency | The scale contains 24 items, with a response varying from 1 (strongly disagree) to 5 (strongly agree), with higher scores reflecting more positive attitudes toward UI treatment. The items measure the recognition of the need for UI treatment, the openness in talking with health providers about UI symptoms, the tolerance of other people’s reactions associated with UI disclosure and confidence in the treatment of UI |
| Practice | [16] | Prepared by the author | Hunsaar et al. 2004 | Transcultural | It was not detailed |
| | [28] | Prepared by the authors | Prepared by the authors | Face and content | The questionnaire was made to assess possible barriers. The response is a 3-Likert category ranging from “not at all (0),” “to some extent (1),” and “to a great extent (2)” |
| | [14] | Barriers Incontinence Care Seeking Questionnaire (BICS-Q) | Heit et al. 2008 | Internal consistency | The BICS-Q is a 14-item questionnaire that measures patient-reported barriers to care seeking for urinary incontinence. Subjects answer “not at all,” “slightly,” “moderately” or “greatly” to describe the degree of barriers to care. These responses are scored from 0 to 3, with a total score ranging from 0 to 36 with higher scores indicating decreased likelihood of seeking care. This instrument has several subscales, which include relationship, site related, cost, and fear |
| Knowledge and Attitude | [24] | Prepared by the author | Prepared by the author | Face and content | Ten questions were developed to extract beliefs and knowledge about normality, nature of the problem, dialogue, availability of information, incidence, treatment-seeking behaviors and effectiveness of the treatment |
| | [13] | Knowledge related to urinary incontinence and pelvic floor muscle training scale | Prepared by the author | Face and content | The items of knowledge evaluation were: risk factors, treatment options and UI management strategies. The scale has 11 attitude-related items on UI and 13 attitude-related items on pelvic floor muscle training (PFMT). Higher scores indicate more negative attitudes toward UI |
| Knowledge and Practice | [5] | Prepared by the authors | Prepared by the authors | Content | It was used to collect information about prevalence, knowledge, perceptions, health care pursuits, behavior and associated factors that may predispose to UI |

Table 2 (continued)

| KAP element | Reference | Data collection instrument (DCI) | DCI reference | Validation | Data collection instrument characteristics |
|----------------------------------|-----------|----------------------------------|--|------------------|--|
| Knowledge, Attitude and Practice | [12] | MENQOL | Prepared by the author Bener et al. 2000 | Transcultural | It was not detailed |
| | [21] | Prepared by the authors | Prepared by the author | Face and content | The instrument covered knowledge about stress urinary incontinence (SUI) and the significance of a postpartum pelvic floor muscle strength test, attitudes toward SUI and the need for a postpartum pelvic floor muscle strength test and also assessing behavior related to SUI, acceptance of a postpartum pelvic floor muscle strength test, seeking medical help and training of the pelvic floor muscles during the postpartum period |

.DCI = Data collection instrument

55.7% of continent people and by 23.46% of women who experience UI. When the level of knowledge between a UI treatment group and an untreated group was verified, those who sought treatment had a higher mean score for UI-related knowledge [23]. For Branch et al. [10], advanced age seemed to be related to better levels of knowledge about the treatment and consequences of UI. No other study found an association between age and UI knowledge.

Knowledge impairment was associated with a low level of education [12, 15], with individuals with higher levels of education also demonstrating greater knowledge about the possibility of treatment. In the study by Guillen et al. [11], a relationship was found between higher levels of education and correct responses to the statement “UI is a problem caused by several treatable medical conditions.”

To evaluate the racial differences in knowledge related to pelvic floor disorders among 416 women living in the community in the USA, after adjusting for socioeconomic variables (age, income, schooling) and UI clinics, there was evidence that African-Americans and other races (Hispanic and Asian) were more likely to be unaware of the etiology of UI compared with white women (95% CI, OR = 3.05 and 3.59, respectively) [15]. Hispanic and Asian women were even more likely to be unaware of UI treatment possibilities compared with white subjects (95% CI, OR = 2.38) [15]. The study by Dunivan et al. [14] evaluated UI knowledge among American Indians in a sample with a low mean level of schooling and income. The results of the study revealed low mean scores in the PIKQ as well as the presence of barriers to access to the health service, mainly related to the cost and waiting time for consultations.

