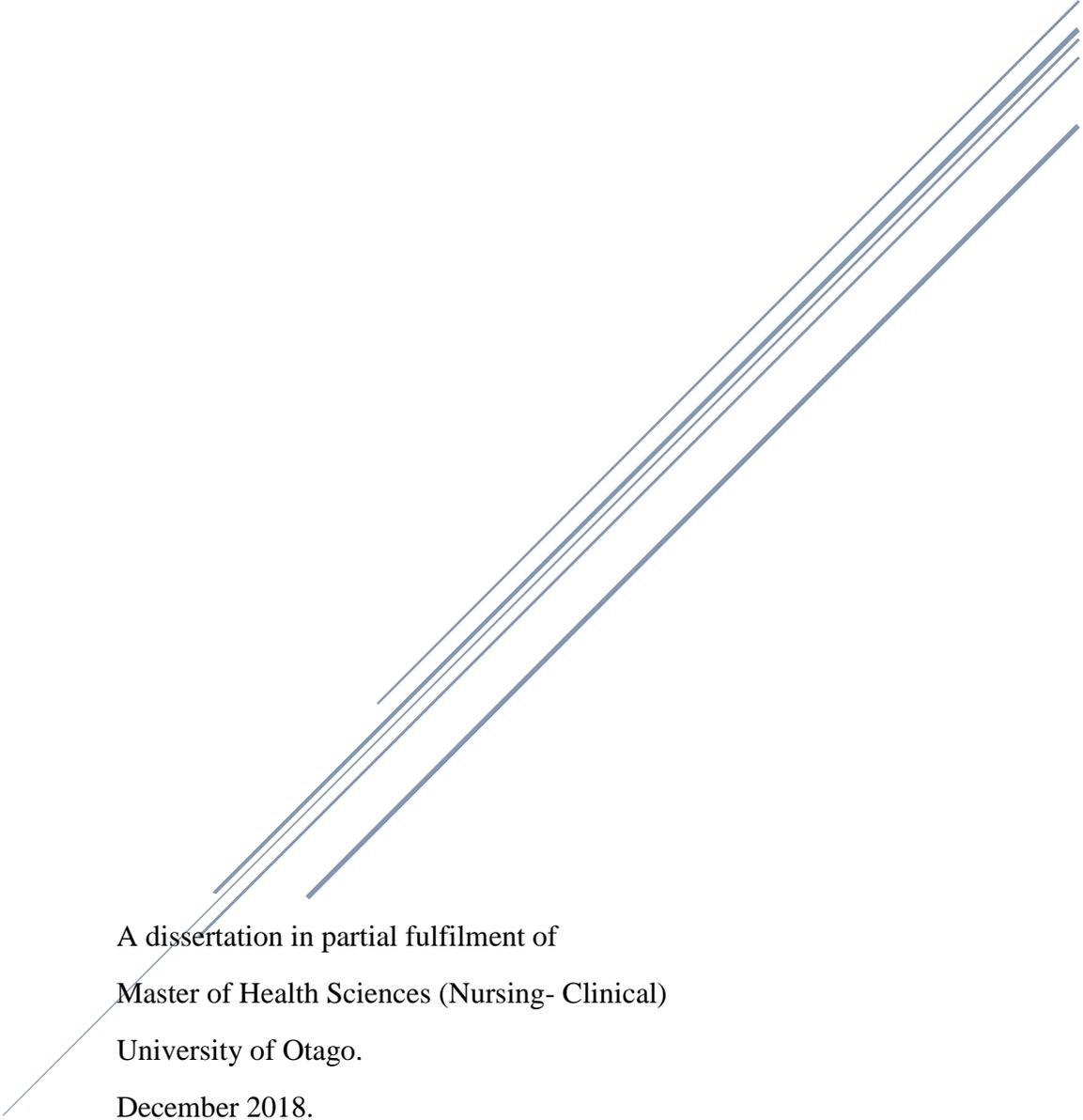# An integrative literature review exploring the experiences and perceptions from patients and healthcare staff following an in-patient fall.

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A dissertation in partial fulfilment of

Master of Health Sciences (Nursing- Clinical)

University of Otago.

December 2018.

**Abstract**

Falls are a major public health problem, the consequences from which can be costly. Within the literature little consideration appears to have been given to exploring the patient experience of falling whilst in hospital and the experience of healthcare staff in regard to inpatient falls.

The aim of this dissertation was to explore the experiences and perceptions from patients and healthcare staff following an in-patient fall. An integrative literature review was carried out using Whittemore and Knafl's (2005) methodology. A literature search was conducted in the following databases: PubMed, the Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsychInfo, Google Scholar and Medline Ovid. The keywords for the search included; in-patient falls, healthcare staff, experience and perception. Eight highly relevant publications were identified and following quality appraisal using Joanna Briggs Institute (JBI, 2015) validated tools, eight articles remained for data analysis. Three themes emerged from the analysis; Emotional impact of falls; Communication; Independence versus Risk.

The findings highlighted areas in which the patients and healthcare staff reported a negative impact on their emotional well-being as a result of an in-patient fall. Timely assistance and support when needed was presented from the patient's perspective throughout the literature. Communication was considered to be a key aspect in keeping the patient safe as the healthcare staff balanced work levels and patients' care needs. The patients need for independence balanced with necessary and unnecessary risk-taking behaviours was a concern to both the patient and to the staff. Through promoting

appropriate levels of independence and clear communication of risks, improvement could

be achieved in the provision of safe care.

Acknowledgements

The winding road in completing this degree was never straight and had several bumps. I wish to acknowledge the support and guidance in helping me navigate this journey by my academic supervisors Dr. Henrietta Trip and Dr. Mandy Wilkinson. Thank you for your guidance, wisdom and encouragement throughout, I know I would not have done this without you. Thank you to the Canterbury District Health Board, Health Workforce New Zealand and the Nursing Department at Burwood Hospital for the study support, funding assistance provided to me.

My sincere gratitude goes to my friends and colleagues. Sorry I have been such an absent friend for the last year. To my dear friends Paula, Fliss and Zoe thanks for the laughs, love and support when I needed it most. To my colleagues Tracey, Jools, Steff, Leanne and Maureen your belief in me kept me going. Thanks for the always checking that I was ok, listening to my endless stories and supporting me through this journey.

To my parents your life-long support of me and my nursing career has been unwavering. I would not be the person or nurse I am today without you. To the best 'in-laws' and grandparents there are, Gary and Carolyn thanks for the food, wine, babysitting. It has meant so much.

Lastly and most importantly to my family, Logan, Kieran and Finn. Hopefully Mum is finished studying now and we can have our dining table back. You guys never doubted me (even when I did). Thank you for your unwavering love, support, patience and through the

years of study. Sorry for being so preoccupied in the last few months, thanks for putting up with me.

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**Chapter 1. Background**

**1.1 Introduction**

Falls are a significant problem to healthcare providers, governments and individuals worldwide, the consequences from which can be costly (Currie, 2008) resulting in financial burden for the individual, their families, and the health care system. Falls occurring among community-dwellers and in long term care or residential facilities have been well researched, however, the impact of falls that occur while a patient is in hospital is less well known or studied (Ackerman et al., 2010). Within the literature little consideration appears to have been given to exploring the patient experience of falling whilst in hospital and the experience of healthcare staff in regard to in-patient falls. The aim of this review therefore, was to explore these experiences and perceptions following an in-patient fall. An integrative review of published literature was undertaken (Torraco, 2016; Whittemore & Knafl, 2005) to answer the research question.

This chapter discusses the incidence and cost of in-patient falls, provides a definition to the complex meaning of falls, examines the consequences of falls to the patients and the risk factors contributing to a fall and provides a brief synopsis of various fall prevention strategies, programmes and screening. The author then provides contextual information about her background and provides additional detail as to how the author arrived at the focus for this review.

**1.2 Background**

Falls are a significant issue across the lifespan. Infants, toddlers, pre-schoolers, school aged children, teenagers, adults, and older adults all experience falls and fall related injuries; however, fall incidence and their associated consequences increase exponentially with age (Robertson & Campbell, 2012). Accordingly, there appears to be a large body of literature that focuses solely on the issue of falls among older adults (Kannus, Sievanen, Palvanen, Jarvinen, & Parkkari, 2005). Hospitalised individuals, despite their age, are also a vulnerable cohort more predisposed to falling (Aranaz-Andrés et al., 2011). A fall has been described as an unintentional "coming to rest on the ground, floor, or other lower level, but not as a result of syncope or overwhelming external force" (Agostini, Baker, & Bogardus, 2001, p. 281). Other authors have expanded on the above definition by adding "with or without injury to the patient" (Currie, 2008, p. 205; Krauss et al., 2007), with all categories of falls included, regardless of whether the fall is as a consequence of "physiological reasons or environmental reasons." (Currie, 2008, p. 205). Many hospitals worldwide include the adjectives "assisted" and "unassisted" to their definition of falls as a way of providing a description and explanation of the fall episode. An unassisted fall is an unwitnessed event in which "the patient is found on the floor" (Staggs & Dunton, 2014, p. 88). An assisted fall or witnessed fall is described as one in which "a staff member is with the patient at the time of the fall and attempts to minimize impact by assisting or lowering the patient to the floor." (The National Database for Nursing Quality Indicators [NDNQI], 2012). Recurrent, repeat or frequent falls are defined as "more than one fall in a given month by the same patient on a unit." (NDNQI website, 2012). This definition however, fails to include falls that have occurred prior to admission to the hospital, as a history of previous falls can significantly impact on the risk of further falls (Al-Aama, 2011). Falls

can occur with or without injury. Injurious falls include those that result in some degree of sustained injury or trauma that is directly related to the fall these range from relativity minor injuries such as contusions, bruises or lacerations, to life-threatening injuries which may result in long-term disability or even death. While these definitions and descriptions of falls are extensive, several factors are not taken into consideration such as the nature and complexity of the patient and a range of environmental factors (Wade, 2009).

From a solely monetary perspective falls are costly (Robertson & Campbell, 2012) and a strain on health budgets worldwide. Teresi et al. (2013) estimated the cost in the United States (US) alone for injurious falls requiring surgery was between USD $20,000 and USD $22,368, with costs as high as USD $65,000 per case depending on the nature and extent of the injuries sustained. Annual estimated cost of falls in the US alone is thought to be over US$20 billion (Elliott, Painter, & Hudson, 2009; Teresi et al., 2013). In some jurisdictions and most notably in the US, falls are also associated with legal liability (Weil, 2015). In New Zealand, between 2000 and 2003, cost of hospital care alone for falls related injuries was estimated to be in excess of $386 million (NZD) (Stephenson, Langley & Trotter, 2005), with this figure almost doubling to $693(NZD) for the 2006/2007 period (ACC, 2008). The financial burden of falls in New Zealand is significant. As stated earlier, falls occurring in the community and in various long-term care facilities have been relatively well studied, however, less is known about hospital in-patient falls (Ackerman et al., 2010) which is somewhat surprising given the extend of issue in hospitals worldwide. According to Aranda-Gallardo et al. (2013) approximately 84% of reported adverse events in hospitals are associated with falls. Up to 30% of in-patient falls result in injury, with four to six percent resulting in severe or life-changing injury and, at times, life limiting (Hitcho

et al., 2004). Reported hospital fall rates can be as high as 11.5 per 1,000 patient days (Currie, 2008; Oliver, Healey, & Haines, 2010) and the overall fall risk is approximately three percent in all hospitalisations (Currie, 2008; Fischer et al., 2005). Falls are the most frequently reported adverse event in New Zealand hospitals (Health Quality & Safety Commission [HQSC], 2012) and are associated with increased length of hospital stay.

## 1.3 Consequence of Falls for the Patient

The consequences of falls are costly as illustrated earlier and whilst it is crucial to consider the economic significance of falls, especially in the current fiscal climate, the considerable health and social costs to the individuals who have experienced falls should not be forgotten or merely represented in fact or figures. As well as the severe physical consequences (such as a fractured neck of femur or traumatic head injuries, spinal cord injury resulting in prolonged hospital stays), there are also considerable negative psychological outcomes from falling. Issues such as reduced confidence or the development of a 'fear of falling' leading to loss of independence, compounding frailty and resultant diminished quality of life (Chamberlin, Fulwider, Sanders, & Medeiros, 2005; Delbaere, Crombez, Vanderstraeten, Willems, & Cambier, 2004; Kempen et al., 2008; Reelick, van Iersel, Kessels, & Rikkert, 2009; Yardley & Smith, 2002). The physical, psychological and emotional consequences associated with a fall incident can be at a high personal cost to the individual involved. Functional ability may decline and result in a loss of independence following a fall (Delbaere et al., 2010). This functional decline can endure for up to a year or sometimes more (Dionyssiotis, 2012). This is especially true among older adults who have experienced a fall and sustained a significant injury such as a fractured neck of femur (Russell, Hill, Blackberry, Day, & Dharmage, 2006). Even if

physical injury or harm is avoided, falls can be a significant cause of psychosocial distress which may result in a loss of confidence, reduced physical activity, a sense of powerlessness, social withdrawal, and a fear of falling in the future and an increased dependency on others (Cesari et al., 2002; Kong, Lee, Mackenzie, & Lee, 2002). Taylor and Stretton (2004) concured with these findings and reported that a decreased ability to complete activities of daily living or the additional need for family or community for support increased the likelihood of being placed in residential care. Kong et al. (2002) further suggested that a loss of independence and social isolation may be a more urgent concern to the older adult than the fear of physical pain or injury suffered as a result of a fall itself. Unsurprisingly therefore, a previous history of falling has been found to be a contributing factor leading to depression and an overall loss in quality of life (Michalowska, Fiszer, Krygowska-Wais, & Owezarek, 2005; Walsh, Polus, & Webb, 2004).

## 1.4 Risk Factors Contributing to a Fall

Given the significance of the falls problem and the considerable burden to societies around the world, governments and leading healthcare institutions worldwide are investing heavily in falls prevention strategies including research into risk assessment tools (Dyson, 2005). The risk of falling may be considered to be the increased probability of a fall happening or occurring to a particular individual in a specific condition or environment (Berg & Cassells, 1992). The Centers for Disease Control and Prevention (CDC, 2009) state that a fall occurs as a result of a syndrome with symptoms and signs of deranged function in a disordered environment. The cause of falls or falling is understood to be multifactorial, with numerous falls risk factors having been determined (Delbaere et al., 2006; Lord,

Sherrington, Menz, Close, 2007). These risk factors are frequently categorised as intrinsic and extrinsic factors. Intrinsic factors are factors in relation to the individual who has fallen, factors such as, declining health, loss of balance, reduced mobility are considered intrinsic (see Table 1.). Extrinsic factors are considered to be external to the individual, environmental factors such as poor or inadequate lighting or wet floors are consider extrinsic (see Table 1.).

*Table 1. Intrinsic and Extrinsic Factors for Patient Falls.*

| Intrinsic factors (Patient) | Extrinsic factors (Environment) |
|---|---|
| 1. Functional and mobility issues e.g. strength, balance, gait, and mobility problems | 1. Bed rails, e.g. where the patient is found on the floor by the bed and the bed rails were up. |
| 2. Visual and/or hearing impairment | 2. Improper bed height, e.g. bed described as being too high for patient to exit safely |
| 3. Cognitive impairment, confusion, dementia (including violent/aggressive) | 3. Attachment to equipment: catheter, ECG leads, IVs, oxygen, chest tubes |
| 4. Medicine use: taking four or more medications | 4. Ill-fitting footwear |
| 5. Postural hypotension, dizziness, vertigo | 5. Slippery/wet floors, e.g. urine, water or wearing socks |
| 6. Urinary incontinence or frequency (include if looking for toilet – but not if just fall in toilet) | 6.Poor or inadequate lighting |
| 7. Fear of falling | 7.Lack of safety equipment e.g. missing safety/grab rails around toilet |
| | 8. Environmental markings e.g. signage |
| | 9. Equipment mobility e.g. tables/ bedside lockers moving when patients are leaning on them |
| | 10. Doorway and furniture design |

Adapted from "A review of environmental hazards associated with in-patient falls" by S. Hignett and T. Masud, 2006, *Ergonomics*, *49*(5-6), p.610. Copyright 2006 by **Taylor, Francis & Routledge.**

While there is a plethora of information and literature on falls risk factors, the research findings are often inconsistent. For example, many studies have identified age, particularly ages over 75 years as contributing to falls risk (Barker, Kamar, Graco, Lawlor, & Hill, 2011; Rubenstein & Josephson, 2006) while other studies have found that age is not a risk

factor (Hignett & Masud, 2006). In studies by Dykes et al. (2010) and Singh and Okeke

(2016), the authors assert however that age is a risk factor concerning falls, and that elderly

care wards show a higher fall rates trend than other acute wards. Age related physical,

psychological and functional changes such as cognitive decline, incontinence and mobility

problems are in fact present in the "ill patient population regardless of age" (Hitcho et al.,

2004, p.738). In the Kronfol (n.d) study for the World Health Organisation (WHO)

established that age alone should not be deemed as an independent risk factor. These

findings indicate is that all individuals who are unwell should be considered at risk of

falling regardless of age. This however, does not out rule the older population as the largest

risk group for falls and the challenges associated in relation to fall prevention (Butcher,

2013).

A history of falls was identified as a significant predictor of risk for future falls. The

Cochrane review concluded that patients with a history of falls had a greater need for

assistance with mobility as they were more likely to fall (The Cochrane Collaboration,

2013). Other identified risk factors included poor balance and coordination due to

neurological conditions such as Parkinson disease, a low body mass index (Sheehan,

O'Connell, Cunningham, Crosby, & Kenny, 2013), and being affected by two or more

medical conditions, all increased the risk of falling (Hitcho et al., 2004).

 Screening for history of falls is advocated for all older adults over the age of 65 years

(American Geriatrics Society/ British Geriatric Society, 2010). It is however interesting to

note that while a history of falls is significant, serious falls associated injuries are not

necessarily related to a history of previous falls. An increased risk of serious injury was

reported both in the first fall (Speechley & Tinetti, 1991) and after several falls (Cummings & Klineberg, 1994).

## 1.5 Fall prevention strategies, programmes and screening.

The healthcare sector ought to be safe, however healthcare staff are not immune from the human tendency of making mistakes and omissions. In light of a startling frequency of hospital adverse events (which includes falls) publicised in the late 1990s, which put patient safety and quality of care to the forefront. One of the most influential reports was the United States based Institute of Medicine's (IOM) (Donaldson, Corrigan, & Kohn, 2000) work titled To Err is Human: Building a Safer Health System, which advocates a systems approach towards safety. Frequent adverse events such as patient falls occurring in hospitals highlighted the importance of investigating strategies to improve patient safety and care. Patient participation in care is an approach that empowers patients to actively engage in their care which can potentially enhance their safety. As is the case in many countries, a patient-centred approach is now supported by national policies and consumer rights charters within New Zealand. The Code of Health and Disability Consumers' Rights (HDC, 2009) uphold the importance of patient-centric care and the recent New Zealand Health Strategy (MoH, 2016) has a related concept of people-power as a core theme, all with the main aim of reducing harm. However, little is known about patient and healthcare staff perspectives and experiences regarding patient participation in nursing care. Without this knowledge, the potential contribution that patients and healthcare staff could make to patient safety and falls reduction may be overlooked.

