Effect of Knowledge, Attitude, and Belief on Nurses’ Practice Regarding Urinary Incontinence in Adults

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Conservative estimates indicate 13 million adults in the United States have UI at a cost of at least $16 billion per year. Goal 17.17 of Healthy People 2000 seeks to “Incme to at least 60% [routine evaluation of] people aged 65 and older for urinary incontinence...” (U.S. Department of Health and Human Services, 1990). Nurses of all educational levels should be able to detect and treat or refer the 80% who could be cured or helped with appropriate treatment.

The literature is rife with research extolling effective nursing treatment of urinary incontinence (UI) in adults (Fantl et al., 1996; Palmer, Czarapata, Wells, & Newman, 1997). For example, the most widespread treatment is the use of pelvic muscle exercise (Brink, Wells, Sampselle, Taille, & Mayer, 1994; Burns et al., 1993; Dougherty et al., 1998; Gallo & Staskin, 1997; Henderson, 1983; Henderson & Taylor, 1987; Hendrickson, 1981; Sampselle et al., 1998; Taylor & Henderson, 1986). Other nurse-directed research with resulting favorable clinical outcomes include bladder training or retraining and habit training (Fantl, 1998; McCleanor, Aitchison, & Woods, 1998; Sale & Wyman, 1993; Wyman, Mcclish, Ory, & Fantl, 1992). Prompted voiding has met with success in cognitively impaired clients (Cella, 1988; Engel, Burgio, & McCormick, 1990; Freundl & Dugan, 1992; Hammer, 1998).

What is not known, however, is whether or not nurses in varied practice settings apply these research findings and what factors affect their behavior. This is the first study to investigate the effects of knowledge, attitude, and belief regarding UI in adults on continence-related practice behaviors of registered nurses. Pertinent points to be addressed include the conceptual framework, population and sample, instruments, and data analysis.

Nurses have long believed knowledge is the key to improved nursing practice. This study investigated nurses’ knowledge, attitude, and belief about urinary incontinence (UI) in adults as each affects nursing practice with incontinent clients. Multiple regression revealed only attitude had a direct effect on practice. Although knowledge and belief did not exhibit a significant relationship with practice, both were related to attitude. These findings question the assumption that knowledge directly affects practice; therefore, nursing practice related to UI in adults may be most affected through efforts aimed at attitudinal change.

The results are discussed and contributions and areas of needed study are explored.

Conceptual Framework

Two questions spurred further investigation: (a) What is the role played by nurses in evaluation, treatment, and referral of adults with UI? (b) What part do knowledge, attitude, and belief about incontinence play in defining that role? From these questions evolved an eclectic conceptual framework commonly held by many disciplines, including nursing, that what you learn (knowledge) and how you feel about something (attitude and belief) ultimately influence what you do (practice).

Perceived inaction by many nurses in varied practice settings prompted the research question: Do nurses’ knowledge about urinary incontinence in adults, attitude toward care of incontinent clients, and belief about urinary incontinence in general affect...
continence-related practice behavior? It was hypothesized that knowledge, attitude, and belief would exert a significant, positive effect on practice (see Figure 1).

**Knowledge** was conceptualized as the comprehension and understanding of acquired facts or information about UI in adults. **Attitude** was seen as a predisposed perspective that influences nurses’ thoughts, feelings, perceptions, and behaviors toward care of adults with UI. **Belief** was understood as a theoretically conceptualized conviction or expectation regarding UI in general. **Practice** was defined as actions identified in the AHCPP guideline as being within the capability and scope of registered nurses of all educational levels. Four researcher-developed instruments, collectively known as the Urinary Incontinence Scales, were used as measures to address the research question.

**Method**

**Population and sample.** Seven hundred nurses were randomly selected from the 1,309 who were registered with the Board of Nurse Examiners of the State of Texas and resided in Denton County, Texas. One hundred twenty-six nurses returned completed surveys, a return rate of 18%.

Respondents ranged in age from 28 to 64 years (mean, 43.5 years). Ninety-four percent were white with the remaining 6% being African American, Asian, and Hispanic. Nurses in the sample were similar to Texas nurses as a whole in age and race/ethnicity. Work setting differed between sample nurses and the larger population of Texas nurses in these ways: hospital (sample, 57%; Texas nurses, 67%), home health (sample, 11%; Texas nurses, 0.6%), and long-term care (sample, 10%; Texas nurses, 3%). Forty-nine percent of sample nurses practiced at a staff nurse level as compared to 60% of Texas nurses. More than twice as many sample nurses (58%) than Texas nurses (28%) held managerial positions. Some nurses in both groups held both staff nurse and supervisory positions. Twice as many respondents (8%) than Texas nurses (4%) identified themselves as “advanced practice nurses.”

**Instruments.** No appropriate measures were found in current research to evaluate the variables as conceptualized. Therefore, four paper-and-pencil instruments were developed: the Urinary Incontinence Knowledge Scale, the Urinary Incontinence Attitude Scale, the Urinary Incontinence Belief Scale, and the Urinary Incontinence Practice Scale. Content was validated from three sources: the literature, representatives of relevant populations, and content experts (Burns & Grove, 1997). The validity of the measures was established by significant direct links of all variables to their hypothesized indicators (Henderson, 1996; Henderson & Kashka, 1999).