Attitude about UI

Most of the articles conclude that the women had negative attitudes about UI [13, 17, 18, 21], i.e., do not understand about the need to seek professional help for UI treatment or prevention. Of all the studies evaluated, only the one by Saleh et al. [12] showed positive attitudes for the majority of the women investigated, 77.3 and 70.5% among incontinent and continent people, respectively. Bush et al. [24] considerate the percentage (58%) of incontinent women who said they intended to seek treatment for UI satisfactory.

Data collection instruments

The Urinary Incontinence Attitude Scale (UIAS), developed and validated by Yuan et al., is composed of 15 items that measure attitudes regarding lower urinary tract symptoms, prevention, treatment and management [27] (Table 2). The respondents also reported that UI was shameful and frustrating to care for. The same scale was used in the Korean population [18]. For this study, the scale was used to verify the attitude

among 20 participants of an educational intervention on UI. Three items of the scale presented significant differences before and after the intervention, with the item “UI is not severe enough to justify treatment” presenting a lower score after the intervention. The authors suggested that this result shows that there was an error in the interpretation of the scale items, since it presented low reliability (Cronbach’s $\alpha = 0.58$) in the cross-cultural validation of the instrument for Koreans.

A Chinese study analyzed the treatment-seeking attitudes related to UI and coping socially with UI [17] and found that the population investigated had a negative attitude associated with social stigma. The scale used was developed and validated by the authors (content validity index = 0.92, Cronbach’s $\alpha = 0.75$) (Table 2).

Similarly, other authors described the validation of the data collection instrument used in their study and proved good reliability (Cronbach’s $\alpha = 0.9$) [13]. In this study, the attitude was evaluated before and after an educational intervention in which the results presented negative scores with no significant difference before and after the intervention.

Practices related to UI

All the articles in this review that investigated the practices revealed low rates of seeking care [5, 12, 16, 21, 25, 28]. Even the study that showed a more positive attitude demonstrated that, in practice, individuals did not seek health services [12]. The reasons for this finding have been related to the inadequate knowledge about UI, since the populations studied were unaware of the possibility of treatment [5]. The shame felt when talking about the issue, including that of health providers, was also found to be an important barrier to seeking care for UI [5, 12, 16, 27]. The embarrassment was even greater considering consultations with male providers [12]. Fear of surgery [5], lack of time [14, 22], costs and inconvenience [22, 28] and not considering the symptoms to be severe enough were also cited as barriers to seeking care. Limited access to health services seems to have influenced the low rates of healthcare demand in the study by Zhang et al. [22] so that after the educational intervention there were no significant differences in the practices of the population studied.

A study of 1573 incontinent women in France, Germany, Spain and the UK revealed that only 34% of them had sought professional care and 62% reported having discussed UI symptoms with someone other than their doctor. This study highlights that the willingness to take medications, talking to others about the UI and being affected by urge incontinence were predictive factors in seeking professional help. In Germany, Spain and the UK, the highest rates of consultations were found among women that considered the UI to be moderately or extremely uncomfortable and in those who reported visiting their doctor three or more times in the previous year [16]. A study with 400 women from Sri Lanka found that only

16.7% of the participants who complained of daily episodes had sought treatment [5]. The study by Saleh et al. [12] showed that 45% of the incontinent population sought a provider to treat UI, 30% reported self-treatment with herbs and prayers, 16% consulted friends and 7.7% had never sought any treatment for UI.

The instruments used to investigate UI practices were not detailed in most of the studies in this review [5, 12, 16, 25], all of which were submitted to face and content validation by specialists [5, 12, 16, 21, 25, 28] (Table 2). One instrument used in a multicenter study [16] was submitted to a reliability study for each country in which the instrument was applied. The Incontinence Quiz underwent alterations when the questions regarding treatment demand for UI were added [25].

Discussion

The 19 articles selected for this review, because of the diversity of aims, data collection instruments and populations studied, provide a broad understanding of women’s knowledge, attitudes and practices related to UI. No studies were found that submitted the data collection instrument to reliability testing for all the KAP elements.