Given the significant burden to society and individuals caused by falls, internationally governments have invested in falls prevention strategies (Costello & Edelstein, 2008, Dyson, 2005). Internationally falls prevention organisations such as the National Institute for Health Care Excellence [NICE] (NICE, 2013), Prevention of falls Network Europe [ProFane] (ProFane, 2003), American Geriatrics Society [AGS] (AGS, 2010), British Geriatrics Society [BGS] (BGS, 2010) and the National Guideline Clearinghouse (Gray-Miceli & Quigley, 2012), Australia and New Zealand Falls Prevention Society [ANZFPS] (ANZFPS, 2006), provide guidance and evidence-based practice guidelines on prevention strategies. Some of these include the use of motion sensors with alarms such as sensormat or sensorclips, use of restraints, reduction of antipsychotic medications, mobility, exercise programmes such as the Otago Exercise Programme (Robertson & Campbell, 2003), Lifestyle-Integrated Functional Exercise Program [LiFE] (Clemson, Munro, & Singh, 2014), assessment of bone health and fracture risk and the use of vitamin D (Currie, 2008; Hempel et al., 2013; Jones et al., 2016). The Centers for Disease Control and Prevention (CDC) developed a tool kit for health care providers: Stopping Elderly Accidents, Deaths & Injuries [STEADI] (Stevens & Phelan, 2013). A number of studies identified exercise as significant in preventing falls (Gillespie et al., 2012; Sherrington et al., 2008). Stevens, Mack, Paulozzi, and Ballestreros (2008) stated that most effective interventions focused on exercise, medication management and vision correction. French et al. (2006) determined that polypharmacy was widespread, particularly among older adults, and there was a correlation between risk of fracture and the prescribed central nervous system drugs.

The New Zealand Government launched its 10-year Injury Prevention Strategy in 2005 which aimed at reducing the incidence, consequences and severity of injury from falls, and

to lessen the social, psychological, and economic impact on the individual and on society in general (Dyson, 2005). The New Zealand Government, largely through its Accident Compensation Corporation (ACC), has supported a number of initiatives that have aimed to prevent falls in older adults, such as the Otago Exercise Programme (OEP), tai chi classes, increase bone density screening through the ACC funded fracture liaison services, vitamin D supplementation (Accident Compensation Corporation, 2003; 2006; 2008). Evidence regarding the effectiveness of these falls prevention strategies, particularly the OEP (Thomas, Mackintosh, & Halbert, 2010), has been encouraging, however there was still a lack of clarity regarding which approaches were most appropriate for which population groups (Gillespie et al., 2012).

In New Zealand the District Health Boards in association with the Health Safety Quality Commission (HQSC) provide and promote initiatives such as April Falls, Stand Up to Falls, Reducing Harm from Falls, The Productive Ward-Falls Prevention Module as part of the Releasing Time to Care initiative, and Focus on Falls-Open for Better Care, continue to raise the profile of falls among the New Zealand public, health users and healthcare staff, thereby acknowledging that falls safety and prevention is everyone's responsibility. It is the duty of each and every health care worker to be alert to falls risks.

At a local level, a number of initiatives have recently been introduced such as the Safe Recovery Programme, which aims to improve patient's awareness of falls and falls risk in the hospital; reduce the falls risk and prevent falls, which is based on research by Hill et al. (2009). Sport Canterbury works with ACC to implement the Community Group Strength and Balance Programme in the Canterbury region, the focus of this initiative is to improving lower body and core strength and balance. Activities include stretching and

flexibility, as well as dancing, circuit work, and Zumba. Hourly or intentional rounding, zone nursing and falls risk identifiers are all strategies currently in use in the authors clinical environment (Sport Canterbury, 2017). Intentional rounding is a strategy in which a nurse and/or hospital aide attend to their patients at least once every hour (Harris et al., 2017). While it is not always possible to increase patient observation, intentional rounds enable staff to anticipate the patient's needs. Zone nursing where staff assignments are made based on ward geography, patient acuity, and skills required of the nursing care team to achieve optimal patient outcomes. Fall risk identifiers translated into a traffic light system to identify falls risk (such as: red, yellow and green wrist band) (Oliver et al., 2010). Recently a trial was commenced using voice activated call bell system to alert healthcare staff of patients requiring assistance, the aim of this technology was to reduce call bell response times and provide patient reassurance that assistance is on the way, currently there is only anecdotal evidence from a similar trial in Australia to support this initiative (Deloitte Work Group, 2018). In addition to the initiatives listed above, another resource in raising the awareness of hospital falls is the presence of a 'falls champion' (HQSC, 2016). This individual has been chosen or volunteered to act as a resource with their knowledge, skills and attitude towards falls prevention and advocate and campaign for ongoing falls awareness, staff education and support for falls prevention.

Cameron et al. (2010) wanted to identify successful hospital fall prevention strategies and concluded that no one strategy was entirely effective in reducing hospital falls rates; however, the authors did find that a multimodal approach may be successful. Many hospital based fall prevention strategies usually begin on admission by identifying the patients at risk for falls. Nurses and other healthcare professionals provide a vital link in

ensuring the safety of patients by routinely completing fall risk assessments on admission

and developing patient-specific fall prevention interventions. Ongoing staff and patient

education are other key components in reducing risks and preventing falls or fall-related

injuries (Quigley et al., 2010; Vassallo, Poynter, Sharma, Kwan, & Allen, 2008). This

screening is completed, usually on admission to the ward or clinical area, so that early

interventions and falls reduction or prevention strategies can be introduced on admission

and continued through until discharge. Many interventions to improve the rate of falls

begin with a falls risk assessment (Hempel et al., 2013). The majority of the literature

pertaining to falls prevention in the hospital setting advocates the use of ; A validated risk

assessment tool; Staff knowledge regarding falls prevention; Provision of a well-resourced

and safe environment for patients; An interdisciplinary approach to falls prevention

(Miake-Lye, Hempel, Ganz, & Shekelle, 2013; Oliver, Daly, Martin, & McMurdo, 2004).

However, some literature indicates that falls risk assessment tools may not be a reliable

predictors of whether a patient will experience a fall or not (da Costa, Rutjes, Mendy,

Freund-Heritage, & Viera, 2012), these tools should complement healthcare staffs' tacit

knowledge and clinical judgement, not aim to replace it with tick boxes (Ganz, Alkema &

Wu, 2008; Oliver & Healey, 2009; Vassallo et al., 2008). In the author place of work all

patients are considered at risk of falling and no formal risk assessment is undertaken, some

researchers have advocated that they are not essential to a fall prevention strategy (Oliver,

2008). Falls risk questions are however, included in the admission paperwork and staff are

encouraged to review safety of the patient environment, patient cognitive status and their

ability to call for assistance when required on a regular basis. Most hospital fall prevention

programmes consist of strategies targeting multiple risk factors and include a risk

assessment, visual communication signage and patient education (DiBardino, Cohen, & Didwania, 2012; Hempel et al., 2013). What remains clear though, is that falls continue to occur at high levels in hospital worldwide, and despite best efforts there is no evidenced solution or 'magic wand' to fix this growing issue.

## 1.6 Positioning of the author

I have been in the nursing profession for almost 26 years and have worked in many clinical environments, in varying nursing roles, and in several countries. A constant theme across these clinical environments has been the incidence of in-patient falls. I have unfortunately had the experience of family members falling while in hospital and have also experienced first-hand the emotions that come with feeling responsible for a patient who falls, sometimes with devastating effects. These clinical incidents and personal experiences prompted reflection and initial discussions with colleagues. The desire to undertake a review of the literature ensued and so I found myself wanting to substantiate or question some of the assumptions around the experiences and perceptions of staff in patient safety and that of the patient in their own care.

I have utilised many falls assessment tools and implemented numerous risk reduction strategies which focus on demographics and characteristics of patient risk or the likelihood of falling but still in-patients in my care have fallen. There is a wealth of information and research pertaining to patient falls with most of the literature on falls focused on older adults residing in the community or long-term care facilities or concentrated on examining the effectiveness of various hospital fall prevention programmes or risk minimisation tools. Over the years it appears that little investigation into the perspective or experience of the patient who falls or the healthcare staff charged with their care. The author ponders if

hospital falls management programmes were more person-centric and less process driven would the outcomes for the patient improve? Are falls ever discussed from patient perspective or delved into the vast wealth of experience of healthcare staff? Patients, through their unique experiences, can offer insights into the quality of hospital care, including the way a treatment, process or interaction made them feel and, their subsequent response.

## 1.7 Dissertation Aim

The original aim of this integrative review was to explore the impact of an in-patient fall from a patient's perspective. As an initial scoping review was only able to locate limited primary research that explicitly focused on this phenomenon, the approach was therefore broaden to include the exploration of healthcare staff perspectives. The aim of this dissertation therefore, was to explore the perceptions and experiences of patients and healthcare staff following an in-patient fall. It was considered that these perspectives would help to elucidate the range of situational, environmental and personal factors that impact on both patient and staff decision-making and would help inform future research on the concept of in-patient falls.

## 1.8 Dissertation Structure

This dissertation is divided into four chapters: Chapter one introduces the topic and frames the aim of this dissertation. Related background literature pertaining to and defining falls, its international and national significance were reviewed. Chapter two consists of the methodology and research methods used to collect, extract, analyse and synthesize the relevant literature. Chapter three describes the outcomes of applying the methods outlined

in chapter two. This includes describing the themes that emerged, with illustrations from the literature. In chapter four the identified themes following an in-patient fall are discussed. A review of the key implications for practice is undertaken, recommendations for future study are presented and concluding comments for this review are provided.

## 1.9 Summary

Despite a myriad of studies on falls prevention patient falls continue to be a prominent concern within healthcare organisations. Some of the prevention evidence is equivocal, and therefore unsurprisingly, adult inpatient fall rates remain a constant problem with many resulting in injuries, complications and death (Boudin et al., 2013). Even with the plethora of research findings published, there remains no single intervention, multimodal approach, or other components such as a culture of safety that can sustain a decrease in patient fall (Johnson, George, & Tran, 2011; Kalisch, Lee, & Rochman, 2010; Mion et al., 2012; Oliver et al., 2010; Spoelstra, Given, & Given, 2012; Tzeng, Hu, & Yin, 2011). Perhaps it is time to explore the falls quagmire from the perceptive of those involved in the daily patient care as currently the research to date has not fully explained how reduce inpatient fall rates by nurse/healthcare staffing, the use of fall risk assessment tools, or preventative measures or strategies such as staff education, alarming devices or coloured wrist bands. While these strategies are not overly successful, they are currently the only approaches available (Clyburn & Heydemann, 2011). The aim of this review therefore, is to explore patient and staff experiences and perceptions following an in-patient fall. In order to gain an understanding of these experiences may inform and improve fall prevention strategies and ultimately patient safety and well-being.

**Chapter 2. Methodology and Methods**

**2.1 Introduction**

To fully explore the experience and perceptions of patients and staff following an in-patient fall, an integrative review of the literature was undertaken. Many of these post fall experiences affecting both the patient and the healthcare staff responsible for their care can be hard to quantify and may be subjective in nature. By systematically locating and examining qualitative, quantitative and expert opinion literature, a better understanding can be gained of the phenomena of interest in both a practical and meaningful way. This deeper understanding may inform and improve post falls care for hospitalised patients and give nursing staff insight into practices and behaviours following an in-patient fall. The following chapter provides an explanation of the integrative review as the chosen methodology. The methods used to develop and expand the research question are described, the search strategy adhered to for sourcing literature, the quality appraisal and data extraction techniques utilised and a description of the processes applied in the analysis and synthesis of the data.

**2.2 Methodology**

A literature review approach is often used to answer well focused questions about clinical practices (Cronin, Ryan, & Coughlan, 2008). There are a number of potential ways to undertake a review of the literature such as a narrative, systematic and integrative reviews. Each of these have their strengths and limitations. Narrative reviews offer a mostly subjective review of the topic, is dependent on the authors' knowledge base and expertise as well as the selected literature, and furthermore, it is not easily reproducible, (Aromataris & Pearson, 2014, p.53). Systematic reviews aim to provide an objective summary of the

best available evidence, usually only using randomised controlled trials, (Aromataris & Pearson, 2014) thus often excluding qualitative evidence that may contribute to more fully answering the research question however. An integrative review as proposed by Whittemore and Knafl (2005) entail the overview of past empirical data. In the current study, the methodology constitutes the basis for providing a comprehensive understanding of the experience and perception of an in-patient fall from the patient and staff members perspective as it allows for the inclusion from a wide range of sources, such as qualitative and quantitative research data, expert opinion pieces and grey literature by following an integrative framework (Whittemore & Knafl, 2005). Following a preliminary search of the literature, studies identified were noted to be of mixed methodology, therefore an integrative review was proposed as the best methodology to investigate the research question.

The structure of this study was based on the integrative review methodology framework presented by Whittemore and Knafl (2005). The areas addressed in this framework include: (a) problem identification, (b) literature search, (c) data evaluation, (d) data analysis, and (e) presentation. This framework was developed to specifically address intricacies commonly encountered during the integrative review process such as the need to combine research from multiple study types. For an integrative review to be considered strong enough to guide future practice, each of the five areas must be addressed. Each area will be discussed in the following sections.

## 2.3 The Research Question and Search Criteria

2.3.1 Problem Identification and Dissertation Aim

Clarity of the problem area to be studied is critical to allow for the appropriate data to be collected and subsequently analysed (Whittemore & Knafl, 2005). The problem identified was that current post fall care may not consider the perceptions and experiences of the patients who have fallen and the staff working with patients trying to prevent these adverse incidences, therefore the unique needs of the hospitalised adult patient population may not be met. To provide meaningful support to this population, an understanding of their experiences must first be gained.

The initial research question was 'What are the challenges affecting the older person following an in-patient fall from the perspective of the patient?' However, due to little research being found specific to hospitalised older adults and from the perspective of the patient, the experience and perspective of healthcare staff was subsequently included. Furthermore, there was little research that focused exclusively on the older patient and so the search parameters were extended to include all hospitalised adults who had sustained a fall while in hospital. The primary purpose of this dissertation therefore was to explore the experiences and perceptions from patients and healthcare staff following an in-patient fall.

2.3.2 Research Question formulation and PICo Strategy

A clear research question is vital as it guides the author in conducting a review, therefore determining the question was one of the first steps in the planning of a review. The mnemonic PICo (population, phenomena of interest, context) has been used to develop the question this study (Table 1). A good research question should contain all of the elements included in the PICo mnemonic (Stern, Jordan, & McArthur, 2014). Mnemonics are useful in providing guidance for structuring of the review and explaining the conduct of a review, the PICo mnemonic is primarily used for qualitative reviews (JBI, 2015; Stern et al.,

2014). As such, the PICo mnemonic was the chosen strategy for this integrative review as it was exploring the meaning of a phenomenon of interest, namely the experience of a fall. The PICo framework was also useful in developing literature search strategies (Schardt, Adams, Owens, Keitz, & Fontelo, 2007).

*Table 2. PICo mnemonic*

| **P**opulation | Hospitalised adults/ >18yrs and Healthcare staff |
| --- | --- |
| **I**ntervention | In- patient fall |
| **Co**ntext | Experience and perception of fall |

2.3.3   Definition of Key Terms

The following key terms were defined for the purpose of the review; experiences, perceptions, falls, patients and healthcare staff. The main theme of this literature review was to explore the experiences and perceptions of patients and healthcare staff following an inpatient fall.

 Experiences

The term experience has so many meanings. Dewey (1925) defined experience "feeling, conceiving and enliving" (p.266) through an event. Webster's online dictionary define experience as the "the sum total of the conscious events which compose an individual life". LeSeure and Chongkham-ang (2015) state that experience can mean how an individual has perceived a certain phenomenon. Experience is subjective; each person (patient or staff) may experience and develop different feelings, thoughts, attitudes and opinions towards the same event. In healthcare, despite the common recognition of the importance of patient experience, as yet, there is no clear and shared definition of experience. Patient experience

shares common themes of emotional, spiritual and physical lived experience and importance of partnership and patients' involvement, and it is formed by the organisation, its' culture and its' staff. (Wolf, Neiderhauser, Marshburn & La Vela, 2014, p. 7).

Perception

Perception is referred to as a belief or opinion, often held by many people and based on how things seem (Cambridge University Press, 2016). Perception in the context of this review refers to how patient and healthcare staff comprehend the recent in-patient fall. It is the patient's and staff members representation of how they view this falls event in their own opinion.

In-patient

For the purposes of ease this review will use the word 'in-patient' to include all hospitalised individuals or recipients of care whether they would be referred to by another name such as client or healthcare consumer. It does not however include patients attending out-patient clinic or programmes or those attending day clinics.

Healthcare staff

In the context of this review healthcare staff refers to the regulated health workforce comprising of nurses, physiotherapists, occupational therapist, medical staff and supported in its delivery of care by health care assistants, hospital aides. It does not include other hospital staff such as orderlies, food services staff, hospital chaplains and hospital volunteers.

**2.4 Search Strategy**

A sound, robust literature search strategy is essential which, if reproduced, would gain

comparable results. Rigid parameters for the search strategy identify relevant literature,

however if these are too narrow it may yield few in number and may overlook quality

articles that use alternative terms to discuss the same subject matter (Porritt, Gomersall, &

Lockwood, 2014). Conversely a broad search strategy may uncover a larger range of

articles, yet this can produce a greater number to appraise and a higher percentage of the

literature may not be relevant to the topic and therefore excluded from the review. A clear

search strategy is essential therefore, to ensure that this part of the process is both

transparent and reproducible. For the purposes of this review, a systematic literature search

was made in the following databases: PubMed, the Cumulative Index to Nursing and

Allied Health Literature (CINAHL), PsychInfo, Google Scholar and Medline Ovid. It was

assumed that these databases would capture the majority of articles and texts available

within the topic of interest,  as they are generally thought to be a good source to search

when conducting a review of qualitative evidence (Wright, Golder & Lewis- Light, 2015).

Having established the population, intervention and context, keywords (with and without

an asterisk to widen the search parameters) were used to conduct the initial search

included: patient falls, in-patient falls, hospital falls, accidental falls, inadvertent fall, falls

outcomes, falls effects, falls consequences, experience of falls, perception of falls, impact

of falls, experiences following a fall, injurious falls, harmful falls, result of falls, outcomes

following fall, post fall, post fall experiences, patient safety following fall, hospital,

patient, adult patients, in-patients, staff, hospital staff, healthcare staff, nursing staff,

nurses, nursing team, workforce, experience, perception, awareness, insight, opinion, view.

With the intention of realising a substantial result, inclusion/exclusion criteria were determined to select articles that were relevant to the review aim. Inclusion and exclusion criteria are intended to guide the author to select or disqualify articles for the study and, according to Aveyard (2014), are a necessary element to help focus the research.

**2.4.1 Eligibility criteria**

To be included in this integrative review, the following inclusion criteria were applied:

- English publications- (as the time frame for this study prohibits translation of other languages).

- Qualitative and quantitative studies.

- Position statements and expert opinion.

- Adult in-patients, 18 years or over who have sustained a fall whilst in hospital.

- Healthcare staff involved in patient care.

Exclusion criteria for this integrative review included:

- Non-English language articles.

- Patient population under 18 years of age.

- Articles that are older than ten years

- Articles that incur a charge.

- Non- hospital based or community falls.

