South Korean Nurses’ Cognitive Impairment Care in Hospitalised Older Adults

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Synopsis

In South Korea, the prevalence of dementia is rapidly increasing alongside the ageing of the population. The prevalence of dementia among South Korean older adults (age ≥ 65 years) was 8.4% (n = 421,387) in 2008, and it is expected to increase to 9.7% (n = 741,719) by 2020 and to 13.2% (n = 2,217,419) by 2050 (Cho, Kim, et al., 2008). The inpatient hospital costs for Alzheimer’s disease, the most common form of dementia, are reported as being greater than for any other disease in South Korea (Korea Health Insurance Review and Assessment Service, 2015). In the first half of 2015, the inpatient hospital spending for Alzheimer’s disease in South Korea was US$388,555,222 in total and US$6,548 per person (Korea Health Insurance Review and Assessment Service, 2015). The rapid increase in the population of people with dementia has the potential to increase the likelihood of health care professionals in hospitals in South Korea encountering older adults with delirium or delirium superimposed on dementia (DSD) in their daily practice.

Delirium is defined as an acute impairment in cognition and a disturbance in awareness and attention (American Psychiatric Association, 2013). Delirium is four times more likely to occur in hospitalised older adults with dementia compared with hospitalised older adults without dementia (Franco et al., 2010), and is distressing for patients, families and health care professionals (Breitbart, Gibson, & Tremblay, 2002; Bruera et al., 2009; Toye, Matthews, Hill, & Maher, 2014). Delirium is also linked to a range of serious adverse outcomes such as increased morbidity, mortality, and health service utilisation (Bellelli et al., 2007; Fick, Agostini, & Inouye, 2002; Fick, Steis, Waller, & Inouye, 2013; Morandi et al., 2014; Sampson, Blanchard, Jones, Tookman, & King, 2009; Torpilliesi, Bellelli, & Trabucchi, 2010).

Despite the adverse outcomes and burden associated with delirium, it is usually under-recognised, and management remains inadequate (Hare, McGowan, Wynaden, Speed, & Landsborough, 2008; Steis & Fick, 2012; Voyer, Cole, McCusker, St-Jacques, & Laplante, 2008). Although many factors contribute to poor recognition and inadequate management of delirium in hospitalised older adults with and without dementia, nurses’ poor knowledge and negative attitudes are considered the foremost factors affecting the quality of cognitive impairment (CI) care (Dahlke & Phinney, 2008; Fick, Hodo, & Lawrence, 2007). Recently, several Western studies reported on the
positive effect of educational programs for nurses’ knowledge of delirium and associated care (Chow, Mujahid, Butterfield, & McNicoll, 2015; Voellinger et al., 2011; Wand et al., 2014). Western values and health care delivery systems, however, may have an influence on this effect and currently few studies have been conducted from a South Korean perspective (Kim & Lee, 2014). The aims of the current study were to develop and evaluate an educational program designed to improve South Korean nurses’ knowledge, attitudes, documentation, and efforts to involve family caregivers in CI care.

The mixed methods sequential explanatory design used in this study began with quantitative data collection and analysis, then incorporated a qualitative interview, and concluded with a mixed methods analysis (Creswell & Plano Clark 2011). The quantitative component of this study employed a single group, pre- and post-intervention design to evaluate the effectiveness of the CI education program on South Korean nurses’ knowledge of CI, attitudes toward older adults, and documentation of CI care. A convenience sample of 40 nurses was recruited from the general internal medical wards of one regional general hospital in South Korea. The educational program based on adult learning principles was provided to the 40 nurses for three months. During the follow-up component of this study, semi-structured interviews were conducted with a purposive sample of 12 nurses who participated in the first component and a nominated sample of eight family caregivers whose older family members were cared for by nurses who participated in the first component. The aims of the interviews were to describe South Korean nurses’ perceptions of the educational program and nurses’ and family caregivers’ perceptions of nurse-initiated efforts to involve family caregivers in CI care.

The quantitative data showed that the educational program had a positive impact on South Korean nurses’ knowledge of CI and their attitudes toward older adults. The qualitative data indicated that the educational program benefited nurses by improving their knowledge of CI, attitudes toward older adults with CI, and self-confidence in dealing with patients with CI, and by increasing their initial efforts to involve family caregivers in CI care. Nurse-initiated interaction with family caregivers promoted caregivers’ involvement in the CI care of older family members, which resulted in positive experiences of CI care. However, the program did not result in improvements in the documentation of CI care. Competent prevention, recognition, and management
of delirium in hospitalised older adults with dementia and at risk of delirium will have a significant influence on delirium-related morbidity and mortality outcomes.
Statement of Originality

This work has not previously been submitted for a degree or diploma in a university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

Yun Young KANG
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Dedications

To my loving parents, sister and brother who never fail to believe in me.
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Glossary of Key Terms and Abbreviations

List of terms and abbreviations used throughout the thesis.

ADL     Activities of daily living
AIDS    Acquired immunodeficiency syndrome
APA     American Psychiatric Association
CAC-A   Clinical Assessment of Confusion-A
CAM     Confusion Assessment Method
CAM-ICU Confusion Assessment Method-Intensive Care Unit
CI      Cognitive impairment
DSM     Diagnostic and Statistical Manual of Mental Disorders
DOSS    Delirium Observation Screening Scale
DRS-R-98 Delirium Rating Scale Revised-98
DSB     Digit Span Backwards
DSD     Delirium superimposed on dementia
DSF     Digit Span Forwards
EMR     Electronic Medical Record
FAQ     Facts on Aging Quizzes
GAR     Global Attentiveness Rating
MDAS    Memorial Delirium Assessment Scale
MMSE    Mini-Mental State Examination
NCD     Neurocognitive Disorder
HELP    Hospital Elder Life Program
HREC    Human Research Ethics Committee
ICU     Intensive care unit
LTCI    Long-term Care Insurance
OECD    Organization for Economic Cooperation and Development
RCT     Randomised controlled trial
RN      Registered nurse
UK      United Kingdom
US      United States
VAT     Vigilance ‘A’ Test
CHAPTER ONE
INTRODUCTION

Introduction

Cognitive impairment (CI) (i.e., delirium, dementia, or delirium superimposed on dementia) is highly prevalent in hospitalised older adults. This condition compounds the complexity of acute illness and contributes to increased morbidity, mortality, and health services utilisation (Fick, Kolanowski, Waller, & Inouye, 2005; Fick et al., 2013; Leslie & Inouye, 2011). Despite this, delirium is usually under-recognised and its management remains inadequate (Hare, McGowan, et al., 2008; Inouye, Foreman, Mion, Katz, & Cooney Jr, 2001; Rice et al., 2011; Steis & Fick, 2012; Voyer et al., 2008). Although many factors contribute to poor recognition and inadequate management of delirium in hospitalised older adults with and without dementia, nurses’ poor knowledge and negative attitudes are considered the foremost factors affecting the quality of CI care (Dahlke & Phinney, 2008; Fick et al., 2007). Recently, several Western studies reported on the positive effect of educational programmes for nurses’ knowledge of delirium and associated care (Chow et al., 2015; Voellinger et al., 2011; Wand et al., 2014). Western values and health care delivery systems, however, may have an influence on this effect and currently few studies have been conducted from a South Korean perspective (Kim & Lee, 2014). This study developed and evaluated an educational program aimed at improving South Korean nurses’ knowledge, attitudes, documentation, and efforts to involve family caregivers in CI care.

This chapter begins with an overview of the sociocultural context of the South Korean health system structure, nursing education, and hospital inpatient nursing care where the current study was conducted. It also provides a background to the study, followed by an overview of the significance of the study. Furthermore, this chapter outlines the research purpose and objectives and concludes with a description of the structure of the thesis.

An Overview of South Korea

This study was conducted in one regional general hospital in South Korea. As the general hospital system in South Korea differs from other countries in terms of the sociocultural environment, health system structure, nursing education and hospital inpatient nursing care the South Korean context are described below.
The health system structure in South Korea

This section provides information about the administrative structure and health care delivery facilities for the health system in South Korea.

Administrative structure. In South Korea, health insurance is divided into two groups, the employer-insured and the self-insured (Song, 2009). The health care system comprises three branches: (1) The National Health Insurance Program (Gukmin Geongang Boheom), (2) Medical Aid Program (Uiryo Boho), and (3) Long-term Care Insurance Program (Janggi Noin Yoyang Boheom) (Song, 2009). All South Korean people are eligible for health insurance cover under the National Health Insurance Program. The financial resources of the National Health Insurance Program consist mainly of contributions by the insured and their employers and additional government subsidies (Song, 2009). The National Health Insurance Program is divided into four parts: (1) The Ministry of Health and Welfare, which supervises the operations and makes policy decisions; (2) the National Health Insurance Cooperation, which manages health insurance enrolment, collects contributions, and sets medical fee schedules; (3) the Health Insurance Review Agency, which reviews fees and evaluates care; and (4) the health care delivery facilities that provide health care services and are directed and supervised by the Ministry of Health and Welfare (Song, 2009). The Medical Aid Program covers the health insurance of the poor who are unable to pay for their own health care coverage. Currently, over 96.3% of the total South Korean population is covered under the National Health Insurance Program and the remaining 3.7% are supported by the Medical Aid Program (Song, 2009).

In South Korea, an urgent social and health issue is the ageing population. The rate of growth of the aged population is known to be one of the fastest in the world ("Population Projections: general and processed statistics, statistics on population," 2013). South Korea is expected to move from an ageing society to a “super-aged” society in only 26 years (2000–2026), and 37.6% (17.9 million) of the population is expected to be over 65 years by 2050 ("Population Projections: general and processed statistics, statistics on population," 2013). In addition, the rapid industrialisation in the past four decades has brought extensive changes in the structure and value of South Korean families. For example, the percentage of one-person households is increasing, particularly in the elderly population where it will reach approximately 33% by 2050. At the same time, more women have started to work; therefore, the number of informal
caregivers is decreasing. Because of this rapidly ageing population and progressive westernisation of lifestyle, dementia has emerged as a major health problem in South Korea. As such, there is a need for a national systematic approach to older adults with dementia (Korea National Statistical Office, 2005).

To deal with this challenge, the South Korean government has developed the Long-Term Care Insurance (LTCI) scheme, which exercises filial duty in a social context (Lee, 2013). Since 2008, the LTCI Act was executed to care for older adults, including people with dementia, who need help with their activities of daily living (ADLs). LTCI services are financed by public funding, taxes, and recipient payment (Kim & Choi, 2013). The National Health Insurance Cooperation manages this LTCI, along with the Ministry of Health and Welfare (Song, 2009). LTCI services consist of in-kind and cash benefits, but cash benefits are limited to extraordinary cases in which formal services are not available, for example, in remote regions (Kim & Choi, 2013). In-kind benefits are provided to people, mainly older adults, who are rated grade 1–3 based on the extent of their dependency and the need for help according to the assessment system of the LTCI law. These include home-care services and residential facility care. Home-care services are perceived as more desirable than residential facilities, and their use is encouraged so that those who need help with ADLs can maintain a relationship with their families (Kim & Choi, 2013; Korea Government, 2011).

**Health care delivery facilities.** In South Korea, health care delivery facilities are classified into three tiers based on the number of beds and degree of specialisation: the first tier consists of clinics (0–30 beds); the second consists of small (primary) hospitals (31–100 beds) and general (secondary) hospitals (101–700 beds); and the third (tertiary) tier includes university teaching hospitals and general hospitals with more than 700 beds (Song, 2009).

Clinics focus on outpatient care. Primary hospitals are the lowest level of hospital care and secondary hospitals provide specialised medical health care services in several major areas (e.g., internal medicine, surgery, and paediatrics). Tertiary referral hospitals are well-equipped with human and physical resources, provide most types of advanced medical care, and treat severely ill patients, but these hospitals are located only in metropolitan areas. They are resourced to provide better and more in-service education to nurses, compared with the other hospitals (Song, 2009). However, general
hospitals (≥ 300 beds) comprise 76.6% of all hospitals and 46.7% of all clinical registered nurses (RNs) are currently employed in such hospitals (Korea Health Insurance Review and Assessment Service, 2014).

All South Koreans have access to all facilities, with a referral system for the third tier. South Korean people can go to any health care provider for the first consultation and must present a referral slip issued by the diagnosing provider to receive care in a tertiary centre (Song, 2009). They have a great deal of latitude in choosing a specialist. However, a lack of gatekeeping leads to competition rather than coordination among physicians between clinics and hospitals, which may affect quality of care (Kwon, 2009).

While the private sector accounts for more than 90% of the health care services provided, there is regional disparity in health care delivery facilities (Korea Ministry of Health and Welfare, 2013; Song, 2009). Most private hospitals are located in metropolitan areas (Song, 2009). Furthermore, 92.1% of physicians and 90.8% of hospital beds are also in metropolitan areas (Korea Ministry of Health and Welfare, 2013; Song, 2009).

**Nursing education**

In South Korea, nursing education offers associate, baccalaureate, masters, and doctoral degree programs. There are two levels of nurses (advanced practice nurse and RN), with academic titles in accordance with educational background, ability in nursing service, and experience in nursing practice (Korea Nurses Association, 2015).

Advanced practice nurses are qualified RNs certified by the Ministry of Health and Welfare in South Korea. They must pass an advanced practice certificate examination after completion of a specialised educational program from a graduate school certified by the Ministry of Health and Welfare, and this allows them to perform high-level nursing services. Currently, there are 13 fields of advanced practice: home health care, infection control, gerontological nursing, anaesthesia, public health, occupational health, emergency care, psychiatric mental health, oncological health, critical care, hospice, child health and adult health (Korea Nurses Association, 2015).

For RNs, there are two different types of entry level programs for high school graduates: 3-year junior colleges (Associate degree program) and 4-year university
(Bachelor of Science) nursing programs. For RNs with an associate degree, there is also a special RN to Bachelor of Science in nursing program. Another method to obtain the Bachelor degree is through the University of the Air, an off-campus university. The education curricula and/or educational philosophy between the two types of schools often differ, although graduates from both schools generally practice in the same roles in health care delivery facilities (Kim, Joung, & Hwang, 2011). In South Korea, all RNs are required to pass a national standardised RN licensure examination (Korea Accreditation Board of Nursing Education, 2012).

In South Korea, the national standardised licensure examination consists of eight subjects: (1) medical-surgical nursing, (2) women’s health nursing, (3) paediatric health nursing, (4) community health nursing, (5) psychiatric mental health nursing, (6) nursing management, (7) fundamentals of nursing; and (7) health and medical regulations (Korea Nurses Association, 2015). Evidence suggests that some undergraduate nursing programs focus only on these eight subjects to raise or maintain the national standardised RN licensure examination pass rate (Kim et al., 2013). In particular, the medical-surgical nursing content accounts for 80 items of the total items of the national standardised RN licensure examination (Korea Nurses Association, 2015). Gerontological content tends to be integrated into medical-surgical or psychiatric mental health nursing subjects in undergraduate nursing programs, particularly 3-year undergraduate programs. Furthermore, gerontological nursing is neither a compulsory theoretical subject, nor a clinical placement in 4-year undergraduate programs (Kim et al., 2013; Yun, 2008). As such, it can be argued that South Korean nursing students are not well-prepared to care for older adults, particularly those with CI, in their future work as RNs.

In South Korea, clinical RNs are required to attend eight hours of refresher training every year by legislation to gain re-registration (Korea Ministry of Government Legislation, 2014). The South Korean Nurses’ Association provides refresher training courses to clinical RNs both on- and off-line (Lee & Lee, 2014). Most of these programs seem to be provided in a conventional manner by presentations including slide-shows and lectures, and thus they do not target RNs’ real learning needs and do not engage them in active learning (Lee & Lee, 2014; Xiao et al., 2013). Furthermore, tertiary hospitals located in metropolitan areas are resourced to provide better and more in-service education for RNs, compared with most of the general hospitals (≥ 300 beds).
in non-metropolitan areas (Lee & Lee, 2014; Song, 2009). Thus, RNs working in general hospitals feel that they have less knowledge and competence than those working in tertiary hospitals (Lee & Lee, 2014).

**Hospital inpatient nursing care**

In South Korea, provision of nursing care is influenced by the characteristics of the health care system and society. A medical model is prevalent in hospital settings, and this has a major influence on nursing practice (Wong, 2014). As hospital services are still primarily medically-oriented, characterised by diagnosis and medical treatment, nurses focus on medical treatments and skilled nursing procedures when carrying out physicians’ orders (Cho & Kim, 2006; Kwak, Chung, Xu, & Cho, 2010). Evidence suggests that in the South Korean belief system, holistic nursing rarely involves physical care or psychological care, although RNs are required to see a patient holistically (Shin & Eschiti, 2005; Takeno, 2010).

Another factor in South Korea is the influence of family caregiver involvement in inpatient care (Cho & Kim, 2006). Family caregiving is a phenomenon that reflects the social values and norms of a family and its function in a society (Asahara, Momose, Murashima, Okubo, & Magilvy, 2001). In South Korea, tradition has preserved a strong family bond and filial responsibility for the care of family members (Chee & Levkoff, 2001). Consistent with the family-centred culture of South Korea, health care delivery in South Korean hospitals is dependent on family members who are expected to stay at the patients’ bedside during hospitalisation and provide basic care (e.g., feeding and toileting assistance) (Kwak et al., 2010). For example, when older adults are hospitalised, their spouse or adult children, particularly female family members (e.g., wife, daughter and daughter-in-law) are expected to stay at the patient’s bedside (Cho & Kim, 2006).

