Nursing interventions for management of Urinary incontinence post-stroke

Shovita Khadka

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Shovita Khadka
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Abstract

Urinary incontinence (UI) is a very common complication after stroke which affects about 32% to 79% of stroke patients. UI is a huge strain to patients due to its physical, psychological and economic consequences eventually leading to severe decline in the quality of life of patients. Urinary incontinence is poorly managed in stroke patients and knowledge of continence is inadequate in nurses. Also, nursing interventions for the management of Urinary incontinence in stroke patients is found to be lacking. The purpose of the thesis is to describe nursing interventions for the management of Urinary incontinence (UI) in Stroke patients. The aim of the thesis is to provide evidence-based up-to-date knowledge to nursing professionals and nursing students for the improvement of the quality of continence care in stroke patients. The research question is “What are the nursing interventions for the management of Urinary incontinence in stroke patients?”

The thesis was carried out as a literature review following a systematic approach. Data was collected from evidence-based scientific databases like CINAHL (EBSCO host), Sage Premier, Cochrane Library, Emerald Journals, Joanna Briggs Institute EBD Database (Ovid), Science direct and Google Scholar. Proper inclusion and exclusion criteria were constructed and strictly considered during the selection of literature for this study. The methodology of the study was clearly documented to ensure trustworthiness & make the study easily repeatable to ensure the reliability of thesis. Six articles were finalized for the literature review. The data analysis method used was Inductive content analysis.

The author analysed the raw data obtained from the literature and grouped them under four major themes: Recognizing UI as an important health issue, Effective communication and cooperation, Identification & Assessment and Patient centred care. The themes combinedly reflect the nursing interventions for the management of Urinary incontinence. The evidence-based knowledge obtained as findings of this research could be used by nursing students and nurses for the improvement of the quality of continence care & continence promotion which eventually improves the quality of patient’s life after stroke. The author has paid due diligence on the ethical considerations by ensuring credibility and acknowledging the limitations of the thesis. Author recommends quantitative research on the management of Urinary incontinence and more stroke-specific studies in future.

Keywords: Stroke, Urinary incontinence, Nursing interventions
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1 Introduction

Urinary incontinence (UI) is a very common complication after Stroke (Arkan, Beser, & Ozturk. 2018; Mathews & Mitchell 2010; Herr-Wilbert, Imholf, Hund-Georgiadis & Wilbert. 2010; Fisher 2014; Kohler, Mayer, Kesselring & Saxer. 2018; Leandro, Araujo, Cavalcante, Lopes, Oliveira & Lopes-A.C.M. 2015). Stroke is a universal health issue (Valery, Bo, George, Foltz, Roth, & Mensah. 2016) and can affect anyone at any age (Stroke association n.d.; World stroke organization 2012). About 1 out of 6 people is at the risk of having a cardiovascular accident (CVA) during his/her lifespan. About 15 million are affected by CVA’s yearly and about 9.2 million people survive strokes every year. (World stroke organization 2012; Kohler, Mayer, Kesselring & Saxer. 2017.) Many physical and neurological complications may be followed by a stroke which permanently affect the life of stroke survivors. Urinary incontinence is one of those complications. (Arkan et al., 2018; Leandro et al., 2015.) Urinary incontinence affects about 32% to 79% of the patients hospitalized due to strokes (Herr-Wilbert et al. 2010 ; Arkan et al. 2018; Mathews & Mitchell 2010; Kohler et al. 2017; White, Patterson, Jordan, Magin, Attia, Strum. 2014). Among these approximately 15% of the patients continue to have urinary incontinence after a year of having stroke (Nazarako 2010).

Proper care and management of Urinary incontinence in stroke patients is found to be lacking in the stroke care facilities (Slark & Stewart 2017; Brady, Jamieson, Bugge, Hagen, McClurg, Chalmers & Langhorne. 2015; Thomas, Watkins, Sutton, Forshaw, Leathley, French, Burton, Cheater, Roe, Britt, Booth, McColl. 2014 & Mehdi, Birns, Bhalla. 2013). Research shows that poor management of Urinary incontinence has increased the economic burden associated to the care (Slark & Stewart 2017). Also, Urinary incontinence is related to poorer prognosis and increased mortality post-stroke (Mathews & Mitchell 2010; Brady et al. 2015, Fisher 2014). Besides this, severe physical and mental impact on the patient are inevitable after stroke. UI was a big suffering in stroke survivors and results to severe decline in the quality of life (Arkan et al. 2018, Mathews & Mitchell 2010; Fisher 2014; Kohler et al. 2017; Leandro et al. 2015; Kohler et al. 2018).

Urinary incontinence is manageable to some extent with proper evidence-based nursing care. Many studies have claimed that UI responds well to proper treatment and care & patients may recover from incontinence problems with adequate care. (Arkan et al. 2018; Nazarako 2010; Woodward 2014, Mathews & Mitchell 2010, Herr-Wilbert et al. 2010; Fisher 2014; Kohler et al. 2017.) Nurses, as trained health professionals responsible for UI care play a significant role in the management of continence care (Brady et al. 2015, Mathews & Mitchell 2010). However, Nursing professionals in charge of the Urinary incontinence care in patients lack enough knowledge, understanding, education & complete training about the proper management of Urinary incontinence (Slark & Stewart 2017; Brady et al. 2015; Mathews & Mitchell 2010; Kohler et al. 2017). Also, positive attitude required for the management of UI in stroke patients is lacking among nurses (Brady et al. 2015; Mathews & Mitchell 2010; Kohler et al. 2017). Continence care culture was more devoted to containment of incontinence (recommending pads, catheterizing, regular toileting by providing a urinal & assisting to bathroom when
requested) instead of deep assessment & management (Brady et al. 2015; Mathews & Mitchell 2010; Jamieson, Marian, Catherine. 2010; Nazarako 2010).

There is possibility to change the continence care approach by shifting the focus from ‘containment’ of incontinence to a more rehabilitative approach of continence promotion & efficient management through proper nursing care (Brady et al. 2015). Nurses may use proper nursing interventions for prevention and management of UI (Arkan et al. 2018 & Fisher 2014). However, evidence-based nursing interventions for the promotion of continence care in stroke patients with UI are lacking till date. (Brady et al. 2015; Mathews & Mitchell 2010; Kohler et al. 2018; Kohler et al. 2017). So, development and implementation of clear evidence-based nursing interventions for the management of Urinary incontinence is necessary (Leandro et al., 2015). This could improve UI care in stroke patients and eventually improve patient’s life quality after stroke.

2 Theoretical background

2.1 Stroke & Urinary incontinence

2.1.1 Stroke

Stroke also Cerebrovascular accident is a medical condition characterized by sudden interruption of the blood supply to the brain leading to neurological damage. Strokes can be divided into Ischemic & Haemorrhagic. Ischemic stroke occurs when the blood supply to the brain is blocked due to the thrombosis (formation of blood clot) or thromboembolism (blood clot travels from other parts of the body to the brain) in the cerebral arteries. About 80%of strokes are ischemic in nature. Haemorrhagic stroke which accounts for about 20% of strokes occur due to rupture or leakage of the cerebral arteries. (Giraldo, 2017.) Haemorrhagic stroke can occur due to rupture of an aneurysm or AVM (Arteriovenous malformation) (Stroke foundation, n.d.). Haemorrhagic stroke can be subarachnoid or intracerebral in nature. In subarachnoid haemorrhage, bleeding occurs in the sub-arachnoid region of the brain whereas in intracerebral haemorrhage, bleeding occurs within the brain tissues. (Giraldo, 2017.) Types of stroke are shown in the figure below (Stroke foundation, n.d.).
2.1.2 Urinary incontinence & it’s types

Urinary incontinence is the inability of an individual to control bladder functions which leads to uncontrolled leaking of urine (Shenot 2018; National Stroke Association 2018; Kohler et al. 2017; Leandro et al. 2015). It can occur as a complication post-stroke in stroke survivors (Arkan et al. 2018; Leandro et al. 2015). Patients may experience different types of Urinary Incontinence (Shenot 2018; Fisher 2014). Some patients experience voiding at regular intervals with or without the consciousness about voiding need whereas some have severe emergency to void with no or little warning (Shenot 2018).

Urge incontinence is a common type of UI. It is condition in which patient has an extreme emergency to urinate and urine leaks immediately in an uncontrollable manner in moderate or large amount. (Shenot 2018.) This occurs due to the hyper-reflex of the detrusor muscle which causes the contraction of the urinary bladder leading to leakage of urine before reaching the toilet (Mathews & Mitchell 2010).

Some patients may experience a type of incontinence called stress incontinence in which patients have loss of urine with the sudden increase in the pressure in the intra-abdominal region. This can happen during sneezing, laughing, coughing, lifting something or bending. (Shenot 2018; Mathews & Mitchell 2010.)

Overflow incontinence is another type of UI in which patient has continuous dripping of urine from bladder (Shenot 2018). This can occur due to physical obstructions like extended prostate gland,
dysfunction of the urethral sphincter and constipation that hinders the complete emptying of bladder (Mathews & Mitchell 2010).

Patients may also suffer from functional incontinence in which leakage of urine occurs due to cognitive and/or physical impairments from disease like stroke. This usually results due to lack of ability of patient to sense the need to urinate, forgetting where the toilet is or not being aware to control it, physical disability, etc. (Shenot 2018.) Also, factors like inadequate support from the health-care team member along with physical disability could lead to functional incontinence (Mathews & Mitchell 2010).