The stages of the search strategy were undertaken utilising the PRISMA guidelines as outlined by Moher, Liberati, Tetzlaff, Altman, and the Prisma Group (2009), which involved a four-step approach:

1. Identification: – Potential articles were sourced using the search strategy. This includes recording the databases searched, along with the key words, date and number of articles listed.

2. Screening: – Abstracts collected from the database are screened to remove duplicates and assess against the inclusion and exclusion criteria to ascertain whether the articles are relevant to the topic of interest. This assists the author to decide whether to locate the full text article or not.

3. Eligibility: – Reading of full text articles to ensure they meet the stated inclusion/exclusion criteria; articles excluded at this time are listed, the reason(s) for exclusion are clearly stated.

4. Included articles: – Following the steps outlined above, the included full text articles are then listed, and grouped into qualitative, quantitative, opinion articles or grey literature ready for the next step of quality appraisal. Reference list searching of identified articles was undertaken at this stage.

## 2.5 Screening and Selection

The initial search identified 24 studies (Figure 1.) for screening for their potential relevance to this review. An additional six studies were identified for inclusion via reference list searching, as recommended by Polit and Beck (2013) and Whittemore and Knafl (2005). When duplicates were removed, the total number of potentially relevant

articles was reduced to 18. Titles and abstracts were then read and evaluated for relevancy

to the topic and the inclusion and exclusion criteria were applied. This resulted in 15

possible studies for inclusion. Following a reading of the full text of each study, seven

articles were excluded. While the excluded studies discussed either patient or healthcare

staff perceptions and or experience of falls or falling, it was however unclear that a fall had

actually occurred during the period of the study (Boltz, Resnick, Capezuti & Shuluk, 2012;

Robson, Coyle & Pope, 2018; Shuman et al., 2016; Sonnad, Mascioli, Cunningham &

Goldsack, 2014; Tinetti & Kumar, 2010; Twibell, Siela, Sproat & Coers, 2015).

Furthermore, one study claimed to explore healthcare care staff perceptions of falls, instead

healthcare staff perspectives on fall-risk and falls prevention was studied (Dykes, Carroll,

Hurley, Benoit & Middleton, 2009). Eight studies remained and were included following

duplicate removal and screening. These articles then went through a quality appraisal
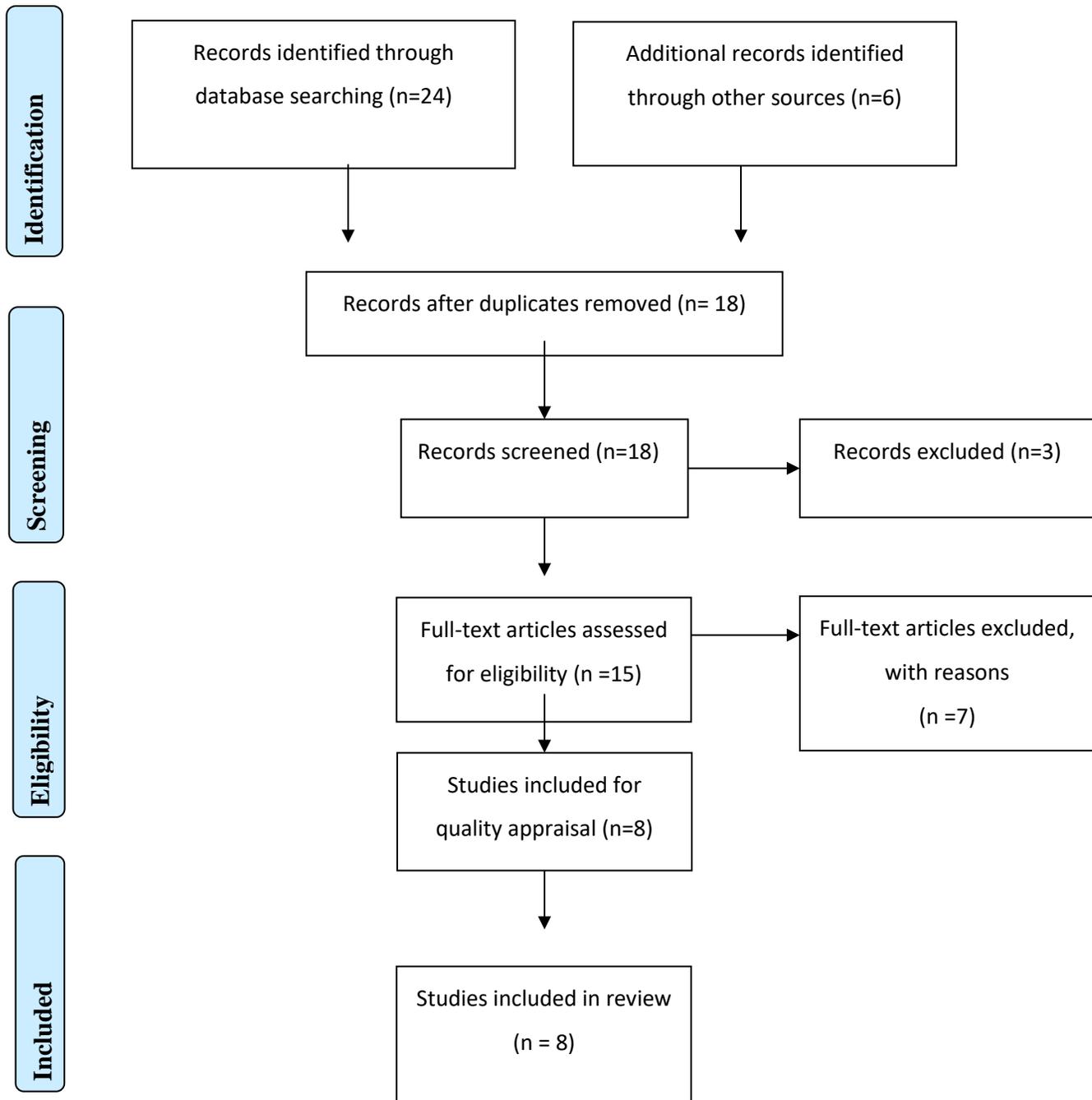
process.

## 2.6 Critical Appraisal of Methodological Quality.

Research quality is primarily based on the internal validity of the studies presented and the

methodological rigor utilized.  Research quality may also be determined by the research

design and conduct of the researchers, which is meant to reduce biases and errors

(Pannucci &Wilkins, 2010; Rooney et al., 2016). Quality appraisal is the critical review of

articles to assess the rigour of the reported methodology (Porritt et al., 2014). Determining

the quality of the studies is an important aspect of the selection phase of a review and a

reliable, robust system is required (Pluye, Gagnon, Griffiths, & Johnson-Lafleur, 2009;

Whittemore & Knafl, 2005). The appraisal process requires the reader to methodically

evaluate the literature identified in the search strategy to ascertain if the reporting study

methodology, methods and data are of sufficient quality for subsequent data extraction. The Joanna Briggs Institute (JBI) quality appraisal suite of tools (JBI, 2015) were utilised to provide a systematic approach to quality assessment. Literature retrieved included research from quantitative, qualitative and mixed method research, therefore the analysis of the different methodologies requires differing approaches. Primary appraisal of quantitative papers selected for retrieval for methodological validity prior to inclusion in the review used standardized critical appraisal instruments from the Joanna Briggs Institute Meta-Analysis of Statistics Assessment and Review Instrument (JBI-MAStARI) (Appendix I). Qualitative papers selected for retrieval were assessed using the Joanna Briggs Institute Qualitative Assessment and Review Instrument (JBI-QARI) (Appendix II), expert opinion papers selected for retrieval were assessed using the Joanna Briggs Institute Narrative, Opinion and Text Assessment and Review Instrument (JBI-NOTARI) (Appendix III). The criteria for paper inclusion in this review was a score of at least 70% (seven out of ten, six out of nine or five out of seven) depending on the tool used. The critical appraisal tool examined for congruity between the philosophical perspective and research methodology, research questions, objectives, data collection method, data analysis and representation, data interpretation, the influence of researchers, research ethics and conclusion. A yes or no based scale was utilized by the critical appraisal tool.

After assessing the articles according to the inclusion and exclusion criteria, eight articles remained and the quality appraisal process was applied. To further ensure the rigor and consistency of this review, the author and one of the supervisors independently appraised the articles using the appropriate critical appraisal tools until consensus was achieved. Any disagreements that arose between the author and the primary supervisor were resolved

through discussion, or with the secondary supervisor. This was an important step in the review process so that a uniform approach in assessing the value and relevance of the selected research articles was reached.

*Figure 1. PRISMA flowchart*



| | |
|---|---|
| **Identification** | Records identified through database searching (n=24) |
| | Additional records identified through other sources (n=6) |

Records after duplicates removed (n= 18)

**Screening**

Records screened (n=18) → Records excluded (n=3)

**Eligibility**

Full-text articles assessed for eligibility (n =15) → Full-text articles excluded, with reasons (n =7)

Studies included for quality appraisal (n=8)

**Included**

Studies included in review (n = 8)

*Template Modified from: Moher et al. (2009).*

**2.7 Ethics and ethical considerations**

This integrative review examines published research available in the public domain; therefore, ethical approval was not sought as it is not required for the use of previously published manuscripts presented in this review. Every effort was made to conduct an ethical study. All the information within this review was collected, synthesised and was presented in a manner that upholds the stated intentions and purposes of the research, with the aim of being respectful to both the participants and researchers involved. The author endeavoured to respect the intellectual property of research through the appropriate use of citations and references to avoid misrepresentation and plagiarism (Botma, Greeff, Mulaudzi, & Wright, 2010, p. 277). Sources have been referenced according to American Psychological Association (APA) 6th edition guidelines (APA, 2010). The author was committed to completing this literature review with integrity, professionalism and ethical and moral conduct. Efforts were also made to ensure that this final document demonstrates the integration of the concepts, thoughts and other information peculiar to the authors whose papers and work were the objects of this review.

**2.8.1 Data Extraction**

Important, relevant data from the literature relating to the research question was extracted using the JBI (2015) standardised data extraction tools (QARI, MAStARI and NOTARI); the utilisation of validated tools minimises bias with the aim of providing more reliable findings (Munn, Tufanaru, & Aromataris, 2014). This enabled the author to objectively

compare data from articles that were written in different styles and used different research methods (Munn et al., 2014). The identification of common findings assisted with the data synthesis process. The data extracted included specific details about the populations, study methods and outcomes of significance to the review question as well as demographics of the articles, authors, year and country of origin. This information was then organised in tabular format for presentation.

**2.8.2 Data analysis**

The goal of data analysis was to examine the evidence that explored the experiences and perception of patients and healthcare staff following an in-patient fall. Due to the heterogeneity of the methods used in the included studies, neither meta-analysis nor meta-synthesis was possible, therefore a descriptive narrative was required to report the findings. To accomplish this goal a thematic process of analysis was the method used for identifying, analysing and reporting themes within the reviewed literature. Thematic analysis has been described as "adaptable and straightforward" (McLeod, 2011, p.146) and allows for the deep interpretation of key aspects of the research question across multiple styles of literature, including highlighting similarities and differences (Braun & Clarke, 2006). However, it must be mentioned that this form of data analysis is open to the bias of the researcher, who may consciously or unconsciously identify particular themes across the literature. To minimise bias, the author utilised Braun and Clarke's (2006) six phased thematic analysis framework. In Braun and Clarke's (2006) method of thematic analysis, themes or patterns are identified via a rigorous process of familiarisation with the data, coding, theming, reviewing and refining themes until a thematic map of the data that

captures the essence of the data and is representative of it is reached. Braun and Clarke's (2006) step -by step approach to thematic analysis is described below.

Phase 1: Familiarisation with the data: As the name of this phase indicates this phase involves immersing oneself in the data to get a better sense of the content and context of the research. The authors recommended rereading the entire data set at least once before embarking on analysis, as well as "reading the data in an active way" (Braun & Clarke, 2006, p.87), marking ideas and codes that might be useful in later stages.

Phase 2: Generating initial codes: Braun and Clarke (2006) described coding as a "process of identifying aspects of the data that relate to your research question" (p.206). Aspects of the data can be words or phrases that have been used by the authors of the study that answer the research question, or even quotes they have used from participants in their study. Coding can therefore be thought of as a way of (minimally) organising the data in a meaningful manner.

Phase 3: Searching for themes: This phase is where purposive interpretation of the data really begins. It involves analysing codes that were generated in the previous step and organising them at the level of themes, based on patterns and commonalities between the codes. The goal at the end of this stage is the identification of a set of candidate themes and sub themes that incorporate the coded data extracts.

Phase 4: Reviewing themes: The task at this stage is to recheck and refine the candidate themes identified previously; first, at the level of coded data extracts, to ensure they form a coherent pattern, and second at the level of original text, to ensure the validity of individual themes against the original data.

Phases 5: When defining and naming themes Braun and Clarke (2006) recommend reviewing the final themes in light of sub themes to ensure that higher order or main themes accurately represent ideas captured by the sub themes, and vice versa, that data in the sub themes support the main themes. Braun and Clarke (2006) also recommend that researchers refine the working titles that have already been allocated to themes and consider what names or descriptors they will assign to the themes in the final report.

Phase 6: Producing the report: Writing up of the findings is considered the final step of analysis (Braun & Clarke, 2006), and is about weaving the themes together with illustrative data extracts, into a compelling narrative which reflects the merits and validity of the analysis.

## 2.9 Summary

This chapter outlines the literature review process; the methodology and methods taken to explore and examine literature pertaining to the research question as directed by the approach proposed by Whittemore and Knafl (2005). Since the literature is the data of the integrative literature review, it is essential that the process for obtaining it is described in detail (Toracco, 2005). An integrative review of the literature was conducted via the electronic databases of PubMed, CINAHL, PsychInfo, Google Scholar and Medline Ovid, using selected key words. Subsequently following quality appraisal of research findings, eight articles were selected for inclusion in the literature review.

**Chapter 3. Findings**

**3.1 Introduction**

All eight articles underwent the quality appraisal process using matched JBI tools were included in the final review. A total of one hundred and thirty codes were extracted from the studies. These codes were synthesised into nine categories, which were grouped into three main themes; Emotional impact of falls; Communication; Independence versus risk. Each theme encompasses a range of factors, which may offer insight into the experience and perceptions of patients and healthcare staff following an in-patient fall falls assessment and management in the hospitalised adult patient. Each theme and the categories from which it is comprised inform the focus of this chapter which comments with a summary of the included studies.

**3.2 Summary of Excluded and Included Studies**

Eight articles were identified in the literature search as highly relevant to the research question. These articles were critically appraised using the tools described in the previous chapter. All eight articles underwent the quality appraisal process and were included in the final review, therefore there is no description of excluded articles.

Of the eight studies included to form part of the integrated review; four of the studies specifically dealt with falls from a patient's perspective while the remaining four studies explored patient falls from the nursing and healthcare staff position. The research designs

of the selected studies were primarily qualitative in nature. Some were classified as

descriptive designs (Bok, Pierce, Gies, & Steiner, 2016; Carroll, Dykes & Hurley, 2010;

Häggqvist, Stenvall, Fjellman-Wiklund,Westerberg, & Lundin-Olsson, 2012; Haines et al.,

2012; Lim et al., 2018; Rush et al., 2009) while others (Gettens, Fulbrook, Jessup, & Low

Choy, 2018) were phenomenological studies. One study was observational although the

reported results were qualitative in nature (Gettens & Fulbrook, 2015). This review has an

international focus with the data collected coming from different geographical locations,

with the selected studies originating from Australia (n=3), the United States (n=3), Sweden

(n=1) and Singapore (n=1). All studies, except for two (Carroll et al., 2010; Rush et al.,

2009) were published in the past six years, with two studies published in 2018 (Gettens et

al., 2018; Lim et al., 2018). A range of acute and sub-acute hospital settings were

represented; these included acute medical units, surgical units, acute orthopaedic ward,

rehabilitation departments, and geriatric evaluation and extended care units. All patients

participating in the studies were aged 18 years and above, with a total number of 281

patients represented in the data. The studies focusing on the healthcare staff had 92

represented in the findings, off which eight were care givers, 33 were unspecified

healthcare professionals, with the remainder nurses. A summary of the included studies is

presented in Table 3. below.

| Author, Year, Country | Aim | Population | Geographical location/setting | Design & Methodology | Findings | QA score(%) |
|---|---|---|---|---|---|---|
| Bok et al., (2016). USA | The study was aimed at defining the meaning of a fall as well as fall prevention from a rehabilitation nurse perspective | Nurses n=42. M=2; F=40. Age range 21-80 years | In-patient rehabilitation setting | A qualitative descriptive research design. | Five themes emerged related to the meaning of a fall. i)feeling horrible, ii) feeling guilty, iii) thinking I failed to protect, iv) feeling thankful there was no harm and v) thinking it was not my fault, but a system problem. | 8/10 (80%) |
| Carroll et al., (2010). USA | To identify reasons for patient falls among patients and methods which could be used to prevent falls | Patients n=9; M=2; F=7 Age range 24-78 years, mean age of 61.2 years | Acute care hospital setting. Type of ward not stated. | A qualitative, descriptive study. | Causes of falls as identified by patients:<br><br>• loss of balance and unexpected weakness.<br><br>• not wanting to bother the nursing staff.<br><br>• considered asking for help an emotional obstacle. Patients outlined the need to be included in fall risk communication programmes | 9/10 (90%) |
| Gettens et al., (2018). Australia | To understand the patient's perspective about falling in a clinical setting | Patients n=12; M=5; F=7. Age range 27-84years | Tertiary hospital setting | A qualitative phenomenological design | Falling not an initial concern as patients believed they would be kept safe. Three themes emerged including i) feeling safe, ii) recovering independence and iii) identity as well as realizing the risk. | 8/10 (80%) |

| Gettens & Fulbrook (2015). Australia | The study examined the association between the fear of falling, in-hospital falls risk, and hospital length of stay. | Patients n=144. M=71, F=73. Age range 18-95 years, mean age 73.6 years. | Tertiary and secondary hospital including: medical/surgical, acute rehabilitation and geriatric evaluation/management and extended care wards. | Observational non-experimental design | The Modified Falls Efficacy Scale (MEFS) can predict the number of falls within a clinical setting. The number of falls are linked to increased length of stay | 7/10 (70%) |
|---|---|---|---|---|---|---|
| Häggqvist et al., (2012). Sweden | The study examined experiences of licensed practical nurses in predicting and preventing falls | Licensed practical nurses n=15. M=3; F=12 Age range from 30-65 years. Mean experience 23.7 years | University hospital: two wards included in study, acute orthopaedic and geriatric rehabilitation wards. | A qualitative study. Focus groups and direct observations were also recorded | Organized into one main theme referred to as the balancing act. Three subthemes identified including i) right to decide which encompasses having the mandate, ii) professional pride, and iii) responsibility to protect. | 8/10 (80%) |
| Haines et al., (2012). Australia | To understand why older patients are at risk of falling in hospitals during and after being discharged. | Patients n=16, informal caregivers n=8, health professionals n=33 included nurses n=12, occupational therapists n=7, physiotherapists n=10, social workers n= 1, podiatrists n=1 and case manager n=2 | Inpatient rehabilitation and medical wards in tertiary hospital setting. | Qualitative research. Grouped into focus group and answered semi-structured interviews | Risk factors identified included risk compensation by older adults. The desire to test physical boundaries, willingness to ask for assistance, communication failure and delayed responses from the healthcare providers. | 9/10 (90%) |

| Lim et al., (2018). Singapore | The aim was to investigate reasons as to why patients fall within clinical settings | Patients n=100<br><br>M=64, F=36<br><br>Median age 65.2years | Acute care hospital setting | Qualitative: exploratory, descriptive study | Six themes emerged from the analysis including i) self-blame behaviour, ii) negative feelings towards nurses, iii) overestimating ones' ability, iv) reluctance to impose on nurses, v) poor retention of provided information, and vi) apparent apathy towards falls. | 8/10<br><br>(80%) |
|---|---|---|---|---|---|---|
| Rush et al., (2009).<br><br>USA | To describe findings regarding the fall of patients from a nurse's perspective | Fifteen nurses (n=15). All female. Age range from 20-50 years with 0.3 -25 years of experience. | Acute care in-patient settings including cardiology, urogynecology, general surgery and trauma care | A qualitative descriptive research design. Focus groups. Sessions were audiotaped and analyzed thematically | Nurses indicated that they thought the patient was safe from any harm. Nurses also constantly monitored, evaluated and assessed the patient condition. In addition, nurses also communicated to patients. | 9/10<br><br>(90%) |

*Table 3. Summary of included studies.*          **M-males; F-female**

**3.3 Introduction to Themes**

The research question focused on the exploration of the experience and perception of patients and healthcare staff following an in-patient fall. According to Braun and Clarke (2006) phase six of their thematic analysis framework entails writing down the findings, this is careful done and is considered the final phase of the thematic process. The themes and categories were merged together with numerous illustrative extracts from the data, into an extensive narrative which reveals the quality and validity of the analysis.