Family caregiving is taken into account when designing and delivering nursing inpatient care in hospitals (e.g., nurse staffing and skill-mix) (Cho & Kim, 2006). This factor has resulted in RNs being primarily in charge of skilled and licensure-required nursing care, such as technical procedures and medical administration, while family caregivers provide basic needs related to ADLs (Kwak et al., 2010). However, the capability of families to provide basic care to their hospitalised family members has decreased as a result of societal changes (Cho & Kim, 2006; Tzeng, 2004). This often
leads family members to perceive family caregiving as burdensome and consequently to be dissatisfied with inpatient care (Cho & Kim, 2006; Tzeng, 2004).

The decreased capacity of family caregiving has been recognised by the South Korean government. In response to the burden of family caregivers in inpatient care the government implemented a financial incentive policy that encourages hospitals to increase their nurse staffing levels. Since November 1999, the National Health Insurance system differentiates nursing fees for inpatients based on the nurse staffing level of tertiary and general hospitals (i.e., nurse-to-bed ratio) by grading Level 1–6 (highest–lowest) and Level 1–7 (highest–lowest), respectively (Kim & Kim, 2015; Korea Ministry of Health and Welfare, 1999). This financial incentive policy aims to reduce the burden of family caregivers and ultimately improve nursing care quality and patient satisfaction (Korea Ministry of Health and Welfare, 2001).

In South Korea, a few studies have been published on the effects of the policy of differentiated nursing fees by staffing grades. A comparison of nurse staffing in 1999 and 2008 revealed that 93% of tertiary hospitals and 45% of general hospitals had improved staffing grades over time (Cho, June, Kim, & Park, 2008). The improvements to nurse staffing grades are greater for tertiary and general hospitals in the metropolitan area than for hospitals in non-metropolitan areas (Kim & Kim, 2015). However, in spite of these improvements there is still a low nurse-to-patient ratio (i.e., more than 1:10 during morning and evening shifts, and more than 1:20 during night shifts) in general hospitals (> 200 beds) (Kwak et al., 2010). As a result of the low nurse-to-patient ratio, South Korean RNs still expect family caregivers to provide basic care including personal care to family members who are patients.

When families are unable to provide a family member at the patient’s bedside, they often hire an informal caregiver (ganbyungin) as their substitute who can look after the patient 24 hours a day. They pay the cost of the informal caregiver out of their personal funds. In 2010, 71% of the patients hospitalised in hospital settings had informal caregivers during hospitalisation; 95% of the caregivers were family or relatives, and 5% were family-paid informal caregivers (Jung, Seo, Go, & Han, 2010). On average, approximately US$800 was paid to the informal caregiver per hospitalisation (Jung et al., 2010).
Informal caregiving by families has the advantage of providing patients with personalised care and the potential to strengthen the family bond. However, informal caregiving also causes several issues for hospitals, nurses and patients. First, hospitals may set up and maintain their nurse staffing level as low as possible by encouraging the patient’s family and informal caregivers, rather than nursing staff, to provide basic care (Cho, Kim, Yeon, You, & Lee, 2015). Under this approach to nurse staffing, nurses have little time to provide basic care despite being responsible for all patient care (Cho et al., 2015). When the omission of care by nurses is repeated for an extended period of time, nurses may conclude that the care provided by the patients’ family and informal caregivers is no longer a nursing role (Kalisch, 2006). Repeated omission of personal nursing care may also prevent nurses from ‘knowing the patients and their needs’, which is essential to sound clinical judgment, safe care and a positive nurse-patient relationship (Zolnierek, 2014).

Furthermore, families also experience social and economic burdens because they may need to be absent from school or the workplace and/or to withdraw from social interaction to stay at the patient’s bedside. More specifically, city-dwelling caregivers (i.e., family members) feel more pressured than those living in non-metropolitan areas (Lee, Yoo, & Jung, 2010). Family caregivers in an urban environment may have fewer options for decreasing stress due to the stressors of modern living. In contrast, family members providing care who are from non-metropolitan, provincial areas have easier access than their city-dwelling peers to emotional encouragement in their community, which offers increased social support, potentially reducing stress. In South Korea, compared to those in metropolitan areas, non-metropolitan residents regard taking care of sick older family members as a moral value and obligation of filial duty. They perceive this situation as a personal responsibility, not as a stress imposed upon them (Lee et al., 2010). Although families are important in care provision their informal caregiving can also threaten the quality and safety of nursing care whenever nursing care is fragmented or/and omitted (Cho et al., 2015).

**Cognitive Impairment**

*Impact of cognitive impairment.* Delirium is a common neuropsychiatric disorder. The American Psychiatric Association *Diagnostic and Statistical Manual of Mental Disorders* 5th edition (DSM-5) (American Psychiatric Association, 2013) defines delirium as a disturbance in attention and awareness, and cognitive deficits that develop
over a short period of time and fluctuate over the course of the day as a direct consequence of another medical condition or substance intoxication. When delirium occurs in patients with dementia, it is referred to as delirium superimposed on dementia (DSD) (Fick et al., 2002). There is an important link between delirium and dementia. In fact, dementia is an important risk factor for delirium, and delirium is an important risk factor for the development or worsening of dementia (Davis et al., 2012; Fong, 2009).

The following section provides a brief overview of dementia as outlined in the DSM-5. Chapter two discusses in more detail the types of dementia and their impact.

In the DSM-5 dementia was renamed as major neurocognitive disorder (NCD) (American Psychiatric Association, 2013). However, the term dementia is still considered an acceptable term (American Psychiatric Association, 2013). Therefore, the term dementia will be used throughout this study. The two terms are essentially different labels for the same condition; major NCD refers to dementia (American Psychiatric Association, 2013). The DSM-5 also recognises a less severe level of CI, mild NCD, which provides a diagnosis for less disabling syndromes that may nonetheless be causing concern and could benefit from treatment (American Psychiatric Association, 2013). Mild NCD is equivalent to mild CI and to prodromal dementia, again different labels for the same condition (American Psychiatric Association, 2013).

The diagnosis of mild NCD aims to recognise the substantial clinical needs of adults living with this disorder (American Psychiatric Association, 2013). Mild NCD is not always a precursor of major NCD. There may be continual decline in cognition or the impairment might not progress to major NCD (American Psychiatric Association, 2013). Diagnosis of mild NCD requires evidence of modest cognitive decline from a previous level of performance in one or more of the cognitive domains (i.e., complex attention, executive function, learning and memory, language, perceptual-motor function, and social cognition) (American Psychiatric Association, 2013). These cognitive deficits must be insufficient to interfere with independence in ADLs, although greater efforts and compensatory strategies may be required to maintain the level of independence (American Psychiatric Association, 2013).

Diagnosis of major NCD requires evidence of significant cognitive decline from a previous level of performance in one or more of the cognitive domains (i.e., complex attention, executive function, learning and memory, language, perceptual-motor function, and social cognition) (American Psychiatric Association, 2013).
function, and social cognition) (American Psychiatric Association, 2013). In addition, the cognitive decline must be sufficient to interfere with independence in ADLs. The criterion of maintenance or loss of independent functioning represents the key distinction between mild and major NCD (American Psychiatric Association, 2013). Major NCD was introduced to address the limitations of and associated stigma attached to the term dementia (American Psychiatric Association, 2013). Dementia is most commonly used to refer to older people, has become synonymous with Alzheimer’s disease and memory loss, and has negative connotations in part due to its literal meaning ‘without mind’ (American Psychiatric Association, 2013). The intention is that major NCD more accurately captures the many different causes and manifestations of significant CI that can affect people at any age (American Psychiatric Association, 2013).

Dementia per se affects 35.6 million people globally, and about 30% of patients admitted to rehabilitation hospitals have dementia (Morandi et al., 2014; Prince et al., 2013). Delirium is four times more likely to occur in persons with dementia compared with hospitalised older adults without dementia (Franco et al., 2010). Adverse outcomes such as worse functional outcomes and higher mortality rates are more common in individuals with DSD, compared with those with dementia alone or delirium alone (Bellelli et al., 2007; Fick et al., 2002; Fick et al., 2013; Morandi et al., 2014; Sampson et al., 2009; Torpilliesi et al., 2010). The economic impact of DSD is significant. Cost estimates demonstrate that individuals with DSD are twice as costly to care for as those with dementia alone or delirium alone (Waller, Kolanowski, & Fick, 2007). DSD also is distressing for patients (Morandi et al., 2015).

The impact of cognitive impairment in South Korea. In South Korea, the prevalence of dementia is rapidly increasing alongside the ageing of the population. The prevalence of dementia among South Korean older adults (age ≥ 65 years) was 8.4% (n = 421,387) in 2008, and it is expected to increase to 9.7% (n = 741,719) by 2020 and to 13.2% (n = 2,217,419) by 2050 (Cho, Kim, et al., 2008). The inpatient hospital costs for Alzheimer’s disease, the most common form of dementia, have also been reported as being greater than for any other disease in South Korea (Korea Health Insurance Review and Assessment Service, 2015). In the first half of 2015, the inpatient hospital spending for Alzheimer’s disease in South Korea was US$388,555,222 in total and US$6,548 per person (Korea Health Insurance Review and Assessment Service, 2015).
The rapid increase in the population of people with dementia has the potential to increase the likelihood of health care professionals in hospitals in South Korea encountering older adults with delirium or DSD in their daily practice.

In South Korea, studies investigating the incidence and prevalence of delirium and associated outcomes in hospital settings are sparse. Recent South Korean studies have reported the incidence of delirium as 25% in intensive care unit (ICU) patients (Moon, Piao, Jin, & Lee, 2014) and between 10% and 32% in post-orthopaedic surgery older patients (Kang, Suh, & Oh, 2011; Kim et al., 2008). Furthermore, delirium in ICU patients has increased the likelihood of in-hospital mortality; readmission to the ICU; admission to a long-term care facility after discharge; and increased length of ICU stay and medical costs compared with those who did not experience delirium (Moon et al., 2014). Thus, in South Korea, the investigation of delirium, dementia and DSD in hospital settings is becoming increasingly essential.

**Current approach to cognitive impairment care.** Nurses are in an optimal position to observe and detect changes in patient behaviours that may indicate the onset of a delirious episode in hospital settings. However, major factors contribute to inappropriate CI care by nurses in hospitals. Patient factors include the fluctuating nature of delirium and severity of delirium as well as dementia (Inouye, 2006). Nurse factors include poor knowledge of CI and negative attitudes (Fick, Hodo, & Lawrence, 2007; Neville, 2008). Organisation factors include disease-oriented and efficiency-driven characteristics of acute hospitals and a lack of standardised CI care protocol and/or guideline (Nilsson, Lindkvist, Rasmussen, & Edvardsson, 2012; Nilsson, Rasmussen, & Edvardsson, 2013; Wolf et al., 2012). Nurses’ poor knowledge and negative attitudes are one of the foremost factors affecting the quality of CI care delivery, although many other factors contribute to inappropriate CI care (Choi et al., 2011; Flagg et al., 2010; Fick et al., 2007; Hare et al., 2008; Lee et al., 2007; Nilsson et al., 2012; Yang, 2010).

A lack of education is seen as the major reason for poor knowledge and negative attitudes in Western countries such as the United States (US) (Steis & Fick, 2008; Steis & Fick, 2012) where nursing education is more advanced and care resources are greater than those in South Korea. Recent studies from outside South Korea have reported the positive effects of educational programs for CI care (Akechi et al., 2010; Fick, Steis, Mion, & Walls, 2011; Lundström et al., 2005; Lundström et al., 2007; McCrow, Sullivan, & Beattie, 2014; Meako, Thompson, & Cochrane, 2011; Naughton et al., 2005;
Pretto et al., 2009; Robinson, Rich, Weitzel, Vollmer, & Eden, 2008; Tabet et al., 2005; Voellinger et al., 2011; Wand et al., 2014). However, few studies have been conducted from a South Korean perspective (Kim & Lee, 2014). South Korean cultural values and health care delivery system may have an influence on a program’s effectiveness.

In South Korea, three factors affect the CI care of hospitalised older adults: (1) a low nurse-to-patient ratio; (2) significant family caregiver involvement in inpatient care; (3) and a lack of educational preparation of RNs in CI care. The current shortage of RNs has been identified across all levels of hospitals, particularly those in non-metropolitan areas, and is arguably a barrier to the delivery of quality patient care (Kim & Kim, 2015; Kwak et al., 2010). The nurse-to-patient ratio did not meet the required ratio of 4:1 in tertiary hospitals and 4.5:1 in general hospitals in 2010 and in 2015 (Kim & Kim, 2015; Kwak et al., 2010).

In South Korea, due to high workloads, RNs usually delegate some of the basic patient care including personal care to family caregivers (Kwak et al., 2010; Tzeng, 2004). The significant involvement of family caregivers in inpatient care challenges RNs to communicate, collaborate with, and supervise these caregivers. However, little is known about nursing practice to support family caregivers of older family members with dementia and at risk of delirium. One previous study reported the positive effect of an informational and emotional support intervention on role stress and depression of family caregivers in the care of patients with stroke in South Korea (Park & Park, 2001). With the current shortage of RNs, high RN workloads and dependence on the family-centred culture in inpatient care, family caregiver involvement in South Korea has the potential to impact CI care either positively or negatively.

In South Korea, a lack of CI care education is a major barrier to the provision of appropriate CI care (Choi et al., 2011; Lee et al., 2007). In addition to differences in teaching and learning approaches between tertiary schools and hospitals, education about CI care is rarely addressed in in-service programs, refresher training courses, or undergraduate programs (Choi et al., 2011; Kim et al., 2013; Lee et al., 2007; Yun, 2008). Furthermore, these programs traditionally have relied heavily on didactic lecture format to deliver content (Lee & Lee, 2014; Xiao et al., 2013). The traditional lecture approach has severe limitations in preparing RNs for the clinical reasoning and critical thinking needed to prevent, recognise, and manage delirium in hospitalised older adults with dementia and at risk of delirium (Page, Kowlowitz, & Alden, 2010). Thus,
educational approaches that simulate real patient care are strongly recommended (Page et al., 2010). There are different categories of simulations, such as high-fidelity simulation using SimMan or low-fidelity simulation as used in problem-based activities or case studies (Page et al., 2010). Despite the demands for well-educated RNs to deliver CI care of hospitalised older adults, few studies have been conducted to examine how to prepare South Korean RNs effectively via in-service education in general hospitals (Kim & Lee, 2014). It is anticipated that this study will inform both education and practice on the ways to improve the CI care of hospitalised older adults and the involvement of their family caregivers in this care.

**Significance of the Study**

The findings from this study will contribute to the growing body of international literature evaluating the effect of educational programs for CI care. The study will confirm other work conducted in this area and will extend previous interventions to include family caregivers in delirium prevention efforts in acute care settings in South Korea. Furthermore, the study will contribute to an understanding of the factors that influence the effectiveness of an educational program in South Korea and provide recommendations from frontline South Korean nurses on the current study’s educational program for CI care.

In this study, the educational program aims to improve South Korean nurses’ knowledge, attitudes, documentation, and efforts to involve family caregivers in CI care. As a result, the value of delirium prevention, recognition and management strategies will become evident and will minimise the effects of negative consequences associated with delirium, such as morbidity and mortality.

**Purpose and Objectives of the Study**

The purpose of this study is twofold; (1) to develop an appropriate CI care educational program, and (2) to evaluate the effectiveness of a specific CI care educational program in improving South Korean nurses’ knowledge, attitudes, documentation, and efforts to involve family caregivers in CI care. To outline the purpose for this study, objectives were developed as follows:

1. To improve South Korean nurses’ knowledge of CI.
2. To promote the attitudes of South Korean nurses to caring for older patients with CI.
3. To determine whether an improvement in South Korean nurses’ knowledge and attitudes translates into documentation of CI care.

4. To examine the strengths and weaknesses of the education program from the perspective of the South Korean nurses.

5. To explore South Korean nurse-initiated efforts to involve family caregivers in CI care.

**Structure of the Thesis**

The current thesis consists of seven chapters, as described below.

**Chapter one** comprises an introduction to the study, with an overview of the South Korean sociocultural context of the health system, nursing education, and hospital inpatient nursing care. The background to the study, significance purpose, and objectives of the study are presented in this chapter.

**Chapter two** presents a review of relevant research associated with CI care in hospital settings. This review begins with an overview of CI and discusses matters concerning appropriate CI care provided by nurses and identifies factors that influence nurses’ CI care, internationally and in South Korea. It also examines current educational program studies for CI care and identifies gaps and limitations of these studies. This is followed by an outline of Knowles’ adult learning theory (1980) that was used in the educational program for this study. A conceptual model that examines the effects of the educational program and research questions and hypotheses of the study is also presented. This chapter concludes by summarising the findings from the literature search and review.

**Chapter three** outlines the methodological considerations of the study and its design. The mixed methods sequential explanatory design is described and justified: the first component of the study used a quantitative approach and the follow-up component employed qualitative methods. The sampling strategy, instruments used for data collection, and methods of data analysis for each component are also described. This chapter includes the details of the educational program and concludes with an outline of the ethical considerations of the study.

Quantitative findings are presented in **Chapter four**. This chapter begins with descriptive data in relation to South Korean nurse characteristics of the study sample. The pre- and post-intervention statistical analysis and findings are presented as guided by the study hypotheses 1 to 3. Qualitative findings are presented in **Chapter five**.
Qualitative data collected via semi-structured interviews with a subsample of South Korean nurses is presented and used to clarify and explain some of the key findings. The interviews also examine South Korean nurses’ and family caregivers’ experiences of nurse-initiated efforts to involve family caregivers in CI care.