Some patients may experience mixed incontinence problems. Patients with mixed urinary incontinence may experience the combination of urge incontinence and stress incontinence, combination of urge incontinence and functional incontinence or the combination of stress and functional incontinence. (Shenot 2018.)

2.1.3 Mechanism of Micturition

It is important for nurses to understand the mechanism of micturition to understand how Urinary incontinence is linked to Stroke and how it can occur as a complication post-stroke. A urinary bladder is an organ in the human body where urine produced from the kidneys is stored constantly. The lowest part of the urinary bladder is circled by a muscle called urinary sphincter which can contract and relax as required. Urinary sphincter remains contracted to block the passage of the urine from the bladder to the urethra. Urine can be retained in the bladder until it’s filled up. When the bladder is filling up, stretch receptors in the bladder get stimulated, nerve impulses are transmitted from the bladder to the Central Nervous System (CNS) via spinal cord as shown in figure 2 below. When the nerve impulses reach the brain, individual gains alertness about the urge to urinate. A threshold volume specific to an individual stimulates the urge to urination. A healthy person can control the movement of the urinary sphincter and keep it contracted until he/she is ready to urinate. When a person is ready to urinate, nerve impulses from the brain pass to the bladder and stimulates the urinary sphincter to relax and the muscles of the bladder to contract to let the urine pass from the bladder. A physically and mentally healthy person can voluntarily make the conscious decision about urination. (Shenot 2018.)
2.1.4 Urinary incontinence after stroke

Individuals are normally able to retain urine in the bladder until it’s filled up (Shenot 2018). However, patients suffering from incontinence problems may experience contractions even when it’s being filled. As a result, patients cannot retain urine in the bladder. As discussed in section 2.3, urination procedure is linked to Nervous system. So, bladder can be overactive when stroke or other neurological conditions damage the bladder controlling centre of the brain. This may disrupt the normal bladder control mechanism. (Nazarako 2010; Bladder and bowel community 2019; Leandro et al. 2015.) So, Damage to any parts of the brain linked to control of urination may cause incontinence. For e.g. Stroke related Mental/psychological disability like thinking and memory changes, cognitive functioning, etc.; physical issues like communication and vision alterations; practical factors like access to the toilet, etc. may directly or indirectly affect normal mechanism of micturition. (Shenot 2018; Stroke Foundation 2019; Bladder and bowel community 2019.) Other factors leading to UI after stroke may be attributed to diet changes after stroke. Also, medication changes after Stroke could lead to UI. (Stroke Foundation 2019 & Bladder and bowel community 2019.) Also, faecal incontinence may be linked to UI. Patients suffering from UI after stroke have higher probability to get faecal incontinence & faecal incontinence may put impact on the bladder causing overflow incontinence. (Mathews & Mitchell 2010.)
2.2 Urinary incontinence and quality of life

According to the qualitative descriptive study performed by Arkan et al. (2018) & Leandro et al. (2015), it was reported that post-stroke urinary incontinence had adverse complications on the quality of life of patients and their caregivers. Also, physical, psychological, and economic aspects of the patient’s life was directly or indirectly impacted and stroke survivors with post-stroke urinary incontinence problems experienced significant decline in the quality of life after stroke. (Herr-Wilbert et al. 2010; Olsen-Vetland 2003; Shenot 2018; Kohler et al. 2017; Kohler et al. 2018).

Many physical complications may result from urinary incontinence like the risk of dermatitis, dehydration, skin breakdown, Urinary tract infections, etc. (Olsen-Vetland 2003; Brady et al 2015; Fisher 2014; Kohler et al. 2017). Perineal dermatitis may occur due to irritation of the skin. This may be painful and occur with tissue edema & surface level ulceration that may progress to deep ulceration and even sepsis in some patients. In addition, Nutritional problems may become apparent when UI-patients attempt to manage UI by minimizing fluid-intake. (Miner 2004.)

Psychological complication may also occur as consequence of UI. Patients reported experiencing feelings of shame and embarrassment due to UI. (Olsen-Vetland 2003; Kohler et al. 2017; Kohler et al. 2018). Sleeping issues were common due to fear of incontinence (Kohler et al. 2017; Kohler et al. 2018). UI lowered patient’s self-esteem and diminished the social interaction and social relationships with others (Olsen-Vetland 2003; Miner 2004). Also, Sexual activity (Olsen-Vetland 2003) and relationship were highly affected (Olsen-Vetland 2003; Kohler et al. 2018). Further, these issues may result to stigmatization and isolation (Herr-Wilbert et al. 2010; Shenot 2018; Miner 2004; Kohler et al. 2017; Kohler et al. 2018). In addition, there is increased risk of depression (Shenot 2018; Miner 2004; Herr-Wilbert et al. 2010; Kohler et al. 2018), distress (Kohler et al. 2018), and anxiety in patients suffering from UI (Miner 2004).

The physical and psychological complications in UI are directly related to economic issues. They may combinedly result in unemployment and cause economic problems which could lead to severe decline in the quality of patient’s life. (Olsen-Vetland 2003.) Also, Urinary incontinence could limit rehabilitation (Olsen-Vetland 2003; Fisher 2014; Kohler et al. 2018). Urinary incontinence can impact the patient’s concentration in rehabilitation activities like therapy sessions due to worries about the incontinence episodes (Kohler et al. 2017). Hospital-stays may prolong in post-stroke patients (Olsen-Vetland 2003; Fisher, 2014). UI could directly impact on the choice of facility where the patient would be sent for further care (Olsen-Vetland 2003; Fisher 2014). UI could be burdensome for caregiver and may bring challenges to provide care at home. So, Patients may end up being institutionalized due to increased dependency on others and chance of needing a long-term care. (Olsen-Vetland 2003; Shenot 2018; Kohler et al. 2017; Kohler et al. 2018).
2.3 Nursing interventions and management

Nursing interventions

Nursing interventions can be described as the activities or tasks that nurses perform to improve patient outcome and help patients achieve the care goal (study.com n.d.; Bernstein 2017). Nursing interventions are focused on addressing the patient’s needs which may be physiological, behavioural, safety related, family health, education related, etc. So, “There can be interventions concerning every area of patient life” (study.com n.d.) Nursing interventions “may be general or specific and direct or indirect” (Bernstein, 2017).

Nursing management

According to Arkan et al. (2018) & Nazarako (2010) proper evidence-based care is essential for the management of UI in stroke patients. Nurses are the health professionals primarily responsible for providing UI care for patients in hospital wards (Kohler et al. 2017; Brady et al 2015). Nurses could play a significant role in the management of continence care as they work very close to patient (Brady et al 2015). Nurses may get an opportunity to understand the experiences of individuals suffering from incontinence issues and provide quality healthcare to them through proper management of incontinence (Arkan et al. 2018). Evidences suggest that patients could recover from urinary incontinence to some extent with proper continence care and management (Nazarako 2010; Arkan et al. 2018; Woodward 2014; Mathews & Mitchell 2010, Herr-Wilbert et al. 2010; Fisher 2014; Kohler et al. 2017). Also, the incidence of urinary incontinence after stroke could decline with proper continence care from nurses (Fisher 2014).

3 Research Purpose, Objective and Research Question

The purpose of the thesis is to describe nursing interventions for the management of Urinary incontinence (UI) in Stroke patients.

The aim of the thesis is to provide evidence based up to date knowledge about post-stroke Urinary incontinence care to nursing students & stroke nursing professionals to improve quality of patient’s life after stroke.

The research question is:

“What are the nursing interventions for managing UI post-strokes?”
4 Methodology

4.1 Literature review

This thesis is conducted in the form of literature review. Literature review carried out in a systematic manner is a research methodology. It is an evidence based comprehensive study which combines, describes, analyses & summarizes previous studies and provides a critical interpretation about the subject under investigation through systematic surveying of relevant literature in the field. (Fink 2014; Winchester & Salji 2016.) Literature review can be considered as a foundation of new research as it identifies the knowledge gaps in the field and promotes other new researches in the field (Oliver 2012; Paré & Kitsiou 2017). Literature review have great significance in Social and Health care field due to its relevance in the evidence-based practice and is considered as an important research methodology. Literature reviews can be a time-friendly option for Health care professionals to remain updated with the evidence-based practice in their field. Also, these are great option for undergraduates doing their thesis as the sources used are accessible & research would not require lengthy research permit procedure which would otherwise be obligatory for primary data collection. (Aveyard 2010.)

Literature reviews can be done with different levels of details in a systematic or unsystematic way. For e.g. less detailed reviews like Narrative literature reviews lack well-defined methodology and may be misleading as they are unsystematic and aren’t comprehensive. So, Unsystematic reviews are unreliable and are not accepted in Health care field. The most-detailed reviews are called Systematic reviews which fulfil the standard set of strict protocols defined by Cochrane Collaboration which ensures the comprehensiveness of the review i.e. all the available information is considered in the review. Novice researchers like students doing their bachelor’s or master’s thesis shouldn’t necessarily reach the high standards of systematic review. But it’s obligatory that Literature reviews taken for academic purposes must follow some specific set of principles to achieve systematic approach with less detail. (Aveyard 2010.) Therefore, author is considering a systematic approach in the literature review. Following the systematic approach requires well documentation and clear presentation of the methodology of the literature review i.e. all the steps followed should be clearly described such that the literature review is easily repeatable. The methodology section is significant part of a literature review, about 1/5 to 1/4 of the total word count would go for the methodology section. (Aveyard 2010.)