Three main synthesised themes were identified from the data as shown in Table 4. below:

Theme 1. Emotional impact of falls

Theme 2. Communication

Theme 3. Independence versus Risk

The three identified synthesised themes were not predetermined or deliberately sought out from the data; however, the themes were informed by the respective categories and found to be consistent with falls research, strategies and opinion identified in current literature. The theme headings do not correspond to exact participant quotes from the selected studies, rather they have been assigned by the author in consultation with her supervisors. This was done so as to best portray and explain the themes that emerged from the synthesis of the data (Boyatzis, 1998; Nowell, Norris, White, & Moules, 2017).

*Table 4. Summary of synthesised findings, categories and individual findings*

| Theme | Category | Illustration of Finding |
|---|---|---|
| Emotional Impact of Falls | Negative feelings following a fall.  n=20 | Confidence immediately after a fall is very low- (Gettens & Fulbrook, 2015). "*I have to say that I experience it as a failure, when a patient falls*"- Haggqvist et al. (2012) |
| | Self-Blame/Blame.   n=21 | "*It's my fault. I didn't call the nurses*"- Lim et al. (2018) "*… she did not hold on to me*"-Lim et al. (2018) |
| | Positive feelings.   n= 6 | "*Feeling thankful there was no harm*"- Bok et al. (2 |
| Theme | Category | Illustration of Finding |
| Communication | Communicating risk to patient. n= 17 | "*the patient and his wife were educated several times regarding falls*"-Bok et al. (2016). |
| | Reluctance to impose and seek help from busy staff. n=43 | "*I won't annoy them*"- Gettens et al., (2018) "*No, I won't bother* (them)"- Haines et al. (2012) |

| Theme | Categories | Illustration of Finding |
|---|---|---|
| | Risk taking behaviours. n= 12 | "…*I am well. I can do it myself*"- Lim 2018<br>"*false sense of security*"- Haines et al. (2012) |
| Independence Versus Risk | Realising risk. n=7 | "*Before I get up, I need to think*"-Carroll et al. (2010) |
| | Risk compensation n=4 | "…*re-examine how to maintain his independence, but also maintain his safety*"- Bok et al. (2016) |

n= the number of times a category was identified in the data.

**3.3.1 Theme 1. Emotional impact of falls**

It is not uncommon for any person, including health professionals to experience an altered

sense of self as the result of significant event (Cardeña & Carlson, 2001) and in regard to

the falls event described in the included studies, this was also a reality. Patients and

healthcare staff presented a number of mixed feelings or emotions following an in-patient

fall. Attributions of culpability or blame was evidenced in some of the studies (Bok et al.,

2016; Carroll et al., 2010; Häggqvist et al., 2012; Haines et al., 2012; Lim et al., 2018;

Rush et al., 2009). In-patient falls can be emotionally debilitating events to both patients

(Bok et al., 2016; Gettens & Fulbrook, 2015; Gettens et al., 2018; Lim et al., 2018) and

healthcare staff (Bok et al., 2015; Haggqvist et al. 2012; Haines et al., 2012; Rush et al.,

2009) conversely positive emotions have also been identified in relation to falls especially

when injury or harm have been aveoided (Bok et al., 2016, p. 49). This theme (n=47) was

integrated from the synthesis of three categories namely: Negative feelings following a

fall; attributing blame; and positive feelings following a fall.

**3.3.1.1 Category 1. Negative feelings following a fall**

Negative feelings following a fall were identified from both a patients and healthcare staff

perspective n=20 (Bok et al., 2016; Carroll et al., 2010; Gettens et al., 2018; Gettens &

Fulbrook 2015; Haines et al., 2012; Haggqvist et al. 2012; Lim et al., 2018; Rush et al.,

2009). Patients expressed negativity towards staff who they perceived had not *"responded*

*quickly enough"* to their care needs to prevent a fall from occurring (Bok et al., 2016, p.

48) or as highlighted by Carroll et al. (2010) that the patient *"rang for help a number of*

*times but…no one came"* (p. 3). This frustration at the length of time to wait for a staff

members response is again emphasized by Lim et al. (2018) "*I called the nurse. The nurse*

*was a bit slow. It was urgent"* (p. 50). Other study participants reported the manner in which staff responded to their needs varied from the negative "*He (another patient) was ringing his bell a lot…I didn't ring my bell, not because I didn't need help, but because I knew if you ring too much they get cross with you…"*

(Haines et al., 2012, p. 239) to a more positive approach *"…staff has helped a lot…they're pleasant"* (Gettens et al., 2018, p. 747) and this directly influence whether they requested staff assistance or not.

The overwhelming feeling from a healthcare staff perspective was that the staff and in particular the nurses felt responsible for falls and indicated increased levels of negative feelings after a patient fell within their clinical setting, and *"it's probably your fault… because you didn't do something to prevent it"* (Rush et al., 2009, p. 362); *"… I experience it as a failure when the patient falls*" (Haggqvist et al. 2012, p.5). Some of the descriptions provided included feeling sad, upset, concerned or terrible (Bok et al., 2016, p. 49); *"upsetting"* and *"scary"* (Rush et al., 2009, p.362). Bok et al. (2016) indicate that healthcare staff felt guilty after a patient fell from their bed, the staff described feelings of "*horror, failure and guilt*" (p. 49) following a patient fall. Bok et al. (2016) concluded that a patient fall can "*interrupt the nurse's sense of well-being*" (p. 49). Staff implied they felt that they failed to protect the patient from falling. Staff, especially new graduates found falls to be quite stressful especially if they had implemented measures to reduce such incidences within clinical settings, they reported feeling "betrayal" over the unreliability and variability of the fall risk assessments (Rush et al., 2009, p. 360). The major stressor associated revolved around the uncertainty of the fall and the health effect it had on the patient's condition. Staff also indicated that dealing with the aftermath of the fall was a

relatively time-consuming process. The post-fall protocol involved a number of measures including proper documentation of the effects of the fall as well as patient condition. Nursing staff suggested the implementation of such measures reduced the period in which they could deal with other emerging issues within the clinical setting (Rush et al., 2009). So emotionally significant was the impact of patient falls on them that some staff could not remember what led to the fall, the location and number of times the patient fell (Gettens & Fulbrook, 2015).

### 3.3.1.2 Category 2. Attributing blame

When a fall occurred both patients and healthcare staff expressed either blame or apportioned self -blame following the incident n= 21 (Bok et al., 2016; Carroll et al., 2010; Häggqvist et al., 2012; Haines et al., 2012; Lim et al., 2018; Rush et al., 2009). Lim et al. (2018) indicate that patients largely played a passive role in the prevention of fall programme and that some patients believed that the nurse was solely responsible for the fall they had experienced "…*she did not hold on to me"* (p. 50) or that the nurses were not "*attentive, hence causing them to fall"* (p. 50). In some instances, the patients directly blamed the staff for their falls believing that the nursing staff failed to apply the required measures to prevent the fall from occurring (Lim et al., 2018). Some patients appeared apathetic to falls within clinical settings and considered falling as a norm, while some blamed the fall on their own "…*carelessness*" (Carroll et al., 2010, p.3). Moreover, some patients blamed themselves stating "*It's because I refused to listen to other people's advice*". Lim et al., (2018, p. 49) stated that some patients felt solely responsible for the fall and even shielded the blame from the nursing staff. Some admitted the fall was associated with the risk-taking behaviour by the patient after being advised against doing

so, "*It's my fault. I didn't call the nurses"* (Lim et al., 2018, p. 49). A participant in the Haines et al. (2012) study attributed blame to a cluttered ward environment "*And the ward where I was, did have a lot of stuff in the corridor…it was horrible*" (p. 239), untidy ward environments were also highlighted in Carroll et al. (2010) study stating "*clear paths to the bathroom*" were particularly important (p. 4) or "*clearing the way*" (Häggqvist et al., 2012, p. 6).

Healthcare staff also attributed blame to the falls event with self-blame question like *"Why wasn't I there?"* or *"Why didn't I get there in time?"* (Häggqvist et al., 2012, p. 5), "*… felt that I had failed as a nurse to not protect this patient… from falling"* (Bok et al., 2016, p. 49). However most healthcare staff seemed to blame patient falls on factors that were primarily environmental in nature, "*A lot of them fall because we can't see them the way the ward is set up*" (Haines et al., 2012, p. 241). Some other factors blamed for the fall included competing tasks among nursing staff and time shortage (Rush et al., 2009) and shift handover time "*lag time between end of shift and change of staff*" (Bok et al., 2016, p. 49). In most cases, patients may request for help from the staff but the duration taken by the nursing staff or any other healthcare professional may be too long to the extent that the patient carries out the task by themselves (Carroll et al., 2010; Lim et al., 2018). Nursing staff indicated that unresponsiveness in certain situations was normally associated with the low number of nurses within the work setting compared to the high number of patients requiring assistance *"…when you have sometimes nine or 10 patients you may get to that fifth patient needs more of your attention…"* (Rush et al., 2009, p. 361), "*today we are understaffed*" (Haines et al., 2012, p. 241) and "*…just not enough nursing resource to prevent events such as this*" (Bok et al., 2016, p. 49).

**3.3.1.3 Category 3. Positive feelings following a fall**

Positive feelings following a fall were identified from both a patient and healthcare staff perspectives, these feeling were mainly associated with whether injury had been avoided and patient confidence affected (Bok et al., 2016; Carroll, et al., 2010; Gettens et al., 2018), n=6

Patients expressed positive feeling follow a fall believing *"...my confidence wasn't affected"* (Gettens et al., 2018, p. 747), while others discussed in positive terms the care they had received both pre and post fall from the healthcare staff "…*I think the staff has helped a lot…*" (Gettens et al., 2018, p.747). Healthcare staff also shared positive feelings especially when a non-injurious fall occurred "*I was thankful that no injury occurred*" and *"I was relieved that she was unharmed"* (Bok et al., 2016, p. 49) and some indicated that they felt *"like a superhero"* for preventing patient falls while others felt that they were doing their job (Bok et al., 2015, p. 50). Preventing injuries re-enforced for the nursing staff that they were practicing safely and validated the falls prevention programme currently in use (Bok et al., 2016). Staff also expressed positive feeling when patients recognised the need for appropriate footwear and or assistive device when mobilising (Carroll et al., 2010).

**3.3.2 Theme 2. Communication**

Communication is fundamental in highlighting the objectives and significance of falls prevention programmes to both patients and healthcare staff alike, in order to promote the implementation of safety strategies and reduce falls. Based on 60 findings of these studies

(Bok et al., 2016; Carroll et al., 2010; Gettens et al., 2018; Gettens & Fulbrook, 2014; Häggqvist et al., 2012; Haines et al., 2012; Lim et al., 2018; Rush et al., 2009), communication was key to gaining patients' positive perception toward meaningful falls prevention. If patients were effectively informed of their plan of care, it would be easier for them to adjust or comply with their treatment regimen including notifying staff when assistance was required. Two categories informed this theme: Communicating risk to patient and a reluctance to impose and seek help from busy staff.

### 3.3.2.1 Category 1. Communicating risk to patient

Patients and healthcare staff acknowledged that increased communication could aid in reducing the risk of falling to the patient, n=17 (Bok et al., 2016; Carroll et al.,2010; Häggqvist et al., 2012; Haines et al., 2012; Lim et al., 2018; Rush et al., 2009). Carroll et al. (2010) recommend that healthcare staff should communicate that calling for assistance is not in fact bothering them a finding that is supported by Rush et al. (2009). Nonetheless, most patients did not understand whether they were supposed to call the nursing staff when in need, with one nurse reporting *"...I felt as though they disregarded our teaching moments"* (Bok et al., 2016, p.49). This implies a breakdown in communication between the nursing staff and the patient. Improved communication between both parties could aid in the reduction of patient fall as all the stakeholders will understand their roles within such settings. Haines et al. (2012) also indicate that communication failures between healthcare professionals, family members, and the patient increased the frequency of patient falls. Provision of accurate and timely information relating to fall prevention measures easily reduces the number of falls within clinical settings. Differences in opinions by different healthcare professionals present within a clinical setting, and diverse backgrounds serve to

confuse the patient as to which measure to be applied and eventually results in the use of incorrect fall prevention measures which may further serve to affect the existing condition of the patient. Ineffective communication provided by some of the healthcare professionals also serve to increase the risk of patient falls. Poor communication techniques used by some of the healthcare professionals contribute to inconsistencies and lack of clarity on the intended measures. According to Haines et al. (2012), healthcare professionals should strive to communicate with a patient in a simple and easily comprehensible language which is devoid of any form of medical jargon.

Healthcare staff indicated that a communication structure was required between patients, nurses and family members. Family members were included in the care process and were at times required to provide the necessary assistance to patients (Rush et al., 2009). Nurses emphasised that communication primarily focused on providing educational information about the need to provide the required assistance and that patients should understand that being in the current clinical settings was different compared to their home, consequently they were supposed to implement some measures which could not be applied at home. However, some patients believed that because they were independent prior to admission to hospital they perceived themselves as having "*no issues*" (Lim et al., 2018, p. 50). Nursing staff reported reminding patients of the need to use the provided reminders by the clinical system such as alarms. Healthcare staff knowledge of safety standards was also dependent on the patient and the family communicating the need for safety. Some healthcare professional expressed high levels of dissatisfaction when the patient and family members failed to adhere to some of the instructions provided ultimately increasing the risk to patient fall (Bok et al., 2016; Rush et al., 2009). Patient fall rates varied based on the risk

perception as well as the timing of communication (Bok et al., 2016; Rush et al., 2009). Independent patients with distorted perceptions on patient fall engaged in high-risk behaviours and in most cases failed to communicate to the nursing staff (Lim et al., 2018; Rush et al., 2009). Healthcare staff indicated that more patient falls came from individuals who were more reluctant in taking in any falls related instructions. Misconceptions about the risk associated with falls were also high among patients who had not received any information relating to patient falls. The timing of the communication in most cases influenced the nursing staffs' understanding of the state of the patient *"...it wasn't someone who you thought would have fallen…"* (Rush et al., 2009, p.361). In most cases, when patients called for help, nurses reported feeling an urgent need to assist the patient, staff indicated that when they could not be reached, they remained unaware of the state of the patient. In such cases, both the healthcare staff and the patient did not have sufficient information supporting in the decision-making process and further served to increase rates of negative health outcomes associated with patient falls (Rush et al., 2009).

Teamwork and team communication were seen as vital strategies in reducing patient falls. Häggqvist et al. (2012) indicated that licensed healthcare staff practitioners had an agreement that they would apply nursing measures within clinical settings as a team. However, some of the nursing staff would not follow the agreed decision, and in other cases, there was a breakdown in communication with the physicians with some being perceived as being inexperienced. Working as a team was definitely one of the key methods which could be used to reduce patient falls. Nonetheless, conflicting ideas between staff members and relatives diminished the use of consensus agreements. When nurses and other clinical staff members opt to work together to develop and implement

systems which prevent and reduce patient falls within clinical settings, positive health outcomes are more likely to be attained. However, when disagreements and consensus building become a debacle as illustrated in the study by Häggqvist et al., (2012) *"...can I...just have an opinion? ...now we can see that I'm actually right"* (p. 5) negative health outcomes associated with patient falls are more likely to increase.

**3.3.2.2 Category 2. Reluctance to impose and seek help from busy staff**

Most patients were aware that they were supposed to call staff for any form of assistance however there seemed to be a reluctance to do so due to the perception that staff were too busy or the patient did not want to impose or disturb the harried staff (Bok et al., 2016; Carroll et al., 2010; Gettens et al., 2018; Häggqvist et al., 2012; Haines et al., 2012; Lim et al., 2018; Rush et al., 2009) n=43. While Lim et al. (2018), Carroll et al. (2010) and Gettens et al. (2018) noted that some patients did not want to call for assistance as they believed it amounted to disturbing the nursing staff *"...I don't want to be a bother"* (Lim et al., 2018, p. 49-50)*, ..." I feel like I called the nurses enough"* (Carroll et al., 2010, p. 4*), "I'm scared that the nurses are busy...* (Lim et al., 2018, p. 49)*", "...well, I won't annoy them"* (Gettens et al., 2018, p.748). Some patients expressed some form of "emotional obstacle" even though they were aware that the nursing staff would provide adequate care and assist them under any condition (Carroll et al., 2010, p. 4). While others reported a physical obstacle in calling the nursing staff "… *a lot of the patients who can't press the buzzer*" (Haines et al., 2012, p. 233) and *"it* [call bell] *slips down...and then I can't reach it"* (Carroll et al., 2010, p. 4).

### 3.8.3 Theme 3. Independence versus Risk

The possibility of risk is an inevitable consequence of allowing patients to make decisions regarding their care and their own lives. Balancing the patient need for independence and healthcare professional responsibility of promoting independence with risk of falling or harm is vital in encouraging responsible decision making (Carroll et al., 2010; Gettens et al., 2018; Häggqvist et al., 2012; Haines et al., 2012; Lim et al., 2018; Rush et al., 2009), n=23. Three categories comprise this theme namely risk-taking behaviours; realizing risk and risk compensation informed this theme.

### 3.8.3.1 Category 1. Risk taking behaviours

Risk taking in itself is not problematic, however, when these behaviours results in a fall or injury it becomes challenging (Gettens et al., 2018; Haines et al., 2012; Lim et al., 2018), n=12.

Patients described their need for independence as one of the major causes of patient falls within clinical settings (Gettens et al., 2018; Lim et al., 2018), *"...I should be able to walk because I have been walking all the time"*. Even after a brief period of being hospitalised, most patients expressed the need to recover their independence and mobility without overt consideration of the risks involved in this environment and *"did not expect the fall to happen"* (Lim et al., 2018, p.50). As a result, some patients were found attempting to move around clinical settings without informing nursing staff and other members of the healthcare team, they had an often misplaced "*feeling of security and safety within the walls of the hospital*" (Gettens et al., 2018, p.747). As a result, some patients attempted to

take a risk with the knowledge that it could negatively affect or harm them. There was also a tendency for some of the participants to keep past falls within clinical settings as a secret as they believed that revealing such information could have increased the hospitalisation period. Some patients believed that the healthcare team especially the nursing staff did not allow them to be independent and, in some cases denied their right to make decisions regarding their care (Gettens et al., 2018).