The discussion in Chapter six links the quantitative and qualitative findings to the theoretical framework and examines this study in the context of relevant contemporary literature and within the context of nursing and aged care in South Korea. Finally, Chapter seven makes conclusions and recommendations for research, education, and practice within the CI care field.
CHAPTER TWO
LITERATURE REVIEW

Introduction

This chapter begins with an overview of cognitive impairment (CI) and discusses factors that influence nurses’ ability to provide appropriate CI care, internationally and in South Korea. This is followed by a critique of research on nurses’ current CI care practice. It also appraises studies incorporating an educational program for improving CI care. The theoretical framework of Knowles’ adult learning theory (1980) used to develop the educational program for the current study is outlined. The chapter concludes with the conceptual model that was developed based upon the literature findings, research questions, and hypotheses for the current study.

A comprehensive review of the literature, using electronic databases and search engines as well as a large number of potentially relevant websites, was undertaken to gather relevant articles. The databases included PubMed, Cumulative Index of Nursing and Allied Health Literature (CINAHL), PsycInfo, Proquest and Medline, Google and Google Scholar. The search included research studies conducted within the past 15 years (2000 to 2015). To review the literature on nursing care of hospitalised older adults (age ≥ 65 years) with CI and the involvement of family caregivers, the search strategy used various combinations of terms that included the following keywords: ‘acute confusion’, ‘delirium’, ‘chronic confusion’, ‘dementia’, ‘cognitive impairment’, ‘hospital’, ‘acute hospital’, ‘general hospital’, ‘care’, ‘care management’, ‘nurses’, ‘registered nurses’, ‘older people,’ ‘older patients’ or ‘family caregivers.’ The reference lists of retrieved publications were also searched for additional articles and publications.

Cognitive Impairment

As indicated in Chapter one dementia and delirium are distinct medical diagnoses and clinical syndromes, yet they are closely linked. The following section of this review includes significance, definition, subtypes, symptoms, predisposing and precipitating factors, aetiology, and management of delirium and dementia, as well as a discussion of delirium superimposed on dementia (DSD). This review is critical to understanding distinctions between delirium and dementia, as well as commonalities, which provide the foundation for CI care provided by acute care nurses.
Dementia

Dementia is a global term referring to lasting, progressive, generalised decline in thinking and memory, which leads to change in social or occupational functioning (Groves et al., 2000; Jablonski, 2013). As previously reported, dementia is prevalent and places a large burden on individuals, health care professionals, family caregivers, and the general health care system.

Definition. The fifth edition of the American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (American Psychiatric Association, 2013) defines the criteria for diagnosing the syndrome of dementia, also known as neurocognitive disorder (NCD), as a disturbance in memory and one other area of cognitive functioning severe enough to impact daily life. Additional disturbances in cognitive functioning for a diagnosis of dementia include the following: agnosia, apraxia, aphasia, or a disturbance in executive functioning (American Psychiatric Association, 2013; Holsinger, Deveau, Boustani, & Williams, 2007). Agnosia is an impaired ability to recognise familiar objects. Impairment in motor abilities is referred to as apraxia. Aphasia refers to an alteration in the ability to communicate. Executive function is the ability to plan, coordinate, and initiate complex activities, including but not limited to those associated with occupation activities or maintaining a household (American Psychiatric Association, 2013; Holsinger et al., 2007). Differential diagnoses include: depression, delirium, mild cognitive impairment, medication side effects, thyroid disease, vitamin deficiencies, and the abuse or overuse of alcohol or drugs (Emre, 2009).

Subtypes. The main types of dementia identified include: (1) Alzheimer’s disease; (2) vascular dementia (or a mixture of these two, called mixed dementia); (3) dementia with Lewy body and Parkinson’s disease; and (4) fronto-temporal dementia. Alzheimer’s disease accounts for an estimated 60%–80% of dementia cases (Alzheimer’s Society of the UK, 2014; Jablonski, 2013; Zarit & Zarit, 2012). Recent evidence suggests that dementia primarily is a mixed subtype, particularly in adults over the age of 80 years (Hurd, Martorell, Delavande, Mullen, & Langa, 2013).

Alzheimer’s disease is the most common cause of dementia and is characterised by progressive loss in memory and cognitive function, as well as the inability to learn new information (American Psychiatric Association, 2013; Zhu & Sano, 2006). Persons with Alzheimer’s disease typically experience multiple stages of loss in memory and
cognitive, as well as physical, functioning. Vascular dementia, the second most common cause of dementia, is harder to characterise (Black, 2011; Jablonski, 2013). Symptoms are dependent on the area of the brain impacted. In addition to changes in cognitive function, symptoms may include but are not limited to the following: change in ambulation, differences in speech, and new urinary incontinence (Jablonski, 2013). Lewy body and Parkinson’s disease dementias are difficult to distinguish between based on symptoms alone. Individuals with Lewy body and Parkinson’s disease experience some of the following symptoms often seen in persons with Parkinson’s disease: shaking, rigidity, impaired ability to focus and maintain attention, visuospatial issues, inability to plan or organise, and persistent visual hallucination (American Psychiatric Association, 2013). In contrast to other types of dementia, frontotemporal dementia can start at a younger age and has distinctly different features. Frontotemporal dementia may be misdiagnosed or attributed to a psychiatric disease (Massimo & Grossman, 2008). Symptoms of frontotemporal dementia include: apathy, change in speech, alteration of personality, impaired judgement in social situations, lack of inhibition, and inappropriate behaviour (Shagam, 2009).

**Aetiology.** Dementia aetiology can be classified as either primary or secondary. Primary dementia, referred to as degenerative dementia, includes: Alzheimer’s disease, dementia with Lewy body and Parkinson’s disease, dementia associated with Huntington’s disease, multiple system atrophy, corticobasal degeneration and multiple others (Emre, 2009). Secondary dementia occurs in conjunction with another disease or condition, but results in dementia-like symptoms. The symptoms occur due to one of the following disease processes: (1) direct damage to brain tissue or structure, (2) change in brain pressure or shape, or (3) inability of brain cells to function correctly (Emre, 2009). First, direct damage to brain tissue or structure may be a result of vascular disease (e.g., stroke, transient ischaemic attack), trauma, post-radiation, and brain tumours. Tumours, haematomas, and normal pressure or structural hydrocephalus may result in change of brain pressure or shape. Finally, certain conditions cause brain cells to inappropriately function or to cease function, resulting in dementia symptoms. These include metabolic and endocrine disorders, nutritional deficiencies, systemic immune-mediated or inflammatory conditions, or introduction of toxins (i.e., poisons, alcohol, drugs, heavy metals, and dialysis) (American Psychiatric Association, 2013; Emre, 2009; Zarit & Zarit, 2012).
The majority of primary dementia cases result from an interaction of genetics, lifestyle factors, and environmental conditions (Shagam, 2009). Alzheimer’s disease is thought to be a result of beta-amyloid plaque accumulation and neurofibrillary tau protein tangles formed in the brain. This is also seen in frontotemporal dementia, but with an emphasis on frontal and side of the brain regions (Shagam, 2009). There is no distinct aetiology for frontotemporal dementia known at this time. Accumulation of alpha-synuclein proteins in the cortex of the brain result in Lewy body dementia, while accumulation of the same proteins in the substantia nigra result in Parkinson’s disease dementia (American Psychiatric Association, 2013).

**Symptoms.** Dementia is a progressive disorder and leads to lasting cognitive and functional impairment (Payne et al., 1998). Persons with dementia may also experience a change in personality (Zarit & Zarit, 2012). Additional symptoms of dementia include a change in visuospatial abilities. Dementia often manifests first as an inability to learn and process new information; over time the ability to perform everyday tasks, such as grooming, bathing, dressing, and eating is lost (Zarit & Zarit, 2012). Dementia has additional symptoms or features dependent on type and aetiology.

**Management.** Management and treatment of dementia is based on aetiology; detailed presentation of management and treatment strategies for dementia is beyond the scope of this review. Overall, there is concurrent use of both pharmacological and non-pharmacological strategies to manage and treat dementia and associated symptoms. Currently, a large amount of research is being conducted to better manage and treat dementia, primarily Alzheimer’s disease (American Psychiatric Association, 2013).

**Delirium**

**Definition.** In contrast to dementia, delirium is an acute change in cognitive function characterised by a change in attention and an altered level of consciousness (Inouye, 2006). Delirium occurs frequently in persons over the age of 65 years, and dementia is the leading risk factor for the development of delirium (Inouye & Charpentier, 1996).

Delirium has been shown to be present in 11% to 42% of older people admitted to hospital, with another 6% to 56% of older people developing delirium following admission (Fong, 2009; González et al., 2009). Delirium appears to persist in 44.7% of older patients at discharge and in 32.8%, 25.6% and 21% of patients at one, three and six months post-discharge, respectively (Cole, Ciampi, Belzile, & Zhong, 2009).
Furthermore, delirium commonly occurs across hospital inpatient settings. The incidence of delirium ranges between 10% and 30% in medical inpatients (Margiotta, Blanchetti, Ranieri, & Trabucchi, 2006; Siddiqi, House, & Holmes, 2006) and between 15% and 62% in surgical populations, particularly following cardiothoracic surgery, emergency orthopaedic procedures, vascular surgery, or cataract removal (Fong, Tulebaev, & Inouye, 2009; Saxena & Lawley, 2009). It also occurs in 70% to 87% of persons in ICUs (Ouimet, Kavanagh, Gottfried, & Skrobik, 2007; Vasilevskis, Han, Hughes, & Ely, 2012) and is common in those receiving palliative care services (Cole et al., 2009).

**Subtypes.** Delirium has been classified according to the following three main subtypes: hyperactive, hypoactive, and mixed (Meagher et al., 2008). Delirium subtypes were initially categorised according to their characteristics and presence of key symptoms of delirium (Liptzin & Levkoff, 1992). Liptzin and Levkoff (1992) used a cohort of 325 hospitalised older adults, assessing them daily for symptoms associated with delirium to identify key features of hyperactive delirium and hypoactive delirium. From this foundational work, hyperactive delirium was defined as having a minimum of four of the following features: hyper-vigilance, restlessness, loud or fast speech, irritability or anger, combativeness, impatience, uncooperative, swearing, signing, laughing, wandering, euphoria, easy startling, distractibility, nightmares, or persistent thoughts. Hypoactive delirium was defined as having four or more of the following symptoms: decreased alertness, slowed speech, lethargy, unawareness, slowed motor movement, staring, or apathy (Liptzin & Levkoff, 1992). Mixed delirium was defined as meeting the criteria for both hyperactive and hypoactive delirium (Liptzin & Levkoff, 1992).

Research defining and classifying delirium has continued using the study by Liptzin and Levkoff (1992) as a starting point. Hyperactive delirium has more recently been redefined as a change in baseline over the past 24 hours including at least two of the following symptoms: increased quantity of motor activity, loss of activity control, wandering, and/or restlessness (Meagher et al., 2008). Additional features of hyperactive delirium may include agitation, aggression, hyper-vigilance, and hyper-alertness (Meagher & Trzepacz, 2000; Mittal et al., 2011). Hypoactive delirium is defined as a definite change from baseline over a 24-hour period with decreased speed and/or amount of activity and one of the following additional symptoms: reduced environmental awareness, decreased amount and/or speed of speech, lethargy,
withdrawal, and reduced alertness (Meagher et al., 2008). Mixed delirium occurs when symptoms of both hyperactive and hypoactive delirium are present within a 24-hour period (Meagher et al., 2008).

Delirium subtypes have a significant role in the recognition of delirium, particularly in persons with dementia. Hospitalised older adults with hyperactive delirium with symptoms such as wandering, restlessness, and agitation, associated with this subtype of delirium, often require increased attention and care from health care professionals (Meagher & Leonard, 2008; Meagher et al., 2008). Hyperactive delirium is associated with increased use of physical and chemical restraints. The increase in care and the use of restraints makes hyperactive delirium more likely to be attended to by health care professionals (Voyer et al., 2008). On the other hand, hypoactive delirium is less likely to be recognised, although it is the most common subtype of delirium in persons with dementia (Fick et al., 2002; Fick et al., 2007). It is frequently misdiagnosed or attributed to a depressive illness or dementia (Fong et al., 2009; Inouye, 2006; Mittal et al., 2011). Hypoactive delirium is associated with worse outcomes, particularly in persons with dementia (Yang et al., 2009). This highlights the need to identify acute cognitive changes, such as an increased amount of sleep and decreased interaction with the environment associated with hypoactive delirium.

**Aetiology.** According to DSM-5 criteria, delirium is dependent on an underlying acute or chronic medical condition (American Psychiatric Association, 2013). The aetiology of delirium is complex and involves not only an underlying condition, but also an interaction between predisposing and precipitating factors (Inouye et al., 1999; Lipowski, 1987), which have also been identified as moderating and mediating factors (Franco et al., 2010). Inouye et al. (1999) conducted foundational work in the identification of predisposing and precipitating factors using a multifactorial model developed from two prospective cohorts, the first as a predictive cohort and the second as a validated cohort (Inouye et al., 1999). Additional work in this area has identified predisposing and precipitating factors across populations and care settings (Fick et al., 2002; Khan et al., 2012).

Factors that increase the risk of development of delirium are labelled as predisposing. The main predisposing factor for the development of delirium is pre-existing cognitive impairment (i.e., dementia) (Fick et al., 2002). Additional predisposing factors include advanced age, depression, and baseline respiratory disease.
Use of certain medications such as anticholinergics and abuse or overuse of toxins such as alcohol influences risk for delirium (Khan et al., 2012). Polypharmacy is also a predisposing factor for delirium (Hein et al., 2014).

Precipitating events or insults are those that lead to the development of delirium (Inouye et al., 1999). Precipitating events include acute illness or an exacerbation of a chronic condition, with individuals having more chronic conditions being more predisposed (Khan et al., 2012). Acute illness includes fall, fracture, hypertension or hypotension, hypoxia, shock, infection, metabolic disturbance (i.e., hyponatraemia, hypocalcaemia), and fever. Chronic conditions include pre-existing renal or liver disease, neurologic disease, history of stroke or head trauma, and persons with a terminal illness (Inouye, 2006). Malnutrition and dehydration are precipitating events to delirium. Additional precipitating events include the use of physical restraints and invasive devices, such as intravenous lines or urinary catheters (Inouye, 2006). Surgery is also a precipitating event (Milisen et al., 2001). Medication use is a frequent precipitator of delirium, particularly central nervous system active medications, including lorazepam, morphine, and dopamine (Han et al., 2009; Khan et al., 2012).

**Symptoms.** Delirium is associated with symptoms beyond those presented when describing hyperactive, hypoactive, and mixed subtypes of delirium (Inouye, 2006). An acute change is the main distinction between delirium and dementia, which is progressive and occurs over longer periods of time. Key features of delirium as identified by the Confusion Assessment Method (CAM) include: fluctuating course, inattention, disorganised thinking, and altered level of consciousness (Inouye et al., 1990). Further features of delirium across subtypes have been identified as: visual and auditory hallucinations and/or delusions, altered sleep/wake cycles, disorientation, disturbance in sensory function, changes in mood or behavior, apathy, and agitation (Gupta, de Jonghe, Schieveld, Leonard, & Meagher, 2008; Inouye, 2006). Given these symptoms, it is clear that there is an overlap between delirium and dementia.

**Management.** Treatment of delirium is based on the underlying medical cause. Ideally, treatment of the cause results in delirium resolution, but recent research has expanded the convention that delirium is an entirely transient syndrome (Fong et al., 2009). Delirium, particularly in persons with dementia, can cause lasting cognitive and functional decline (Cole et al., 2012; Gross et al., 2012). A recent study found that delirium persisted in older adults after admission to a post-acute care facility for up to
one month (Anderson, Ngo, & Marcantonio, 2012). This evidence adds emphasis to the need to appropriately manage delirium, starting with prevention.

Prevention is the first line of defence in most situations, and evidence suggests that prevention is the preferred form of delirium management (Inouye, Bogardus, Baker, Leo-Summers, & Cooney, 2000). To date, effective delirium prevention strategies have focused on possible predisposing and precipitating events. Starting with health care professionals, geriatric-focused consultation, specialised delirium or acute care for the elderly (ACE) units, and nurse-driven strategies aimed at assessment for delirium have been used in acute care settings (Greer et al., 2011; Khan et al., 2012). Maintaining haemostasis of chronic conditions and prevention of acute illness is another emphasis in delirium prevention, including maintaining nutrition and hydration to prevent metabolic disturbances.

The second component of management of delirium is treatment and includes non-pharmacological and pharmacological strategies aimed at mitigating the cause of delirium, if known. Non-pharmacological management strategies also use health care professionals, particularly nurses, to routinely recognise symptoms of delirium. Management of the individual and the environment are also critical. Examples include use of glasses and hearing aids, promotion of cognitive and physical activity, treatment of pain, and maintaining a routine sleep/wake cycle (Inouye, 2006; Inouye et al., 1999; Khan et al., 2012; Marcantonio, Flacker, Wright, & Resnick, 2001). Management also includes removal of any invasive devices. Pharmacological management includes the judicious use of antipsychotic medications; avoidance of the class of drugs called benzodiazepines is recommended (Khan et al., 2012).

**Outcome.** Delirium increases the risk of functional decline, which can contribute to increased length of hospital stay (McCusker, Cole, Dendukuri, & Belzile, 2003; Zhang, Pan, & Ni, 2013), increased mortality (Inouye, 2006; Witlox et al., 2010), and increased risk of institutionalisation (Eeles et al., 2010; Inouye, Westendorp, & Saczynski, 2014; Rudolph, 2010).