The number of publications that investigated women’s knowledge about UI stands out among the other KAP elements, which demonstrates the greater interest of the scientific community in this aspect. This is possibly because the first step in addressing any problem is identifying that there actually is a problem. Therefore, to seek and receive care, women must recognize UI as a problem that is bothersome and treatable with a range of surgical, pharmacological, physiotherapeutic and behavioral approaches [30]. This fact may also be related to the assumption that knowledge directly or indirectly influences the attitudes and practices related to UI.

From this, some intervention studies [13, 20, 21] used varied educational strategies to increase women’s knowledge about UI and aimed to measure the impact of these interventions on their knowledge, attitudes and/or practices. Liao et al. [13] administered a 4-h educational program on PFMT with a cohort of 55 Taiwanese women with UI and evaluated the knowledge before and 8 weeks after the educational intervention. After the intervention, the participants presented significantly higher knowledge scores.

Aiming to inform women about pelvic floor health, Geoffrion et al. [20] evaluated a 2.5-h educational workshop, run by a nurse continence advisor, which was offered to the general public and to patients at their tertiary-care urogynecology clinic. The goals of the workshop were to provide women with an understanding of bladder control, incontinence, prolapse and treatment options and to enable them to make lifestyle changes to achieve optimal pelvic floor health. The median pre-workshop knowledge score was 28/39, and median

scores immediately after the workshop and at 3 months were 36/39 and 33/39. The knowledge scores were significantly higher immediately after the workshop ($p < 0.01$) and at 3 months after ($p < 0.01$) compared with the pre-workshop knowledge scores. More than half of the subjects had sought information about pelvic health issues prior to attending the workshop. Fewer reported seeking information at 3 months after the educational intervention, perhaps reflecting knowledge acquisition or the women's satisfaction with the knowledge acquired from the workshop.

Concerned with the increase in stress urinary incontinence rates in Chinese women and with low rates of demand for treatment, Zhang et al. [21] designed an intervention to improve awareness and knowledge about SUI. The control group (CG) received traditional community services, and the intervention group (IG) received a new community-based reproductive health intervention to improve knowledge and attitudes regarding SUI and related health-seeking behavior. The mean KAP scores for the IG and CG at baseline were low. No significant differences were observed between the groups at baseline, whereas the IG scored significantly higher than the CG in the KAP questions at follow-up. A significant improvement was observed in the IG after the intervention, with a mean total score increase from 2.11 to 3.94 (of a maximum 8 points). However, the mean KAP scores and total scores remained low after the intervention.

It is important to emphasize that the present review focused only on those aspects directly connected to women's KAP related to UI. However, it is extremely important to remember that several studies have highlighted that women at key moments of their lives, such as in prenatal consultations, for example, are not receiving information about UI, nor about strategies to prevent it and treat it [31, 32]. Considering the role of KAP in UI and the high prevalence of UI among women, it is necessary for health providers to carry out timely screening during routine visits [6].

The analysis of some studies showed that inadequate knowledge resulted in incorrect practices [13] but did not translate into inadequate attitudes [12, 24], while an adequate attitude alone did not lead to seeking healthcare as would be expected [12]. Improvements in knowledge do not necessarily imply behavioral change [20]. Even if there is an intention to seek healthcare, sometimes this action does not materialize [21]. This is because, to make that decision, the women must believe the incentives (i.e., reduced symptoms, improved QoL) are greater than the barriers (e.g., embarrassment, time constraints, cost) and view seeking treatment as a priority over other life demands [30]. This can be justified by a complex set of factors that interfere in the practice, ranging from personal coping issues (shame, treatment frustration and fear of surgery) to healthcare barriers (financial costs, not knowing who to approach, providers that do not value the UI complaint, time to attend consultations) [33, 34].