There are some steps involved in doing a literature review. The first step of the literature review is to define a research question(s) to be investigated and formulate the research objective(s). Well-formulated research question(s) orients and guides the research in the right direction. (Aveyard 2010; Paré & Kitsiou 2017.) The next step is literature search i.e. searching for evidence based scientific works for selection of potential studies (Paré & Kitsiou 2017). For effective selection of the studies, author should carefully establish broad and suitable keywords. Keywords play significant role in guiding the literature search and establishes the relevance of the articles obtained for the studies.
(Winchester & Salji 2016; Aveyard 2010.) After this, the author performs screening for inclusion and exclusion of studies i.e. make an evaluation regarding the materiality of the potential studies. Only relevant studies should be selected for further studies. After that, author checks the studies for quality assessment like considering the research design and research methodology. Then the author can work for assimilation of information from the primary studies which is relevant to the research question. The final step is analysis and synthesis of the data through assimilation, summarization, aggregation and organization of obtained data. (Paré & Kitsiou 2017.)

4.2 Data collection

At first, different electronic databases from Laurea University of applied sciences with relevant literature was selected for the data collection through Laurea Lip Guides (A-Z databases: Licenced databases n. d). Authentic databases such as CINAHL with full text (EBSCO), Laurea Finna, SAGE Premier, Cochrane library, Emerald Journals, Joanna Briggs Institute EBD Database (Ovid) & Science direct as recommended by the Laurea website for Nursing students was chosen for the data search (Laurea Lip Guides 2019). In addition, Google Scholar was also considered for the search as google scholar provides access to wide range of scholarly literature (Search Google scholar n.d.). After the databases were finalized, author had to define the keywords for literature search. The keywords were generated from the research question as suggested by Aveyard (2010). The main concepts obtained from the research question for the formation of keywords were Urinary incontinence, Stroke and Nursing interventions. Author also discovered the synonyms of the main concepts with the help of CINAHL database which gave suggestions for synonyms when typing these concepts. Also, google search and search in other databases was done to find out more synonyms for those concepts. Author did multiple searches for finding out the good keywords that give more results to minimize the chance of losing important evidences which may be addressed under different names in different databases. Keywords were selected and Boolean operators “OR” & “AND” were used to organize the keywords and their synonyms and make the search easy. Also, author used “” to make the search more focused and minimize unreliable literature.

The final keywords created were: (“Urinary incontinence” OR Incontinence OR “Urinary leakage” OR “Urinary urgency”) AND (stroke OR “cerebrovascular accident” OR CVA OR “Cerebral vascular event” OR CVE OR “Transient ischaemic attack” OR TIA) AND (“nursing interventions” OR “nursing care” OR “nursing support” OR “nurse’s role” OR nursing OR nurse). However, during the preliminary search into the databases, author realised that the resulting keywords were compatible only for search system of the first 6 databases: CINAHL, Laurea Finna, SAGE Journals, Cochrane Library, Emerald Journals & Ovid and remaining database Science direct & Google Scholar did not support them. Science direct and Google scholar had limited space for keywords and supported limited number of Boolean operators. Then, author named these finalized keywords as “Keywords A” and created new keywords for Science direct which were named “Keywords B”: (“Urinary incontinence” OR “Urinary
leakage" OR "Urinary urgency") AND (stroke OR “cerebrovascular accident” OR CVA OR “Cerebral vascular event” OR CVE OR “Transient ischemic attack OR TIA) AND (“nursing interventions” OR “nursing care” OR nursing). For Google Scholar “Keywords C” were created as the previous keywords did not fit into the small space of google scholar. The keywords C were: (“Urinary incontinence” OR “Urinary leakage” OR “Urinary urgency”) AND (stroke OR “cerebrovascular accident” OR CVA OR “Cerebral vascular event” OR CVE OR “Transient ischaemic attack” OR TIA) AND (Nursing or Nurse).

The search using keywords gave many results. Author had to select the articles for the review from the results. As the author takes systematic approach to the literature review, the articles could not be picked up from the above search using keywords according to author’s personal judgement (Aveyard 2010). So, author had to set up comprehensive inclusion and exclusion criteria and follow them during the selection of the studies (Winchester & Salji 2016).

4.2.1 Inclusion and exclusion criteria

Proper inclusion and exclusion criteria assist in the recognition of literature that maintains the emphasis on the research question. It defines the in-depth scope of the review, constructs strong boundaries and assist researcher to remain focussed. (Aveyard 2010.) Inclusion and exclusion criteria limit the bias in literature review and develops consistent and unprejudiced approach for data selection (Winchester & Salji 2016). The composition of inclusion and exclusion is characteristic to a specific literature review and is constructed to fulfil the demand of the review itself or for practical reasons. Also, the author should provide proper rationale for the selection of the inclusion and exclusion criteria (Aveyard 2010). The inclusion and exclusion criteria set up by the author along with the rationales is as illustrated in the table 1 below:
<table>
<thead>
<tr>
<th>Inclusion criteria</th>
<th>Exclusion criteria</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Peer-reviewed research</td>
<td>Literature which are not peer reviewed</td>
<td>To prioritize scientific research</td>
</tr>
<tr>
<td>2. Research available in English language</td>
<td>Not in English language</td>
<td>Practical reason</td>
</tr>
<tr>
<td>3. Time frame of articles was limited from 2010-2019</td>
<td>Literature published before 2010</td>
<td>To prioritize latest information</td>
</tr>
<tr>
<td>4. Literature available in full text</td>
<td>Literature not available in full text</td>
<td>Practical reason</td>
</tr>
<tr>
<td>5. Literature that is relevant to this research - i.e. health science related &amp; concerns nursing care for management of UI after stroke</td>
<td>Literature that is scarcely connected to nursing interventions for management of UI after stroke. Studies focussing on topics like UTI, UI of elderly, Faecal incontinence, UI due to conditions other than stroke like cognitive impairment, UI in nursing homes, UI treatment only related to females, in children, in elderly, Organizational factors in UI care, etc.</td>
<td>To ensure that information obtained is significant &amp; relevant to research question and answers the research question (Aveyard, 2010).</td>
</tr>
<tr>
<td>6. Open access / Free</td>
<td>Restricted access/Purchased access</td>
<td>Practical reasons</td>
</tr>
<tr>
<td>7. Only evidence-based/scientific research that answers the research question will be included.</td>
<td>Literature is not evidence-based.</td>
<td>Inclusion of evidence-based sources only.</td>
</tr>
</tbody>
</table>
4.2.2 Literature search and selection

After the inclusion and exclusion criteria were defined, author started literature search in the following databases: CINAHL with full text (EBSCO), Laurea Finna, SAGA Premier, Cochrane library, Emerald Journals, Science direct, Google Scholar & Joanna Briggs Institute EBD Database (Ovid). In CINAHL & Laurea Finna, inclusion and exclusion criteria 1-3 was possible to be directly applied through the advanced search option & Inclusion and exclusion criteria 4-7 were applied by reading the title, abstract and full text. In SAGA Journals, Cochrane library, Emerald Journals, Science direct & Google scholar inclusion and exclusion criteria 3 was possible to be directly applied through the advanced search option whereas Inclusion and exclusion criteria 1-2 & 4-7 were applied by reading the title, abstract and full text. In Joanna Briggs Institute EBD Database (Ovid), Inclusion and exclusion criteria 1-7 were applied by reading the title, abstract and full text. Finally, 6 articles were identified for the review. The literature search process is mentioned in table 2 below.
Table 2 Illustration of the Literature search and selection process

<table>
<thead>
<tr>
<th>Search criteria</th>
<th>CI-NAL</th>
<th>Laurea</th>
<th>Search criteria</th>
<th>SAGE Journals</th>
<th>Cochrane Library</th>
<th>Emerald Journals</th>
<th>Science direct</th>
<th>Google Scholar</th>
<th>Ovid</th>
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<tbody>
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<td>Search by using keywords</td>
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<td>1442</td>
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<td>52</td>
<td>5,576</td>
<td>11,800</td>
<td>12</td>
</tr>
<tr>
<td>Applying Inclusion criteria 1-3 (by using advanced search in the database)</td>
<td>36</td>
<td>2851</td>
<td></td>
<td>492</td>
<td>58</td>
<td>21</td>
<td>2544</td>
<td>7160</td>
<td></td>
</tr>
<tr>
<td>Applying Inclusion criteria 1-2, 4-7 (by reading through the title, abstract and full text)</td>
<td>1</td>
<td>0</td>
<td></td>
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RESULTS

6

(TOTAL RESULTS AFTER REMOVING DUPLICATED ARTICLES)
4.3 Data analysis

The analysis method adopted by the author is inductive content analysis. Inductive content analysis is the content analysis done by following the inductive approach. According to Elo & Kyngäs (2008) content analysis is a research method that describes, analyses and quantifies information in an objective and systematic manner to obtain summarized information on a topic. Depending on the research question and the purpose of the research, researcher gets familiar to the data and selects the content to be analysed which may be word(s), sentence(s), page(s) etc. Author categorizes similar information into similar categories. Content analysis can be applied in both quantitative and qualitative research, using the inductive or deductive approach. (Elo & Kyngäs 2008.)

The selection of approach: inductive or deductive is determined by the purpose of study. As the purpose of this thesis is to describe nursing interventions for the management of UI using previously available literature, inductive approach is recommended. So, the author selected inductive approach in the literature review. The process of inductive content analysis includes coding and development of categories. Coding is done when reading the articles and categories are generated from the codes. These categories are grouped into other higher headings through proper interpretation of similarities and differences. The grouping continues further into broader categories. The process continues until the categorization is significant and relevant. (Elo & Kyngäs 2008.)