**Urinary Incontinence Knowledge Scale.** The Urinary Incontinence Knowledge Scale consists of 24 items with a dichotomous measurement scale of 1 to 0 (correct=1; incorrect/uncertain=0). The highest possible score is 24 points.

**Urinary Incontinence Attitude Scale.** The Attitude Scale evaluates nurses’ attitude toward care of incontinent clients. The 20-item scale uses a six-point Likert scale, with responses ranging from “strongly-agree” to “strongly-disagree.” The highest possible score of 120 indicates a strongly-positive attitude; a score from 100 to 119 indicates a moderately positive attitude; and scores between 80 and 99 indicate a positive attitude.

**Urinary Incontinence Belief Scale.** The 23-item Belief Scale describes what nurses believe about UI in general. Responses are measured on a six-point Likert scale from “strongly-agree” to “strongly-disagree.” The highest possible score is 138 with a range for this group from 48 to 132. A score of 138 indicates a strongly positive belief, from 115 to 137 is a moderately positive belief, and scores between 92 and 114 indicate a positive belief.

**Urinary Incontinence Practice Scale.** Twenty-five questions ask if nurses performed specific continence-related behaviors “always,” “usually,” “sometimes,” or “never” on a scale from three to zero. The highest possible score for the 25 items is 75, which indicates behaviors are “always” performed. A score from 50 to 74 indicates behaviors are “usually” executed and from 1 to 49 behaviors are “sometimes” done. Behaviors composing the Practice Scale were based on those identified in the AHCPP.
guideline and were judged to be within the scope of practice of registered nurses of all educational levels and in varied practice settings.

These four scales were combined into one booklet and collectively called the Urinary Incontinence Scales. This combined instrument was mailed to 700 randomly selected nurses to be completed anonymously. A self-addressed, stamped envelope was included for return of completed survey booklets. One hundred twenty-six nurses (18%) returned completed surveys.

Data Analysis
Data were analyzed descriptively and statistically. Cronbach’s alpha evaluated instrument reliability, and multiple regression determined inferred causal relationships among the variables. To facilitate discussion of results, reliability of the four instruments will be examined, descriptive characteristics for each scale will be addressed individually, and inferred causal relationships among variables will be described.

Reliability. Internal consistency for the Knowledge Scale employed the Kuder-Richardson formula, the K-R 20, a special case of Cronbach’s alpha coefficient for dichotomous data. The K-R 20, rather than the K-R 21, was used because all items were not of equal difficulty. Alpha for this scale was 0.6748. The Knowledge Scale differs structurally from the other three scales because the scale is dichotomous (true/false). It also differs philosophically in that items reflect basic knowledge — knowledge needed by a nurse in making a basic assessment, initiating rudimentary behavioral treatment when appropriate, and originating a pertinent referral when necessary. A knowledge scale is, in reality, criterion-referenced as it questions what would be desirable in the “perfect” subject. Due to less variability, the statistical reliability is expected to be generally lower than for other types of measures; therefore, “criterion measures may not be as useful in research as they might be in evaluation studies.” “Knowledge is, in essence, an emergent variable; that is, the alpha coefficient does not reflect just the characteristics of the scale. It reflects the true characteristics of the knowledge in the people. The scale is spotting that some people know some things and some know other things but there is no consistent pattern” (personal communication, April 2, 1999, Lee Sechrest, PhD). Based on this sentiment and the commonly accepted premise in the health professions that knowledge is a basic requirement for performance of certain tasks or groups of tasks, the Knowledge Scale was considered an adequate measure for this study.

Coefficient alpha for the Attitude, Belief, and Practice Scales were 0.8652, 0.8568, and 0.8928 respectively. All were above the 0.70 recommended for new instruments by Nunnally (1978). A more complete discussion of development and characteristics of the Urinary Incontinence Scales is available in “Development and Testing of the Urinary Incontinence Scales” (Henderson & Kashka, 1999).

Descriptive Statistics
Urinary Incontinence Knowledge Scale. Scores ranged from 7 to a perfect score of 24 with a mean of 17.4 (72.5% correct). Items answered correctly by at least 90% of these nurses included:
- When awake, most people need to empty their bladder every 2 to 4 hours.
- A bladder infection can cause UI.
- Urinary incontinence can happen with activities such as coughing, sneezing, or walking.
- Having a stroke can cause UI.
- Doing Kegel exercises may help or stop UI.

At least one-third of the nurses did not know:
- Women are more likely than men to develop UI.
- Some common antihypertensive or sleep medications can cause UI.
- Urinary incontinence is not a normal part of aging.
- Women whose babies are delivered by C-section can develop urinary incontinence.

Urinary Incontinence Attitude Scale. The mean score for these nurses was 89.3 points or 79% of the highest possible score, which indicated a positive attitude. At least 90% expressed a positive attitude that:
- Nurses should not be hesitant about discussing UI.
- Nurses should ask clients if they have UI.
- The doctor, rather than the nurse, should not necessarily be the person to discuss UI with clients.