Inouye et al. (2014) and Rudolph et al. (2010) reported that the relative risk for functional decline following discharge from hospital in medical patients is 1.5, while those in post-cardiac surgery and post-non-cardiac surgery patients is 1.9 and 2.1, respectively. Eeles et al. (2010) identified that the odds of institutionalisation increased
by 2.62 times following an episode of delirium. Mortality rates for delirium in older patients are high, ranging from 22% to 76% (Inouye, 2006; Witlox et al. 2010).

In one study of 359 patients aged 65 years and over admitted to an acute care hospital, McCusker et al. (2003) found that after controlling for covariates, the incidence of delirium in older patients after admission increased the length of stay by 7.78 days, 95% CI [3.07–12.48]. In the ICU, Zhang et al. (2013) showed that delirium increased the length of stay by 7.32 days.

Poor delirium-related outcomes increase health care costs, including an increase in duration of hospitalisation, increased staffing requirements and others related to medication, rehabilitation services, pathology, and radiology (Fick et al., 2005; Leslie & Inouye, 2011). Although there has been little investigation of the annual cost of caring for older patients with delirium in South Korea, its cost exceeds US$160 billion per year in the US (Leslie & Inouye, 2011).

A review of delirium provides the background into understanding the significance of this syndrome for hospitalised older adults, as well as differentiating delirium from dementia. The significance of each has been presented; a review of the relationship between delirium and dementia will expand on this foundation.

**Delirium Superimposed on Dementia (DSD)**

It is well-established that the most significant predisposing factor to the development of delirium is pre-existing dementia (Inouye, 2006). The prevalence of delirium in persons aged 65 years and older with dementia ranges from 32% to 89% across care settings (Fick et al., 2002). This evidence supports that delirium is an important phenomenon and warrants attention in research and clinical practice. Given the complex nature of dementia and delirium when independent of each other, it is justifiable that strategies for recognition and management of delirium in persons with dementia are more complex (Fick & Foreman, 2000).

**Definition.** Delirium in a person with pre-existing dementia is also known as delirium superimposed on dementia (DSD) (Fick et al., 2007). The true extent of the relationship between dementia and delirium has not been fully defined. To date, evidence suggests that delirium may be a precipitating event for the development of dementia, but further research is needed in this area (Khan et al., 2012).
Subtypes. DSD includes the three previously identified subtypes of delirium: hyperactive, hypoactive, and mixed (Meagher et al., 2008). The hypoactive delirium subtype, which is associated with the most adverse outcomes, is frequently seen in persons with dementia (Fick et al., 2007).

Aetiology. On admission to rehabilitation and the aged care unit, Torpilliesi et al. (2010) found that individuals who develop DSD are more vulnerable. Using a sample of over 2,300 older adults with dementia alone, delirium alone, or DSD they determined that certain factors predispose an individual to the development of DSD. Similarly to delirium alone, age is a risk factor for DSD. Persons who were malnourished or who were more dependent on others for ADLs were more likely to have DSD. Those with multiple chronic, comorbid conditions were also the most likely to have DSD (Eeles et al., 2010; Torpilliesi et al., 2010). Generally, individuals who are frail are more likely to develop delirium (McCusker, Cole, Dendukuri, Belzile, & Primeau, 2001). DSD leads to an increased risk for poor cognitive and functional outcomes, and delirium is four times more likely to occur in persons with pre-existing CI (Franco et al., 2010).

Management. The goals of management of DSD are similar to those of delirium alone. Goals include the need to identify and treat the cause of delirium. The prevention of further cognitive and functional decline by promoting optional function and safety is critical (Fick & Mion, 2008). Furthermore, management of any secondary complications, such as decubitus ulcers, is important. Finally, management must emphasise prevention through monitoring for reoccurrence and resolution of delirium symptoms. Prevention and monitoring for reoccurrence can involve both health care professionals and informal caregivers.

Outcome. Adverse outcomes are more common in individuals with DSD, compared with those with dementia alone or delirium alone (Torpilliesi et al., 2010). Outcomes of DSD include individual and health care system outcomes.

Individual outcomes include lasting cognitive and functional decline. As stated previously, understanding the relationship between delirium and the subsequent development of dementia has not been fully explored, but there is data to suggest that delirium accelerates the rate of cognitive decline. Using a sample of over 400 older adults, with approximately 8.8% developing delirium, Fong et al. (2009) demonstrated that persons with an episode of delirium experience increased rates of cognitive decline,
compared with those without delirium. Saczynski et al. (2012) had similar findings in a prospective sample of 225 adults over the age of 60 years undergoing cardiac surgery, 103 of whom developed delirium. This study demonstrated significant cognitive decline in those who developed delirium post-operatively, with continued cognitive improvement seen up to six months after surgery (Saczynski et al., 2012). This study did not assess for dementia presence at baseline, but it demonstrates the lasting and profound impact of delirium in a vulnerable population (Saczynski et al., 2012). Furthermore, Gross et al. (2012), using a prospective cohort of 263 older adults with pre-existing Alzheimer’s disease, found an increased rate of cognitive decline up to five years after delirium during an acute care hospitalisation.

Earlier, it was presented that the goal of delirium management is to promote resolution of delirium. As a result of the tenuous relationship between delirium and the development of dementia, it must be considered whether cognitive decline associated with delirium during an acute care hospitalisation is a new cognitive decline or persistent symptoms of delirium (Mathews, Arnold, & Epperson, 2014).

Delirium is also a risk factor for the development of dementia (Davis et al. 2012). However, rather than an episode of delirium being the onset of dementia, another explanation is that delirium remains and is mistaken for the symptoms of dementia, given the significant overlap in symptoms between the two. Persistent delirium is defined as delirium that is unresolved, and it has been linked to poor cognitive and functional outcomes, as well as increased mortality risk (Cole et al., 2009; Kiely et al., 2009). Up to 50% of delirium persists after an acute care hospitalisation (Alici, 2012). The concept of persistent delirium remains controversial, given that by definition delirium is an acute, recoverable syndrome (Cole, 2010). In addition to confusion about delirium and dementia is their relationship with a diagnosis of depression. Recently, Witlox et al. (2013) demonstrated that adults over the age of 75 years who had delirium after hip fracture in the acute care setting were more likely to exhibit signs or symptoms of depression at three months follow-up.

In addition to cognitive outcomes, DSD is associated with lasting functional decline (Witlox et al., 2010). Persons with DSD experience increased length of hospital stay (Lang et al., 2010) and an increased risk for discharge to a post-acute care or institutional setting (Fong et al., 2012; Kales, Kamholz, Visnic, & Blow, 2003). DSD increases risk of morbidity and mortality (Fick et al., 2013). The economic impact of
DSD is also significant. Cost estimates using retrospective claims data demonstrated that individuals with DSD were twice as costly to care for as those with dementia alone or delirium alone in the US (Waller et al., 2007). Considering the individual impact of DSD, it is reasonable to state that persons with DSD incur higher costs due to an increased length of hospital stay and admission to sub-acute and long-term care.

In summary, dementia is distinguished from delirium by the acute, fluctuating nature of delirium, compared to the long-term persistence of dementia. Both are common, particularly in older adults within the acute care setting, and lead to lasting adverse cognitive and functional outcomes. Given the outcomes of dementia and delirium, there are also significant social and economic burdens. There is a complex relationship between dementia and delirium, with the two being able to occur simultaneously. The nature of this relationship has not been fully explored. The significance of DSD leads to the critical need for improving CI care, particularly in the acute care setting where it is most commonly seen.

**Improving CI Care by Acute Care Nurses**

Despite the adverse events and burden associated with delirium, delirium continues to be poorly recognised and managed in the acute care setting. The purpose of this section is to understand current recognition and management of delirium in hospitalised older adults with and without dementia by acute care nurses in hospital ward settings. This is followed by tools used to recognise delirium or dementia, as well as a discussion of factors influencing CI care by nurses. Family caregivers are presented as a mechanism to improve CI care. The role of nurses in improving CI care is highlighted by the provision of a summary of current educational programs and their effectiveness.

**Recognition of delirium in older adults with and without dementia by acute care nurses.** Recently in the US, Rice et al. (2011) investigated nurses’ delirium recognition by comparing ratings of expert diagnostician using the Confusion Assessment Method (CAM) (Inouye et al., 1990) in a real patient population. They found that nurses failed to recognise delirium 70% of the time (Rice et al., 2011). This result indicates poor recognition of delirium by nurses although they are positioned to detect and recognise delirium more aptly due to their significant bedside presence (Rice et al., 2011).

Further research in this area has explored nursing documentation of delirium symptoms in persons with and without dementia. Voyer et al. (2008) specifically
reported on nurse language surrounding delirium and cognitive assessment. They also explored factors related to the accuracy of nursing documentation with a sample size of 226 hospitalised adults over the age of 65 years with a mean age of 82 (Voyer et al., 2008). Overall results support statements regarding poor recognition of delirium and DSD, particularly in persons with hypoactive delirium (Voyer et al., 2008). Voyer et al. (2008) also found vague documentation of delirium and DSD. Almost 24% of patient charts included documentation of confusion, while confusion or altered level of consciousness was reported in almost 50% of the medical charts. One surprising finding from this study was that delirium was more likely to be recognised in persons with multiple comorbid conditions (Voyer et al., 2008). A significant limitation of the study was the use of a nursing process of care tool that did not include key symptoms of delirium (i.e., inattention or disorganised thinking), which might have contributed to the low sensitivity of delirium symptoms in the medical charts.

More recently, Steis and Fick (2012) conducted similar work focusing on the accuracy of registered and licensed practical nurse recognition of DSD. The patient population included 104 hospitalised older adults with dementia, among whom 51 developed delirium (Steis & Fick, 2012). There was no documentation of the term delirium by nurses in this study; however, in patients who had DSD nurses were twice as likely to document the term confusion. Nurses also documented symptoms of delirium such as increased lethargy, fluctuating mental status, delusion, and restlessness (Steis & Fick, 2012). Results indicate that nurses in this study were able to detect symptoms associated with DSD, but they did not label the symptoms as delirium. Although this study included only one site in the US, it provides evidence supporting the need for improved recognition of DSD in acute care.

**Management of delirium in older adults with and without dementia by acute care nurses.** Two Western studies have investigated nurses’ management of delirium in hospital ward settings (Agar et al., 2012; Yevchak et al., 2012). In a US pilot study, Yevchak et al. (2012) investigated acute care nurses’ management of delirium in hospitalised older adults. Nurses reported that the primary goal of care was to protect, but they found this difficult given the barriers of time and mix of patient needs in general medical and surgical wards (Yevchak et al., 2012). Despite a lack of knowledge of delirium and existing barriers, nurses proposed a number of non-pharmacological interventions involving environmental modification. However, they did not use
evidence-based delirium management protocols to guide patient care, rather a system of trial and error based on nurses’ implicit knowledge (Yevchak et al., 2012). A significant limitation was that only one study site was used (Yevchak et al., 2012).

Agar et al. (2012) in a descriptive qualitative study conducted similar work focusing on nurses’ delirium care in palliative care, aged care, old aged psychiatry, and oncology inpatient settings. Agar et al. (2012) found that the majority of RNs had a superficial understanding of delirium management and adopted a task-oriented approach aimed at addressing the more noticeable problems. In particular, junior RNs reported that they felt stressed when caring for older patients with delirium due to the unanticipated nature of delirium and the need to balance care with other patients’ needs (Agar et al., 2012). In this situation, they were challenged to manage the symptoms of delirium, particularly hyperactive delirium, thus they used pharmacological interventions (Agar et al., 2012).

In summary, delirium in older adults with and without dementia is poorly recognised by acute care nurses. Recent research has demonstrated that acute care nurses document symptoms indicative of delirium, but they do not appropriately label these as delirium. Furthermore, delirium in hospitalised older adults with and without dementia is poorly recognised by nurses due to the lack of knowledge of delirium. Under these conditions, nurses’ distress increases, and they use pharmacological interventions to manage the symptoms of hyperactive delirium. There are many factors that influence this process.

**Factors that Influence CI Care by Acute Care Nurses**

Due to the acute onset and fluctuating nature of delirium, it is difficult for health care professionals to recognise and manage delirium in older adults with and without dementia. CI care is affected by several factors, including patient factors, health care professionals, particularly nurses, and organisational factors. These will be briefly reviewed to outline the difficulties in recognising and managing delirium in older adults with and without dementia.

**Patient factors.** Patient factors affecting recognition of delirium, dementia, and DSD are considered to be delirium and dementia severity, as well as subtype. Generally, patients with dementia are less likely to have delirium recognised by health care professionals (Inouye, 2006). Inouye et al. (2001) looked at paired ratings between
researchers and RNs in over 790 patients over the age of 70 years, with a total of 2,721 paired ratings. Individuals with dementia were almost three times as likely not to be recognised by RNs (Inouye et al., 2001). The poor recognition of delirium increases with the severity of the underlying dementia.

Delirium subtypes (i.e., hyperactive, hypoactive, and mixed) influences recognition of the disorder. Fick et al. (2007) sought to assess nurses’ knowledge and recognition of DSD and delirium subtypes using case vignettes and a general test of geropsychiatric knowledge. A convenience sample of 29 RNs from an academic medical centre participated in this study and attended an educational in-service session. Eight-three percent of nurses were correctly able to identify dementia, with only 41% able to identify delirium (Fick et al., 2007). Only 21% of nurses identified hypoactive DSD. Interestingly, nurses were knowledgeable regarding geropsychiatric issues, measured using the Mary Starke Harper Aging Knowledge Exam (MSHAKE) (Fick et al., 2007). However, they attributed hypoactive DSD to a normal consequence of ageing (Fick et al., 2007). Although this study may not be generalised to a larger context due to its small sample size, it supports the assertion that additional education and training on DSD is needed for acute care nurses.

Nurse factors. In addition to patient factors, nurse factors may make CI care more difficult. First, nurses may have a lack of knowledge of delirium. Internationally and in South Korea, several studies have reported on nurses’ knowledge of delirium (Choi et al., 2011; Flagg, Cox, McDowell, Mwose, & Buelow, 2010; Hare, Wynaden, McGowan, Landsborough, & Speed, 2008; Lee et al., 2007; Yang, 2010). Despite the differences in hospital settings, sample size, and instruments, they all investigated risk factors, signs and symptoms, and management of delirium. Thus, it was considered possible to compare the findings about nurses’ knowledge of delirium between the five studies. Nurses in these studies had some knowledge of delirium. South Korean RNs in three studies (Choi et al., 2011; Lee et al., 2007; Yang, 2010) had higher levels of delirium knowledge when compared to RNs in Australia (Hare, Wynaden, et al., 2008) and the US (Flagg et al., 2010). However, the largest gap identified in all studies was poor knowledge in recognising hypoactive delirium and poor awareness that delirium management needs to focus on delirium assessment and prevention of modifiable risk factors (Choi et al., 2011; Flagg et al., 2010; Hare, Wynaden, et al., 2008; Lee et al., 2007; Yang, 2010). Furthermore, nurses may not understand that delirium occurs in
conjunction with dementia. Symptoms of delirium may be misattributed to dementia or depression due to a lack of knowledge of DSD (Fick et al., 2007).

Nurses’ attitudes may impact on the quality of care for hospitalised older adults with CI. Internationally, several studies reported on nurses’ attitudes toward hospitalised older adults (Cowdell, 2010b; Higgins, Der Riet, Slater, & Peek, 2007; Nilsson et al., 2012). Despite the differences in hospital setting, research design, and instrument, research findings on nurses’ attitudes toward hospitalised older adults as well those with CI remain inconsistent. In a descriptive cross-sectional study, Nilsson et al. (2012) in Sweden identified that nurses did not clearly report positive or negative attitudes toward older patients with CI. Cowdell (2010b) conducted an ethnographic approach to investigate acute care nurses’ experience of caring for older patients with dementia in the United Kingdom (UK). Stereotypes of people with dementia as ‘senile older people who have lost their minds’ were articulated and reinforced negative image and marginalisation of people with dementia (Cowdell, 2010b). Such stereotypes have also been shown in Australian nurses. Higgins et al. (2007) conducted a descriptive qualitative approach to explore acute care nurses’ attitudes toward older people in Australia. The negative stereotypes of older people as being labelled as ‘a burden, heavy to care for, or a waste of time’ demonstrated the marginalisation and oppression of older people (Higgins et al., 2007). Older people were often ignored and their needs and wants relegated to a lower priority in terms of care (Higgins et al., 2007).

Negative stereotypes of older people seem to contribute to delay or neglect in CI care. Dahlke and Phinney (2008) undertook a study to explore how acute care nurses cared for hospitalised older adults at risk of delirium and the challenges they face in Canada. Nurses viewed changes in cognition and behaviour of older adults or those with CI with a negative attitude. As a result they accepted cognitive decline as an age-related change or as being common in older patients. Nurses also did not adhere to existing best practice guidelines for the recognition and management of delirium. For example, although the CAM assessment tool (Inouye et al., 1990) was included in a clinical flow sheet, nurses more often used subtle questioning and observed behaviour to determine whether an older adult was at risk of or had delirium (Dahlke & Phinney, 2008). Neville (2008) undertook a qualitative study of nursing practice with older adults and delirium in New Zealand. Nurses holding ageist attitudes failed to recognise delirium, but treated delirium-associated behaviours as normal, disparagingly labelling it a second childhood
Educational intervention is viewed as one way to change health care professionals’ beliefs and attitudes in their care of older people and those with CI (King, Roberts, & Bowers, 2013; Sarabia-Cobo & Pfeiffer, 2015; Tullo, Spencer, & Allan, 2010).