In the thesis, the author firstly read all the 6 finalized articles several times to be familiar with the data available in the articles and focussed deeply on the data that answers the research question i.e. information regarding the “Nursing interventions for the management of UI”. Then, the author started collecting the findings concerning the nursing management of UI for evaluation and further studies. The author collected those relevant findings which may be word(s), sentence(s), page(s) etc. from all the 6 articles and grouped them under the title “raw data”. The author then analysed the raw data and further grouped them into subcategories, categories & main category. Grouping was done based on the similarities and differences to find out the answer to the research question and similar traits were grouped under same title. Grouping was done when relevant so, all the main categories do not necessarily have sub-categories. Four “main categories” were discovered at the end of the analysis process which were used as the foundation to describe the Nursing interventions for the management of Urinary incontinence in Stroke patients. The main categories are Recognizing UI as an important health issue, Effective communication and cooperation, Identification and Assessment of UI & Patient centred care. The Figure 2 (4 pages) shows the process of inductive content analysis followed by author for data retrieval and data analysis. The Figure 3 shows the explanation of the development of main categories.
Understanding and Prioritizing UI care

- Many nurses were not conscious and did not know its significance
- Nurses considered UI as a secondary issue
- Priority of continence promotion was high for patients, but nurses were found to give low or minimal priority
- Due to low priority, improvements in UI care is not accountable
- Lack of priority of UI

Containment to continence management approach

- Ward culture focused on containment instead of continence management
- Change of perspective from containment of incontinence to continence management is crucial

Making it a general topic of discussion

- Difficult topic of discussion for patients
- Difficult topic of discussion among the health care professionals
- Difficulties in taking UI as a professional topic among health care professionals
- Topic deserves more discussion on the ward

Recognizing UI as an important health issue

- Nurse’s attitude was perceived to be very challenging
- Health care professionals had negative attitude
- Negative attitudes of nurses caused reluctance in patients to present UI problems
- Negative attitudes hindered continence management
- Change of attitude necessary
- Positive attitude is considered the most significant aspect of continence promotion

Keeping positive attitude
Taking continence issues seriously

Building trust through Sensible handling

Promoting in-depth Conversations

Taking initiative as a nurse

Considering UI as a shared multi-professional stroke team responsibility

Promoting Multi-professional cooperation

Effective communication and cooperation

Multi-professional cooperation was missing between the nursing professionals and other health professionals

-Multi-professional discussion about UI was lacking

-UI issues were discarded in the multi-professional meetings

-Other health professionals were uninformed about UI issues which created challenges

-Multi-professional team approach—best for incontinence management

-Continence care was considered solely nurses’ job rather than a shared responsibility of a multi-professional stroke team

-All the members of the stroke team play unique and special roles in UI management

-Cooperation and consultation by nurses with different multi-professionals required depending on the patient’s situation

-Limited discussions about UI issues

-Surface level discussion about continence maintenance products only

-In-depth discussions needed

-Conversation prompt /start from nursing staff

-Patients spoke it out but no consideration from stroke team

-Challenging for patients to initiate conversation due to embarrassment, fear, worries, shame, disgust, etc.

-Foundation of trust provided comfortable environment for patients to discuss those issues

-Handing UI issues very sensibly

-Motivating patient to express UI problems through trustful relationship

-Taking UI issues lightly

-Showing no interest when patients approached.

-Patient found UI more challenging due to lack of seriousness in nurses

-Patients felt frustrated due to lack of seriousness in nurses

-UI was left uncommunicated and unaddressed.

-Improve communication with patients

-Limited discussions about UI issues

-Surface level discussion about continence maintenance products only

-In-depth discussions needed

-Conversation prompt /start from nursing staff

-Patients spoke it out but no consideration from stroke team

-Challenging for patients to initiate conversation due to embarrassment, fear, worries, shame, disgust, etc.
Initial investigation through Observation

- Nurses could use screening questions and tools for the assessment
  - Using screening questions as a base for the identification and assessment

- Fluid volume charts can be considered as an important source for assessment
  - Regularly used in the ward to measure fluid intake and urinary output
  - Nurses should properly record, document and interpret the fluid volume charts

- Checking PVR through the Ultrasound of the urinary bladder
  - PVR can provide information for the assessment of patients’ UI problems
  - If PVR > 100ml, medical practitioner should be consulted

- Assessment of constipation to find out if it’s caused by constipation.
  - Checking / assessing the frequency of faeces, assessing the sufficient intake of fluids, bowel movements, etc.
  - Assessment for the presence of UTI
  - Urine dipstick or Urinalysis using dipstick to UTI

Responsiveness and promptness during observation

Looking at patients differently
- Watching the patients carefully and closely
- Being more mindful and attentive to notice any symptoms
- Making record about special things noticed about the stroke patient.
- Considering further examination if any signs observed

Identification and Assessment of UI

- Interpretation of fluid volume charts

- Evaluation of Post-void residual volume (PVR)

Assessment of risk factors

Identifying and assessing symptoms of UI

- Increased frequency of urination
- Reduced bladder capacity
- Urinary incontinence
- Bladder pain

Monitoring for signs of infection

- Urine culture for bacteria
- Blood tests for white blood cell count

Maintaining fluid balance

- Fluid intake and output monitoring
- Adjusting fluid intake based on patient's needs

Identifying psychological factors

- Stress
- Anxiety
- Depression

Addressing environmental factors

- Home safety
- Communication assistance
- Modifications to the living space

Providing education and support

- Teaching patients about UI management
- Encouraging regular exercise
- Promoting a healthy diet

Implementing interventions

- Behavioral therapy
- Escorting patients
- Providing physical support
- Using assistive devices

Collaborating with healthcare providers

- Referring patients to specialists
- Coordinating care across disciplines
- Sharing patient information

Evaluating effectiveness

- Assessing patient outcomes
- Adjusting care plans as needed
- Providing feedback to healthcare providers
Individualized nursing care Plans

- Considering patient’s preference in selecting nursing aids for UI
- Early mobilization and Avoidance of catheters
- Privacy, Routinized care & Immediate assistance during urgency
- Functional and environmental Adjustments
- Management of risk factors
- Toilet training interventions
- Continence management products
- Patient education and information

- Early mobilization of stroke survivors
- Removal of catheters as soon as possible
- Providing privacy during toileting
- Regular-scheduled care
- Minimizing waiting time
- Understanding patient’s urgency & immediate assistance in such situations
- Advising patients to change positions
- Raising toilet seats (as needed)
- Approaches like moving bed next to toilet
- Management of constipation
- Management of UTI
- Ensuring patient’s hydration
- Ensuring patient’s nutrition
- Managing speech and language complications
- Recording of patient individual voiding patterns
- Timed voiding and/or Bladder training/retraining
- Prompted voiding
- Habit training
- Recommending continence products like pads, pull-ups, etc.
- Continence products may help to promote the dignity
- Lack of enough information among patients regarding post-stroke UI
- Awareness about the significance of UI management in stroke survivors was lacking
- Patients did not know that UI post stroke was stroke related.
- Not explaining patient about UI assessment
- Enhancing patient education and information

Figure 3 Illustration of the process of inductive content analysis in detail (4 pages)
Recognizing UI as an important health issue

Effective communication and cooperation

Identification and assessment

Patient-centred care

Understanding and Prioritizing UI care
- Containment to continence management approach
- Making it a general topic of discussion
- Keeping positive attitude

Nurse-patient communication
- Multi-professional cooperation & communication

Initial investigation through Observation
- Screening questions
- Interpretation of fluid volume charts
- Evaluation of Post-void residual volume (PVR)
- Assessment of constipation and UTI

Individualized nursing care plans
- Early mobilization and Avoidance of catheters
- Privacy, Routinized care & immediate assistance during urgency
- Functional and environmental adjustments
- Management of risk factors
- Toilet training interventions
- Continence management products
- Patient’s education

NURSING INTERVENTIONS FOR THE MANAGEMENT OF URINARY INCONTINENCE IN STROKE PATIENTS

Figure 4 shows the explanation of the development of main categories
Results

The author grouped the findings into four main categories which describes the nursing interventions for the management of incontinence in stroke patients. The main categories are: Recognizing UI as an important health issue, Effective communication and cooperation, Identification and Assessment of UI and Patient’s centred care.

5.1 Recognizing UI as an important health issue

The analysis of the selected articles suggested that the important nursing intervention for the management of Urinary incontinence in stroke patients is the recognition of UI as an important health concern by nurses. It was seen that UI was given very low priority in stroke units and nurses had negative attitudes regarding UI care and management. Nurses were ignoring UI care and at the same time discouraging patients to seek help about UI problems. So, it’s clear that, it’s impossible to start any other nursing treatment before understanding the priority of the continence care by nurses. So, the first step to be taken by nurses for management of UI care at this point is to recognize UI as an important health problem.

5.1.1 Understanding and Prioritizing UI care

UI is found to be lowly prioritized and considered almost untreatable in the health care society (Mathews & Mitchell, 2010). Nurses were not conscious about UI care and didn’t know its significance (Kohler et al. 2017). Some regarded UI as an unimportant topic compared to other aspects of stroke care & considered it a secondary issue (Brady et al. 2015; Kohler et al. 2017; Kohler et al. 2018). Some nurses evaluated continence status based on mobility and functional factors & made sure that patient reaches the toilet but the ability to urinate normally wasn’t considered. Nurses avoided UI problems & did not show any interest or showed minimal interest on the patients complains about UI problems. (Brady et al. 2015.) These findings would raise a question mark about the actual significance of UI care in Stroke patients. However, according to the research conducted by Kohler et al. (2018) & Kohler et al. (2017) incontinence management was an important consideration for patients. Many patients wanted the team members to recognize their incontinence needs (Kohler et al. 2018). Patients with UI were stressed, shamed & unable to focus on the therapy sessions due to fear of having incontinence episodes. So, UI is a big problem to patients and UI care must be prioritized by nurses. (Kohler et al. 2017; Kohler et al. 2018.)

