


Understanding Nursing Knowledge of Continence Care and Bladder Scanner Use in Long-Term Care: An Evaluation Study

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Abstract

Because urinary continence is an essential indicator for quality of life for older adults in long-term care, it is important to accurately assess and treat those at risk for incontinence. This evaluation study was to increase understanding of the issues related to the implementation of bladder scanners while exploring nursing staff knowledge about continence care of older adults in long-term care settings. Using a mixed-methods design, nursing care staff (RN, LPN, Care Aide) at six long-term care homes completed a bladder care knowledge survey and participated in focus group discussions to explore continence care knowledge and use of bladder scanners to manage continence issues. Twenty-eight nursing care staff participated; findings showed continence care knowledge varied by profession, and the use of portable bladder scanners is affected by knowledge, training, and scopes of practice. Going forward, exploring scopes of practice and education are needed for effective assessment, management, and treatment of continence.

Keywords

dementia, incontinence, long-term care, nursing, health services research

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Background

In Canada, the proportion of adults older than 65 years is expected to rise to 23.4% by 2031 (Jett et al., 2012), and the need for supportive care services must be prepared to meet anticipated demands. For example, in British Columbia (BC), the need for long-term care (LTC) services is expected to increase 120% between 2011 and 2036 (BC Ministry of Health [BC MoH, 2017]). The increase in life expectancy brings with it increased complex health and functional concerns for older adults that present challenges for healthcare staff. It has been reported of LTC residents that:

- 93% have some level of cognitive impairment, with 65% having a diagnosis of dementia,
- 93% have some level of impairment that interferes with their ability to perform daily living activities, while 73% require moderate to significant assistance, and

- 69% experience bladder incontinence (BC MoH, 2017).

Older adults are at high risk for urinary incontinence (UI) due to poor mobility, dementia, urinary retention, and infection (Caliskan et al., 2019; Ehlman et al., 2012; Saxer et al., 2008; Taylor & Cahill, 2017). It is estimated that 3.5 million Canadians are affected by UI (Canadian Continence Foundation [CCF, 2014]). Urinary incontinence occurs in one in four women and one in five men at some point in their lives, and the likelihood of UI increases as people age, with 22.3%

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of women and 18.7% of males aged 85 or older reportedly experiencing urinary leakage (CCF, 2014). More than 50% of older adults living in LTC settings experience UI, resulting in an extra \$13,409 in healthcare labor costs per patient annually (CCF, 2014). Urinary incontinence is linked with increased risk of infection, falls, and responsive behavior symptoms (Caliskan et al., 2019; Ehlman et al., 2012; Saxer et al., 2008; Taylor & Cahill, 2017). These risks increase threefold in older adults with cognitive impairment (Taylor & Cahill, 2017). Since continence care is an essential indicator for quality of life for older adults in supportive care facilities, it becomes necessary for nursing care staff to accurately assess and treat those at risk for UI.

As a result of aging, bladder changes increase the risk for urinary tract infections (UTI) and generally, older adults do not present the same symptoms of UTIs as younger adults. Typical symptoms for younger adults include urgency and frequency; however in older adults, especially in supportive care settings, a change in behavior may be the first and only indicator of a UTI (Hasegawa et al., 2010; Lee et al., 2011). Unfortunately, catheterization remains a common treatment for managing UI in the older adult (Caliskan et al., 2019; Ehlman et al., 2012; Saxer et al., 2008; Taylor & Cahill, 2017). Intermittent catheterizations are often used to assess post-residual volume, potentially causing undue trauma to the resident, as well as increasing the resident's risk of a UTI (Gould et al., 2009; Palese et al., 2010; Widdall, 2015).