Multiple studies have highlighted a number of variables that influence nurses’ knowledge and attitudes, and it is suspected that no single variable is dominant (Dahlke & Phinney, 2008; Hare, Wynaden, et al., 2008; Kang, Moyle, & Venturato, 2011; Lee et al., 2007; McCarthy, 2003; Moyle, Borbasi, Wallis, Olorenshaw, & Gracia, 2011; Nilsson et al., 2012; Wang & Mentes, 2009; Yevchak et al., 2012). These variables include but are not limited to the following: (1) personal and professional characteristics (Hare, Wynaden, et al., 2008; Lee et al., 2007; Nilsson et al., 2012); (2) socio-cultural values and belief about older adults (Dahlke & Phinney, 2008; McCarthy, 2003; Wang & Mentes, 2009); and (3) organisational characteristics of acute hospitals (Cowdell, 2010a, 2010b; Kang, Moyle, et al., 2011; Moyle et al., 2011).

First, personal and professional characteristics seem to be related to nurses’ knowledge and attitude. Educational level and experience of gerontological nursing can significantly influence nurses’ knowledge and attitudes (Hare, Wynaden, et al., 2008; Lee et al., 2007; Nilsson et al., 2012). Lee et al. (2007) found that RNs who hold a master’s degree and received gerontological nursing education had a significantly higher level of delirium knowledge than those who did not have such a qualification. Nilsson et al. (2012) reported that RNs had more positive attitudes toward older adults with CI than nursing assistants in the acute care hospital. They also found that age (being younger [age ≤ 25 years]), gender (being female), and perceived strain levels in caring for older patients with CI (higher perceived strain level) were associated with a negative attitude (Nilsson et al., 2012).

Second, socio-cultural values and beliefs about older adults seem to be associated with nurses’ attitudes (McCarthy, 2003; Wang & Mentes, 2009). In Asian countries like South Korea where people hold Confucian values, respecting and tolerating older adults does not assist nurses in accurately differentiating delirium from other conditions common to older adults such as dementia (Wang & Mentes, 2009). Wang and Mentes (2009) demonstrated that Taiwanese nurses who exhibited stronger beliefs in Confucian values tolerated cognitive and behavioural changes in older patients with delirium as a part of the normal ageing process. This attribute contributed
to non-recognition of delirium, particularly symptoms of hypoactive delirium (Wang & Mentes, 2009). Furthermore, McCarthy (2003) identified three distinct perspectives of nurses’ beliefs about older adults: (1) decline perspective (regards health in ageing as incremental); (2) vulnerable perspective (regards health in ageing as either positive or negative); and (3) healthful perspective (regards ‘good health’ in ageing as normal). Acceptance by nurses of a decline perspective about ageing limits recognition of delirium symptoms (McCarthy, 2003).

Organisational characteristics of acute hospitals seem to influence nurses’ attitudes. In a South Korean hospital setting, RNs in surgical wards had more negative attitudes than those in medical wards, as post-operative skilled tasks such as technical procedures were viewed as the required priority (Kang, Moyle, et al., 2011). Prioritising acute care for existing co-morbidities over dementia care has also been reported elsewhere, for example, in Australia (Moyle et al., 2011) and the UK (Cowdell, 2010a).

**Organisational factors.** Person-centred care of older people with CI is difficult to accomplish in settings where the organisation is disease-oriented and efficiency-driven (Nilsson et al., 2013; Wolf et al., 2012). Recently, person-centred care has emerged as a holistic model of care for older people with CI, which includes a subjective first-person perspective of illness and acknowledges each person’s holistic and multidimensional needs (Brooker, 2007; Kitwood, 2011). In older patients with and without dementia, acute hospital admission increases the risk for complications such as delirium (Inouye et al., 2000; Tucker et al., 2006). The hospital stay can be a stressful and threatening experience for such patients because the hospital experience means that they often need to stay in unfamiliar settings, share space with strangers, and have their private space invaded (Edvardsson, Nordvall, Umeå, Institutionen för, & Medicinska, 2008). The organisational culture influences the nature of interactions between staff and patients (Nilsson et al., 2013; Wolf et al., 2012). Nilsson et al. (2013) suggests that organising care according to acute diseases and routines, rather than patients’ multifaceted needs and subjectivity, contributes to staff falling behind in meeting patients’ psychosocial needs. Similarly, in an ethnographic study on the everyday practices in a cardiology ward, Wolf et al. (2012) described how a predominantly medical culture of efficient diagnosis and treatment restrained the nursing perspective, worked against person-centred care, and contributed to nurses’ experiences of ‘being one step behind’ in relation to patient needs. A lack of standardised protocol and guidelines for care of
patients with CI can also inhibit the provision of person-centred care (Nilsson et al., 2012; Nilsson et al., 2013).

In summary, patient factors affecting CI care include the nature of delirium and severity of delirium, as well as dementia. Nurse factors affecting CI care include lack of knowledge and negative attitude. Organisation factors include disease-oriented and efficiency-driven characteristics of the organisation and the lack of standardised care protocols and guidelines. Several instruments have been developed to promote recognition of delirium in the acute care setting.

Health care professional tools for detection and recognition of delirium in people with and without dementia

Delirium in older patients with and without dementia is difficult to detect and recognise. The DSM criteria for delirium is the usual gold standard for diagnosis, but this requires an in-depth interview and a series of cognitive tests performed by a specialist physician (e.g., geriatrician, neurologist, or psychiatrist) (Hall, Meagher, & MacLullich, 2012). Bedside delirium-screening tools should be simple and feasible for use by a broad array of health care professionals (Hall et al., 2012). A recent systematic review found that the CAM (Inouye et al., 1990), Global Attentiveness Rating (O’Keeffe & Gosney, 1997), Clinical Assessment of Confusion-A (Vermeersch, 1990), Delirium Observation Screening Scale (Schuurmans, Shortridge-Baggett, & Duursma, 2003), Delirium-Rating Scale Revised-98 (Trzepacz et al., 2001), and the Memorial Delirium Assessment Scale (Breitbart et al., 1997) all have a high likelihood of diagnosing delirium when compared to DSM-5 criteria (Wong, Straus, Holroyd-Leduc, & Simel, 2010). For the purpose of further understanding how to detect and recognise delirium, these instruments, along with the NEECHAM Confusion Scale (Champagne, Neelon, McConnell, & Funk, 1987), and their relevance to clinical practice will be discussed.

Delirium presence. The CAM was developed as a way for non-psychiatric clinicians to quickly detect delirium in at-risk individuals (Inouye et al., 1990). The CAM was developed using the APA DSM-3-R criteria for delirium. Development of the algorithm used in the CAM was based on previous literature and expert opinion. Delirium is detected using the following CAM criteria: (1) acute onset and fluctuating course, with (2) inattention, and either (3) disorganised thinking or (4) altered level of consciousness (Inouye et al., 1990). The validation study included 56 patients at two hospital sites, with a total of 26 patients having delirium and 30 without delirium, ranging in age from
65 to 92. The CAM was compared to the Mini-Mental State Examination (MMSE), Visual Analogue Scale for Confusion, and the digit span. Patients with dementia, depression, or other illnesses causing altered mental status were purposely included in the validation study. The CAM had a sensitivity of 100% at the first site and 94% at the second site, with a specificity of 95% and 90%, respectively (Inouye et al., 1990). Based on the above validation study, the CAM algorithm was determined to be a useful measure for assessing for delirium in vulnerable, hospitalised individuals. One systematic review that assessed 25 prospective studies for the accuracy of 11 bedside instruments in diagnosing delirium found that the CAM (Inouye et al., 1990) had the most evidence supporting its use, +likelihood ratio [LR] 9.6, 95% CI [5.8–16.0] (Wong et al., 2010). Another review evaluated the psychometric properties of the CAM (Inouye et al., 1990) and demonstrated a sensitivity of 94%, 95% CI [91%–97%] and specificity of 89%, 95% CI [85%–94%] (Wei, 2008). However, assessment with the CAM (Inouye et al., 1990) needs to be performed by a trained health care provider because sensitivity of this instrument is poor without training (Lemiengre et al., 2006). It takes 10 to 20 minutes to administer.

The Global Attentiveness Rating (GAR) measures attention in hospitalised older adults, a key symptom of delirium (Inouye, 2006; O’Keeffe & Gosney, 1997). The GAR is based on a conversation of approximately two minutes in length with the older patient. The conversation does not include any formal testing of attention but focuses on overall interaction between the patient and assessor during the conversation (O’Keeffe & Gosney, 1997). The GAR is scored on a 10 cm visual analogue scale, with higher scores indicating increased attentiveness and an ability to interact in conversation, and lower scores meaning less attentiveness and less interaction in conversation. Validation of this delirium measure was undertaken by comparing the ratings to DSM-3-R criteria of delirium and dementia, administration of the MMSE, chart review, and an interview with the physician and hospital nursing staff. After determining whether the individual had dementia, delirium, or DSD, four separate tests of attention were administered including: Digit Span Forwards (DSF), Digit Span Backwards (DSB), Vigilance ‘A’ Test (VAT), and a Digit Cancellation Test. A total of 87 hospitalised older adults were included in this study, with 14 having delirium, 17 having dementia, and four having DSD (O’Keeffe & Gosney, 1997). Results demonstrate that all tests of attention except DSF were significantly correlated with the GAR for attention (O’Keeffe & Gosney, 1997).
The Clinical Assessment of Confusion-A (CAC-A) is a 25-item nursing checklist of psychomotor function associated with confusion (Vermeersch, 1990). The scale ranges from 0 to 77, with higher scores indicating more confusion. The scale was developed based on 228 nurse ratings of 141 behaviours found in the literature to be associated with confusion in hospitalised adults (Vermeersch, 1990). The scale measures five general areas: cognition, behaviour, motor activity, speech, orientation, and psychotic/neurotic behaviours, with some symptoms being weighted more than others. The CAC was validated by comparison to a visual analogue scale of confusion. There was no description of the persons involved in the validation studies.

The Delirium Observation Screening Scale (DOSS) was developed to help nurses recognise delirium early during routine care (Schuurmans et al., 2003). This scale is based on APA DSM-IV criteria for delirium and initially included 25 items rated on a 5-point Likert scale. After initial development and testing, the scale was reduced to 13 items (rating as either 0 = ‘never’ or 1 = ‘always’), three items are reverse scored with ‘always’ interpreted as ‘normal behaviour’. The maximum score is 13, with a cut-off score for delirium being 3. Items on the scale include assessing if the patient dozes during conversation or whether the patient is pulling at invasive devices such as a catheter (Schuurmans et al., 2003). The DOSS is a reliable and valid tool of nurse detection of delirium in high-risk populations with good sensitivity (89%–100%) and specificity (88%–98%) (Gemert Van & Schuurmans, 2007).

The NEECHAM Confusion scale is a 9-item scaled tool further divided into three subscales developed to help nurses assess delirium in hospitalised older adults (Champagne et al., 1987). The NEECHAM Confusion scale ranges from 0 to 39 points, with higher scores indicating higher functioning. A score between 0 and 24 indicates delirium. The first subscale assesses level of responsiveness and information processing with a score ranging from 0 to 14. This subscale evaluates orientation, memory, attention, and alertness. The second subscale uses general appearance and behaviours to rate level of behaviour on a scale of 0 to 10, including posture, verbal responses, and sensory motor performance. The first subscale evaluates vital functions, such as pulse and urination, with a total score ranging from 0 to 16 points (Champagne et al., 1987). The NEECHAM Confusion scale has been demonstrated to have good sensitivity (86%–100%) and specificity (86%–90%) in several populations (Neelon, Champagne, Carlson, & Funk, 1996). A recent study (Gemert Van & Schuurmans, 2007) compared the DOSS
to the NEECHAM Confusion scale. Although both scales were determined to be
reliable and valid, nurses preferred the DOS scale because the information was more
clinically relevant to the participants. However, this finding was obtained from a single
site study with a small sample.

**Delirium severity.** The Delirium-Rating Scale Revised-98 (DRS-R-98) is a 16-item
clinician-rated scale with 13 items measuring delirium severity and 3 items indicating
diagnosis (Trzepacz et al., 2001). The maximum score of the DRS-R-98 is 46 points,
with a maximum severity score of 39 points; each item is scored on a scale of 0 to 3 with
3 indicating more severe impairment. The DRS-R-98 is based on the DRS and
developed to address shortcomings of the original scale. The DRS-R-98 assesses
perceptual disturbances, hallucinations, delusions, motor agitation or retardation,
orientation, attention, short-term and long-term memory, visuospatial ability, physical
disorder, sleep-wake cycle disturbances, and affect. The diagnostic items include
temporal onset of symptoms and fluctuation (Trzepacz et al., 2001). The validation
study of the DRS-R-98 compared this scale to the DRS, the Cognitive Test for Delirium,
and the Clinical Global Impression scale (Trzepacz et al., 2001). Five comparison
groups were formed and included persons with delirium, dementia, schizophrenia,
depression, and others. These diagnoses were made using DSM-IV criteria and other
available clinical data to support the diagnosis. The total number of participants in this
study was 68, of whom 24 had delirium and 13 had dementia. The total sensitivity based
on comparison group ranged from 85%–100%, with a specificity of 77%–100%
(Trzepacz et al., 2001). Based on this study, the DRS-R-98 is considered a reliable and
valid tool in delirium symptom rating. It is usually administered by trained psychiatrists
(Trzepacz et al., 2001).

The Memorial Delirium Assessment Scale (MDAS) is a clinician-rated scale
designed to quantify the severity of delirium (Breitbart et al., 1997). The 10-item, 4-
point scale has a range from 0 to 30, and is based on DSM criteria for delirium
including assessment for the level of consciousness and evaluation of several areas of
cognitive function. Examples include asking the patient the date, month, day, year,
season, floor, name of hospital, city, state, and country to assess for disorientation. The
MDAS also includes an item to assess disorganised thinking, which focuses on asking
the patient a complex question such as “Describe your current medical condition”
(Breitbart et al., 1997, p. 136). The intention is for this tool to be used to measure
delirium severity change over time (Breitbart et al., 1997). The initial validation study included 33 hospitalised persons with cancer or acquired immunodeficiency syndrome (AIDS). Seventeen patients met the DSM-3-R and DSM-4 criteria for delirium, while eight persons met the criteria for dementia (Breitbart et al., 1997). In this study, the MDAS had a sensitivity of 70.6% and a specificity of 93.8% and a negative predictive power of 75.0%; it was correctly able to identify 12 of the 17 delirious persons. A second validation study included 51 persons hospitalised for cancer or AIDS and compared the MDAS to the Delirium Rating Scale (DRS), MMSE, and the Clinician’s Global Rating of Delirium Severity and Delirium Type (Breitbart et al., 1997). MDAS scores were significantly correlated with all other measures of delirium used in this study. Based on these validation studies, the MDAS is considered to be a reliable and valid measure of delirium severity in acutely ill hospitalised individuals.

In summary, results from the outlined studies looking at validation of several delirium instruments demonstrates the wide range of tools available to assess for and detect delirium in older patients in the acute care setting. Research investigating the validity and reliability of these tools to detect delirium frequently included a sample of persons with dementia, but no tool was specifically developed to detect and recognise delirium in individuals with dementia. A recent systematic review of tools to detect DSD suggest the CAM and the Confusion Assessment Method-Intensive Care Unit (CAM-ICU) as the best diagnostic tools for DSD (Wong et al., 2010). However, it has not been determined which assessment tools or components of tools are best able to identify delirium in persons with dementia.

**Improving CI Care through Family Caregiver Involvement**

Family caregivers have been used in delirium prevention, recognition, and management. Persons with cancer, particularly at the advanced stage, frequently experience delirium (Cohen, Pace, Kaur, & Bruera, 2009). Common causes of delirium in this population are similar to causes of delirium in persons with dementia and include medications, infection, and fluid and electrolyte imbalance (Bruera et al., 2009). The impact of delirium on family caregivers is presented below to demonstrate the significance of delirium on this population. Multidimensional interventions targeted at delirium and involving family caregivers across settings of care is also discussed.

**Impact of delirium on family caregivers.** Delirium has a significant emotional and physical impact on family caregivers as well as the individual. Breitbart et al. (2002)
sought to examine the prevalence and the level of distress associated with delirium in patients with cancer and family caregivers in the acute care setting. This prospective, observational study enrolled 101 patients, ranging in age from 19 to 89 years, and involved 75 family caregivers. Almost 20% of the sample had a pre-existing diagnosis of dementia. Over 53% of the patients recalled the delirium episode; recall decreased with age. Almost one third (28%) of patients with dementia recalled the delirium episode. Eighty percent of family caregivers and 73% of health care professionals experienced distress related to the delirium episode (Breitbart et al., 2002). Breitbart et al. (2002) demonstrated that delirium is a distressing event across groups, indicating an increased need for prompt detection and management.

Bruera et al. (2009) also sought to understand the prevalence of delirium recall in cancer patients and the level of distress associated with delirium in patients, family caregivers, and health care professionals. Ninety-nine patient and family caregiver dyads participated in this study (Bruera et al., 2009). Family caregivers were defined as a spouse, adult child, sibling, parent, relative or significant other present at the bedside for at least two hours each day during the delirium episode (Bruera et al., 2009). The average age of patients and family caregivers was 60 and 55 years, respectively (Bruera et al., 2009). A total of 74% of patients recalled being confused, with those experiencing hyperactive delirium statistically more likely to recall the episode. Family caregivers recalled more delirium symptoms than patients or health care professionals and experienced severe distress as a result. Results indicate family caregivers are able to detect and recognise the symptoms of delirium (Bruera et al., 2009).