5.1.2 Containment to continence management approach

Nursing professionals are found to recommend products for containment of incontinence like pads, pants, offering a urinal, toileting, catheterizing, etc. instead of continence assessment and care (Mathews & Mitchell 2010; Brady et al. 2015). UI care focusses on containment instead of effective promotion and management of UI (Mathews & Mitchell 2010, Brady et al. 2015). The containment
approach is probably followed due to wrong perception that UI is untreatable. As some studies recognize UI as a manageable condition with the help of proper interventions and care (Mathews & Mitchell 2010, Arkan et al. 2018; Nazarako 2010; Woodward 2014, Kohler et al. 2017), nurses must recognize UI as a manageable health concern & follow continence management approach.

5.1.3 Making it a general topic of discussion

It was reported that UI was a difficult topic of discussion for patients due to Shame, embarrassment, fear and worries relating to UI problems (Brady et al. 2015). Also, Urinary incontinence was a difficult topic of discussion among nurses and other health care professionals. UI was recognized as a taboo instead of a professional topic. (Kohler et al. 2017.) According to Brady et al. (2015), the topic should be more openly discussed on the ward. So, nurses should take UI as a normal topic of discussion and consider UI as a disease which need management and treatment. Also, nurses could motivate others.

5.1.4 Keeping positive attitude

Nurses’ positive attitude is the most significant aspect of continence promotion (Mathews & Mitchell 2010; Fisher 2014), which has stronger influence on the promotion of UI compared to other aspects of patient’s care (Mathews & Mitchell 2010). Nurses, the primary contact professionals for patients were found to have negative attitude concerning UI patients and their care (Kohler et al. 2018; Mathews & Mitchell, 2010; Kohler et al. 2017). The challenging attitude of nurses caused reluctance in reporting UI problems among patients (Mathews & Mitchell, 2010). This may delay the identification, assessment and treatment of UI and the issue may remain unaddressed (Kohler et al. 2018).

5.2 Effective communication and cooperation

The author found out that effective communication and cooperation of nurses with patients and with other health care professionals of the multi-professional stroke team was crucial nursing management for continence management.

5.2.1 Improve communication with patients

There was significant communication gap (both verbal or written) between patients and nursing staff regarding incontinence problems (Brady et al. 2015) which were found to be associated to factors like lack of seriousness, lack of sensible handling, lack of communication prompt etc. from nurses. Stroke survivors faced a lot of challenges to communicate their continence problems to nurses in addition to reluctancies to report UI issues (Brady et al. 2015; Kohler et al. 2017; Kohler et al. 2018). So, nurses could encourage patients to communicate UI issues by taking UI issues seriously & sensibly, promoting deep conversations, etc.
5.2.1.1 Taking continence issues seriously

Patients had to gather a lot of courage to discuss their incontinence problems due to insecurities, worries and fear. In addition, some nurses took the topic very lightly & patients felt more challenged & frustrated to introduce UI problems which left problems unaddressed. Many patients reported that they would expect the nurse to listen and take the issue seriously. (Kohler et al. 2018.) So, nurses should take UI issues seriously when patients try to communicate such problems.

5.2.1.2 Building trust through sensible handling

It was very necessary for nurses to build trustworthy care relationship with patients to enhance effective communication about UI issues. It was seen that proper foundation of trust could provide comfortable environment for patients to express their concerns about UI. Patients were able to express their continence problems only with the health professional they trusted. (Kohler et al. 2018.) So, it’s important for health professionals to build trust through sensible handling of the UI issues to motivate patients to speak out their continence problems (Kohler et al. 2017).

5.2.1.3 Promoting indepth conversations

According to patients, there were limited discussions about UI issues & the discussions were at very surface level or targeted to continence maintenance only. Many patients recognized that in-depth conversations about continence promotion was missing. So, nurses could discuss continence issues in detail with the patients and focus on the discussions that are more related to continence management. (Kohler et al. 2018.)

5.2.1.4 Taking initiative as a nurse

Patients waited for the conversation prompt from nursing staff and spoke about the topic only when the health professional asked (Brady et al.2015; Kohler et al. 2018). Some patients took the initiative themselves when nobody else asked, but they found the initiation responsibility to be strenuous especially when stroke team was not concerned at all (Kohler et al. 2018). So, Nurses should understand that it could be challenging for patients to communicate incontinence problems to nurses due to embarrassment, fear, worries, shame, disgust, etc. (Mathews & Mitchell, 2010; Kohler et al. 2018; Brady et al. 2015). So, nurses should always take communication initiative.
5.2.2 Improve multi-professional cooperation & communication

Author considers cooperation and effective communication with other health care professionals as an important nursing step for management of UI.

5.2.2.1 Considering UI as a shared multi-professional stroke team responsibility:

Multi-professional team approach was recommended for incontinence care. Researchers suggest that incontinence promotion in stroke facility is a shared responsibility of a multi-professional team including nursing professionals, occupational therapist, physical therapists, doctors, etc. (Brady et al., 2015; Mathews & Mitchell, 2010; Fisher, 2014; Kohler et al. 2017; Kohler et al. 2018.) All members of the stroke team play unique and special roles in UI management by maximizing mobility, accelerating functional recovery and increasing the coping strategies (Mathews & Mitchell, 2010). Physiotherapists help patients in mobilization and guiding pelvic floor muscle-interventions. Occupational therapists help in patient’s adaptation by increasing coping strategies by using the patient’s own resources after stroke. (Kohler et al. 2017.) Speech and language therapist help patients with language and speech problems (Mathews & Mitchell, 2010). Also, patient need advices from dietician to maintain proper diet and nutrition (Fisher, 2014). So, wide range of expertise is needed, and nurses should consult other health care professionals as required.

5.2.2.2 Promoting multiprofessional cooperation

Proper multi-professional cooperation was missing between the nursing professionals and the therapists (occupational and physical therapists) which was considered as a significant challenge of continence promotion. It was found that the therapists were uninformed about incontinence issues of the patients and they were unaware about the toilet training which was scheduled in the middle of the physiotherapy. (Kohler et al. 2017.) Also, continence care issues were not considered to be topic of multi-professional discussion and were discarded in meetings (Brady et al. 2015), except in cases where UI impacted the participation of patients to therapy (Kohler et al. 2017). So, nurses should change this and try to enhance cooperation with the multi-professional team about UI care of patients.

5.3 Identification and assessment

The author found out that identification and assessment of Urinary incontinence is an important step in nursing management of UI (Brady et al. 2015; Herr-Wilbert et al. 2010; Fisher 2014). Once it’s known that patient has continence problems, the next step is to identify & investigate more through detail assessment (Herr-Wilbert et al. 2010; Brady et al. 2015). Detailed assessment may help nurses to find out the type of UI present in patient (Brady et al. 2015), the reasons/causes (Mathews & Mitchell, 2010; Brady et al. 2015), and individual voiding patterns of the patients (Brady et al. 2015) etc. which assists in the development of management plan and providing effective treatment (Brady et al. 2015; Herr-Wilbert et al. 2010; Mathews & Mitchell 2010). So, proper assessment is necessary
but there were low evidences regarding the issue. Author found out that the process of identification & assessment follows Initial investigation through observation, using the Screening questions and other Screening tools.

5.3.1 Initial investigation through Observation

Nurses may start initial investigations by starting to watch the patients carefully and closely (Brady et al. 2015). They should be mindful and attentive to notice any symptoms or clues of incontinence in the patient (Brady et al. 2015; Kohler et al. 2018). For e.g. nurses could keep an eye on the patients like how frequently the patient is visiting the toilet, if the patient is looking worried after toilet visit (Brady et al.2015), if patient is using or starting to use incontinence products (Kohler et al. 2018), etc. Nurses should make proper record about special things noticed, report those things and further examination should be considered (Kohler et al. 2018). However, nurses lacked responsiveness and promptness in different situations (Brady et al.2015). A patient experienced that when the nurses saw wet bed of patient, they only changed the bedsheet. They did not react to situation & did not take any prompt for further examination. There was no discussion, no assessment, no treatment or management, etc. (Brady et al.2015.) So, Nurses should take prompt in assessment and treatment of incontinence problems for promoting continence when patients themselves express their problems or they observe it.

5.3.2 Screening questions for UI

Patients could be interviewed about the condition and further measures should be taken if UI is suspected (Kohler et al. 2018; Mathews & Mitchell, 2010). According to Herr-Wilbert et al. (2010) screening questions could be used as a base for the identification and assessment. The author found out that screening questions could be helpful and could be a quick intervention for nurses to have a clue for identification and assessment of Urinary incontinence problems while medical assessment and diagnosis is beyond the scope of this study. Following questions could be asked to the patient (Fisher, 2014).