The presence of indwelling urinary catheters account for approximately 80% of UTIs (Brusch & Bronze, 2013), but can be reduced by limiting unnecessary catheterizations by assessing bladder function using a portable bladder ultrasound (bladder scanner) (Ehlman et al., 2012; Palese et al., 2010; Widdall, 2015; Wilson et al., 2015;). Although research is limited, it has been shown that UTIs could be decreased with the use of bladder scanners (Chen & Farrah, 2008; Palese et al., 2010). The bladder scanner is a non-invasive assessment tool used to determine bladder volume (Newman et al., 2005). Regardless of the resident's diagnosis, position during the scan, or the model of the scanner, the scanner accurately assesses urine volume in the bladder, thus preventing unnecessary catheterizations (Newman et al., 2005). The use of bladder scanners is routine in most acute care institutions with evidence demonstrating their benefits; however, LTC homes have been slow to adopt them as part of the standard of practice (Ehlman et al., 2012).

Study Context

The General Practice Services Committee (GPSC) is one of several joint collaborative committees that represent a partnership between the BC Ministry of Health and Doctors of BC. The GPSC funds a LTC Initiative which enables physicians to work collaboratively with health care partners to develop local, scalable solutions that contribute to enhanced

patient care in response to local health care needs identified in their communities. Funds were allocated to purchase bladder scanners for several LTC homes in the study community (GPSC, 2015). Evidence related to the prevalence of UI in LTC residents, associated poor outcomes, and complications arising from standard interventions supported the purchase to prevent hospital transfers and improve patient care. Although bladder scanners had been implemented into these LTC homes in the target community, the effectiveness of the scanners in these care homes had yet to be evaluated.

The purpose of this evaluative study was to evaluate the implementation of bladder scanners into LTC settings. The evaluation also included an exploration of nursing care staff knowledge and decision-making about continence care and the use of the bladder scanners. With the results, the researchers would be able to determine if the bladder scanners were being used and if there was a need for more staff education on continence care that could improve the quality of life of the older adult. Furthermore, this study could have implications for policy development and wider implementation of bladder scanners in LTC homes in the health authority.

Methods

Using a mixed-methods design, the researchers invited nursing care staff at six LTC homes to evaluate the use of bladder scanners to manage continence issues. Nursing care staff completed a demographic questionnaire, bladder care knowledge survey, and participated in focus group discussions to explore continence care knowledge.

Participants

Following institutional review board approval from Thompson Rivers University, and six private LTC homes, an email was sent to the managers at each of the six LTC sites that received a bladder scanner through the GPSC initiative. The email informed the managers about the purpose of the study and requested participation of nursing care staff in the study. The inclusion criteria were nursing care staff who had worked in one of the six LTC settings for more than six months with the ability to read and speak English. Nursing care staff consisted of registered nurses, licensed practical nurses, registered psychiatric nurses, and health care assistants. The nursing care staff members were recruited via the managers through an email invitation and a displayed recruitment poster. Interested nursing care staff contacted the primary investigator, and those who met the selection criteria were invited to participate in the study. Informed consent was obtained before the focus groups began to acknowledge audio-recording of the focus group, that participation was voluntary, that participants had the right to withdraw anytime without prejudice, and for the completion of the knowledge, skills, and decision-making questionnaire.

Data Collection

Cross-sectional data were gathered and offered valuable insights on nursing care staff knowledge related to UI. The research team adapted the Ehlman et al. (2012) Bladder Ultrasound Scanner survey because of its ease to administer to busy healthcare providers. Although no validity was declared, the survey was developed based on the literature related to UI and consisted of five True/False questions related to nursing care staff knowledge of UI and use of bladder scanners in LTC settings. For this study, two additional True/False questions related to knowledge of UI and bladder scanner use were added based on a review of the literature on UI. Participants also completed demographic questions to describe participant characteristics and compare knowledge across types of nursing care staff. All responses were anonymously answered as no personal data was required or collected on the paper-based administered survey.

There were six focus group sessions, one at each participating facility. Nursing care staff members were invited to attend a focus group at their work site to explore the use of the bladder scanners that were implemented at each of their sites. There were five general questions along with probing questions asked at each focus group. Each focus group had six to eight nursing care staff in attendance, lasting approximately 45 minutes to explore participants' views on knowledge, and decision-making about continence care and their use of the implemented bladder scanners. The paper-based bladder scanner knowledge survey was administered to each participant to complete at the beginning of each focus group session. The focus groups were facilitated by a member of the research team with another member taking notes and digitally recording discussions to ensure all data was captured.