Clissett, Porock, Harwood, and Gladman (2013) conducted semi-structured, qualitative interviews with 34 family caregivers of adults over the age of 70 years admitted to acute care with pre-existing CI, defined as dementia or delirium. Information on patient and family caregiver demographics was not given, nor was prevalence of DSD. Family caregivers noted a disruption from normal routine as a qualitative theme (Clissett et al., 2013). They dealt with distress associated with dementia and delirium by attempting to be involved in the care of the hospitalised older adults (Clissett et al., 2013).

Similarly, Toye et al. (2014) conducted a mixed methods study, including semi-structured qualitative interviews. They examined the impact of delirium on patients and family caregivers in the acute care setting, as well as described their delirium
knowledge and care needs (Toye et al., 2014). A total of 17 family caregivers and 11 persons with delirium participated in the study, three of whom had pre-existing dementia. Family caregivers reported that they experienced distress and wanted more education regarding delirium, delirium management, and how family caregivers can add to the care of the patient (Toye et al., 2014).

In summary, the results from this research demonstrate the significant impact of delirium on family caregivers. Although these studies involve persons with cancer and their family caregivers, the result can be transferred to persons with dementia and their family caregivers. The impact of delirium is felt on an individual level, across health care professionals, and at a larger systemic level (Partridge, Martin, Harari, & Dhesi, 2013).

**Interventions improving CI care through family caregiver involvement.** Delirium prevention, recognition, and management intervention involving family caregivers of older adults in hospital and other settings are summarised in the following section. To date the majority of family caregiver-focused interventions have been conducted in persons with advanced cancer. Those highlighted include the following main delirium prevention, recognition, and management strategies: increasing communication, educational enhancement strategies, multidimensional interventions, geriatric consultation, and transitional care. Examples of these are provided below.

A family caregiver-focused intervention, Creating Avenues of Relative Empowerment (CARE) was pilot tested in a randomised clinical trial (Li et al., 2003). The intervention aimed at improving communication between family caregivers and health care professionals. The intervention was not specific to delirium, but the goal was to prevent common adverse events associated with acute care hospitalisation for older adults, including those with delirium. Patients with dementia purposely were excluded from participation. The intervention consisted of two components: (1) an educational piece for family caregivers on what to expect during hospitalisation, and (2) a mutual agreement contract between the family caregiver and health care professionals (Li et al., 2003). Intervention follow-up was conducted at two weeks and two months, with data collected from both family caregivers and health care professionals. Results included lower rates of depression, incontinence, readmission at two months, and patient confusion. Overall, family caregivers in the intervention groups spent significantly more time caring for their family members, according to both family caregiver and nurse
A primary delirium prevention intervention was designed by Black, Boore, and Parahoo (2011) to be implemented upon hospital admission. Family caregivers were considered critical to the implementation of a prevention program in the care of critically ill adults. A comparative time-series study was conducted using an intervention (n = 87) and control group (n = 83), patient age ranged from 18 to 78 years (Black et al., 2011). The intervention consisted of providing family caregivers with an education booklet regarding potential stressors during critical illness, including delirium, and personalised management techniques. Although family caregivers perceived the intervention to have a positive impact on overall well-being, there was no significant difference in rates of incidence of delirium across the two groups. Furthermore, the results from the partnership with family caregivers were mixed (Black et al., 2011).

Gagnon, Charbonneau, Allard, and Soulard (2002) and Otani et al. (2013) claim a number of advantages for increased education as a mechanism to improve family caregiver detection, recognition, and management of delirium. A multi-phase study was conducted in Canada, firstly, to develop a psycho-educational framework and intervention for family caregivers of persons with advanced cancer and, secondly, to implement the intervention, with assessment of impact and outcome (Gagnon et al., 2002). As an outcome of focus groups with family caregivers and initial pilot testing, an educational brochure was developed. The brochure included recommendations such as promotion of frequent and direct communication between family caregivers and health care professionals. A total of 66 family caregivers were included in the final phase intervention group with 58 in the control group. Results demonstrated that delirium is a significant concern for family caregivers of persons with advanced cancer. After the intervention, family caregivers reported being more attentive and spending more time with the patient to observe for delirium symptoms, and the intervention improved their confidence in dealing with delirium (Gagnon et al., 2002).

Otani et al. (2013) conducted an educational intervention in Japan. Using a historical, case-controlled method, they compared delirium education received via in-person communication to an educational brochure across four palliative care units and three care homes (Otani et al., 2013). Data was collected from 113 family caregivers after the death of their family member, using a researcher-developed questionnaire on
their delirium experience. Results indicate that family caregivers who received the educational brochure versus in-person routine education felt that it improved their knowledge and better prepared them to deal with the delirium experience (Otani et al., 2013).

Three intervention studies based on the Hospital Elder Life Program (HELP) (Inouye et al., 2000) evaluated the effect of family caregiver involvement on delirium outcome (Gagnon, Allard, Gagnon, Mérette, & Tardif, 2012; Rosenbloom-Brunton, Henneman, & Inouye, 2010; Vidán et al., 2009). Inouye et al. (2000) developed a multicomponent strategy aimed at delirium prevention, titled HELP. The intervention targeted known predisposing and precipitating factors of delirium including: CI, sleep hygiene, immobility, vision and hearing impairment, and dehydration. Components of the intervention were implemented using a multidisciplinary team and volunteers to increase the feasibility and cost-effectiveness of this intervention (Inouye et al., 2000).

In a clinical trial with a prospective, matched cohort design, HELP was tested in 852 patients over the age of 70 years with an intermediate risk of developing delirium during hospitalisation. The CAM, MMSE and digit span were used to evaluate cognitive functioning. Over 25% of the sample had pre-existing dementia. HELP was found to be effective in decreasing the incidence of and shortening the duration of delirium (Inouye et al., 2000).

Using HELP (Inouye et al., 2000) as a model, Gagnon et al. (2012) tested a multicomponent intervention that included a delirium risk assessment conducted by the physician and an educational element for family caregivers provided by nursing staff to evaluate the impact on delirium incidence (Gagnon et al., 2012). The population of interest was individuals with end-stage cancer admitted to a palliative care unit. Family caregivers were identified and provided with education on delirium symptoms and prevention strategies (Gagnon et al., 2012). A total of 1,516 patients admitted to one of seven palliative cancer centres participated in this 3-year study; 674 patients were in the intervention group. Compared to usual care, the intervention did not demonstrate reduced delirium incidence, severity, or duration, and did not extend delirium-free survival time among inpatients receiving terminal cancer care (Gagnon et al., 2012). A significant limitation was the brevity of the family caregiver education component of the intervention. It was purposely kept short to avoid unnecessary caregiver burden, but it may have been too brief to be effective in preventing delirium (Gagnon et al., 2012).
In addition, the multi-component intervention was based on HELP principles, but it was modified to be integrated into daily practice to prevent delirium (Vidán et al., 2009).

Using a prospective, controlled clinical trial, Vidán et al. (2009) compared older adults over the age of 70 years and at risk for delirium identified by having cognitive or visual impairment, dehydration, and/or acute illness in either a geriatric unit (n = 170) or two general medicine units (n = 372). The intervention consisted of two main components: a staff educational program and a set of actions aimed at reduced risk of delirium (i.e., maintenance of nutrition and hydration). A letter to family caregivers outlining the intervention and encouraging their presence at the bedside was included in the intervention (Vidán et al., 2009). Although no data was presented regarding the involvement of family in the care of these older patients, the intervention was effective in reducing the incidence of delirium, but it had no effect once delirium occurred (Vidán et al., 2009).

A third intervention based on HELP principles was pilot tested for feasibility. This intervention, titled Family-HELP, was developed as an adjuvant to HELP programs within the acute care setting and involved family caregivers in several HELP protocols (Rosenbloom-Brunton et al., 2010). A descriptive, exploratory study was undertaken involving 15 family caregivers and 15 hospitalised older adults over the age of 65 years with at least one risk factor of delirium. The Family-HELP intervention focused on involving family caregivers in vision and hearing management, orientation and therapeutic activity protocols, and early mobilisation activities as embedded within the original HELP protocols (Inouye et al., 2000). Family caregivers were trained by the research team to participate in the intervention protocols; they also completed a daily log outlining time spent on each activity and reasons why they did not complete the activity, if that was the case. Information was also collected from nursing staff regarding family caregiver involvement in the intervention. No patients developed delirium from baseline until discharge. Family caregivers reviewed the intervention positively, and nursing staff reported increased communication and involvement of family caregivers in the care of the hospitalised older adults (Rosenbloom-Brunton et al., 2010). A significant limitation was that this was a feasibility study with no comparison groups.

Rosenbloom and Fick (2014) tested the feasibility of the nurse and family caregiver partnership for delirium prevention in acute care settings in the US, using a
quasi-experimental pretest/posttest design. This pilot study implemented a nurse-led intervention that educated both family caregivers and staff nurses about delirium in the intervention ward and trained them in partnership strategies for implementing preventive interventions for hospitalised older adults. The results of that study showed that the intervention group significantly improved their knowledge of delirium and attitudes toward partnership compared to the control group who did not receive the educational intervention. Rosenbloom and Fick (2014) identified that a key component in establishing a partnership was communication, where both the family caregivers and staff nurses daily shared concerns and/or challenges related to the older adult’s acute care.

In summary, several multi-component and educational interventions have been shown to be effective in increasing family caregiver recognition and management of delirium and its associated symptoms in hospitalised older adults with and without dementia. Family caregivers have been involved in delirium recognition and prevention within the context of several illness including advanced cancer and in hospitalised older adults at risk of delirium. These multi-component interventions have included staff education, routine delirium screening, geriatric consultation, and family caregiver education. Few interventions partnered family caregivers with nurses, only one has focused on persons with underlying dementia, and no known interventions have focused on enhancing communication between family caregivers and health care professionals.

**Educational Programs**

Although many factors contribute to poor recognition and inadequate management of delirium in hospitalised older adults with dementia and at risk of delirium, nurses’ poor knowledge and negative attitude are considered as the foremost factors that affect the quality of CI care (Choi et al., 2011; Fick et al., 2007; Flagg et al., 2010; Hare, Wynaden, et al., 2008; Lee et al., 2007; Nilsson et al., 2012; Yang, 2010). As such, there is a need for a CI care educational program at all levels, including institutional, local, regional, and national.

The following section presents a review of published studies that measured the effectiveness of educational programs for CI care. This review presents a quality appraisal rather than a systematic review of efficacy.
As part of the literature review to inform the proposed study, a search of original research was undertaken to examine the current state of educational program research into prevention, recognition, or management of delirium, and to identify gaps and areas that require future investigation. The search included research undertaken within the past 10 years, using the same electronic databases and search engines as previously stated, Google and Google Scholar with a combination of the following keyword pairs used: ‘educational program’, ‘acute confusion’, ‘delirium’, ‘cognitive impairment’, ‘hospital’, ‘acute hospital’, ‘general hospital’, ‘care’, ‘care management’, ‘nurses’, ‘registered nurses’, ‘hospitalised older adult,’ or ‘older patients’. The reference lists of retrieved publications were also searched for additional articles and publications. The search was limited to English- and Korean-language articles. Inclusion criteria were the following: (1) original or primary research, (2) hospitalised older adults (age ≥ 65 years), and (3) educational program in any aspect of delirium prevention, recognition, and management in the hospital ward setting.

The initial search identified a total of 1187 delirium and dementia studies; of those, 122 addressed education programs. Assessment according to the inclusion criteria resulted in 20 studies being included in the review (Appendix 1). These studies were reviewed in regard to setting, sample, research design, components of the educational program, outcomes assessed, and possible limitations.

**Setting and sample characteristics.** The studies under review were conducted in 10 countries. The majority of studies were derived from the US (6 studies), Switzerland (3 studies), Australia (2 studies), Sweden (2 studies), UK (2 studies), and 1 study each from Canada, the Netherlands, South Korea, Japan, and India. The reviewed studies were conducted in different care settings. Fourteen studies were conducted in one speciality unit, whereas 6 studies included more than one speciality unit. Among the studies which recruited the sample from one speciality unit, five included internal medicine (Hasemann et al., 2016; Lundström et al., 2005; Tabet et al., 2005; Varghese, Macaden, Premkumar, Mathews, & Kumar, 2014; Wand et al., 2014), four included orthopaedics (Chow et al., 2015; Lundström et al., 2007; Meako et al., 2011; Pretto et al., 2009), two included neurology (Gordon, Melillo, Nannini, & Lakatos, 2013b; Voellinger et al., 2011), two included geriatrics (Holt, Young, & Heseltine, 2013; Naughton et al., 2005) and one included nephrology (Robinson et al., 2008).
Among the studies which included more than one speciality unit, three were conducted in 2 speciality units, medical and surgical wards (Fick et al., 2011; van de Steeg, IJkema, Wagner, & Langelaan, 2015), and in surgical and cardiac wards (Ingram, Babenko-Mould, & Booth, 2015). One study was conducted in critical care, orthopaedic, medical, and surgical wards (McCrow et al., 2014), two were conducted in inpatient wards (Akechi et al., 2010; Kim & Lee, 2014), and one included critical care, paediatric, and obstetric units (Akechi et al., 2010).

All studies recruited health care professionals. The sample sizes ranged widely from 21 RNs (Meako et al., 2011) to 977 nursing staff (van de Steeg et al., 2015). Twelve studies targeted nursing staff (Akechi et al., 2010; Chow et al., 2015; Fick et al., 2011; Gordon et al., 2013b; Ingram et al., 2015; Kim & Lee, 2014; McCrow et al., 2014; Meako et al., 2011; Pretto et al., 2009; Robinson et al., 2008; van de Steeg et al., 2015; Varghese et al., 2014), whereas seven targeted medical and nursing staff (Hasemann et al., 2016; Holt et al., 2013; Lundström et al., 2005; Naughton et al., 2005; Tabet et al., 2005; Voellinger et al., 2011; Wand et al., 2014), and one study included nursing staff, physiotherapists, occupational therapists, a dietician and geriatricians (Lundström et al., 2007). Among the studies that targeted nursing staff, eight recruited RNs (Akechi et al., 2010; Chow et al., 2015; Gordon et al., 2013b; Ingram et al., 2015; Kim & Lee, 2014; McCrow et al., 2014; Meako et al., 2011; Varghese et al., 2014), one included licenced practical nurses (Fick et al., 2011), two included nursing assistants (Pretto et al., 2009; Robinson et al., 2008), and one included nursing assistants and nursing students (van de Steeg et al., 2015).

The total of hospitalised older adults ranged from 15 (Fick et al., 2011) to 400 (Lundström et al., 2005). One study investigated hospitalised older adults with pre-existing dementia (Fick et al., 2011), whereas 11 studies targeted hospitalised older adults at risk of and with delirium (Chow et al., 2015; Hasemann et al., 2016; Holt et al., 2013; Lundström et al., 2005; Lundström et al., 2007; Naughton et al., 2005; Pretto et al., 2009; Robinson et al., 2008; Tabet et al., 2005; Voellinger et al., 2011; Wand et al., 2014). Eleven studies reported a mean age greater than 71.6 years (Chow et al., 2015; Fick et al., 2011; Hasemann et al., 2016; Holt et al., 2013; Lundström et al., 2005; Lundström et al., 2007; Naughton et al., 2005; Pretto et al., 2009; Robinson et al., 2008; Tabet et al., 2005; Wand et al., 2014).
**Outcome measures.** The reviewed studies focused on the effect of delirium educational programs on health care professional outcomes (Akechi et al., 2010; Ingram et al., 2015; Kim & Lee, 2014; McCrow et al., 2014; Meako et al., 2011; Pretto et al., 2009; van de Steeg et al., 2015; Varghese et al., 2014), patient outcomes (Hasemann et al., 2016; Lundström et al., 2005; Lundström et al., 2007; Naughton et al., 2005; Robinson et al., 2008), or both (Chow et al., 2015; Fick et al., 2011; Gordon et al., 2013b; Holt et al., 2013; Tabet et al., 2005; Voellinger et al., 2011; Wand et al., 2014).

Among the studies that measured health care professional outcomes, 11 measured knowledge (Chow et al., 2015; Gordon et al., 2013b; Holt et al., 2013; Ingram et al., 2015; Kim & Lee, 2014; McCrow et al., 2014; Meako et al., 2011; van de Steeg et al., 2015; Varghese et al., 2014; Voellinger et al., 2011; Wand et al., 2014), four measured self-confidence (Akechi et al., 2010; Chow et al., 2015; Kim & Lee, 2014; Wand et al., 2014), one study measured self-efficacy (Ingram et al., 2015), three measured practice (Kim & Lee, 2014; Varghese et al., 2014; Wand et al., 2014), three measured recognition of (McCrow et al., 2014; Tabet et al., 2005) or screening of delirium (Gordon et al., 2013b), two measured nursing workload (Pretto et al., 2009) or nursing hours per patient-day (Voellinger et al., 2011), and two measured adherence to the protocol (Holt et al., 2013) or to the delirium assessment decision support and management screens (Fick et al., 2011).