**3.8.3.2 Category 2. Realising risk**

From the patients' perspective the need to preserve their dignity took precedence over their safety and recognised these risk-taking actions (Gettens et al., 2018; Haines et al., 2012; Lim et al., 2018), n=7.

Toileting was most commonly cited as an activity that was undertaken prior to the patient fall. *"…I was afraid of dirtying my bed…"*, (Lim et al., 2018, p. 49), *"…Yeah I can get from the chair to the toilet. How did I learn not to do that?"* (Gettens et al., 2018, p. 747), "*I called the nurse. The nurse was a bit slow. It was urgent*" (Lim et al., 2018, p. 50) and so the patient realised the risk and took it regardless of the outcomes. Some of the patients describe their urgent need for toileting influenced their judgment and as a result, did not take adequate care of the required measures or interventions required in reducing falls "*when you've got to go to the toilet, you've got to go…*" and "*When I went in the toilet, I was usually in a hurry…*" (Haines et al., 2012, p. 239). Carroll et al. (2010) record an example of a participant who indicated that he placed too much focus on the need to use the bathroom and forgot the reason for admission to hospital which resulted in the patient falling to the floor "*I thought I still had my leg…*" (p. 3). Haines et al. (2012) indicated that some patients were more likely to test their previous physical boundaries. When patients

were questioned as to why they engaged in such activities, they indicated it was in part due to the need to feel independent, an urge to go back home and a need to return to their previous lifestyle (Haines et al., 2012; Lim et al., 2018). However, the risks taken by some patients increased the frequency of falls and further served to exacerbate some injuries. Haines et al. (2012) suggested that the patients were well aware of the risk associated with their decision. However, some patients reported that they forgot to call for the nursing staff *"... I am supposed to call for help…"*, (Carroll et al., 2010, p. 4) or failed to adhere to specific instructions provided by the healthcare staff which could have prevented fall incidences within the hospital setting.

### 3.8.3.3 Category 3. Risk compensation

Risk compensation involved changing or modifying behaviours in response to the risk perceived by the patient or healthcare staff (Gettens & Fulbrook, 2015; Häggqvist et al. 2012; Haines et al., 2012, Rush et al., 2009).

Healthcare staff provided information and risk minimization interventions to reduce patient falls. One key intervention applied was the use of hourly rounds to monitor risk taking patients. Other measures included the need to reinforce some assessment aspect which reduces the risk of falling. Rush et al. (2009) suggest that the nursing staff carry out a risk assessment to more patients on a day to day basis to reduce falls. The assessments allow for early identification of some of the functional changes which alerted nursing staff of the need to provide some level of care to the patients. However, the use of such assessment tools among staff varied, with some reporting the assessment tools as unreliable and as a result opted for a number of different measures and strategies which could be used to reduce the risk of falls. Rush et al. (2009) revealed that some staff utilised vigilant

monitoring to provide the required level of care to high-risk patients, this form of increased observation was also utilised by the staff in the Häggqvist et al. (2012) study. Häggqvist et al. (2012) indicated that healthcare staff closely monitored patient behaviour and appearance during the entire treatment course. Patients with poor management of a mobility device were clearly identified and as a result, were provided with an alternative measure such as the use of adaptive equipment and or increased assistance by staff. However, such measures were only approved and implemented during the daytime hours leaving the patient at risk and vulnerable during the night. Fluctuations in patient condition directly resulted in the application of a different intervention befitting their new state. High-risk patients were also classified within the clinical system and totally restricted from leaving their bed without any form of support. Häggqvist et al. (2012) indicated that healthcare staff received regular updates regarding patient condition which included environmental monitoring requirements, this process reduced factors contributing to patient falls. Patient Care Assistants, as well as other hospital personnel, were recruited to provide some essential services for the patients and assisted in changing risk-taking behaviours (Gettens & Fulbrook, 2015).

**3.4 Summary**

The methodological approach undertaken in this review revealed three main themes relating to how patients and healthcare staff perceive falls within the hospital environment. The first theme explored the emotional impact of falls from both a patient and a healthcare staff perspective. The second theme covered patient and healthcare staff communication, while the third theme delved into patient need for independence and staffs' professional responsibility to promote autonomy in balance with the risk of falling. Each theme has

been presented and expanded on separately under the category which informed the themes.

These themes are not mutually exclusive. The complexity of the topic meant the themes,

categories and findings were not separate or standalone, if fact they were often

interconnected. The findings reported here will be discussed further in the next chapter.

**Chapter 4 Discussion**

**4.1 Introduction**

This integrative review of the literature exploring the experience and perception of in-patient falls from the perspective of patients and healthcare staff points to numerous factors that may not only influence falls in a patient cohort within a hospital setting, but also informs of the impact this has on each party. There is relatively sparse evidence in this area, with only eight articles included for this review. The thematic analysis in the previous chapter focused on the experiences and perception of a fall from a patients and healthcare staff perspective. These findings may explain and provide an understanding to the complexity of falls in-hospital and the importance of acknowledging the key roles both parties play in keeping patients safe in hospital. Three themes emerged from this analysis: Emotional impact of falls; Communication; Independence versus risk. These themes will now be explained and discussed using supporting literature. Gaps in the research literature were identified as well as limitations of this review. Finally, a conclusion to this review will be provided.

**4.2 Emotional impact of Falls**

It was evident that in-patient falls occur even with the best prevention efforts in place (Hitcho et al., 2004). The findings from this literature review described a strong emotional response following an in-patient fall from both patients and healthcare staff. The negative feelings reported from the perspective of the patient were mainly in relation to the perceived poor responsiveness of the healthcare staff to call bell alerts (Carroll, et al., 2010; Lim et al., 2018). A lack of responsiveness to patient's care needs, perceived or

otherwise, was associated with a decreased patient satisfaction and with an increase in adverse patient outcomes such as falls (Kalman, 2008). Staff responsiveness to patient-initiated call bells was identified as highly important as these provide a vital 'lifeline' for patients and could directly affect the patients' safety (Kalman, 2008). However, in this review poor response rates were reported by patients in a number of studies (Carroll et al., 2010; Haines et al., 2012; Lim et al., 2018). A variety of issues, such as complex patient loads, ward design, workload pressures and even alarm bell fatigue inhibited staff from responding to a patient's call bell in a prompt and timely manner for the patient (Sowan, Tarriela, Gomez, Reed, & Rapp, 2015). Kalisch, McLaughlin, and Dabney (2012) conducted a study that evaluated missed nursing care on in-patient hospital wards. Missed nursing care was defined as, "any aspect of required patient care performed by nursing staff that is omitted or significantly delayed," (Kalisch et al., 2012, p. 161). The study of 729 hospitalized patients by Kalisch et al. (2012), found that basic or fundamental nursing care such as communication and personal cares, is frequently missed (p. 420). Approximately 14% of participants in the study reported that their call bell was never answered, this is a significant finding given the linkage to call bell response time and falls risk. Ferrari (2012) believes that one of the main issues with staff unresponsiveness is the time which it takes for a nurse to carry out a patient's request before moving on to the next request. One example given is, if a hospital aide responds to a call bell for patients requesting pain-relief medication or other medication, the hospital aide then needs to find the nurse responsible for the patient (who may be busy with another patient), the nurse then needs to check the medication prescription before dispensing and administering the medication to the patient (Ferrari, 2012). From a patients' perspective the waiting may

seem endless. Mitchell, Lavenberg, Trotta and Umscheid (2014) asserted that most patients are willing to wait for simple requests particularly if the delay was communicated to them, however this may not always be the case, for example when elimination needs are urgent. This was evidenced by the many patients in this review who had urgent toileting need that went unmet (Carroll et al., 2010; Haines et al., 2012; Lim et al., 2018). Regrettably this may result in patients at a higher risk of falls. Educating patients on appropriate steps to take in case of a delayed response could be an effective strategy in reducing patient falls.

The negative feelings following a patient fall shared by the healthcare staff in this review were similar to those revealed by nurses in a study by Turkoski et al. (1997). The nurses reported feelings of guilt, self-reproach, shame and self-blame for not anticipating patient care requirements, predicting and recognising risk, or not effectively communicating this risk to their patients. Turkoski et al. (1997) results were similar to those reported by nurses participating in the study by Rush et al. (2009) included in this review. Nurses in this study reported considerable stress especially when they perceived the patient was safe but the patient fell. The nurses in this study used a number of coping strategies to deal with the patient fall which included initially deny responsibly for the fall instead blamed the patient actions or omissions. These feelings are at odds with findings in Struksnes et al. (2011) study who reported the healthcare staff belief was that falls were caused by physical and cognitive conditions and that staff were not to blame for these incidences and seldom felt stress or feelings of guilt when a patient fell. The only positive category which emerged in this review was one of relief when a patient fell but no harm occurred (Bok et al., 2016). Many nurses in this study reported feeling grateful there was no injury, with one nurse expressing relief that an intravenous site was still intact.

Healthcare staff in this review blamed patient falls on a number of reasons including

inadequate levels of staffing (Rush et al., 2009). Currently, most clinical settings across the

globe are understaffed (Oulton, 2006; Sawaengdee et al., 2016) and as a result, nurses

cannot effectively be present at all times with one patient monitoring their condition.

Aiken et al. (2011) revealed that a decreased nurse to patient ratio was directly

proportional to an increased risk of falling, which is not surprising. More recently

according to the Nursing Council of New Zealand [NCNZ], many healthcare settings have

hired more nurses and hospital aides with the aim of reducing the overall burden of care to

the existing nursing workforce (NCNZ, 2015). An increase in nursing staff would

strengthen the nurse to patient ratio and ensure that the nurses were available to assist the

patient at the required time. An increase in staffing number may also provide nurses with

ample time to educate the patients on a number of interventions, risk minimisation

strategies and safe practices which could reduce their fall risk. Staggs and Dunton (2014)

indicate that higher staffing ratio of registered nurses as well as an experienced mix is

reducing the occurrence of adverse effects such as patient falls. Recently a significant

amount of research and rhetoric has revolved around examining the relationship between

increased nurse staffing ratios and the incidence of patient falls and other adverse events.

The New Zealand Nurses Organisation (NZNO) recently ran a much publicised 'Safe

Staffing Campaign', which culminated in the signing by the Ministry of Health (MoH) of a

'Safe Staffing Accord' (MoH, 2018; NZNO, 2018). Evidence however, was lacking in

determining how nurses perceive staffing to affect the number of falls on their wards,

indeed much of the literature pertaining to nursing and patient falls report on nursing

knowledge, nursing skill and nursing knowledge. Little has been explored on nursing

numbers as a standalone patient outcome measure. The handover between shifts which was thought to contribute to falls because staff were not available to address patient concerns, issues or identify risks which contributed to falls (Rush et al., 2009). Patient falls were preventable across most clinical settings provided adequate staffing measures and preventable interventions were applied within clinical settings (Stephenson et al., 2015). Safety experts indicated that bad falls rarely occur in clinical settings which has invested the required resources in reducing patient falls (Ulmer, Wolman, & Johns, 2009).

## 4.3 Communication

The results presented in the previous chapter highlighted that many patients did not want to impose on busy staff and therefore did not alert the staff to their care needs (Carroll et al., 2010; Gettens et al., 2018; Haines et al., 2012). Open communication between healthcare staff and the patient was identified as essential in creating a relationship of trust (Kourkouta, & Papathanasiou, 2014) and through this relationship the patient can feel empowered and less reluctant to request assistance from staff when required. Patients should also readily ask for assistance from healthcare staff whenever they feel their condition or state predisposes them to falls (Phelan, Mahoney, Voit, & Stevens, 2015). A patient's negative perception about healthcare staff may increase the risk of falls due to non-adherence to safety instructions and breakdown of information on how to avoid falls. Some patients may knowingly choose to ignore instructions provided by specific healthcare staff because they perceive the healthcare worker as inexperienced, young or unfriendly (Mazur, Wilczyński, & Szewieczek, 2016). In such cases, the patient engages in contradictory activities to the provided instructions and in turn places themselves at risk. In other cases, nurses or healthcare staff may knowingly or unknowingly fuel such negative

perceptions based on how they directly interact with the patient (Evanoff et al., 2005). Open and friendly communication reduced negative perceptions and improved the type of care provided to the patient (Vermeir et al., 2015).

Any robust fall intervention practice should be premised on principles of open communication between the patient and healthcare staff. Family members and other healthcare staff who directly interacted with either of the aforementioned parties should also understand the need for open communication to highlight and reduce risk and risk-taking behaviours. As healthcare professional's, nurses have a key role in preventing falls due to their close daily interaction with the patient as their day to day transactional, operational role within the clinical settings (Gu, Balcaen, Ni, Ampe, & Goffin, 2016). Furthermore due to the 24 hour nature of nursing care delivery, nurses may be more attuned to patient's individual risks of falling than the other staff members and therefore maybe key in preventing patient falls (Gu et al., 2016).

Patients may have intrinsic needs such as lower extremity weaknesses, urinary incontinence, vision deficits or strong medication which increases their falls risk. Proper, simple, clear and open communication between the patient and nurse or any other healthcare professionals would strongly reduce or mitigate intrinsic needs linked to patient falls. This maybe be done verbally or in the form of written communication by using for example 'Patient Status at a Glance Boards'. Open communication allows the nurse or any other healthcare professionals to educate the patient and family members on how to reduce patient falls within clinical settings (HQSC, 2012; 2016; Vermeir et al., 2015). There is also need to provide accurate and timely information to the patients regarding practices which may increase their fall risks within the current setting as well as the functions of all

equipment and technologies utilized by the healthcare setting in reducing patient falls (Gu et al., 2016). All healthcare professionals must strive to provide accurate and detailed information on how to prevent patient falls (Glen, Morin & Phegley, 2017).  Providing less detailed or conflicting information about some management practices served to confuse the patient much further and still act to increase their fall risk (Haines et al., 2012).

## 4.4 Independence versus Risk

Promoting independence was a key theme in current health and falls prevention advice (HQSC, 2016). However, the risk of patient falls within clinical settings increase as patients' independence increases (Gettens et al., 2018: Hitcho et al., 2004). Patients at risk of falling often trade-off between their need for functional independence and their safety. To reduce their fall risk, in-patients are normally encouraged to avoid engaging in any risk-taking activity and instead seek help from healthcare staff. Older adults within clinical settings often showed a higher need of independence compared to other populations (Ambrose, Paul, & Hausdorff, 2013). This need for independence may be driven by the perception or need to recover faster for fear of their condition becoming permanent (Cole & Bailie, 2016). The risk of promoting independence in older adults in particular may be reduced by engaging patients in physical exercise practices. Much has been written on the benefits of keeping active and engaging in exercise (HQSC, 2012), with improved physical function, strength, standing and walking all reported as associated with being more physically active (McAuley, Szabo, Gothe & Olson, 2011). In the American review study conducted by Nelson et al. (2007), balance exercise helped to reduce the risk of injury and falls and that physical activity helped in maintaining flexibility. Tai chi Participants experienced substantial improvements in both self-efficacy and physical function over the

course of the intervention. Those with lower levels of physical function at starting point

benefited more from the Tai Chi training program than those with higher physical function

scores (Taylor & Stretton, 2004). Conversely, patients may have to accept the associated

risk of serious injury if they wish to perform any activity deemed to be beyond their

functional capability. In cognitively intact patients, healthcare staff minimised patient fall

risks by ascertaining whether the patient had the capacity to make any form of informed

decision regarding their current state mostly through interviewing the patient.  Robinson,

Newton, Jones and Dawson (2014) advocated for self-management and adherence

practices among independent patients as a method of reducing falls.

 As reported in some of the studies in this review (Carroll et al., 2010; Gettens et al., 2018;

Haines et al., 2012; Lim et al., 2018) although patients were instructed to call for assistance

before transferring alone, some disregarded instructions, got up without assistance and fell.

At times, patients may not use the call bell to ask for assistance getting up because they are

confused. Intentional rounds and bed/chair exit alarms can be implemented to help reduce

falls in this situation. Intentional rounding is a strategy in which nurses and/or hospital aide

attend to their patients at least once every hour. While it is not always possible to increase

patient observation, intentional rounds enable staff to anticipate the patient's needs, which

could reduce his or her need to get up unsupervised. Daniels (2016) completed a project

that incorporated this process into a safety programme. It was described as purposeful

patient rounding, denoting rounds with specific intentions. Using the "six Ps" (pain,

personal care, position, pumps, possessions, and promise), they would assess pain; assist to

the bathroom, if necessary; reposition the patient, if necessary; check pumps for trip

hazards and programming errors; ensure personal belongings were nearby to prevent

overreaching and losing balance; and let the patient know approximately when the nurse would return. As part of the intentional rounds, staff would also conduct an environmental scan around the patient's immediate surroundings. This procedure provides a consistent and intentional approach to patient safety and risk minimization.

## 4.5 Perspectives on Solutions to Prevent Patient Falls

The physical consequences of patient falls within acute care settings ranged from soft tissue injury, fractures, conditions associated with lying on the floor such as pneumonia, pressure sores, hypothermia, and in worse cases death (Cummings & Klineberg, 1994; Michalowska et al., 2005; Russell et al., 2006; Speechley, & Tinetti, 1991). Less documented effects but probably more prevalent included psychological trauma, depression, anxiety, and social isolation an individual feels after the occurrence of such an event (Burton, Lewin, O'Connell, & Hill, 2018; Kong et al., 2002). Therefore, nurses and other healthcare professionals, as well as patients, need to be aware of such effects and the available intervention practices which could reduce the current incidence and prevalence rates of patient's falls. Healthcare professionals should be at the forefront in coming up with unique simple methods which could reduce falls especially among vulnerable populations like the old. It is important also for the perceptions of both patients and healthcare staff to be integrated into patient safety strategies. Patients are also supposed to be forthcoming in implementing some of the intervention practices proposed by healthcare professionals (Phelan et al., 2015). The patients and healthcare staff perspectives highlighted in this review may offer greater insights as to causes and risk-taking behaviours which, when used in partnership with the patient could be used to reduce falls.

**4.6 Gaps in Literature**

The data available on patient falls is enormous. However, studies exploring the perceptions and experiences of an in-patient falls from a patient and healthcare staff perspective have not been well documented in the literature as evidenced by the fact that the review of the literature from 2008 through to 2018 resulted in only eight studies meeting inclusion criteria. To make a lasting impact on reducing falls rates and on quality of patient care, research must continue to focus on frontline staff, but also examine and target the relationship between nursing and the context. Although such organizations are taking steps to address the global phenomena of hospital fall rates, they are not addressing all factors, particularly the situation from patient and healthcare staffs' perspective. The system is trying to improve the situation while not listening to staff' understanding of the context and how it is limiting their ability to prevent falls. The strategies must now dive deeper, aiming to support nurses as they work within the challenges of the acute care system and work to influence the surrounding power structures. Findings of this review suggest that communication and risk realisation are two areas that need additional attention to help healthcare reduce in-patient falls in daily practice. Some of the authors of the articles included in this review (Bok et al., 2016; Gettens et al., 2018; Rush et al., 2009) have recommended further research studies to explore these experiences and perceptions.