- Does urine loss occur during/as a result of coughing, sneezing, etc. Stress incontinence
- Does the urine loss occur immediately? Do you have urgent need to urinate? Urge incontinence
- Is the urine loss continuous? Overflow incontinence
- Is the involuntary urine loss of patient linked to obstacles like cognitive/ and physical disability, environmental obstacles which limits access the toilet, etc.? Functional incontinence.
- Does patient experience symptoms of both stress and urge? Mixed incontinence. (Fisher 2014)
5.3.3 Interpretation of fluid volume charts

Fluid volume charts are regularly used in the wards to measure fluid intake & urinary output. Proper interpretation and use of fluid volume charts may help in the identification of pattern & frequency of voiding, impact of fluid intake (drinks) on voiding, need to void & improve the understanding of patients’ incontinence problems. However, it was found out that the use of fluid volume charts was variable & often incomplete in wards. So, nurses should properly record, document and interpret the fluid volume charts accurately. In case of inability to manage time, nurses could ask family members in recording the intake during visiting time or asking individuals (those with cognitive ability) to complete their own chart. (Brady et al. 2015.)

5.3.4 Evaluation of Post-void residual volume (PVR)

Residual volumes after urination also called post-void residual urine (PVR) can provide important information for the screening of UI. PVR could be checked through the Ultrasound of the urinary bladder by using ultrasound system like bladder scanner, verthon, bothell, etc. (Herr-Wilbert et al. 2010; Fisher 2014). Ultrasound system could be also be used to control the urine volume in the bladder after removing the in-dwelling catheters. If PVR value exceeded 100ml, medical practitioner could be consulted for medical assessment & treatment. (Herr-Wilbert et al. 2010.)

5.3.5 Assessment of Constipation and UTI

Overflow incontinence can occur due to constipation (Mathews & Mitchell 2010). According to Mayo clinic (2019) Urinary bladder is located near the rectum and shares nerves with rectum. Hard & compacted faeces in rectum may stimulate the nerves to be overactive and increase urinary frequency. Constipation could be assessed by checking the frequency of faeces, assessing the sufficiency of hydration, bowel movements, etc. (Fisher, 2014). If incontinence is caused by constipation, nursing interventions should be focused on management of constipation first.

Patients should also be assessed for the presence of Urinary tract infection (UTI) (Fisher, 2014). According to Mayo clinic (2019), UTI sometimes cause irritation in the bladder and lead to incontinence problems. Urine dipstick or Urinalysis using dipstick could be done for detecting UTI in Stroke patients (Herr-Wilbert et al. 2010). During urinalysis, urine is examined for the presence of any infection (Urology group of Western New England, n.d.). If UTI is seen in the patients, medical practitioner could be contacted for medical evaluation and management (Herr-Wilbert et al. 2010).

5.4 Patient’s centred care

This topic focuses mainly on the managing the UI problems of the patients with active involvement of patients during the implementation of the care process. Author found out that different
approaches of patients’ care could be chosen as per the needs of the patient and the patient’s individualized care plan.

5.4.1 Individualized nursing care plan

Proper individual nursing care plan is important for UI patients (Mathews & Mitchell 2010 & Herr-Wilbert et al. 2010). According to Brady et al. (2015) the continence care plan for a patient should be based on individual, their presentation & experiences through proper understanding of the different aspects of patient’s needs. Also, consistent involvement of patient in the development of care plan and decision-making related to their UI care was necessary. (Brady et al. 2015.)

5.4.2 Considering patient’s preference in selecting nursing aids for UI

Many patients were dissatisfied with medical/nursing aids that were used (Kohler et al. 2018). They experienced high level of discomfort using bedpans and were unsatisfied. Bedpans made them feel dependent & limited movements. Patients would rather prefer toilet, but nurses seemed to ignore patient’s preference. Also, incontinence pads were source of discomfort to patients when the size was not the favorable one. (Kohler et al. 2018.) So, it’s very necessary for nurses to consider the patient’s wish regarding planning and use of medical aids in continence maintenance and ensure that the medical aid is comfortable for the patient.

5.4.3 Early mobilization and avoidance of catheters

Researchers suggest that decreased and delayed mobility and using catheters can lead to Urinary tract infections & constipation which is turn can lead to Urinary incontinence (Mathews & Mitchell, 2010). So, it is recommended that nurses should focus on early mobilization of stroke survivors and removal of catheters (Mathews & Mitchell, 2010). Nurses may consult the Physiotherapists to help patients for mobilization as needed.

5.4.4 Providing privacy, Routinized care & immediate assistance during urgency

Researchers suggest that privacy of Stroke survivors should be respected by nurses during toileting although evidences are low (Fisher, 2014). Lack of privacy in the toilet may lead to constipation which in turn could cause incontinence (Mathews & Mitchell 2010).

Lack of regular-scheduled care and lack of nursing resources may predispose a patient to functional incontinence as these factors may affect the functional factors of UI like waiting time to get assistance to go to washroom, etc. (Mathews & Mitchell 2010). So, nurses should provide routinized care at scheduled intervals to manage incontinence.

Some patients with incontinence have urgent need to void- especially patients with Urge incontinence. When patients ask for help during urgencies, nurses should consider providing quick help with
proper understanding of the patient’s situation. (Kohler et al. 2018.) So, nurses should recognize such situations and consider providing toilet assistance as fast as possible.

5.4.5 Functional and environmental adjustments

Functional and environmental adjustments could also help patients with UI. It was found that changing the position during urination like leaning forward helped some patients with incomplete bladder emptying. (Brady et al. 2015.) According to Herr-Wilbert et al. (2010) environmental factors like distance to the toilet (from bed), height of toilet seats, urinals type, support system like frames & handles, etc. could also affect continence promotion in patients. So, modifying environmental factors like raising toilet seats (Herr-Wilbert et al. 2010), moving bed next to toilet, etc. could prove helpful (Brady et al. 2015). So, research suggests that important nursing intervention is to assess environmental barriers to continence promotion and adjust if needed although evidence level is low (Fisher, 2014).

5.4.6 Management of risk factors

Constipation

Constipation is also a risk factor for UI after stroke (Mathews & Mitchell 2010). If patient is suffering from incontinence due to constipation, nursing interventions should focus on the effective management of constipation (Fisher, 2014). Management of constipation could be done by implementing bowel protocol which ensures effective management of constipation. Nurses could encourage patients to increase the intake of fluids from 1500-2000ml/day. (Fisher, 2014.) Also, proper strategies to increase fibre in the diet may help (Mathews & Mitchell 2010).

Urinary tract infection

Patients should also be assessed for the presence of UTI (Fisher, 2014). Urine dipstick or Urinalysis using dipstick could be done for detecting UTI in Stroke patients (Herr-Wilbert et al. 2010). If UTI is found, medical practitioner could be contacted for medical evaluation. Nurses may implement proper strategies to increase fibre in the diet to stop UTI. (Mathews & Mitchell 2010.)

Ensuring patient’s hydration

According to Bladder and Bowel community (2019), dehydration and low fluids in body can concentrate the urine which can cause bladder irritation, urinary incontinence and increase the risk of UTI. So, strategies to promote hydration should be implemented by nurses (Mathews & Mitchell, 2010).

Proper diet and nutrition

Proper diet and nutrition are necessary for promotion of incontinence (Fisher, 2014). According to Bladder and Bowel community (2019), foods like caffeine and alcohol may act as diuretics, remove
the fluids from the body & exacerbate symptoms of UI. Also, Carbonated drinks may exacerbate stress incontinence. (Bladder and Bowel community, 2019.) So, patients should be advised to avoid them. When patients are exposed to different feeding ways: for e.g. enteral feeding with food substitute, nurses can make sure that patients receive enough. Also, dietician could be consulted to ensures that the patient have suitable nutrients to reduce the constipation and chances of UI. (Fisher, 2014.)

Managing speech and language complications

Speech and language complications like receptive and expressive dysphasia and dysarthria can come with stroke which may impede patient from getting help during the necessity of toilet assistance & may lead to incontinence episodes. Also, patients having post stroke-Dyspraxia loses capability to plan & control a task performance like patients may lose sensation of voiding and be unable to control. A speech and language therapist can help patients with language and speech issues & dyspraxia post-stroke. (Mathews & Mitchell, 2010.) So, nurses can consult and cooperate with Speech and language therapist in such situations.

5.4.7 Toilet training interventions

According to study conducted by Herr-Wilbert et al. (2010), different toilet training interventions like Timed voiding, prompted voiding and Habit training could be useful in continence promotion and management.

Timed voiding or Bladder training/retraining

Timed voiding is recommended by clinical practice guidelines. Although evidences are low, the episodes of incontinence decreased in patients with the help of timed voiding in combination with other interventions. (Fisher 2014). Timed voiding or Bladder retraining is a technique that aims to train the bladder to follow a normal voiding pattern so that the interval between 2 different voids is about 3-4 hours (Bladder training or timed voiding, 2013). The main objective is to increase the voiding time intervals by following scheduled voiding time (Fisher 2014). If patient experiences voiding urge before the scheduled time, suppression exercises such as relaxation and Kegel exercises can be done to manage till the scheduled time. The interval of voiding is increased by 15-30 minutes gradually until patient can retain urine in bladder for about 3-4 hrs. In the beginning, patient’s voiding patterns should be recorded for about 3 days to find out the starting point of the bladder training schedule. Also, voiding diary can be made to monitor the patient’s progress. (Bladder training, 2019, UCSF Health).

Prompted voiding

Prompted voiding is the most commonly used nursing care interventions for management of UI in stroke patients (Herr-Wilbert et al. 2010). It is also recommended by clinical practice guidelines although evidences are low (Fisher 2014). It is the behavioral intervention to enhance the functioning of the bladder in patients in which patients are verbally reminded and positively encouraged (Fisher
The voiding pattern should be understood properly to understand the need of the individual stroke survivors to implement Prompted voiding. So, the voiding pattern of the patient could be recorded for about 3 days and the voiding schedule is made based on that. (Fisher, 2014.)