Data Analysis

Upon completion of data collection, the research team conducted data analysis. Quantitative data were analyzed using Excel software. Descriptive statistics were used to explore and develop a general view of the data. A description of the sample from which data was collected, using information on profession, and years in practice, as well as the means and standard deviations for the survey scores was used to summarize and describe the population. Due to the small sample size no specific inferential statistical analysis was performed.

Qualitative data from the focus groups were analyzed guided by Krueger's (1994) approach of a continuum of content analysis. This approach included analysis of raw data, development of descriptive statements, and interpretation of results. The focus group data were transcribed, and raw data were analyzed, and then scanned to develop preliminary descriptive statements. The research team discussed the descriptive statements to come to consensus on the final interpretation.

Results

Survey results. Twenty-eight nursing care staff (registered nurses, licensed practical nurses, health care assistants, and registered psychiatric nurses) from six of the seven facilities participated in this evaluation study. Registered nurses encompassed 14.3% ($n = 4$) of participants, 57.1% ($n = 16$) of participants were LPNs, and 28.6% ($n = 8$) were HCAs. Examining the years in the profession of each position, there was a wide range from less than 1 year to 35 years, with a mean of 11.5 years. The RNs had an average of 3 years, LPNs a mean of 17 years, and HCAs a mean of 12 years in the profession. Responses were initially analyzed together and then separated by position, which provided a means to compare differences in frequency of responses. Inferential statistical tests that would allow for the examination of the significance of the association of correct responses among the participants were not completed due to the small sample size.

However, when answering the True/False questions, there were some responses to questions that indicated a potential knowledge deficit. Survey questions #1, 4, 6, and 7 (see Table 1) showed a high level of incorrect answers. Specifically, 39% of nursing care staff stated UI was a normal part of aging, with the most incorrect answer reported by the HCAs (50%, $n = 4$). This finding was similar with question #4, urine retention increases with age (32%, $n = 9$), with six (75%) HCAs responding incorrectly. The question about UI not going away on its own also highlighted a potential knowledge deficit of more than half of the participants (61%, $n = 17$). With this question, there was high numbers of incorrect answers from both the HCAs (88%, $n = 7$) and LPNs (56%, $n = 9$). Finally, related to the question on using "in and out" catheterization to determine post-void residual volume, 70% ($n = 19$) of all participants stated that such a strategy was best to measure residual urine volume. With this question, all LPNs answered this question incorrectly (100%, $n = 16$).

Focus group results. There were six focus groups ranging in size from five to eight participants of mixed professional backgrounds. From the content analysis, the qualitative findings showed that while the bladder scanners are important to use, the use of them was found to be dependent on access, and habit/routine, as well as presenting symptoms, or physician orders. Comfort level for use of bladder scanners was dependent on knowledge, education, and training of staff.

Bladder Scanner Use

Two questions focused on how often and what situations the participants had used the bladder scanner to assess urine volume in residents. Most participants mentioned the bladder scanners were generally used as part of the admission assessment only. While others noted assessments for incontinence were based on admission reports, charts or interviews with family or residents. Some participants reported they

Table I. Bladder Care Knowledge Survey.