Healthcare staff and in particular nurses' emotional response when harm is averted was not the primary focus of this review. However, participants revealed that the process of talking about instances where significant patient harm was avoided especially cathartic and healing and made them feel *"…like a superhero"* (Bok et al., 2016, p. 50). The nature of

nurses' emotional response and need for emotional support when harm is forestalled is an area for further consideration.

## 4.7 Rigor in this Integrative Review

The integrative review can be considered as the research of research and, therefore, it should meet the same standards as primary research in rigor (Cooper, 1998; Whittemore & Knafl, 2005). According to Russell (2005), there are four questions that the reviewer answers when a body of knowledge is evaluated using integrative review technique; What is known about this issue?; What is the quality of what is known? ; What should be known? ; What is the next step for research and practice? Thus, this study involved a literature search of theoretical, empirical research work, and grey literature to identify what is known about the patient and healthcare staff perceptions and experiences evaluation of identified studies in this area was completed. Maintaining scientific integrity while conducting integrative review involves paying attention to threats to validity at each stage of the review process (Cooper, 1998). According to Crossetti (2012), if an integrative review is properly conducted, it should be characterized by a critical approach to primary research in terms of replication, clarity, and scientific rigor. Thus, one of the key aspects to be considered is the size of the sample in the literature search. It has to be exhaustive. In an integrative review, the accessible population is all published reports relating to a topic. The threats to validity here are inadequate sampling. In this study, efforts were made to conduct a literature search that was as comprehensive as possible with the assistance of an experienced University Librarian. To ensure the representativeness of the sample, an exhaustive data collection strategy was created. The study also clearly delineated information about data collection such as the keywords used in the literature search, the

sources, years of the research study, and the variables used in the search. In the data evaluation phase, the threat to validity is the tendency to positively evaluate those studies that are congruent with the reviewer's own beliefs and negatively evaluate those studies that are not (Russell, 2005). In this review, evaluating each study's methodology to determine whether the findings are valid enhanced objectivity. No study was excluded as a result of the quality assessment. The discussions were on the information derived from the articles analysed on the fundamental question of this study. This way, this study represents a resource for building knowledge in nursing.

## 4.8 Limitations of the review

The findings of this review are limited by the methodological quality of some articles included; however, limitations within the included studies have been acknowledged and made explicit through quality scores, thereby allowing the reader to take this into consideration. Although efforts were made to conduct a thorough review of the literature, it is possible that some of the available literature may not have been retrieved. According to Whittemore and Knafl (2005) this potential exists because of inconsistencies in search terminology and publication bias. The author's personal biases and experiences may have impacted the selection, interpretation and analysis of the literature and ultimate conclusions reached. Several steps were taken to address this limitation. The author's supervisor cross-checked and validated the articles' retrieval and selection process. Relevant literature could have been missed and impacted the study findings. To address this risk, a broad range of literature was retrieved from multiple sources, erring on the side of inclusion versus the exclusion criteria. Reference searches were also added to decrease the likelihood of missing key relevant literature.

A limited number of studies were found in this literature review that focused on healthcare staff and patient experiences and perceptions of in-patient falls. This limited evidence may be because of the fact that general research on patient perspectives and safety in health care is not yet fully developed, resulting in a paucity of research in this field. Nursing focused falls research is likely to be reflective of this situation. Alternatively, another explanation for the lack of evidence could be because of the limited ability and experience of healthcare staff and nurses to evaluate improvements and publish development results to improve safety. Nurses in clinical practice rely on oral traditions of knowledge and skill transfer (Wollin & Fairweather, 2007), and historically have tended not to write for publication as part of their role, as it is seen as an arduous and daunting task (Happell, 2007). Patient safety improvements influenced by exemplar nurse leadership, empowerment and collaboration may well be occurring in nursing practice without any publication for wider dissemination.

A key limitation of four of the studies included in this review examining patient's experiences of falling whilst in hospital (Carroll et al., 2010; Gettens at al., 2018; Gettens & Fulbrook, 2014; Haines et al., 2012) is that cognitively impaired or those with a diagnosis of dementia were excluded, even though patients with cognitive issues often sustain falls while in hospital. Indeed, patients with dementia in acute and rehabilitation wards would likely still be participating in therapeutic activities such as bed to chair and bed to toilet transfers, and these activities are often associated with falls (Czernuszenko & Czlonkowska, 2009; Rabadi, Rabadi, & Peterson 2012; Zdobysz, Boradia, Ennis, & Miller, 2005).

A further notable feature was that all studies in this review were from developed countries, which raises an important issue about the likelihood of even more patient focussed safety studies limited or perhaps non-existent healthcare or in developing and transitional countries. It is of course important to also consider that innovations may be occurring but the evidence is not readily available or translation of relevant material may not be possible or accessible. This situation exists amidst the knowledge that harm from hospital falls poses a substantial burden in terms of morbidity and mortality on patients around the world (WHO, 2008). The need to address these gaps in knowledge presents a significant and challenging agenda for health care as well as nursing globally. To address this recognized gap in the literature, WHO Patient Safety has launched a small research grant programme to stimulate research on patient safety research priorities and to improve the dissemination of research findings (WHO, 2008). Whilst not specifically aimed at falls safety, research priorities include poor safety culture and blame -oriented process; risk reduction; lack of communication and the patients' role in shaping the research agenda.  Encouraging healthcare staff to apply for this type of support worldwide would be a positive attempt to increase knowledge on their contribution to patient safety in both developed and developing countries.

Only papers in the English language were searched, and therefore papers reflecting healthcare staff and patients' perspectives, perceptions and experiences in non-English-speaking countries may have been missed. Studies predating 2008 were not considered, therefore valuable information from older studies could have been lost.

**4.9 Conclusion**

The purpose of conducting this integrative literature review was to explore patients and healthcare staff experiences and perception following an in-patient fall. The evidence however was limited.

The findings from this review highlighted areas in which the patients reported a negative impact on their emotional well-being as a result of an in-patient fall. A desire for timely assistance and support when needed was presented from the patient's perspective throughout the literature. Communication was thought to be a key aspect in keeping the patient safe as the healthcare staff balanced work levels and patients' care needs. Healthcare staff shared their experiences which highlighted their emotional distress following a patient fall. Organisational and workplace issues increased the demands on staff, this was often expressed by feelings of frustration. The patients need and desire for independence against necessary and unnecessary risk-taking behaviours was a concern to both the patient and to the staff. Through the clear communication of risks, by supporting functional ability and by promoting appropriate levels of independence enhanced outcomes in the provision of safe care could be achieved.

This review highlighted gaps in the body of healthcare/patient safety knowledge and suggests that these will need to be addressed before comprehensive approaches to identify effective solutions can be further developed. The deficiencies and gaps within the literature emerge paradoxically against a pervading viewpoint that suggests that healthcare staff are ideally placed to prevent injury and make improvements in safer care. Therefore, there is a pressing need for well-designed research studies to address these gaps. This review offers an insight into the huge potential for improvement through staff and patient empowerment

and the development of tools to strengthen and support healthcare staffs' influential role in the quality and safety movement. Future investment into research that focuses on the individual healthcare staffs' role within the interdisciplinary team and attempts to determine the exact nature and influence that healthcare leadership, autonomy and empowerment have on the safety of patients is recommended as a high priority.

Finally, if in-patient hospital fall were straightforward to eliminate, they would have been eliminated by now. But they are not and the facts are undeniable: Up to 50% of hospitalized patients are at risk for falls, and almost half of those who fall suffer an injury. These falls and subsequent injuries have a tremendous impact on the patient as well as directly affecting patient length of stay in hospital and increased healthcare cost. There is no single easy answer to the challenges posed by patient falls in hospitals. Learning from the experiences and perceptions of the individual patients who have fallen and healthcare staff tasked with their care may help with future design and implementation a fall prevention programmes that may eventually reduce patient falls in hospital settings worldwide.

References

Accident Compensation Corporation. (2003). "Otago Exercise Programme to prevent falls in older adults." Retrieved from http://www.acc.co.nz/PRD_EXT_CSMP/groups/external_providers/documents/pub licatons_promotion/prd_ctrb118334.pdf.

Accident Compensation Corporation. (2006). "The modified Tai Chi programme." Retrieved from http://www.acc.co.nz/wcm001/idcplg?IdcService=SS_GET_PAGE&nodeId=4006 &ssSou rceNodeId=4002.

Accident Compensation Corporation. (2008). "Vitamin D – A proven D-fence against falls." Retrieved from http://www.acc.co.nz/PRD_EXT_CSMP/groups/external_ip/documents/publication s_pro motion/prd_ctrb095324.pdf.

Ackerman, D. B., Trousdale, R. T., Bieber, P., Henely, J., Pagnano, M. W., & Berry, D. J. (2010). Postoperative patient falls on an orthopedic inpatient unit. *The Journal of Arthroplasty*, *25*(1), 10-14. doi: 10.1016/j.arth.2008.09.025

Agostini, J. V., Baker, D. I., & Bogardus Jr, R. S. T. (2001). Prevention of Falls in Hospitalized and Institutionalized Older People. *Making Health Care Safer: A Critical Analysis of Patient Safety Practices*, *43*, 281-299. AHRQ publication No. 01-E058 ed.

Aiken, L. H., Cimiotti, J. P., Sloane, D. M., Smith, H. L., Flynn, L., & Neff, D. F. (2011). The effects of nurse staffing and nurse education on patient deaths in hospitals with different nurse work environments. *Medical care*, *49*(12), 1047. doi:10.1097/MLR.0b013e3182330b6e.

Al-Aama, T. (2011). Falls in the elderly: spectrum and prevention. *Canadian Family Physician*, *57*(7), 771-776. Retrieved from http://www.cfp.ca/content/57/7/771.full

Ambrose, A. F., Paul, G., & Hausdorff, J. M. (2013). Risk factors for falls among older adults: A review of the literature. *Maturitas*, *75*(1), 51–61. https://doi.org/10.1016/j.maturitas.2013.02.009

American Geriatrics Society/ British Geriatric Society (2010). *Prevention of falls in older persons. Clinical Practice Guidelines.* New York, NY. Retrieved from https://www.legacyofwisdom.org/dms/articles_brochures/JAGS-Falls-Guidelines/JAGS.Falls.Guidelines.pdf

American Psychological Association. (2010). Publication manual of the American Psychological Association (6th ed.). Washington, DC: Author.

Aranaz-Andrés, J. M., Limón, R., Mira, J. J., Aibar, C., Gea, M. T., Agra, Y., & ENEAS Working Group. (2011). What makes hospitalized patients more vulnerable and increases their risk of experiencing an adverse event?. *International Journal for Quality in Health Care*, *23*(6), 705-712. https://doi.org/10.1093/intqhc/mzr059

Aranda-Gallardo, M., Morales-Asencio, J. M., Canca-Sanchez, J. C., Barrero-Sojo, S., Perez-Jimenez, C., Morales-Fernandez, A., ... & Mora-Banderas, A. M. (2013). Instruments for assessing the risk of falls in acute hospitalized patients: a systematic review and meta-analysis. *BMC Health Services Research*, *13*(1), 122. https://doi.org/10.1186/1472-6963-13-122

Aromataris, E., & Pearson, A. (2014). The systematic review: an overview. *The American Journal of Nursing*, *114*(3), 53-58. doi: 10.1097/01.NAJ.0000444496.24228.2c

Australia & New Zealand Falls Prevetion Society. (2006). http://www.anzfallsprevention.org/

Aveyard, H. (2014). *Doing a literature review in health and social care: A practical guide*. McGraw-Hill Education (UK).

Barker, A., Kamar, J., Graco, M., Lawlor, V., & Hill, K. (2011). Adding value to the STRATIFY falls risk assessment in acute hospitals. *Journal of Advanced Nursing*, *67*(2), 450-457. doi: 10.1111/j.1365-2648.2010.05503.x

Berg, R. L., & Cassells, J. S. (1992). Falls in older persons: risk factors and prevention. In *The second fifty years: Promoting health and preventing disability*. National Academies Press (US).

Bok, A., Pierce, L. L., Gies, C., & Steiner, V. (2016). Meanings of falls and prevention of falls according to rehabilitation nurses: a qualitative descriptive study. *Rehabilitation Nursing, 41*(1), 45-53. https://doi.org/10.1002/rnj.221

Boltz M., Resnick, B., Capezuti. E., & Shuluk, J. (2014). Activity restriction vs. self-direction: hospitalised older adults' response to fear of falling. *International Journal of Older People Nursing*, *9*(1), 44-55. doi: 10.1111/opn.12015

Botma, Y., Greeff, M., Mulaudzi, F.M. & Wright, S.C.D. (2010). *Research in Health Sciences*. Cape Town: Pearson Education.

Bouldin, E. D., Andresen, E. M., Dunton, N. E., Simon, M., Waters, T. M., Liu, M., … Shorr, R. I. (2013). Falls among Adult Patients Hospitalized in the United States: Prevalence and Trends. *Journal of Patient Safety*, *9*(1), 13–17. http://doi.org/10.1097/PTS.0b013e3182699b64

Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development*. New York, NY. Sage.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101. doi 10.1191/1478088706qp063oa

Burton, E., Lewin, G., O'Connell, H., & Hill, K. D. (2018). Falls prevention in community care: 10 years on. *Clinical Interventions in Aging*, *13*, 261–269. https://doi.org/10.2147/CIA.S153687

Butcher, L. (2013). The no-fall zone. *Hospitals & Health Networks*, *87*(6), 26-30. Retrieved from www.hhnmag.com/articles/6404-Hospitals-work-to-prevent-patient-falls?dcrpath=HHNMAG%2FArticle%2Fdata%2F06JUN2013%2F0613HHN_coverstory&domain=HHNMAG

Cameron, I. D., Murray, G. R., Gillespie, L. D., Robertson, M. C., Hill, K. D., Cumming, R. G., & Kerse, N. (2010). Interventions for preventing falls in older people in nursing care facilities and hospitals. *Cochrane Database Syst Rev*, *1*(1). doi:10.1002/14651858.CD005465.pub2

Cardeña, E., & Carlson, E. (2011). Acute stress disorder revisited. *Annual Review of Clinical Psychology, 7*, 245-267. https://doi.org/10.1146/annurev-clinpsy-032210-104502

Carroll, D. L., Dykes, P. C., & Hurley, A. C. (2010). Patients' perspectives of falling while in an acute care hospital and suggestions for prevention. *Applied Nursing Research: ANR, 23*(4), 238–241. http://doi.org/10.1016/j.apnr.2008.10.003

Centers for Disease Control and Prevention (2009). Falls and hip fractures among older adults. Retrieved from http://www.cdc.gov/HomeandRecreationalSafety/Falls/adultfalls.html

Cesari, M., Landi, F., Torre, S., Onder, G., Lattanzio, F., & Bernabei, R. (2002). Prevalence and risk factors for falls in an older community-dwelling population. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, *57*(11), M722-M726. https://doi.org/10.1093/gerona/57.11.M722

Chamberlin, M. E., Fulwider, B. D., Sanders, S. L., & Medeiros, J. M. (2005). Does fear of falling influence spatial and temporal gait parameters in elderly persons beyond changes associated with normal aging?. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, *60*(9), 1163-1167. https://doi.org/10.1093/gerona/60.9.1163

Clemson, L., Munro, J., & Singh, M. F. (2014). *Lifestyle-integrated Functional Exercise (LiFE) program to prevent falls: trainer's manual*. Sydney University Press.

Clyburn, T. A., & Heydemann, J. A. (2011). Fall prevention in the elderly: analysis and comprehensive review of methods used in the hospital and in the home. *Journal of the American Academy of Orthopaedic Surgeons, 19*(7), 402-409. Retrieved from: http://www.jaaos.org

Cole, W. R., & Bailie, J. M. (2016). *Neurocognitive and psychiatric symptoms following mild traumatic brain injury*. In D. Laskowitz & G. Grant (Eds.), Translational Research in Traumatic Brain Injury (pp. 233). Boca Raton (FL): CRC Press/Taylor and Francis Group. Retrieved from:
https://www.ncbi.nlm.nih.gov/books/NBK326715/

Cooper, H. (1998). Synthesizing Research: A Guide for Literature Reviews, *3rd ed*. Thousand Oaks, CA Sage Publications.

Costello, E., & Edelstein, J. E. (2008). Update on falls prevention for community-dwelling older adults: review of single and multifactorial intervention programs. *Journal of Rehabilitation Research & Development*, *45*(8). Retrieved from:
http://www.rehab.research.va.gov/jour/08/45/8/Costello.html

Cronin, P., Ryan, F., & Coughlan, M. (2008). Undertaking a literature review: a step-by-step approach. *British Journal of Nursing*, *17*(1), 38-43.
https://doi.org/10.12968/bjon.2008.17.1.28059

Crossetti, M. D. G. O. (2012). Integrative review of nursing research: scientific rigor required. *Revista Gaucha de Enfermagem,* 33(2), 12-13.
http://dx.doi.org/10.1590/S1983-14472012000200003

Cumming, R. G., & Klineberg, R. J. (1994). Fall frequency and characteristics and the risk of hip fractures. *Journal of the American Geriatrics Society*, *42*(7), 774-778.
https://doi.org/10.1111/j.1532-5415.1994.tb06540.x

Currie L. (2008). *Fall and Injury Prevention.* In R.G. Hughes (Ed). Patient Safety and Quality: An Evidence-Based Handbook for Nurses. Rockville (MD): Agency for Healthcare Research and Quality (US); Chapter 10. Retrieved from:
https://www.ncbi.nlm.nih.gov/books/NBK2653/

Czernuszenko, A., & Czlonkowska, A. (2009). Risk factors for falls in stroke patients during inpatient rehabilitation. *Clinical Rehabilitation, 23*, 176–188.
https://doi.org/10.1177/0269215508098894

da Costa, B. R., Rutjes, A. W. S., Mendy, A., Freund-Heritage, R., & Vieira, E. R. (2012). Can falls risk prediction tools correctly identify fall-prone elderly rehabilitation inpatients? A systematic review and meta-analysis. *PloS one*, *7*(7), e41061. https://doi.org/10.1371/journal.pone.0041061

Daniels, J. F. (2016). Purposeful and timely nursing rounds: a best practice implementation project. *JBI database of Systematic Reviews and Implementation Reports*, *14*(1), 248-267. doi: 10.11124/jbisrir-2016-2537

Delbaere, K., Close, J. C., Heim, J., Sachdev, P. S., Brodaty, H., Slavin, M. J., ... & Lord, S. R. (2010). A multifactorial approach to understanding fall risk in older people. *Journal of the American Geriatrics Society*, *58*(9), 1679-1685. Doi: https://doi.org/10.1111/j.1532-5415.2010.03017.x

Delbaere, K., Crombez, G., Vanderstraeten, G., Willems, T., & Cambier, D. (2004). Fear-related avoidance of activities, falls and physical frailty. A prospective community-based cohort study. *Age and Ageing*, *33*(4), 368-373. DOI: 10.1093/ageing/afh106

Delbaere, K., Van den Noortgate, N., Bourgois, J., Vanderstraeten, G., Tine, W., & Cambier, D. (2006). The Physical Performance Test as a predictor of frequent fallers: a prospective community-based cohort study. *Clinical rehabilitation*, *20*(1), 83-90. https://doi.org/10.1191/0269215506cr885oa

Dewey, J. (1925). *Experience and nature*. Later Works. 1935–1953, Vol. 1. Carbondale: Southern Illinois University Press.