Among the studies which measured patient outcomes, seven measured incidence or prevalence of delirium (Holt et al., 2013; Lundström et al., 2005; Lundström et al., 2007; Naughton et al., 2005; Robinson et al., 2008; Tabet et al., 2005; Wand et al., 2014), two measured severity and duration of delirium (Hasemann et al., 2016; Holt et al., 2013), five measured length of stay (Holt et al., 2013; Lundström et al., 2005; Lundström et al., 2007; Naughton et al., 2005; Voellinger et al., 2011), two measured mortality during hospitalisation (Holt et al., 2013; Lundström et al., 2005), two measured ADL functioning on discharge (Holt et al., 2013; Wand et al., 2014), one measured cognition (Fick et al., 2011), two measured psychotropic medication use (Hasemann et al., 2016; Naughton et al., 2005), and three measured documentation of delirium (Chow et al., 2015; Gordon et al., 2013b; Tabet et al., 2005).

**Research design.** A variety of research designs have been used in an attempt to measure health care professional and/or patient outcomes. Among the studies which measured health care professional outcomes, three used a non-equivalent control pre-
and post-intervention design (Akechi et al., 2010; Kim & Lee, 2014; Varghese et al., 2014), two used a single pre- and post-intervention design without a control group (Meako et al., 2011; van de Steeg et al., 2015), one used a mixed methods sequential explanatory design (Ingram et al., 2015), one used a cluster randomised controlled trial with a pretest/posttest time series design (McCrow et al., 2014), and another was a quasi-experimental before-and-after design, retrospective and prospective pilot study (Pretto et al., 2009).

Among the studies that measured patient outcomes, three were quasi-experimental before-and-after design, retrospective cohort studies (Robinson et al., 2008), or prospective cohort studies (Hasemann et al., 2016; Naughton et al., 2005), and two were randomised clinical trials (Lundström et al., 2005; Lundström et al., 2007).

Among the studies that measured both health care professional and patient outcomes, three were quasi-experimental before-and-after design, prospective cohort studies (Chow et al., 2015; Holt et al., 2013; Wand et al., 2014), two used a single pre- and post-intervention design without a control group (Gordon et al., 2013b; Voellinger et al., 2011), one was a single-blind case-control control study (Tabet et al., 2005), and one was a prospective cohort pilot study (Fick et al., 2011).

**Educational program and outcomes.** Akechi et al. (2010) reported the use of adult learning strategies, and (McCrow et al., 2014) used constructivist learning principles. Researchers in 18 studies did not state if their educational program was based on educational principles or grounded in a learning theory.

Twenty educational program studies stated their purpose as improving quality of care by focusing on the prevention, recognition, and management of delirium in hospitalised older adults with dementia and at risk of delirium. Educational content predominantly focussed on the provision of information about delirium, assessment, risk factor management, and treatment for delirium. Delirium information included definition, diagnostic criteria, clinical features, prevalence, predisposing and precipitating risk factors, and consequences. Seven studies targeted the modifiable risk factors to prevent the development of delirium in hospitalised older adults (Holt et al., 2013; Lundström et al., 2005; Lundström et al., 2007; Pretto et al., 2009; Robinson et al., 2008; Tabet et al., 2005; Wand et al., 2014). Eight studies used delirium-screening tools to improve recognition of delirium. Six of these applied the CAM delirium-screening
tool (Chow et al., 2015; Fick et al., 2011; Kim & Lee, 2014; McCrow et al., 2014), CAM-ICU (Gordon, Melillo, Nannini, & Lakatos, 2013a), or NEECHAM Confusion scale (Akechi et al., 2010), and two used two delirium-screening tools, CAM and DOS scale (Hasemann et al., 2016) or CAM-ICU and DOS scale (van de Steeg et al., 2015).

According to the type of educational approach, the programs used in the 20 studies can be classified into four categories: (1) didactic educational program; (2) computer-based educational program; (3) educational program in conjunction with clinical guidelines, protocols or checklists; and (4) multimodal educational program. Two studies involved 1-hour didactic education to provide information about delirium assessment and management (Ingram et al., 2015; Meako et al., 2011). One study included pre- and post-intervention data collection in the 1-hour education, so the length of the education session alone is unclear (Ingram et al., 2015). Two studies reported a significant improvement in knowledge post-intervention ($p \leq 0.001$, Ingram et al., 2015; $p = 0.0005$, Meako et al., 2011). Ingram et al. (2015) reported a significant improvement in self-efficacy post-intervention ($p \leq 0.001$). These studies used researcher-developed questionnaires and did not measure long-term effects.

Two studies used computer-based education with duration varying from five weeks (McCrow et al., 2014) to three months (van de Steeg et al., 2015). The website used in the McCrow et al. (2014) study provided videotaped vignettes of people (actors) with clinical presentations of delirium subtypes, DSD and dementia, with attached narrative captions, questions and answers, and links to other educational websites. It also incorporated discussion forum to facilitate social learning opportunities. The e-learning course used in the van de Steeg et al. (2015) study provided case studies and short tests for self-assessment to facilitate learning. After each month, email reminders were sent to participating nursing staff who had not yet completed the course, and participating wards were provided with a monthly overview of the degree of participation.

van de Steeg et al. (2015) reported a significant improvement in knowledge post-intervention. However, van de Steeg et al. (2015) collected pre- and post-intervention knowledge data during the e-learning course, so it is not clear if nursing staff only used their own knowledge. van de Steeg et al. (2015) did not report on the reliability of knowledge questionnaires and did not measure long-term effects. (McCrow et al. (2014)) measured knowledge and recognition over three time-points:
baseline (T1), immediately after a 5-week period access to the educational website (T2), and six to eight weeks later (T3). Over time, results in knowledge significantly improved between T3 and T1 (t = 3.78, p < 0.001) and between T2 and T1 (t = 5.83, p < 0.001) in the intervention groups. Delirium recognition also significantly improved between T2 and T1 results (t = 2.56, p = 0.011) but not between T3 and T1 results (t = 1.80, p = 0.074). However, (McCrow et al. (2014)) reported that blinding was not possible, which could potentially have biased data collection. Moreover, (McCrow et al. (2014)) were not able to control confounding variables such as motivation of the participants, individual expectations, and the physical and emotional environment, which could potentially affect the effects of the web-based education.

Three studies used different educational methods to introduce and implement clinical guidelines (Voellinger et al., 2011), protocols (Robinson et al., 2008), or checklists (Kim & Lee, 2014) for the prevention or management of delirium. Clinical guidelines, protocols, or checklists more clearly directed health care professional behaviour. Voellinger et al. (2011) used 1-hour training sessions in small groups, focusing on prevention and screening for nursing staff and on diagnosis and treatment for physicians. The training sessions involved presentation of clinical guidelines, using a printed PowerPoint document, discussion about participants’ questions, and provision of the 4-page summary of the full clinical guideline and the algorithm. Email reminders were used for chief nurses and physicians regarding the accessibility of the guidelines on the hospital intranet combined with posters (Voellinger et al., 2011). Kim and Lee (2014) provided participating RNs in an intervention group with 1-hour didactic lectures, followed by a 4-week practical training module, to provide feedback individually from trained RNs and the first author regarding the accuracy of applying the CAM and delirium prevention checklist to hospitalised older adults (age ≥ 70 years) for seven days after admission. However, the feedback was not available if the trained RNs were on a day off or if the participating RNs were on the night shift. Kim and Lee (2014) did not provide details of the training for RNs who were in charge of providing feedback. Robinson et al. (2008) used four half-day classes for nursing assistants who were in charge of implementing delirium preventive interventions from the delirium prevention protocol. Robinson et al. (2008) used similar education to professional nursing staff in staff meetings, who played a role in monitoring and supervising nursing assistants. However, Robinson et al. (2008) did not report detailed information on their educational strategies.
Two studies had mixed results on patient outcomes. One study reported a significant reduction in the incidence of delirium post-intervention \((p < 0.001, \text{Robinson et al., 2008})\). However, detection of delirium through retrospective record review was dependent upon thorough documentation of mental status. Nurses did not document mental status during every shift under the category of cognitive status of the patient summary. Voellinger et al. (2011) reported a non-significant reduction in length of hospital stay post-intervention \((p = 0.25)\) and did not provide information on patient characteristics.

Two studies described positive results on health care professional outcomes. Two studies reported a significant improvement in knowledge post-intervention \((p < 0.001, \text{Kim & Lee, 2014}; p < 0.001, \text{Voellinger et al., 2011})\), and one study reported significant improvements in self-confidence and performance level in delirium care post-intervention \((\text{both } p < 0.001, \text{Kim & Lee, 2014})\). However, the health care professional outcome measures in all studies were self-reported by the participants. Voellinger et al. (2011) used researcher-developed questionnaires and did not report reliability. Moreover, only 51 of 101 participants completed a post-intervention questionnaire (Voellinger et al., 2011).

Twelve studies used multimodal educational strategies with interactive formal teaching in combination with practice-based enabling and reinforcing strategies (Akechi et al., 2010; Chow et al., 2015; Fick et al., 2011; Gordon et al., 2013a; Hasemann et al., 2016; Holt et al., 2013; Lundström et al., 2005; Lundström et al., 2007; Naughton et al., 2005; Pretto et al., 2009; Tabet et al., 2005; Wand et al., 2014). All of the studies involved didactic presentations to provide information about delirium assessment and management. To assist learners in being able to perform in delirium care practice, eight studies integrated guidelines, protocols, or resources within educational programs (Akechi et al., 2010; Holt et al., 2013; Lundström et al., 2005; Lundström et al., 2007; Naughton et al., 2005; Pretto et al., 2009; Tabet et al., 2005; Wand et al., 2014). One study involved computerised decision support screens for delirium assessment and detection and non-pharmacological management (Fick et al., 2011). Fick et al. (2011) also included information about the DSD algorithm (Fick & Mion, 2008). Another study involved bedside coaching (Gordon et al., 2013a) and one study involved pre-existing CAM application built into the electronic medical record (EMR) (Chow et al., 2015). Reinforcement strategies consolidated learning through case study discussions.
(Akechi et al., 2010; Chow et al., 2015; Fick et al., 2011; Gordon et al., 2013a; Hasemann et al., 2016; Holt et al., 2013; Lundström et al., 2005; Naughton et al., 2005; Pretto et al., 2009; Tabet et al., 2005; Wand et al., 2014) and support from resource nurses and experts (Akechi et al., 2010; Fick et al., 2011; Gordon et al., 2013a; Naughton et al., 2005; Pretto et al., 2009; Tabet et al., 2005; Wand et al., 2014). Case-based discussion occurred individually (Tabet et al., 2005), in small groups (Akechi et al., 2010; Fick et al., 2011; Naughton et al., 2005; Tabet et al., 2005), in weekly tutorials (Wand et al., 2014), in monthly conferences (Hasemann et al., 2016), or at the bedside (Gordon et al., 2013a; Lundström et al., 2005). Case studies were directly relevant to didactic information, and discussions helped learners apply new learning to the case studies. Resource nurses were highly skilled, trained experts in delirium, dementia, and/or older adult care. They performed a role by reinforcing teaching from tutorials, reminding and auditing staff screening for delirium, and monitoring adherence to recommended interventions.

Ten studies had mixed results on patient outcomes. Five reported a significant reduction in incidence or prevalence of delirium post-intervention ($p = 0.006$, Holt et al., 2013; $p = 0.001$, Lundström et al., 2005; $p < 0.01$, Naughton et al., 2005; $p < 0.05$, Tabet et al., 2005; $p = 0.042$, Wand et al., 2014). Two studies reported a significantly shorter duration of delirium post-intervention ($p \leq 0.005$ Holt et al., 2013; $p = 0.009$, Lundström et al., 2007), but one had a non-significant result (Hasemann et al., 2016). Two studies reported a significantly reduced severity of delirium during the first seven days ($p \leq 0.005$, Holt et al., 2013) or from the first to the second day post-intervention ($p = 0.023$, Hasemann et al., 2016). One study reported significantly improved ADL functioning on discharge post-intervention ($p < 0.001$, Wand et al., 2014), but another study had a non-significant result ($p > 0.05$, Holt et al., 2013). Two studies reported a significantly reduced length of hospital stay post-intervention ($p < 0.001$, Lundström et al., 2005; $p = 0.028$, Lundström et al., 2007), but another study had a non-significant result ($p > 0.05$, Holt et al., 2013). One study reported significantly reduced mortality during hospitalisation post-intervention ($p = 0.003$, Lundström et al., 2005), but another had a non-significant result ($p > 0.05$, Holt et al., 2013). Two studies reported a significant reduction in benzodiazepine use post-intervention ($p = 0.027$, Hasemann et al., 2016; $p < 0.01$, Naughton et al. 2005). Two studies reported a significant increase in documentation of CAM ($p < 0.01$, Chow et al., 2015) or documentation of delirium screening results post-intervention ($p = 0.000$, Gordon et al., 2013), but another study
reported a non-significant increase in documentation of a diagnosis of delirium ($p = 0.156$, Tabet et al., 2005). Three studies reported significant differences in sample characteristics between pre- and post-intervention at baseline, including age (Tabet et al., 2005; Wand et al., 2014), gender (Holt et al., 2013), resident in long-term care prior to admission (Holt et al., 2013), dehydration and hearing impairment as delirium risk factors (Holt et al., 2013), and number of medical comorbidities (Wand et al., 2014). One study focused on community-dwelling older adults (Naughton et al., 2005), and another did not provide information on patient characteristics (Gordon et al., 2013).

Seven studies had mixed results on health care professional outcomes. Two studies reported a significant improvement in knowledge post-intervention ($p < 0.001$, Chow et al., 2015; $p = 0.041$, Wand et al., 2014), but another reported a non-significant result ($p = 0.1366$, Gordon et al., 2013). Two studies reported a significant improvement in self-confidence in delirium care post-intervention ($p = 0.021$, Chow et al., 2015; 12 of 15 items $p < 0.05$, Akechi et al., 2010), but another reported a non-significant improvement in delirium care practice post-intervention ($p > 0.05$, Wand et al., 2014). However, these outcome measures were self-reported by the participants. One study reported a significant reduction in nursing workload at night by 22% ($p = 0.004$, Pretto et al., 2009), but they did not use validated and reliable instruments for patient characteristics. Fick et al. (2011) reported high adherence on computerised decision support screens (i.e., 100% for delirium assessment and 75% for delirium management), and Holt et al. (2013) reported moderate adherence to the delirium risk factor modification protocol (i.e., 25–75%). However, neither study measured long-term adherence. Fick et al. (2011) also did not test the protocol of the computerised decision support screens in its entirety and reported that only half of the nurses documenting on the screens had attended the educational sessions.

In summary, multimodal educational strategies including interactive formal teaching, practice-based enabling (i.e., use of guidelines, protocols, or resources) and reinforcing (i.e., use of case study discussions, reminders and feedback from experts) approaches have been shown to be effective in improving delirium care. Benefits include the incidence, duration and severity of delirium, functional status, the length of the study and mortality, as well as on health care professionals’ knowledge, self-confidence, skill, documentation and nursing workload.
**Limitations.** There were several limitations in reporting, making it difficult to draw firm conclusions about the effectiveness of educational programs. Making comparisons between these studies was challenging, due to differences regarding sample, methodological issues, and the protocol for the educational programs. Only one of the 20 studies was conducted with acute care nurses in South Korea (Kim & Lee, 2014). Thus, there is little work from a South Korean perspective, although different cultural values and health care systems may influence CI care in practice.

There is evidence of methodological limitations. A methodological problem relates to sample size. Five studies recruited small samples and/or the participants were allocated to a number of groups (Fick et al., 2011; Gordon et al., 2013a; Ingram et al., 2015; Meako et al., 2011; Varghese et al., 2014). For example, Fick et al. (2011) recruited 15 hospitalised older adults with pre-existing dementia and Meako et al. (2011) recruited 21 RNs. Similarly, Varghese et al. (2014) had 32 RNs allocated into two groups (i.e., 15 in intervention group and 17 in control group). These cohorts may not provide sufficient power to detect a true difference between pre- and post-intervention or between groups.

The majority of studies that measured patient outcomes used pre- and post-intervention designs and assessed two different patient populations. While the patient groups were largely comparable in demographics, they cannot rule out the effect of other factors such as time of year and changes in staff composition, experience and knowledge, and ward culture over time, which were unrelated to the educational program. As described previously, some studies reported significant differences in patient characteristics between pre- and post-intervention. For example, Wand et al. (2014) reported a greater number of comorbidities in the pre-intervention group compared to the post-intervention group. This may have contributed to lower rates of delirium in the post-intervention group unrelated to the impact of the educational program. Thus, it is difficult to assess the exact effects of the educational program because there was already a significant difference among the groups with regard to patient characteristics.

Similarly, two studies that measured health care professional outcomes used a non-equivalent control pre- and post-intervention design, but they did not report a non-significant difference in sample characteristics (Akechi et al., 2010; Varghese et al., 2014). For example, without reporting a non-significant difference in RN characteristics,
Akechi et al. (2010) used the RNs in the wards that declined to participate in the educational program as the control group, which could have selection bias. Completion rate of the control group for both the pre- and post-intervention questionnaires was 26%: much lower than that of the intervention group (i.e., 88%). These differences suggest the existence of background differences such as educational experience about delirium after graduation and a response bias to the questionnaire, and thus the findings may have overestimated the effectiveness of the educational program.

Moreover, five studies reported that assessors and/or staff were not blinded to stage of the research (i.e., pre- or post-intervention) (Lundström et al., 2005; Lundström et al., 2007; McCrow et al., 2014; Tabet et al., 2005; Wand et al., 2014). For example, Lundström et al. (2007) reported that in addition to the assessors, the staff on the intervention ward was aware of the nature of the study and those on the control ward knew that a new care program was being evaluated in the intervention ward. This potentially could have biased data collection.