Studies show that the perception of symptom severity and cultural factors influence the decision to seek healthcare [13] and that women with UI tend to minimize the symptoms and adjust their lifestyles as well as seek support from close friends. All of this may suggest that merely strengthening knowledge will not guarantee a positive attitude. This is because there are factors that independently affect each of the KAP elements (Fig. 2). Even in countries where the health system guarantees reimbursement for medical expenses, many women do not seek care despite having a serious UI. It is important to note that the determinants for the use of health services are not only clinical and that social relations also play an important role [4].

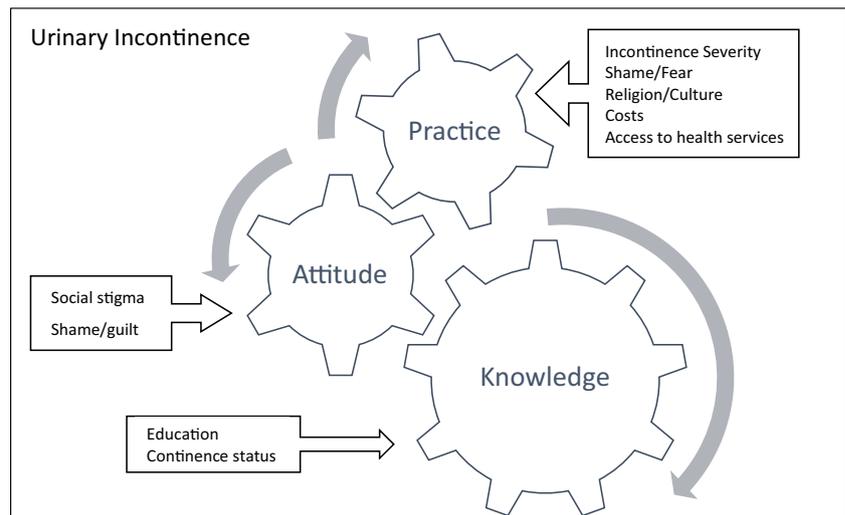
Despite this, the provision of educational interventions should be encouraged, as they have been shown to be effective in improving UI knowledge. To verify the effects of these interventions on the other elements (attitudes and practices), intervention studies should be performed using different educational strategies (group, individual, static or interactive). These strategies could be associated with behavioral interventions (reminders) or even social ones (peer counselors) with longer follow-up periods and presented to women through various media such as mobile apps, websites, videos or other means.

Once the woman seeks healthcare, this should be a moment of strengthening the knowledge and attitudes related to UI. However, the lack of appreciation of patients' complaints, use of technical terms that are difficult to understand and discomfort of being attended by male providers hamper communication between health providers and patients in some cultures [8], which can negatively compromise the knowledge, attitudes and practices related to UI. KAP investigations may be useful to study women's behavior in relation to UI, since perceptions about health conditions, severity of symptoms and effectiveness of health service provision vary among population groups, leading to different forms of UI coping [8].

Limitations of the study

This review only included studies in which the data collection instruments had at least undergone validation by specialists; this may have reduced the number of instruments retrieved. However, it presents the scientific community with only instruments that have undergone some validation process, which is strongly recommended. The studies described in this review are fairly heterogeneous with regard to characterization. Some studies included men and women in their investigations [10, 11, 28], which makes the results somewhat specific regarding the purpose of this review. In addition, while seeking to cover as many publications as possible, some important descriptors or databases may not have been included and therefore some instrument may have been overlooked in the results.

Fig. 2 Influence factors on KAP elements. Source: Prepared by the authors based on selected articles



Source: Prepared by the authors based on selected articles.

Conclusions

Despite the undeniable advances in access to information, misconceptions about UI are still very frequent and need to be worked on by health providers, which highlights the need to understand the perceptions and forms of coping with UI in diverse populations. Inadequate knowledge about UI in some cases implies not recognizing the possibility of prevention and treatment, negatively affecting the decision to seek healthcare. The KAP elements were influenced by specific issues in each of the studied populations, leading to unique results, which demonstrates the importance of the investigations being performed using standardized data collection instruments, with their psychometric validity tested in the target populations. In addition to making the analysis of the KAP elements more robust, this would allow a comparison of the three elements in the different populations as well as interventions to strengthen the elements evaluated as inadequate.

Compliance with ethical standards

Conflicts of interest None.

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