The most negative attitudes expressed:
- Many nurses found it difficult to discuss incontinence with both women (43%) and men (61%).
- It was not rewarding for most nurses (54%) to work with men with UI.

Urinary Incontinence Belief Scale. Scores for this group ranged from 48 to 132 (out of a possible 138 points). The mean was 96.3 points or 69.8% of the highest possible score, which indicated a positive belief. At least 90% of these nurses expressed a positive belief that:
- Urinary incontinence is a heavy burden and is depressing for men.
- It is annoying, stressful, and a big problem.
- Urinary incontinence decreases self-esteem in both men and women.
- It is not a hopeless situation in men or women.

Gender-related beliefs indicated:
- It is more of a burden for men (98.5%) than for women (80.8%).
- Urinary incontinence decreases self-esteem more often in men (96.5%) than in women (92.0%).
- It is more depressing for men (93.5%) than for women (87.1%).
Urinary Incontinence Practice Scale. Scores ranged in these respondents from 3 to 72. The mean for nurses in this group was 42.4 or 56.5%, indicating that they performed continence-related practice behaviors about half the time. Behaviors composing the Practice Scale were based on those identified in the AHCP (1992) guideline. Eleven of the 126 nurse respondents were aware of the existence of the guideline and three reported using it in their practice setting. Ninety percent or more of these nurses reported always, usually, or sometimes performing the following:

- Tell the doctor about the client’s UI and suggest the client tell the doctor about it.
- Take a medical history (the most commonly performed behavior) and review current medications.
- Take a genitourinary history and explore possible lower urinary tract symptoms. The actions most frequently performed were:
  - Ask if the client has or has ever had UI (26%).
  - Initiate behavioral treatment for some types of incontinence (30%).
  - Refer clients to a specific, named health professional they know works with UI (30%).

In summary, these nurses had an average knowledge base regarding UI in adults (72.5%). Their attitude about care of incontinent clients was positive (79%) as was their belief about incontinence in general (69.8%). They performed continence-related practice behaviors the majority of the time (56.6%).

**Inferred Causal Relationships Among Variables**

This study hypothesized that knowledge, attitude, and belief would exert a direct, positive effect on practice (see Figure 1). While multiple regression revealed a significant direct relationship between attitude and practice, there was no significant relationship between either knowledge or belief and practice (see Figure 2).

Further analysis noted significant positive relationships between knowledge, belief, and attitude. This finding led the researchers to propose a second model to consider the relationship between the three predictor variables and to explore the multicollinearity between them. Regression investigated effects of multicollinearity of knowledge and belief on attitude. Hierarchical regression examined effects of knowledge and belief on practice after adjustment for attitude. While knowledge and belief exerted about the same amount of influence on attitude as attitude exerted on practice, hierarchical analysis did not support that this strong relationship with attitude translated into an indirect relationship with practice in this sample. The revised model must be interpreted with caution because it is derived from the data and needs further testing in other samples to confirm its validity.

The question posed by this research was, “Do nurses’ knowledge, attitude, and belief regarding urinary incontinence affect continence-related practice behavior?” Causal relationships of the proposed model indicated only attitude exerted a direct effect on practice (see Figure 2). Therefore, the research question could be answered in the affirmative only for the attitude variable (see Figure 2 & Table 1).

![Figure 2: Inferred Causal Relationships of Hypothesized Model](image)

**Table 1. Summary of Multiple Regression Analysis for Variables Predicting Practice (N=126)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>.287503</td>
<td>.093627</td>
</tr>
<tr>
<td>Knowledge</td>
<td>.178424</td>
<td>.286281</td>
</tr>
<tr>
<td>Belief</td>
<td>.037406</td>
<td>.085721</td>
</tr>
</tbody>
</table>

**p < .01
Note: $R^2 = .08572$
The hierarchical regression analysis revealed the strong predictive relationship which existed between attitude and the other predictor variables, knowledge and belief (see Figure 3 & Table 2). Attitude explained approximately 10% of the variance in practice. Variance in attitude explained by knowledge and belief were about 9% and 8% respectively.

**Discussion**

Formal and informal nursing education has traditionally focused on increasing knowledge while presuming a consequent positive effect on practice. Our findings call this premise in question. While, in our sample, knowledge was directly and significantly related to attitude, it was not related to practice. This suggests the importance of attitude in shaping nursing practice and underscores the importance of attitude in most human action. What we feel is, in most instances, as important to action as what we know and believe. This suggests nurse educators would do well to emphasize the affective domain when wanting to influence nursing behaviors related to incontinence. The importance of knowledge lies in its relationship to attitude, but that relationship, in our sample, was unrelated to practice.

Respondent response rate in this study was only 18%. Observations may, therefore, reflect either response bias or convenience sampling error. Also, more study is clearly needed to investigate the interrelationship between knowledge, belief, and attitude. Multicollinearity among these variables may have influenced study results. Further, more study is needed about other variables that may interact with attitude to influence practice. In the meantime, those who wish to increase nurses’ practice behaviors related to incontinence may need to focus on the attitude of nurses toward incontinent clients.

**References**


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