DiBardino D., Cohen E.R. & Didwania A. (2012). Meta-analysis: Multidisciplinary fall prevention strategies in the acute care inpatient population. *Journal of Hospital Medicine*, 7(6), 497-503. doi: 10.1002/jhm.1917

Dionyssiotis, Y. (2012). Analyzing the problem of falls among older people. *International Journal of General Medicine, 5*, 805-813. doi: 10.2147/IJGM.S32651

Donaldson, M. S., Corrigan, J. M., & Kohn, L. T. (Eds.). (2000). *To err is human: building a safer health system* (Vol. 6). National Academies Press.

Dykes, P.C., Carroll, D.L., Hurley, A.C., Beniot, A., & Middleton, B. (2009). Why do patients in acute care hospitals fall? Can falls be prevented? *The Journal of Nursing Administration, 39*(6), 299- 304. doi: 10.1097/NNA.0b013e3181a7788a

Dykes, P. C., Carroll, D. L., Hurley, A., Lipsitz, S., Benoit, A., Chang, F., ... & Middleton, B. (2010). Fall prevention in acute care hospitals: a randomized trial. *Jama*, *304*(17), 1912-1918. doi:10.1001/jama.2010.1567

Dyson, R. (2005). *Preventing Injury from Falls: The National Strategy, 2005-2015*. Accident Compensation Corporation. Wellington.

Elliott, S., Painter, J., & Hudson, S. (2009). Living alone and fall risk factors in community dwelling middle age and older adults. *Journal of Community Health, 34*(4), 301- 310. doi: 10.1007/10900-009-9152

Evanoff, B., Potter, P., Wolf, L., Grayson, D., Dunagan, C., & Boxerman, S. (2005). *Can we talk? Priorities for patient care differed among health care providers*. Agency for Healthcare Research and Quality. Retrieved from https://europepmc.org/books/NBK20468

Ferrari, M. (2012). Improving patient experience in the inpatient setting: A case of three hospitals. *The Shaller Consulting Group*. Retrieved from www.forces4quality.org/af4q/download-document/5084/2222

Fischer, I. D., Krauss, M. J., Dunagan, W. C., Birge, S., Hitcho, E., Johnson, S., ... & Fraser, V. J. (2005). Patterns and predictors of inpatient falls and fall-related injuries in a large academic hospital. *Infection Control & Hospital Epidemiology*, *26*(10), 822-827. doi: 10.1086/502500

French, D. D., Campbell, R., Spehar, A., Cunningham, F., Bulat, T., & Luther, S. L. (2006). Drugs and falls in community-dwelling older people: a national veterans study. *Clinical Therapeutics*, *28*(4), 619-630. https://doi.org/10.1016/j.clinthera.2006.04.011

Ganz, D. A., Alkema, G. E., & Wu, S. (2008). It takes a village to prevent falls: reconceptualizing fall prevention and management for older adults. *Injury Prevention*, *14*(4), 266-271. doi:10.1136/ip.2008.018549

Gettens, S., & Fulbrook, P. (2015). Fear of falling: association between the Modified Falls Efficacy Scale, in-hospital falls and hospital length of stay. *Journal of Evaluation in Clinical Practice*, *21*(1), 43-50. https://doi.org/10.1111/jep.12226

Gettens, S., Fulbrook, P., Jessup, M., & Low Choy, N. (2018). The patients' perspective of sustaining a fall in hospital: A qualitative study. *Journal of Clinical Nursing*, *27*(3-4), 743-752. https://doi.org/10.1111/jocn.14075

Gillespie, L. D., Robertson, M. C., Gillespie, W. J., Lamb, S. E., Gates, S., Cumming, R. G., & Rowe, B. H. (2012). Interventions for preventing falls in older people living in the community. *Cochrane Database Syst Rev*, *2*(2). DOI: 10.1002/14651858.CD007146.pub2.

Glen, D., Morin, N., & Phegley, M. (November, 2017). Preventing Falls by Implementing a Fall Agreement. Poster Presented at The UHC Annual Nurse Residency Program (NRP) Vizient Conference, Savannah, Ga.

Gray-Miceli, D., & Quigley, P. A. (2012). *Fall prevention: assessment, diagnoses, and intervention strategies.* In: M. Boltz, E. Capezuti, T. Fulmer & D. Zwicker (Eds). Evidence-based Geriatric Nursing Protocols for Best Practice (pp. 268–297). 4th ed. New York, NY: Springer

Gu, Y.Y., Balcaen, K., Ni, Y., Ampe, J., & Goffin, J. (2016). Review on prevention of falls in hospital settings. *Chinese Nursing Research*, *3*(1), 7–10. https://doi.org/10.1016/J.CNRE.2015.11.002

Häggqvist, B., Stenvall, M., Fjellman-Wiklund, A., Westerberg, K., & Lundin-Olsson, L. (2012). "The balancing act"—Licensed practical nurse experiences of falls and fall prevention: a qualitative study. *BMC Geriatrics*, *12*(1), 62. Doi: 10.1186/1471-2318-12-62

Haines, T. P., Lee, D. C. A., O' Connell, B., McDermott, F., & Hoffmann, T. (2012). Why do hospitalized older adults take risks that may lead to falls?. *Health Expectations*, *18*(2), 233-249. https://doi.org/10.1111/hex.12026

Happell, B. (2007). Writing for publication: a practical guide. *Nursing Standard, 22*(28), 35–40. **doi:** 10.7748/ns2008.03.22.28.35.c6435

Harris, R., Sims, S., Levenson, R., Gourlay, S., Davies, N., Brearley, S., ... & Grant, R. (2017). What aspects of intentional rounding work in hospital wards, for whom and in what circumstances? A realist evaluation protocol. *BMJ Open*, *7*(1), e014776. doi: 10.1136/bmjopen-2016-014776

Health and Disability Commissioner. (2009). A review of the Health and Disability Commissioner Act 1994 and Code of Health and Disability Services Consumer's Rights. Report to the Minister of Health. Retrieved from http://www.hdc.org.nz/media/21446/report.pdf

Health Quality & Safety Commission. (2012). *Quality and Safety Challenge 2012*. Wellington: Health Quality & Safety Commission. Retrieved from: https://www.hqsc.govt.nz/our-programmes/other-topics/quality-and-safety-challenge-2012/

Health Quality & Safety Commission. (2016). *10 Topics in Reducing Harm from Falls*. Wellington: Health Quality & Safety Commission. Retrieved from: www.hqsc.govt.nz/our-programmes/reducing-harm-from-falls/10- topics/

Hempel, S., Newberry, S., Wang, Z., Booth, M., Shanman, R., Johnsen, B., ... & Ganz, D. A. (2013). Hospital fall prevention: a systematic review of implementation, components, adherence, and effectiveness. *Journal of the American Geriatrics Society*, *61*(4), 483-494. doi: https://doi.org/10.1111/jgs.12169

Hignett, S., & Masud, T. (2006). A review of environmental hazards associated with in-patient falls. *Ergonomics*, *49*(5-6), 605-616. https://doi.org/10.1080/00140130600568949

Hill, A. M., McPhail, S., Hoffmann, T., Hill, K., Oliver, D., Beer, C., ... & Haines, T. P. (2009). A randomized trial comparing digital video disc with written delivery of falls prevention education for older patients in hospital. *Journal of the American Geriatrics Society*, *57*(8), 1458-1463. doi: 10.1111/j.1532-5415.2009.02346.

Hitcho, E. B., Krauss, M. J., Birge, S., Claiborne Dunagan, W., Fischer, I., Johnson, S., ... & Fraser, V. J. (2004). Characteristics and circumstances of falls in a hospital setting: a prospective analysis. *Journal of General Internal Medicine*, *19*(7), 732-739. https://doi.org/10.1111/j.1525-1497.2004.30387.x

Johnson, M., George, A., & Tran, D.T. (2011). Analysis of falls incidents: nurse and patient preventive behaviors. *International Journal of Nursing Practice* , *17* (1), 60-66. doi: 10.1111/j.1440-172X.2010.01907.x

Jones, S., Blake, S., Hamblin, R., Petagna, C., Shuker, C., & Merry, A. (2016). Reducing harm from falls. *New Zealand Medical Journal, 129*(1446).Retrieved from: https://www.nzma.org.nz/journal/read-the-journal/all-issues/2010-2019/2016/vol-129-no-1446-2-december-2016/7089

Kalisch, B. J., Lee, H., & Rochman, M. (2012). Nursing staff teamwork and job satisfaction. *Journal of Nursing Management*, *18*(8), 938-947. doi:10.1111/j.1365-2834.2010.01153.x

Kalman, M. (2018). Effects of nursing rounds on patient fall rates. Retrieved from http://clinicaltrials.gov/show/NCT00632944

Kannus, P., Sievänen, H., Palvanen, M., Järvinen, T., & Parkkari, J. (2005). Prevention of falls and consequent injuries in elderly people. *The Lancet*, *366*(9500), 1885-1893. Doi:10.1016/S0140-6736(05)67604-0

Kempen, G. I., Yardley, L., Van Haastregt, J. C., Zijlstra, G. R., Beyer, N., Hauer, K., & Todd, C. (2008). The Short FES-I: a shortened version of the falls efficacy scale-international to assess fear of falling. *Age and Ageing*, *37*(1), 45-50. https://doi.org/10.1093/ageing/afm157

Kong, K. S. W., Lee, F. K., Mackenzie, A. E., & Lee, D. T. (2002). Psychosocial
consequences of falling: the perspective of older Hong Kong Chinese who had
experienced recent falls. *Journal of Advanced Nursing*, *37*(3), 234-242.
https://doi.org/10.1046/j.1365-2648.2002.02094.x

Kourkouta, L., & Papathanasiou, I. V. (2014). Communication in nursing practice. *Materia
socio-medica*, *26*(1), 65. doi: 10.5455/msm.2014.26.65-67

Kronfol, N. No Date. Biological, Medical and Behavioural Risk Factors on Falls.
Retrieved from
http://www.who.int/ageing/projects/2.Biological,%20medical%20and%20behaviou
ral%20risk% 20factors%20on%20falls.pdf

Krauss, M. J., Nguyen, S. L., Dunagan, W. C., Birge, S., Costantinou, E., Johnson, S.,
Caleca, B., & Fraser, V. J. (2007). Circumstances of patient falls and injuries in 9
hospitals in a midwestern healthcare system. *Infection Control and Hospital
Epidemiology*, *28*(5), 544-50. doi: 10.1086/513725

LeSeure, P., & Chongkham-ang, S. (2015). The experience of caregivers living with cancer
patients: A systematic review and meta-synthesis. *Journal of Personalized
Medicine*, 5(4), 406-439. doi: 10.3390/jpm5040406.

Lim, M. L., Ang, S. G. M., Teo, K. Y., Wee, Y. H. C., Yee, S. P., Lim, S. H., & Ang, S. Y.
(2018). Patients' experience after a fall and their perceptions of fall prevention: a
qualitative study. *Journal of Nursing Care Quality*, *33*(1), 46-52. DOI:
10.1097/NCQ.0000000000000261

Lord, S. R., Sherrington, C., Menz, H. B. & Close, J. C. (2007). *Falls in older people: Risk
factors and strategies for prevention*, New York, USA, Cambridge University
Press.

Mazur, K., Wilczyński, K., & Szewieczek, J. (2016). Geriatric falls in the context of a
hospital fall prevention program: delirium, low body mass index, and other risk
factors. *Clinical Interventions in Aging*, *11*, 1253–1261.
https://doi.org/10.2147/CIA.S115755

McAuley, E., Szabo, A., Gothe, N., & Olson, E. A. (2011). Self-efficacy: implications for physical activity, function, and functional limitations in older adults. *American journal of lifestyle medicine*, *5*(4), 361-369. https://doi.org/10.1177/1559827610392704

McLeod, J. (2011). *Qualitative research in counselling and psychotherapy*. London: Sage.

Miake-Lye, I. M., Hempel, S., Ganz, D. A., & Shekelle, P. G. (2013). Inpatient fall prevention programs as a patient safety strategy: a systematic review. *Annals of Internal Medicine*, *158*(5_Part_2), 390-396. doi: 10.7326/0003-4819-158-5-201303051-00005.

Michalowska, M., Fiszer, U., Krygowska-Wajs, A., Owczarek, K. (2005) Falls in Parkinson's disease. Causes and impact on patients' quality of life. *Functional Neurology 20*(4), 163–168. Retrieved from https://www.researchgate.net/publication/7294540

Ministry of Health. (2016). *The New Zealand Health Strategy.* Wellington, New Zealand: Author. Retrieved from: https://www.health.govt.nz/publication/new-zealand-health-strategy-2016

Ministry of Health. (2018). *Safer Staffing Accord.* Wellington, New Zealand: Author. Retrieved from https://www.health.govt.nz/our-work/nursing/developments-nursing/safer-staffing-accord

Mion, L. C., Chandler, A. M., Waters, T. M., Dietrich, M. S., Kessler, L. A., Miller, S. T., & Shorr, R. I. (2012). Is it possible to identify risks for injurious falls in hospitalized patients? *The Joint Commission Journal on Quality and Patient Safety*, *38*(9), 408-AP3. https://doi.org/10.1016/S1553-7250(12)38052-5

Mitchell, M. D., Lavenberg, J. G., Trotta, R. L., & Umscheid, C. A. (2014). Hourly Rounding to Improve Nursing Responsiveness. *Journal of Nursing Administration*, 44(9), 462-472. doi:10.1097/NNA.0000000000000101

Moher, D., Liberati, A., Tetzlaff, J., Altman, D., & Prisma Group (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *British Medical Journal, 339*, b2535. doi:10.1136/bmj.b2535

Munn, Z., Tufanaru, C., & Aromataris, E. (2014). JBI's systematic reviews: data extraction and synthesis. *AJN The American Journal of Nursing*, *114*(7), 49-54. doi: 10.1097/01.NAJ.0000451683.66447.89.

National Database of Nursing Quality Indicators (NDNQI) (2012). *Guidelines for data collection on the American Nurses Association's national quality endorsed measures: Nursing care hours per patient day, skill mix, falls, falls with injury.* Retrieved from www.nursingquality.org

National Institute for Health and Care Excellence (NICE). (2013). Falls: assessment and prevention of falls in older people. Retrieved from:http://www.publications.nice.org.uk/falls-assessment-and-prevention-of-falls-in-older-people-cg161.

Nelson, M. E., Rejeski, W. J., Blair, S. N., Duncan, P. W., Judge, J. O., King, A. C., ... & Castaneda-Sceppa, C. (2007). Physical activity and public health in older adults: recommendation from the American College of Sports Medicine and the American Heart Association. *Circulation, 116*(9), 1094. Doi: 10.1161/circulationaha.107.185650

New Zealand Nurses Organisation. (2018). Safe Staffing. Retrieved from https://www.nzno.org.nz/support/workplace_rights/safe_staffing

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, *16*(1), https://doi.org/10.1177/1609406917733847

Nursing Council of New Zealand (2015). *The New Zealand Nursing Workforce: A profile of Nurse Practitioners, Registered Nurses and Enrolled Nurses 2014¬2015*. Wellington: Author.

Oliver, D. (2008). Falls risk-prediction tools for hospital inpatients. Time to put them to bed? *Age and Ageing*, *37*(3), 248-250. doi: 10.1093/ageing/afn088.

Oliver, D., Daly, F., Martin, F. C., & McMurdo, M. E. (2004). Risk factors and risk assessment tools for falls in hospital in-patients: a systematic review. *Age and Ageing*, *33*(2), 122-130. https://doi.org/10.1093/ageing/afh017

Oliver, D., & Healey, F. (2009). Falls risk prediction tools for hospital inpatients: do they work. *Nursing Times*, *105*(7), 18-21.

Oliver, D., Healey, F., & Haines, T. P. (2010). Preventing falls and fall-related injuries in hospitals. *Clinics in Geriatric Medicine*, *26*(4), 645-692. https://doi.org/10.1016/j.cger.2010.06.005

Oulton, J.A. (2006). The global nursing shortage: an overview of issues and actions. *Policy, Politics, & Nursing Practice*, *7*(3_suppl), 34S-39S. https://doi.org/10.1177/1527154406293968

Pannucci, C. J., & Wilkins, E. G. (2010). Identifying and avoiding bias in research. *Plastic and reconstructive surgery*, *126*(2), 619-625. doi:10.1097/PRS.0b013e3181de24bc.

Perception (2018). In *Cambridge Dictionary* (11th ed.). Cambridge: Cambridge University Press

Phelan, E. A., Mahoney, J. E., Voit, J. C., & Stevens, J. A. (2015). Assessment and management of fall risk in primary care settings. *The Medical Clinics of North America*, *99*(2), 281–293. https://doi.org/10.1016/j.mcna.2014.11.004

Pluye, P., Gagnon, M. P., Griffiths, F., & Johnson-Lafleur, J. (2009). A scoring system for appraising mixed methods research, and concomitantly appraising qualitative, quantitative and mixed methods primary studies in Mixed Studies Reviews. *International Journal of Nursing Studies*, *46*(4), 529-546. doi: 10.1016/j.ijnurstu.2009.01.009

Polit, D., & Beck, C. (2013). *Nursing Research*: *Generating and Assessing Evidence for Nursing Practice*. Philadelphia: Lippincott Williams & Wilkins.