		True	False
Q1: Urinary incontinence is a normal part of aging.	RN	1 (25%)	3 (75%)
	LPN	2 (12.5%)	14 (87.5%)
	HCA	4 (50%)	4 (50%)
Q2: Urinary incontinence is seen in at least 50% of the older adult population in residential facilities.	RN	4 (100%)	0
	LPN	16 (100%)	0
	HCA	8 (100%)	0
Q3: Decreasing daily fluid intake can prevent episodes of urinary incontinence.	RN	0	4 (100%)
	LPN	1 (0.067%)	15 (93.8%)
	HCA	0	8 (100%)
Q4: The amount of urine retained after voiding increases as adults age.	RN	1 (25%)	3 (75%)
	LPN	2 (12.5%)	14 (87.5%)
	HCA	6 (75%)	2 (25%)
Q5: Practicing frequent voiding with residents helps to prevent urinary tract infections.	RN	4 (100%)	0
	LPN	16 (100%)	0
	HCA	7 (100%) ^a	0
Q6: Urinary incontinence will not go away on its own.	RN	1 (25%)	3 (75%)
	LPN	9 (56.3%)	7 (43.8%)
	HCA	7 (87.5%)	1 (12.5%)
Q7: In and out catheterizations are best for determining post-void residual volume.	RN	1 (25%)	3 (75%)
	LPN	16 (100%)	0
	HCA	2 (28.6%)	5 (71.4%)

^aMissing data.

“check their (residents’) underwear/briefs”, others stated using visual inspection while providing care. One HCA noted that they do their assessment “by getting to know them (residents) to understand their continence patterns and routines”. Most HCAs noted that they were not trained to use the bladder scanners and therefore, never use it or its use was not part of their role. Both the RNs and LPNs noted they used the bladder scanner when they noted presenting symptoms. For example, one participant stated the “use is based on decision making - *spidey sense*” which related to their intuition on signs and symptoms. Such symptoms noted were, an indwelling Foley catheter not draining, decreased urine output, lower abdominal pain, or before starting a catheterization procedure. One nurse described they used the bladder scanner when they noticed a resident who was “frequently attending the bathroom but are not voiding”.

Knowledge and Comfort Levels

Two other questions focused on what was the participants’ comfort level and what training they had received on the use of the implemented bladder scanners at their sites. There were some participants who did not receive any formal training when the bladder scanners were introduced to their sites, where others reported that a product representative came to their site and did a demonstration, and one site had a practice lead/champion who provided training for all nursing staff (not HCAs). All HCAs reported that they had no training, but some said they had either watched the nurses use it or that they “would be comfortable if they were taught how to use the

bladder scanner”. In fact, HCAs conveyed they believed the bladder scanner to “be valuable...as they have seen nurses use it before—it has significantly decreased the number of residents going to the hospital”.

When asked about policies or procedures that were in place to support the use of the bladder scanners, participants in all six focus groups reported there were none specific to its use in LTC settings. However, most of the RN and LPN participants stated they were comfortable in using the bladder scanners, but two participants reported that it was not in their scope of practice to use. The participants who noted that they were comfortable in using the bladder scanner said that the bladder scanner was simple to use but it was locating the bladder while scanning that was more challenging. One RN asked the question, “is there a different way for women who have had a hysterectomy?” One of the biggest challenges that the nursing care staff reported, was having convenient access to the bladder scanners. Most of the sites were physically large (several floors or wings) and only having one scanner for the whole building made it difficult to locate or retrieve. At one site, it was noted that there was no dedicated storage space and having to call around to locate it. Others noted that it was supposed to be used only by the RNs and kept in the locked nursing supply room, while at another site it was “fairly accessible”.

Discussion

The purpose of this research was to evaluate the implementation of bladder scanners into LTC settings. The

evaluation also included an exploration of nursing staff knowledge, skills, and decision-making about continence care and the use of bladder scanners. As a result, provides added evidence on the benefits and challenges for this type of implementation project.