Habit training

Habit retraining is one of the widely used behavioural interventions for management of UI (Herr-Wilbert et al. 2010). Habit training focuses on identification of the toileting pattern of patients suffering from UI and development of an individualized voiding schedule to prevent the involuntary emptying of bladder. However, proper evidence to suggest the effects on UI is lacking. (Fisher, 2014).

5.4.8 Medical consultation

According to Fisher (2014), medical consultation is recommended if the problems persist. The evaluation of the functioning/treatment of lower urinary tract may be required for severe cases although evidence level is low.

5.4.9 Continence management products

Besides assessment and treatment, Nurses may recommend continence products like pads, pull-ups, etc. based on the patient’s size and volume of urine loss of patients. As urinary incontinence is associated to feelings of shame, embarrassment, lowered self-esteem, stigmatization and isolation, continence products could be a good option for patients. Continence products may help to promote the dignity of patients with UI. (Fisher, 2014.) So, continence management products may be used along with other interventions.

5.4.10 Patient education and information

Patient education

Patients lack enough education and understanding regarding post-stroke UI management (Brady et al. 2015; Kohler et al. 2018). Proper awareness about the significance of UI promotion was lacking among patients (Kohler et al. 2017). They did not get proper information from the health care team about UI & proper support, guidance & counselling regarding the assessment and development of plans for the management of UI care was missing (Brady et al. 2015; Kohler et al. 2018). There were no patients who understood the types of treatment available (Kohler et al. 2018). Some patients were hiding continence problems for fear of embarrassment whereas some for the fear of prolonged hospital treatment (Brady et al. 2015; Kohler et al. 2017). Some were commanding own incontinence problems by inventing personal strategies for hiding UI problems. So, Patients needed in-depth individualized information from the health care professionals. (Kohler et al. 2018.) According to research by Fisher (2014), patients’ education on the topic can be enhanced by providing strong educational program to the stroke survivors. So, nurses could provide patient education packages and patients’
materials which include general education & awareness about Urinary incontinence after stroke, possible management options of UI & information to care givers, etc.

Patient information about their UI care

Proper discussion and information exchange about the incontinence issues with the patient was lacking (Brady et al. 2015; Kohler et al. 2018). Sometimes, the incontinence screening and assessment process done was unexplained to patient and patients were completely unaware why a certain intervention was being carried out (Brady et al. 2015). Nurses must provide proper information to the patient about the possible approaches that are taken. UI management interventions like keeping the patient on a toileting regime, trying to hold, need for regular visit to a toilet, following a toileting regime like ‘Every two or three hours’ should be properly informed and discussed with the patient, etc. (Brady et al. 2015.) So, important nursing intervention would be to provide enough information to the patients about their UI, screening and assessment along with possible treatment approaches, and interventions during the UI care.

6 Discussion

6.1 Discussion of findings

The study derived the nursing interventions for the management of Urinary incontinence under four important themes. Two of those themes: Recognizing UI as an important health issue & proper communication and cooperation are not the actual activities performed by nurses for solving patient’s problem they may not be recognized as nursing interventions. These can be regarded only as indirect nursing interventions. According to the findings of this study, UI was lowly prioritized, negative thoughts about UI problems were prevalent, communication with patients was weak and cooperation & communication of nurses with multiprotection stroke team regarding UI was limited. The author sees these as major hinderance to continence management by nurses and the existence and implementation of UI care as a part of patient’s care looks questionable in practice. So, it’s obvious at this point that, most significant concern is identifying UI as a health problem and considering it as a part of whole patient care. So, these are recognized as fundamental topics by the author especially in case of scarcely researched and recognized topic like this.

Concerning the priority issues, author also found out that there were many reasons behind the low priority of Urinary incontinence in stroke units. Research by Kohler et al. (2017) described that the schedule in the neurological unit is challenging enough that it is sometimes impossible to give the toileting training to sufferers. Also, Mathews & Mitchell (2010) explains that continence care in acute hospital settings is often seen as unimportant due to conflicting pressures in acute care environments. Looking at these findings, it’s obvious that it’s necessary to diagnose and treat acute & life-threatening conditions first. So, UI may not be the priority for health care professionals although the
findings of the author suggest that it’s a huge priority for patients. There is lack of enough research in the field. If UI gets low or no priority at acute units, stroke care units could determine the right place and time for starting UI care.

This study identifies “providing regular scheduled nursing care” for patients as important nursing intervention for continence management. However, some researchers suggest that waiting time for the patients at night was high due to low levels of nursing resource at night. (Mathews & Mitchell, 2010.) Fisher (2014) & Brady et al. (2015) had similar findings that there weren’t enough time & nursing resources to implement the interventions and guidelines in the ward. This directly proves that staffing issues was significant indicator of poor continence care and enough nursing resources is extremely compulsory for implementing regular scheduled nursing care in practice.

As discussed earlier, nursing knowledge about continence care is lacking (Kohler et al. 2017; Brady et al. 2015). Nursing staffs who don’t have enough knowledge about UI care may provide inadequate continence care (Nazarako 2010). Also, allied health care professionals like physiotherapists had knowledge deficit about the care of UI which can be a huge barrier to multi-professional cooperation (Kohler et al. 2017). Proper educational program along with communication training to the whole team was seen necessary (Fisher 2014; Kohler et al. 2017; Kohler et al. 2018; Mathews & Mitchell, 2010; Brady et al. 2015; Herr-Wilbert et al. 2010). So, Health care institution must ensure that proper education & training is adequately available to the staffs (Mathews & Mitchell, 2010).

Regarding the containment approach followed by nurses, the pre-study knowledge about UI was inadequate among nurses & the ward culture focused on containment of incontinence (Brady et al.2015). It was seen focus should be shifted from containment to continence rehabilitation approach (Brady et al.2015). So, appropriate action from the concerned authorities regarding change of continence care perspective from containment of continence to continence management is needed. In addition, concerned authorities can work on the policies for managing UI which are missing as well (Mathews & Mitchell, 2010).

6.2 Trustworthiness

In qualitative research, Trustworthiness is influenced by the adequacy and solidity of the methodology of the research (Holloway & Wheeler, 2009; Aveyard, 2010). It could also be determined by maintaining “Dependability, credibility, transferability and confirmability” (Holloway & Wheeler, 2009). The author has considered these factors as a footprint from the start of this study to ensure the trustworthiness.

For maintaining the adequacy & solidity of the methodology, the author has followed systematic approach to literature review & methodology section of the literature review is clearly documented i.e. all the steps followed from the setting of inclusion and exclusion criteria to analysis of the selected articles are clearly recorded & presented (Aveyard, 2010).
Dependability of a study is measured through the consistency & accuracy of the results and degree of replicability of its methodology i.e. the degree to which the study is repeatable and yields similar results under similar conditions. It is claimed that research is never wholly replicable & the characteristics of the researcher may impact the focus of the research. (Holloway & Wheeler, 2009.). So, author has been very conscious regarding this issue and has reported the methodology clearly as possible along with rationales as required to ensure repeatability. Also, author has avoided objectivity. So, author believes that study is replicable & yields similar results under similar situations.

Credibility of the study is ensured by using comprehensive and reliable sources as possible for information. Author firstly studied different scientific materials on the research topic which gave an idea for conducting this study. The author conducted topic analysis and drafted a thesis plan under the supervision of the thesis supervisors. The decision regarding the important steps of the methodology like selection of different databases & sources, inclusion and exclusion criteria, selecting evidence-based sources, etc. were taken under the supervision and guidance of the thesis supervisors. Also, Final articles are limited to evidence-based literature as far as possible. The author has considered the research question as a guideline throughout the study to ensure that the results obtained are comprehensive. The findings of this study are the direct & indirect nursing interventions for the management of Urinary incontinence. So, study answers the research question set up by the author to some extent and fulfils the purpose of the study.

Transferability can be determined through the generalizability of study (Holloway & Wheeler, 2009). According to Winchester & Salji (2016) & Aveyard (2010) generalizability and applicability of the literature review is maintained by defining proper inclusion and exclusion criteria. This limits the bias in literature review and develops unprejudiced approach for the data selection (Winchester & Salji 2016). So, author has properly defined inclusion and exclusion criteria for the selection of the articles in the study to ensure transferability. Holloway & Wheeler (2009) considers that research may be generalizable if the findings or the knowledge obtained from the study are transferrable & relevant to similar situations and claims that achieving transferability in a qualitative research is strenuous. Author has aimed to achieve some level of transferability by ensuring that the articles selected for the literature review are from different stroke settings from different parts of the world. Also, the included evidences are seen to show almost same results which increases the transferability of the results for other stroke units, too.

Confirmability is also ensured in the study. The findings of the study are derived by strictly following the methodology of the study and are not produced from the author’s assumptions or pre-understanding. Also, clear documentation and honest referencing by the author allows the readers to track down the primary data (Holloway & Wheeler, 2009). In literature reviews, prejudice may arise regarding the selection of different databases for searching the articles and the selection of final articles to be analysed in the sense that this procedure may have been influenced to some extent by the researcher’s personal intuition or ideas. So, author has followed different measures to ensure objectivity of the study. The articles were searched in the authorized databases as recommended by
the Laurea UAS website and were not based on author’s personal judgement. Author has set strict inclusion and exclusion criteria and provided rationales for the defining of inclusion and exclusion criteria. Only articles which fulfilled the inclusion criteria were selected. So, author has ensured objectivity by avoiding any personal judgement issues regarding the literature selection (Aveyard 2010; Winchester & Salji 2016).