Porritt, K., Gomersall, J., & Lockwood, C. (2014). JBI's systematic reviews: study selection and critical appraisal. *The American Journal of Nursing*, *114*(6), 47-52. doi: 10.1097/01.NAJ.0000450430.97383.64

Prevention of falls Network Europe (ProFane). (2003). Retrieved from http://www.profane.eu.org/about.html

Quigley, P., Bulat, T., Kurtzman, E., Olney, R., Powell-Cope, G. & Rubenstein, L. (2010). Clinical practice in long-term care: Fall prevention and injury protection for nursing home residents. *Journal of the American Medical Directors Association, 11*, 284-293. doi: 10.1016/j.jamda.2009.09.009

Rabadi, M. H., Rabadi, F. M., & Peterson, M. (2012). An analysis of falls occurring in patients with stroke on an acute rehabilitation unit. *Rehabilitation Nursing*, *33*(3), 104–109. https://doi.org/10.1002/j.2048-7940.2008.tb00213.x

Reelick, M. F., van Iersel, M. B., Kessels, R. P., & Rikkert, M. G. O. (2009). The influence of fear of falling on gait and balance in older people. *Age and Ageing*, *38*(4), 435-440. https://doi.org/10.1093/ageing/afp066

Robertson, M., & Campbell, A. (2003). Otago Exercise Programme to prevent falls in older adults. New Zealand: a home-based individually tailored strength and balance retraining programme. ACC, Wellington (New Zealand). Retrieved from www.acc.co.nz/PRD_EXT_CSMP/groups/external_providers/documents/publications_promotion/prd_ctrb118334.pdf

Robertson, M. C. & Campbell, A. J. (2012). Falling costs: the case for investment. Retrieved from https://www.hqsc.govt.nz/assets/Falls/PR/Falling-costs-case-for-investment-report-June-2013.pdf

Robinson, L., Newton, J. L., Jones, D., & Dawson, P. (2014). Self-management and adherence with exercise-based falls prevention programmes: A qualitative study to explore the views and experiences of older people and physiotherapists. *Disability and Rehabilitation*, *36*(5), 379–386. https://doi.org/10.3109/09638288.2013.797507

Robson, K., Coyle, J., & Pope, R. (2018). Exploration of older people's perceptions of behavioural factors associated with falls. *Age and Ageing*, *47*(5), 734–740. https://doi.org/10.1093/ageing/afy051

Rooney, A. A., Cooper, G. S., Jahnke, G. D., Lam, J., Morgan, R. L., Boyles, A. L., ... & Walker, T. D. (2016). How credible are the study results? Evaluating and applying internal validity tools to literature-based assessments of environmental health hazards. *Environment International*, *92*, 617-629. doi: 10.1016/j.envint.2016.01.005

Rubenstein, L. Z., & Josephson, K. R. (2006). Falls and their prevention in elderly people: what does the evidence show?. *Medical Clinics*, *90*(5), 807-824. doi:10.1016/j.mcna.2006.05.013

Rush, K. L., Robey-Williams, C., Patton, L. M., Chamberlain, D., Bendyk, H., & Sparks, T. (2009). Patient falls: acute care nurses' experiences. *Journal of Clinical Nursing*, *18*(3), 357-365. https://doi.org/10.1111/j.1365-2702.2007.02260.x

Russell, C. L. (2005). An overview of the integrative research review. *Progress in Transplantation*, *15*(1), 8-13. https://doi.org/10.1177/152692480501500102

Russell, M. A., Hill, K. D., Blackberry, I., Day, L. L., & Dharmage, S. C. (2006). Falls risk and functional decline in older fallers discharged directly from emergency departments. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, *61*(10), 1090-1095. https://doi.org/10.1093/gerona/61.10.1090

Sawaengdee, K., Tangcharoensathien, V., Theerawit, T., Thungjaroenkul, P., Thinkhamrop, W., Prathumkam, P., ... & Thinkhamrop, B. (2016). Thai nurse cohort study: cohort profiles and key findings. *BMC Nursing*, *15*(1), 10. https://doi.org/10.1186/s12912-016-0131-0

Schardt, C., Adams, M. B., Owens. T., Keitz, S., & Fontelo, P. (2007). Utilization of the PICO framework to improve searching PubMed for clinical questions. *BMC Medical Informatics and Decision Making,* 7,16. doi: 10.1186/1472-6947-7-16

Sheehan, K. J., O'Connell, M. D., Cunningham, C., Crosby, L., & Kenny, R. A. (2013). The relationship between increased body mass index and frailty on falls in community dwelling older adults. *BMC geriatrics*, *13*(1), 132. https://doi.org/10.1186/1471-2318-13-132

Sherrington, C., Whitney, J. C., Lord, S. R., Herbert, R. D., Cumming, R. G., & Close, J. C. (2008). Effective exercise for the prevention of falls: a systematic review and meta-analysis. *Journal of the American Geriatrics Society*, *56*(12), 2234-2243. https://doi.org/10.1111/j.1532-5415.2008.02014.x

Shuman, C., Liu, J., Montie, M., Galinato, J. G., Todd, M. A., Hegstad, M., & Titler, M. (2016). Patient perceptions and experiences with falls during hospitalization and after discharge. *Applied Nursing Research*, *31*, 79-85. https://doi.org/10.1016/j.apnr.2016.01.009

Singh, I., & Okeke, J. (2016). Reducing inpatient falls in a 100% single room elderly care environment: evaluation of the impact of a systematic nurse training programme on falls risk assessment (FRA). *BMJ Open Quality*, *5*(1), u210921-w4741. doi:10.1136/bmjquality.u210921.w4741

Sonnad, S. S., Mascioli, S., Cunningham, J., & Goldsack, J. (2014). Do patients accurately perceive their fall risk? *Nursing*, *44*(11), 58-62. doi: 10.1097/01.NURSE.0000454966.87256.f7

Sowan, A. K., Tarriela, A. F., Gomez, T. M., Reed, C. C., & Rapp, K. M. (2015). Nurses' perceptions and practices toward clinical alarms in a transplant cardiac intensive care unit: Exploring key issues leading to alarm fatigue. *JMIR Human Factors*, *2*(1). doi: 10.2196/humanfactors.4196

Speechley, M., & Tinetti, M. (1991). Falls and injuries in frail and vigorous community elderly persons. *Journal of the American Geriatrics Society*, *39*(1), 46-52. https://doi.org/10.1111/j.1532-5415.1991.tb05905.x

Spoelstra, S. L., Given, B. A., & Given, C. W. (2012). Fall prevention in hospitals: an integrative review. *Clinical Nursing Research*, *21*(1), 92-112. https://doi.org/10.1177/1054773811418106

Sport Canterbury. (2017). *Community Group Strength and Balance Programme.* Retrieved from https://www.sportcanterbury.org.nz/Physical-Activity/Community-Group-Strength-Balance

Staggs, V. S., & Dunton, N. (2014). Associations between rates of unassisted inpatient falls and levels of registered and non-registered nurse staffing. *International Journal for Quality in Health Care*, *26*(1), 87–92. https://doi.org/10.1093/intqhc/mzt080

Stern, C., Jordan, Z., & McArthur, A. (2014). Developing the review question and inclusion criteria. *AJN The American Journal of Nursing*, *114*(4), 53-56. doi: 10.1097/01.NAJ.0000445689.67800.86

Stephenson, S., Langley, J. D., & Trotter, M. (2005). *Impact of Injury in New Zealand: A Description of the Impact of Injury Resulting in Death and Hospital Inpatient Treatment by Ethnicity, Gender, Age, and Mechanism*. Injury Prevention Research Unit, Department of Preventive and Social Medicine, Dunedin School of Medicine, University of Otago.

Stephenson, M., McArthur, A., Giles, K., Lockwood, C., Aromataris, E., & Pearson, A. (2015). Prevention of falls in acute hospital settings: a multi-site audit and best practice implementation project. *International Journal for Quality in Health Care*, *28*(1), 92-98. https://doi.org/10.1093/intqhc/mzv113

Stevens, J. A., Mack, K. A., Paulozzi, L. J., & Ballesteros, M. F. (2008). Self-reported falls and fall-related injuries among persons aged≥ 65 years–United States, 2006. *Journal of Safety Research*, *39*(3), 345-349. https://doi.org/10.1016/j.jsr.2008.05.002

Stevens, J. A., & Phelan, E. A. (2013). Development of STEADI. *Health Promotion Practice*, *14*(5), 706–714. https://doi.org/10.1177/1524839912463576

Taylor, D., & Stretton, C. (2004). The Otago exercise programme: An evidence-based approach to falls prevention for older adults living in the community. *New Zealand Family Physician, 31*(6), 391- 394

Teresi, J.A., Ramirez, M., Remler, D., Ellis, J., Boratgis, G., Silver, S., &…Dichter, E. (2013). Comparative effectiveness of implementing evidence-based education and best practices in nursing homes. Effects on falls, quality of life and societal costs. *International Journal of Nursing Studies, 50*(4), 448-463. doi:10.1016/j.ijnurstu.2011.07.003

The Cochrane Collaboration (2013). *Interventions for Preventing Falls in Older People in Care Facilities and Hospitals* (Review). Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD005465.pub3/pdf

The Joanna Briggs Institute. (2015). The Joanna Briggs Institute reviewers' manual 2014. Retrieved from http://joannabriggs.org/assets/docs/sumari/ReviewersManual-2014.pdf

Thomas, S., Mackintosh, S., & Halbert, J. (2010). Does the 'Otago exercise programme' reduce mortality and falls in older adults? : A systematic review and meta-analysis. *Age and Ageing*, *39*(6), 681-687. https://doi.org/10.1093/ageing/afq102

Tinetti, M. E., & Kumar, C. (2010). The patient who falls: "It's always a trade-off". *Jama*, *303*(3), 258-266. doi:10.1001/jama.2009.2024

Torraco, R. J. (2005). Writing integrative literature reviews: Guidelines and examples. *Human Resource Development Review, 4*(3), 356-368. ttps://doi.org/10.1177/1534484305278283

Torraco, R. J. (2016). Writing integrative literature reviews: Using the past and present to explore the future. *Human Resource Development Review*, *15*(4), 404-428. DOI: 10.1177/1534484316671606

Turkoski, B., Pierce, L., Schreck, S., Salter, J., Radziewicz, R., Guhde, J., & Brady, R. (1997). Clinical Nursing Judgment Related to Reducing the Incidence of Falls by Elderly Patients. *Rehabilitation Nursing, 22*, 124-30. 10.1002/j.2048-7940.1997.tb02081.x.

Twibell, R. S., Siela, D., Sproat, T., & Coers, G. (2015). Perceptions related to falls and fall prevention among hospitalized adults. *American Journal of Critical Care*, *24*(5), e78-e85. doi: 10.4037/ajcc2015375.

Tzeng, H. M., Hu, H. M., & Yin, C. Y. (2011). The relationship of the hospital-acquired injurious fall rates with the quality profile of a hospital's care delivery and nursing staff patterns. *Nursing Economics*, *29*(6), 299. Retrieved from https://www.nursingeconomics.net/ce/2013/article2906299.pdf

Ulmer, C., Wolman, D. M., & Johns, M. M. (2009). System Strategies to Improve Patient Safety and Error Prevention. Washington (DC): National Academies Press. Retrieved from: https://www.ncbi.nlm.nih.gov/books/NBK214948/doi: 10.17226/12508

Vassallo, M., Poynter, L., Sharma, J. C., Kwan, J., & Allen, S. C. (2008). Fall risk-assessment tools compared with clinical judgment: an evaluation in a rehabilitation ward. *Age and Ageing*, *37*(3), 277-281. doi: 10.1093/ageing/afn062.

Vermeir, P., Vandijck, D., Degroote, S., Peleman, R., Verhaeghe, R., Mortier, E., ... & Vogelaers, D. (2015). Communication in healthcare: a narrative review of the literature and practical recommendations. *International Journal of Clinical Practice*, *69*(11), 1257-1267. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4758389/pdf/IJCP-69-1257.pdf

Wade, D. T. (2009). Holistic health care. *What is it, and how can we achieve it?* Retrieved from https://pdfs.semanticscholar.org/80af/edfca2ffe3c96054aac6a85cf940a9c63a56.pdf

Walsh, M. J., Polus, B. I., & Webb, M. N. (2004). The role of the cervical spine in balance and risk of falling in the elderly. *Chiropractic Journal of Australia*, *34*(1), 19.

Weil, T. P. (2015). Patient falls in hospitals: An increasing problem. *Geriatric Nursing*, *36*(5), 342-347. https://doi.org/10.1016/j.gerinurse.2015.07.004

Whittemore, R., & Knafl, K. (2005). The integrative review: updated methodology. *Journal of Advanced Nursing*, *52*(5), 546-553. doi:10.1111/j.1365-2648.2005.03621.x

World Health Organization. (2016). Falls [Website]. Retrieved from http://www.who.int/mediacentre/factsheets/fs344/en/

World Health Organization. (2008). Small Research Grants for Patient Safety. WHO, Geneva, Switzerland. Retrieved from https://www.who.int/patientsafety/research/grants/Smallgrants_summary_A4English.pdf

Wollin, J.A. & Fairweather, C.T. (2007). Finding your voice: key elements to consider when writing for publication. *British Journal of Nursing, 16*(22), 1418–1421. https://doi.org/10.12968/bjon.2007.16.22.27774

Wolf, J., Niederhauser, V., Marshburn, D., & LaVela, S. L. (2014). Defining Patient Experience. *Patient Experience Journal*, 1(3). Retrieved from: https://pxjournal.org/journal/vol1/iss1/3

Wright, K., Golder, S., & Lewis-Light, K. (2015). What value is the CINAHL database when searching for systematic reviews of qualitative studies?. *Systematic reviews*, *4*(1), 104.

Yardley, L., & Smith, H. (2002). A prospective study of the relationship between feared consequences of falling and avoidance of activity in community-living older people. *The Gerontologist*, *42*(1), 17-23. https://doi.org/10.1093/geront/42.1.17

Zdobysz, J. A., Boradia, P., Ennis, J., & Miller, J. (2005). The relationship between functional independence scores on admission and patient falls after stroke. *Topics in Stroke Rehabilitation, 12*(2), 65–71. https://doi.org/10.1310/G89Q-80VR-P5P7-9PTH

**Appendix I**

**JBI Critical Appraisal Checklist for Case Series  (MAStARI)**

Reviewer _____Date_____

Author _____Year_____Record Number_____.

| | Yes | No | Unclear | Not applicable |
|---|---|---|---|---|
| 1. Were there clear criteria for inclusion in the case series? | ☐ | ☐ | ☐ | ☐ |
| 2. Was the condition measured in a standard, reliable way for all participants included in the case series? | ☐ | ☐ | ☐ | ☐ |
| 3. Were valid methods used for identification of the condition for all participants included in the case series? | ☐ | ☐ | ☐ | ☐ |
| 4. Did the case series have consecutive inclusion of participants? | ☐ | ☐ | ☐ | ☐ |
| 5. Did the case series have complete inclusion of participants? | ☐ | ☐ | ☐ | ☐ |
| 6. Was there clear reporting of the demographics of the participants in the study? | ☐ | ☐ | ☐ | ☐ |
| 7. Was there clear reporting of clinical information of the participants? | ☐ | ☐ | ☐ | ☐ |
| 8. Were the outcomes or follow up results of cases clearly reported? | ☐ | ☐ | ☐ | ☐ |
| 9. Was there clear reporting of the presenting site(s)/clinic(s) demographic information? | ☐ | ☐ | ☐ | ☐ |
| 10. Was statistical analysis appropriate? | ☐ | ☐ | ☐ | ☐ |

Overall appraisal:      Include ☐      Exclude ☐      Seek further info ☐

Comments (Including reason for exclusion)

**Appendix II.**

**JBI Critical Appraisal Checklist for Randomized Controlled Trials** ((MAStARI)

Reviewer_____Date_____

Author _____Year_____Record Number_____.

| | Yes | No | Unclear | NA |
|---|---|---|---|---|
| 1. Was true randomization used for assignment of participants to treatment groups? | ☐ | ☐ | ☐ | ☐ |
| 2. Was allocation to treatment groups concealed? | ☐ | ☐ | ☐ | ☐ |
| 3. Were treatment groups similar at the baseline? | ☐ | ☐ | ☐ | ☐ |
| 4. Were participants blind to treatment assignment? | ☐ | ☐ | ☐ | ☐ |
| 5. Were those delivering treatment blind to treatment assignment? | ☐ | ☐ | ☐ | ☐ |
| 6. Were outcomes assessors blind to treatment assignment? | ☐ | ☐ | ☐ | ☐ |
| 7. Were treatment groups treated identically other than the intervention of interest? | ☐ | ☐ | ☐ | ☐ |
| 8. Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed? | ☐ | ☐ | ☐ | ☐ |
| 9. Were participants analyzed in the groups to which they were randomized? | ☐ | ☐ | ☐ | ☐ |
| 10. Were outcomes measured in the same way for treatment groups? | ☐ | ☐ | ☐ | ☐ |
| 11. Were outcomes measured in a reliable way? | ☐ | ☐ | ☐ | ☐ |
| 12. Was appropriate statistical analysis used? | ☐ | ☐ | ☐ | ☐ |
| 13. Was the trial design appropriate, and any deviations from the standard RCT design (individual randomization, parallel groups) accounted for in the conduct and analysis of the trial? | ☐ | ☐ | ☐ | ☐ |

Overall appraisal:     Include ☐     Exclude ☐     Seek further info ☐

Comments (Including reason for exclusion)

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## Appendix III.

## JBI Critical Appraisal Checklist for Case Control Studies (MAStARI)

Reviewer_____Date_____

Author _____Year_____Record Number_____

|  | Yes | No | Unclear | Not applicable |
|---|---|---|---|---|
| 1. Were the groups comparable other than the presence of disease in cases or the absence of disease in controls? | ☐ | ☐ | ☐ | ☐ |
| 2. Were cases and controls matched appropriately? | ☐ | ☐ | ☐ | ☐ |
| 3. Were the same criteria used for identification of cases and controls? | ☐ | ☐ | ☐ | ☐ |
| 4. Was exposure measured in a standard, valid and reliable way? | ☐ | ☐ | ☐ | ☐ |
| 5. Was exposure measured in the same way for cases and controls? | ☐ | ☐ | ☐ | ☐ |
| 6. Were confounding factors identified? | ☐ | ☐ | ☐ | ☐ |
| 7. Were strategies to deal with confounding factors stated? | ☐ | ☐ | ☐ | ☐ |
| 8. Were outcomes assessed in a standard, valid and reliable way for cases and controls? | ☐ | ☐ | ☐ | ☐ |
| 9. Was the exposure period of interest long enough to be meaningful? | ☐ | ☐ | ☐ | ☐ |
| 10. Was appropriate statistical analysis used? | ☐ | ☐ | ☐ | ☐ |

Overall appraisal:     Include ☐     Exclude ☐     Seek further info ☐

Comments (Including reason for exclusion)

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## Appendix IV.

## JBI Critical Appraisal Checklist for Qualitative Research (QARI)

Reviewer _____Date_____

Author _____Year_____Record Number_____

| | Yes | No | Unclear | Not applicable |
|---|---|---|---|---|
| 1. Is there congruity between the stated philosophical perspective and the research methodology? | ☐ | ☐ | ☐ | ☐ |
| 2. Is there congruity between the research methodology and the research question or objectives? | ☐ | ☐ | ☐ | ☐ |
| 3. Is there congruity between the research methodology and the methods used to collect data? | ☐ | ☐ | ☐ | ☐ |
| 4. Is there congruity between the research methodology and the representation and analysis of data? | ☐ | ☐ | ☐ | ☐ |
| 5. Is there congruity between the research methodology and the interpretation of results? | ☐ | ☐ | ☐ | ☐ |
| 6. Is there a statement locating the researcher culturally or theoretically? | ☐ | ☐ | ☐ | ☐ |
| 7. Is the influence of the researcher on the research, and vice- versa, addressed? | ☐ | ☐ | ☐ | ☐ |
| 8. Are participants, and their voices, adequately represented? | ☐ | ☐ | ☐ | ☐ |
| 9. Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body? | ☐ | ☐ | ☐ | ☐ |
| 10. Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data? | ☐ | ☐ | ☐ | ☐ |

Overall appraisal:     Include □       Exclude         □        Seek further info □

Comments (Including reason for exclusion)

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**Appendix V.**

**JBI Critical Appraisal Checklist for Text and Opinion Papers (NOTARI)**

Reviewer_____Date_____

Author_____Year_____Record Number_____

|  | Yes | No | Unclear | Not applicable |
|---|---|---|---|---|
| 1. Is the source of the opinion clearly identified? | ☐ | ☐ | ☐ | ☐ |
| 2. Does the source of opinion have standing in the field of expertise? | ☐ | ☐ | ☐ | ☐ |
| 3. Are the interests of the relevant population the central focus of the opinion? | ☐ | ☐ | ☐ | ☐ |
| 4. Is the stated position the result of an analytical process, and is there logic in the opinion expressed? | ☐ | ☐ | ☐ | ☐ |
| 5. Is there reference to the extant literature? | ☐ | ☐ | ☐ | ☐ |
| 6. Is any incongruence with the literature/sources logically defended? | ☐ | ☐ | ☐ | ☐ |

Overall appraisal:     Include ☐     Exclude        ☐     Seek further info ☐

Comments (Including reason for exclusion)