Bladder Scanner

There is an abundance of evidence on the use of bladder scanners in acute care settings, and while bladder scanner use is routine in most acute care institutions, their use in LTC is emerging (Sparks et al., 2004). This study offers insight into possible reasons as to why there may be limited uptake and use of bladder scanners in LTC. As was shown, barriers such as limited training on how to use the scanners and the lack of education on continence care were reported. Other factors identified were the accessibility to equipment and the lack of policies made it easy not to use bladder scanners. The need to ensure cost-effective and quality care is imperative for older people to improve health outcomes and ensure the best quality of life; bladder scanners are one solution to making that improvement. While not all urinary catheterizations are unnecessary, the use of a bladder scanner can avoid most (Chen & Farrah, 2008; Medical Advisory Secretariat, 2006; Newman et al., 2005; Wilson et al., 2015). Furthermore, bladder scanners are non-invasive, risk-free (in comparison to catheterization), easy to use, cost-effective (catheterization equipment and hospitalization costs associated with UTI), and precise (as compared to manual palpation of the bladder) (Medical Advisory Secretariat, 2006; Wilson et al., 2015). Ultimately, improving older adult health by reducing hospitalization related to UTIs is of foremost importance. Unfortunately, the uptake of such evidence does not always translate into practice as this evaluative study of the implementation of bladder scanners into LTC highlights. What remains common practice in the management of UI in the older adult in LTC is catheterization which can potentially cause unintended harm to the resident, as well as increasing the risk of UTIs (Brusch & Bronze, 2013; Gould et al., 2009; Palese et al., 2010).

The use of bladder scanners in LTC focuses on the needs and services for the older and often frail populations. Older adults are at higher risk for bladder dysfunction and because continence care is an important quality of life indicator for people living in LTC, it is essential for health care providers to accurately assess residents for bladder problems (Caliskan et al., 2019; Dingwall, 2008; McDaniel et al., 2020; Newman et al., 2005). The responses from participants in this study highlight their understanding of the benefit of using the bladder scanners, yet the uptake of their use is still limited in the nursing care staff's routine practice and management of continence issues. This gap could be narrowed with education and training on continence care and management because nursing care staff

understanding and competence would be increased (Wilson et al., 2015).

Maximizing Scopes of Practice

Increasing care complexity, including UI, will affect the kinds of staff required (i.e., RN, LPN, and HCA) and the training necessary to meet the higher care needs of LTC residents. To improve person-centered services and interventions for older adults, it is necessary for existing health human resources to be used differently. All staff will need to work to their full range of scope and competency, within clearly defined roles, to improve coordination and continuity of care (BC MoH, 2017). In the past, LPNs were limited to performing clinical skills within supportive care settings; working to full scope now means they are taking on leadership roles and care coordination functions (BC MoH, 2017). Efforts are also being made to incorporate HCAs more fully into the care team (BC MoH, 2017), but as this study highlights this effort is unattained to date. Health care assistants make up a large proportion of the nursing care staff in LTC settings and know the residents well. As a result, HCAs are positioned to be key members of the team in the management of UI, but as was noted in this study, they had the lowest knowledge of the issue. Also, the HCA participants in this study believed that bladder scanners were useful in preventing transfer of residents to acute care. Health care assistants also had keen interest in being trained on the use of the bladder scanner and educated on continence care; thus, the potential of expanding the HCA scope of practice. These findings are in line with previous research on the implementation of bladder scanners in nursing homes which highlighted the importance of including all nursing staff in the education and training on UI and bladder scanner use (Wilson et al., 2015). Education and training for nursing care staff is an important strategy to improve staff capability to assess, problem solve, and identify appropriate care interventions for CMF older adults (McDaniel et al., 2020; Ostaszkiwicz et al., 2020; Registered Nurses' Association of Ontario [RNAO, 2020]).

Knowledge of Continence Care

Assessment and management of incontinence is a critical part of the patient care plan; however, it is often not well done (McDaniel et al., 2020; Ostaszkiwicz et al., 2020). As was found in this study, the nursing care staff used a variety of strategies to assess incontinence that were not always evidenced-based. Quality standardized continence care was not always easily implemented, preventing a commitment to optimal continence care. Nursing care staff in previous studies have identified barriers to this commitment, including lack of time and consideration of UI as a low priority in the patient care plan (Caliskan et al., 2019; Ostaszkiwicz et al.,