6.3 Limitations of the study

Although author conducted this study using a systematic approach to literature review using the best knowledge of the author, the study has some limitations as seen by the author which must be mentioned. During the selection of the articles, the inclusion and exclusion criteria set up by the author did not consider the type and severity of stroke suffered by the patients. Also, the degree of disability experienced by the stroke survivors were not considered. These factors could have influence on the nursing interventions and the probability of implementation of some of the above nursing interventions in practice. For e.g. It may be difficult to implement the screening question approach in patients with aphasia. The author had initially mentioned that the analysed literature must be evidence based. Two of the literature selected by the author are Literature review & some sources do not recognize Literature review as evidence-based studies. However, topic was scarcely researched & there very few evidence-based researches in the field so, author had to include them. The evidences selected by the author were based on acute as well as rehabilitation stroke settings, so the findings of the author are at general level. The nursing interventions could have been described at a more specific level by defining them separately for acute units and for rehabilitation units as it may be impossible to implement some of the nursing interventions like toilet training in acute settings due to need to address acute issues first. Also, some of the findings of the author are based on patient experiences concerning UI, which may not necessarily match with the individual experiences of other stroke patients at other stroke units. It should be considered that different health care units at different parts of the world may have different strategies about UI care and experiences may vary. Further, the findings of this study are derived using literature review as a methodology & the testing of the nursing interventions for their effectiveness was not within the scope of the study. So, there is no enough evidence to measure the applicability of all the nursing interventions. Also, the nursing interventions aren’t separately defined for different types of Urinary incontinence. For e.g. environmental adjustments may be suitable especially for the patients with functional incontinence. According to Holloway & Wheeler (2009), author is the main tool in qualitative studies, and the factors like the characteristics of researcher may exert influence on the results of the study. Different researchers may emphasize different concerns even when they are following same methodology. So, it may be possible that the methodology is influenced to some extent by the characteristics of the author besides best efforts of the author to avoid such issues. Also, the author is a novice researcher, so it’s possible that the knowledge and ability to critique may not be the same as an experienced researcher. Taking about the results of the study, all the findings don’t describe the direct nursing interventions for management of UI. So, the relevance of research question with the findings of the study may be questionable. However, there were very limited evidence-based research & the nursing interventions
were not researched earlier. In addition, researcher is a student and economical resources were limited. So, this may have impeded the researcher to access literature with paid access which may have been meaningful to this study.

6.4 Ethical considerations

The methodology of the thesis was literature review using inductive analysis, so study did not obligate research permit, neither ethical considerations like informed consent, anonymity, etc. had to be considered in this study. However, author has ethically treated previous researchers work & acknowledge the rights of the authors & publishers by paraphrasing & referencing. Author has provided the in-text citations and end-text citations of the studies included in this study. The author has also included the detailed documentation and explanation of the methodology section of the study to ensure the dependability of this study i.e. the study would be repeatable and would yield similar findings. Also, the best available evidences were used in the study.

6.5 Recommendations for further research and practice

According to the findings of the author, there has been very less studies on the Urinary incontinence management of stroke patients. So, more stroke specific studies are recommended. Also, research aiming to describe Nursing interventions separately for different types of stroke for acute units and for rehabilitation units could be conducted. The success of interventions used in the management of UI is unevaluated according to researches which may cause demotivation in health professionals to use those interventions. So, research aimed at evaluating the nursing interventions for UI care of stroke patients is recommended. This research is solely based on literature review and the applicability of interventions were not measured as discussed in the validity section, so more research could be conducted to implement these findings in a real setting to ensure the effectiveness of this study. Also, research to describe the nursing interventions of Urinary incontinence using a research method other than literature review may be conducted, so that the findings of this study could be verified for its effectiveness. As mentioned in the discussion section, there is lot of pressure in neurological units which hinders he prioritization of UI. Research could be done to find out ways of reducing pressures/challenges in neurological units to make the prioritization and management of Urinary incontinence easier in those units. The necessity to treat acute conditions first in acute wards may predispose UI to low priority. More research could be conducted to find out the possibility of managing the UI problems in acute wards as well.

7 Conclusion

To conclude, Urinary incontinence is a huge suffering to the stroke patients and being continent is extremely important for patients to help them return to their normal life. However, UI was found to
be poorly managed in stroke units and nurses were found to be lacking enough understanding about the management of UI in stroke patients. Many studies claimed that evidence-based nursing interventions for management of Urinary incontinence don’t exist till date. So, author decided to study the topic more and attempt to solve research gap by describing the nursing interventions for management of UI in stroke patients. During the research, author found out that Nurses and other health care professionals had negative attitude regarding UI care & avoided incontinence problems. UI was not even considered as a health issue that need treatment and care and even health professionals were not comfortable taking about it. So, according to the findings of the study, nurses should change their perspective towards UI care, understand the significance of UI care, follow the nursing interventions seriously & become patient’s advocate for UI management and promote continence care.
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**Articles selected for review**


Internet sources


https://www.world-stroke.org/component/content/article/16-forpatients/84-facts-and-figures-about-stroke
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Appendix 1: List of abbreviations
Appendix 2: Summary of articles included in this study.
Appendix 1 List of abbreviations

<table>
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<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>UI</td>
<td>Urinary incontinence</td>
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<tr>
<td>CVA</td>
<td>Cerebrovascular accident</td>
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<tr>
<td>CNS</td>
<td>Central Nervous System</td>
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<td>CVE</td>
<td>Cerebral vascular event</td>
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<td>TIA</td>
<td>Transient ischaemic attack</td>
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<tr>
<td>AVM</td>
<td>Arteriovenous malformation</td>
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<td>PVR</td>
<td>Post-void residual volume</td>
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<tr>
<td>UTI</td>
<td>Urinary tract infection</td>
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<tr>
<td>CINAHL</td>
<td>Cumulative Index to Nursing and Allied Health Literature</td>
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2. Appendix 2: Summary of articles included in this study

Table 3 shows the summary of the selected literature

<table>
<thead>
<tr>
<th>Authors. Year of. Name of the topic. Journal name</th>
<th>Aim of the research</th>
<th>Method of the study</th>
<th>Main Findings</th>
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<tr>
<td>1 Brady, MC., Jamieson, K., Bugge, C., Hagen, S., McClurg, D., Chalmers, C., Langhorne, P. 2015. Caring for continence in stroke care settings: a qualitative study of patients’ and staff perspectives on the implementation of a new continence care intervention. Sage Journals</td>
<td>The purpose of the study is to investigate the perspectives of nurses and patients on the implementation of augmented continence care intervention post-stroke.</td>
<td>Qualitative study (semi-structured interviews (with 15 patients and 14 nurses) in mixed acute and rehabilitation units in Scotland.</td>
<td>The research investigates the patients and nurses’ experiences regarding the implementation of new continence care intervention post-stroke. The research found out that patients experienced challenges in the communication and decision making about incontinence problems. Also, avoidance of incontinence issues was seen among nurses. According to nurses, the incontinence knowledge, attitude and confidence of nurses improved along with shift from containment to rehabilitative approach of continence care with the help of training.</td>
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<td>2 Mathews, M. &amp; Mitchell, E.A. 2010. Causes and rehabilitation of urinary incontinence after stroke: a literature review. Nursing &amp; Residential Care (NURS RESIDENTIAL CARE).</td>
<td>The purpose of the study is to explore the causes of urinary incontinence after stroke and examines issues for rehabilitation practice.</td>
<td>Literature review</td>
<td>The study focuses on the causes of stroke and the measures for rehabilitation for incontinence post-stroke. According to the study, strategies like hydration, increasing fibre in diet, early mobilization, avoidance of catheters, privacy, routinized care, multi-professional cooperation, good attitude of nurses, etc. are important to be considered in patients with incontinence post-stroke. In addition, the study also explains the need of improvement in the organizational factors that are hindering incontinence like: lack of incontinence training to nurses, staffing issues, nursing curriculum, etc. Also, the research found out that the field of incontinence after stroke has been less researched. The assessment and management strategies for incontinence care has been scarcely researched. Also, stroke-specific studies regarding interventions are lacking.</td>
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<td>4</td>
<td>Herr-Wilbert, I; Imhof, L; Hund-Georgiadis, M; Wilbert, D. 2010. Assessment-Guided Therapy of Urinary Incontinence After Stroke. Rehabilitation Nursing.</td>
<td>The purpose of the study is to introduce the therapeutic interventions for the management of Urinary incontinence and test the effect of interventions on the incontinence problems of patients.</td>
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<td>The purpose of the study is to understand the stroke survivors’ lived-in experiences regarding the treatment of urinary incontinence and in an inpatient rehabilitation clinic. Qualitative study (individual interviews (semi-structured) with 10 patients) in Swiss rehabilitation clinic</td>
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<td>The research conducted individual interviews with 10 stroke patients having urinary incontinence problems in inpatient rehabilitation clinic. The research found out that the patients felt huge psychological strain due to UI problems but could not talk about it as they were ashamed to talk about the incontinence problems openly. Also, the health care professionals did not talk or ask about those topics. Sometimes, patients were compelled to ask but continence needs were unaddressed by nurses. The conversations were at surface level and nurses were not much interested to hear them. Also, patients were found to be commanding incontinence by inventing personal strategies to hide UI problems and avoid shameful experiences which eventually was unsuccessful. The study concluded that significant thing in the treatment of UI for stroke survivors was to raise awareness about UI among the stroke care team so, that they can communicate UI problems openly and empathically.</td>
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