2020). Nursing care staff's negative attitudes and lack of basic understanding of incontinence also limit engagement in continence care, with many reporting that incontinence is a normal, expected consequence of aging which could lead nursing staff to be less likely to intervene to manage UI (Dingwall, 2008; Ehلمان et al., 2012; Terzoni et al., 2011; Wilson, et al., 2015). In this current study, there appeared to be knowledge deficits about continence care and such results are in line with previous research on the topic. Studies concluded that a demonstrable lack of continence knowledge on the part of nursing staff translated into poor continence care (Dingwall, 2008; McClurg et al., 2013; Ostaszkiwicz et al., 2020; Terzoni et al., 2011; Wilson et al., 2015). However, when care staff members receive education on continence care it improves the competence of nursing care staff to provide quality care in the treatment and management of UI issues (Gould et al., 2009; Ostaszkiwicz et al., 2020; RNAO, 2020).

Education and training for nursing care staff are important strategies to improve staff capability to assess, problem-solve, and identify appropriate care interventions for complex medically frail (CMF) older adults (Dingwall, 2008; Lee et al., 2011; McDaniel et al., 2020). It is critical for older adults who are complex medically frail to have access to well-coordinated, integrated services across the continuum of care. The complex medically frail older resident presents unique challenges for nursing care staff and requires the understanding of the often subtle and less typical presentation of disease and illness in the older adult (Jett et al., 2012; Zurakowski, 2014) and not just relying on the nurses' "spidey senses" for this unique population.

The most effective way to reduce the incidence of a UTI is to limit unnecessary catheterizations by appropriately assessing and screening bladder function (Gould et al., 2009; RNAO, 2005; 2020). While it is routine to use bladder scanners in other settings, this is not the case in LTC (Sparks et al., 2004; Wilson et al., 2015). As this study showed, the good intentions of implementing bladder scanners into LTC facilities is only as effective as the training and education that goes along with them. The findings suggest that the bladder scanners are useful, but nursing care staff need not only the training on their use but also standardized continence care education to ensure optimal care, management, and interventions (Ostaszkiwicz et al., 2020; Wagg et al., 2014; Wilson et al., 2015). The need for such education and research to ensure cost-effective and quality care is imperative for older people, to ensure improved health outcomes and the best quality of life.

Limitations

Limitations are inherent in most research studies but are important to report to improve the quality and validity in future iterations of studies. In this evaluative study, there were some noted limitations. First, the Bladder Care Knowledge Survey was not validated, nor any inferential statistical testing performed due to the small sample size; therefore,

potentially making the results less reliable. However, using a mixed-methods design offered to strengthen the findings through triangulation of the data findings. Secondly, the results cannot be generalized to other sites or nursing care staff. While generalizations cannot be made from this study, the findings provide insight into the inconsistencies in the knowledge of nursing care staff at the study sites related to continence care and their use of bladder scanners in LTC. Finally, all levels of nursing care staff collectively participated in the focus groups; therefore, there could have been a power imbalance where some participants may have been reluctant to share their views openly. Registered nurses in these LTC settings are in a supervisory position with oversight of the Licensed practical nurse and health care assistant staff. Separating participants based on their roles may have produced different views and insights because there would have been freedom to do so without perceived reprisal.

Conclusion

This evaluative study resulted from collaboration with stakeholders and knowledge users to increase understanding of the issues and gaps related to the implementation of bladder scanners and to determine if further research in the continence care of older adults in LTC settings is warranted. The issue of UI is that it is not managed well, often because of the cognitive and physical challenges posed by the population living in LTC. The use of bladder scanners and improved nursing care staff knowledge would improve the current practices for managing UI for frail older adults in LTC. Continence care and the use of portable bladder scanners by nursing care staff are affected by level of knowledge. Going forward, staff education about continence care including the use of bladder scanners, as well as exploring scopes of practice are needed for effective assessment, management, and treatment of continence in LTC settings. Future research on the impact of implementing continence care educational programs that include the use of portable bladder scanners is a means to further address gaps in integrated services for cognitively frail older adults living in LTC facilities.

Declaration of Conflicting Interests

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Ethical Approval

Ethical approval and certification (101558) was granted by the Thompson Rivers University's Research Ethics Board.

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