An additional methodological issue was data collection method. Two studies did not use validated and reliable instruments for patient characteristics (Pretto et al., 2009; Robinson et al., 2008). For example, Pretto et al. (2009) used subjective assessment of confusion in hospitalised older adults to measure baseline delirium. Similarly, two studies used single assessment for patient outcomes (Lundström et al., 2007; Wand et al., 2014). For example, Wand et al. (2014) reported a single comprehensive assessment interview and documentation in the medical records to determine early and overall incidence of delirium. These could have under- or over-estimated the true rates of delirium in the sample.

Of 12 studies that measured self-reported outcomes (i.e., knowledge, self-efficacy, self-confidence, and practice) from health care professionals, seven used researcher-developed instruments (Akechi et al., 2010; Chow et al., 2015; Ingram et al., 2015; Meako et al., 2011; Varghese et al., 2014; Voellinger et al., 2011; Wand et al., 2014) and nine did not report their reliability (Akechi et al., 2010; Chow et al., 2015; Gordon et al., 2013a; Ingram et al., 2015; Meako et al., 2011; van de Steeg et al., 2015; Varghese et al., 2014; Voellinger et al., 2011; Wand et al., 2014). Holt et al. (2013) did not provide information on the knowledge questionnaire and its reliability and validity. Two studies collected data online or electronically (Gordon et al., 2013a; van de Steeg
et al., 2015). Thus, it is unclear if staff only used their own knowledge when taking the test.

Moreover, seven studies collected data immediately or shortly (i.e., 5–14 days) following an educational program (Akechi et al., 2010; Holt et al., 2013; Ingram et al., 2015; Kim & Lee, 2014; Meako et al., 2011; van de Steeg et al., 2015; Varghese et al., 2014). This is insufficient time to measure the long-term effects of health professionals knowledge and learning retention.

Limitations in the educational programs are evident. There was limited reporting about specific educational program details. This omission could reflect adherence to strict word limits by the publishing journal. However, the lack of educational program detail made it difficult to accurately follow the program procedure, compare relative results, and replicate the program. For example, Varghese et al. (2014) did not provide detailed information on the content and delivery methods of the educational program. The majority of educational program studies offered only a limited discussion of specifics of the program or actions to maintain program fidelity (Ingram et al., 2015; Kim & Lee, 2014; Lundström et al., 2005; Lundström et al., 2007; Naughton et al., 2005; Pretto et al., 2009; Robinson et al., 2008; Voellinger et al., 2011; Wand et al., 2014). For example, Lundström et al. (2007) outlined the content of the post-operative educational program (e.g., caring, rehabilitation, teamwork, and delirium knowledge, including post-operative complications), yet they did not discuss the program procedures and frequency and duration of each activity. If educational program adherence varied among study participants, this variation may have marred the accuracy of the findings.

In addition, two studies did not provide details about usual care when comparing this to the educational program (Hasemann et al., 2016; Lundström et al., 2007). It is important to know these details as the quality of usual care in some health services may exceed standard care offered in other settings.

In summary, this review has identified a number of important implications for future research. Although this review did not include a meta-analysis of results, trends with regard to effective programs for CI care were identified. An interdisciplinary approach to delirium education has been shown to improve knowledge and patient outcomes. Although it is clear that a reduction in incidence of delirium and other
improved patient outcomes can be achieved through targeting risk factors, there has been limited uptake of these approaches worldwide. This is likely to reflect limited resources and difficulties in changing systems of care and clinical practice. Thus, comprehensive educational programs may represent a simple, more feasible and cost-effective alternative for many hospitals.

The review highlighted the need for greater attention to be given to the content and delivery methods of any educational program. Educational programs to prevent delirium are most effective when formal teaching is interactive and combined with practice-based enabling and reinforcing strategies. Effective educational strategies include integration of clinical protocols that target modifiable risk factors for delirium in hospitalised older adults with dementia and at risk of delirium, and the use of audit and feedback, targeted peer-led education, small group or individual case-based discussions, and reminder systems. The presence of a clinical leader appears to have distinct advantages. Identified clinical experts and/or resource nurses in delirium care who are enthusiastic and accessible to ward staff may facilitate behavioural and organisational change and provide resources to train and support staff. They may also monitor and drive adherence to protocols, contributing to the effectiveness of their implementation.

**Knowles’ Adult Learning Theory**

As critiqued previously, a significant limitation is that only two studies reported a statement on the education principles underpinning the educational program (Akechi et al., 2010; McCrow et al., 2014). Akechi et al. (2010) examined the use of strategies based on adult learning theory to train acute care nurses for delirium care. That is, the educational program may not be presented in a way to facilitate learning. The following discussion reviews Knowles’s adult learning theory (1973).

Educators have attempted to align practice in health care professional development with the body of knowledge on adult learning because they believe that this will enhance outcomes for the adult learners (Akechi et al., 2010; Rockwood, 1999). Knowles (1980, p. 43) defined andragogy as the “art and science of helping adults learn” in contrast to pedagogy “the art and science of helping children learn”. However, upon further consideration, Knowles (1980) described andragogy and pedagogy as learning assumptions on a continuum. Andragogy and pedagogy were presented on a continuum ranging from teacher-directed (pedagogy) to student-directed (andragogy)” (Merriam, 2001, p. 6). Researcher and educators use the term andragogy to distinguish the adult
learners from the pedagogical perspective of traditional educational practices (Knowles, 1980; Knowles, Holton, & Swanson, 2005; Merriam, Caffarella, & Baumgartner, 2012).

Knowles (1973) drew a comprehensive picture of the characteristics and tendencies of adult learners. According to Knowles (1973), adult learners are self-directed and therefore need to see that the learning experience is related to their own professional roles outside of the training classroom. They have a sense of how learning occurs for them (their own learning processes), and they can be led to apply this self-knowledge to their learning experiences. Adults use past knowledge and experience to enrich their current learning and are often skilled problem solvers in their everyday lives. Knowles (1973) postulated that using adults’ own experience and problem solving skills could be keys to successful new learning. Adults are also, like all learners, highly individual in terms of strengths, interests, and needs. Understanding adult learning theory has led to an array of new training models that are an improvement over traditional professional development models.

In a traditional health care professional development model, the instructor decides in advance what knowledge or skills need to be learned and selects the most appropriate and efficient means for providing contents to the learners in a logical sequence of the study (Knowles, 1980; Meako et al., 2011). However, andragogy is described as a process model in comparison to a content model, characteristic of pedagogy (Knowles et al., 2005). The process model of andragogy focuses on the instructor in a facilitator role who, through mutual planning with the learner, creates a climate conductive to learning (Knowles, 1973). Knowles (1973) advocates involving adult learners in planning aspects of the learning experience including scheduling, needs assessment, formulating objectives, and designing learning plans. He also defines the role of the instructor as facilitating implementation of the students’ learning plans and assisting students in evaluating what they have learned (Knowles, 1973).

Adult learning theory includes two related key elements, the motivation of the adult learners and the authenticity of their learning experience. The literature suggests that strong intrinsic motivation may be necessary for adult learners to persist and succeed in the environment (Carney-Crompton & Tan, 2002). Brookfield (1995) postulates that adult learning must be authentic in order to tap into adult motivation, because adults often seek knowledge in response to a need to achieve practical goals. Authenticity is achieved when classroom learning and life experiences are integrated.
Several adult learning theorists (Brown, 2000; Kaagan, 1998) agree that adults learn from experience and that the best learning occurs when people are able to link past experience with new concepts they want to learn. These authors also emphasise that adults learn best by “doing” (experiential learning), one of the most powerful ways to teach adults (Brown, 2000; Kaagan, 1998).

Merriam (2008) points to three keys to transformative learning: experience, critical reflection, and individual development, which are all clearly grounded in adult learning theory. The experience of learning is an important consideration in creating an effective learning opportunity. The learning opportunity needs to be relevant and applicable to a person’s set of experiences. Critical reflection is important to transformational learning and self-directed learning. Reflection/thinking time is yet another essential principle to creating an effective learning experience for adults. Adults need time to integrate the ramifications of the learning experience to their reality and responsibilities. The third key to transformational learning, according to Merriam (2008) is the ability to think critically, which is essential to affecting a transformation; it is itself developmental. If development is a key to transformational learning, then an effective adult learning opportunity that will take personal development into consideration needs to be created. As learning using the adult learning theory needs to establish the necessary motivation to meet the above requirements, the facilitator must tap into the learner’s most teachable moment (Merriam, 2008).

Brookfield (1995) argued that many factors influence how adult students learn, such as personality, learning styles, cognition, and culture, and that Knowles (1980) does not take these into account. Brookfield (1995) also argued that educators are naïve in designing learning environments around the fact that all adult learners are self-directed and that adult learner instructional practices always meet the needs of the adult learner. Merriam (2001) argued that Knowles (1980) fails to provide an understanding about the adult learning process. Merriam (2001) also criticises Knowles’ failure to put andragogy into a historical and social context. Despite such opposing views of Knowles (1980) study of adult learners, his research led to a focus on adult learners that continues to impact educational practices today (Henschke, 2011).

**Theoretical framework.** The educational program used in this study is based on adult learning theory (Knowles, 1980). When appropriate adult learning strategies are applied, the professional knowledge and skills of participants are expected to improve. Knowles’
adult learning theory (1980) focuses on helping adults learn by grounding instructions in their prior experiences as adults. The adult learners’ background and life experiences contribute to how they think and reason. Supportive of Knowles, Tennant and Pogson (1995) asserted that with adults, there is a direct relationship between learning and experience because learning is an active process in the sense that learners are continually trying to understand and make sense of their experience. Thus, there ought to be an attempt during learning activities to link presented material to the prior experiences of learners in order to build a bridge from the known to unknown. Adapting the presented material to the immediate problems and concerns of learners ensures that learning is relevant. Creating interactions such as group discussion, or role-playing originates new experiences as a result of the active participation in learning (Tennant & Pogson, 1995). Furthermore, Joyce and Showers (1980) suggested that for adults, learning may be enhanced by giving learners opportunities to apply their skills and receive coaching and feedback. The case study format is considered the basis for a framework for practical application, collaborative coaching relationships, and feedback from others facing similar challenges or who have more extensive experience (Joyce & Showers, 1980). Cross (1981) postulated that adult learners respond best to educational endeavours that permit them to determine their own learning goals and include topics relevant to their own daily experience and interests. Similarly, Terehoff (2002) recommends attending to the learning needs and interests of adult students, using their personal work experiences to help them to learn to solve problems.

**Strategies to work with adult learners.** To create independent learners who think critically, instructors working with adult learners need to break away from the traditional lecture approach and take on the role of guides and facilitators, offering experiences that involve active learning and foster empathy, reciprocity, and trust (Knowles, 1973). In order to create efficient and relevant learning experiences for adult learners, instructors need to change ways of teaching. Using lectures as the main teaching strategy is no longer effective with adult learners. Instructors who teach adults must familiarise themselves with adult learning theories and effective strategies to enhance the learning experiences of adult learners (Simms & Knowlton, 2008). Knowles (1980) suggests that instructors should lecture less and instead use collaborative learning strategies when engaging adult learners. The information below summarises specific strategies suggested to work with adult learners.
Lectures. Lecture method is a widely used instructional strategy in classrooms, and it remains a very useful strategy for teaching adult learners. However, lecture methods need to be used along with active learning-teaching strategies. Use of lectures alone does not engage adult learners and limits adult learners’ feedback (Cashin, 1990). For an effective lecture approach for adult learners, Cashin (1990) recommends preplanning an outline of 5 to 9 major points, along with selecting appropriate examples or illustrations, as well being sensitive to perspectives of adult learners.

Reflective learning. Adult learning is about change. The instructor must acknowledge that he or she may be a change agent and appreciate that adult learners are undergoing transformations as they go through the learning process (Cercone, 2008; Knowles, 1980). Adult learners can build on previous knowledge and experience by relating new information to past events and experience (Knowles, 1980). Reflective learning can be defined as the process of internally examining and exploring an issue of concern triggered by an experience, which creates and clarifies meaning in terms of self and results in a changed conceptual perspective (Boyd & Fales, 1983; Dewey, 1997).

Examples of reflective learning activities include writing a journal, keeping a diary, or engaging in dialogue, which is a form of reflective conversation. Engaging in dialogue can enhance one’s ability to form perspectives, which serves to strengthen the linkage between theory and practice (Wong et al., 1997). A more structured form of dialogue can be experienced through activities such as case discussion or role play. The instructor takes the role of facilitator, allowing adult learners to experience discovery as part of the learning process (Cercone, 2008; Knowles, 1980). Through reflective learning, students can challenge their existing knowledge and practice. This is particularly conductive to promoting deep learning (Branch & Paranjape, 2002). Deep learning refers to learning that encompasses the acquisition and application of higher order thinking skills, such as analysing, interpreting and evaluating information (Hill & Woodland, 2002). This approach contrasts with surface learning, where the student seeks to retain facts and information without testing or evaluating the information (Hill & Woodland, 2002). Reflection can lead to great self-awareness (Branch & Paranjape, 2002), particularly important with regard to elements of CI care, which involves personal values and attitudes.

Case method, discussions, and active participation. Case method involves application of classroom learning and assists in integration of knowledge. It engages adult learners
in active discussion and provides a format for role-playing scenarios. The cases from adult learners’ real-life situations make the best examples to illustrate main points. These methods result in better retention, recall, and use of learning outside of the classroom (McKeachie & Svinicki, 2013).

Meyers and Jones (1993) defined the active learning environment as one that allows learners to talk, listen, read, write, and reflect as they approach course content through problem solving exercises, small group discussion, case studies, and role playing. All of these methods require learners to apply new learning. These strategies stimulate critical thinking and awareness of other people’s perspective.

In summary, if the researcher wants to provide meaningful instruction to adults in the South Korean context, attention must be focused on the special needs of the adult learner. Instruction can no longer be via lectures alone, but needs to integrate various teaching strategies that involve active learning on the part of the adult learners. Creating short, focused, stimulating and skill-building instructions based on adult learning theory can prove to be effective in working with adult learners.

Conceptual Model

A conceptual model is defined as a diagram of proposed linkages among a set of concepts believed to be related to be a particular problem (Earp & Ennett, 1991). A conceptual model, through concepts denoted by boxes and processes delineated by arrows, provides a visual representation that helps to narrow global research topics into specific research questions, designates variables to be operationalised under particular conditions, and anticipates analytical approaches before the sample is chosen or the data collected (Earp & Ennett, 1991). Thus, such representation is useful for organising and synthesising a complex of related factors into coherent forms (Susser, 1973). Because of its usefulness, the researcher in this study proposed a conceptual model to identify and explain concepts to evaluate the effectiveness of a specific CI care education program for ward-based RNs and family caregivers (Figure 2.1).

In this study, the conceptual model hypothesises that background characteristics of nurses impact on their knowledge and attitudes in CI care. The characteristics of the nurses include personal and professional characteristics (Hare et al., 2008; Lee et al., 2007; Nilsson et al., 2012) and socio-cultural values and beliefs about older adults (Dahlke, & Phinney, 2008; McCarthy, 2003; Wang & Mentes, 2009). Regardless of
nurses’ background characteristics, a specific CI care education program based upon the research findings outlined in the literature review is proposed to improve nurses’ knowledge and attitude in CI care. It is proposed that an improvement in knowledge and attitude will translate into better documentation of CI care. Although an improvement in knowledge and attitude may positively affect nurses’ efforts to involve family caregivers in CI care, it is proposed that the delirium brochure used for family caregivers as outlined in the specific CI care education program will facilitate nurses’ initial efforts to involve family caregivers in CI care.

For the purpose of classification in this study, terms for the conceptual model are defined as:

*Nurse*: A licensed health care professional who practices independently or is supervised by a physician, surgeon, or dentist, and who is skilled in promoting and maintain health (Merriam-Webster Online Dictionary, 2016).

*Family caregiver*: A spouse, family member, or partner who is the primary person assisting with care (Naylor et al., 2007). For this study, the term family caregiver is used for the broad spectrum of informal caregivers. These caregivers are distinguished from formal caregivers in that they are not connected to a social service or health care system. They tend not to have formal education or training as a health or social service provider. They may also provide assistance with activities of daily living in the hospital setting, including dressing, eating, and toileting (Clipp & Moore, 1995), but are non-paid caregivers.

*Knowledge*: A familiarity, awareness, or comprehension acquired by experience or study (Merriam-Webster Online Dictionary, 2014a).

*Attitude*: A feeling or way of thinking that affects a person’s behaviour (Merriam-Webster Online Dictionary, 2014b).

*Documentation of CI care*: A record of a patient’s CI care information.

*A specific CI care education program*: A specific CI care education program based on Knowles’ adult learning principles (1980).

*Nurses’ experience of an education program*: Nurses’ act or process of directly perceiving an educational program.
Nurse-initiated efforts to involve family caregivers in CI care: Nurses’ initial attempt to engage family caregivers in CI care.

Figure 2.1 Conceptualisation of the effects of the CI care educational program

Research Questions and Hypotheses

The following research questions were developed in conjunction with the objectives of this study.

Question 1. Does a specific CI care education program improve South Korean nurses’ knowledge of CI?

Question 2. Does a specific CI care education program improve South Korean nurses’ attitudes towards older adults with CI?

Question 3. Does an improvement in South Korean nurses’ knowledge and attitudes translate into documentation of CI care? Specifically:

3a. Is there a significant difference between pre- and post-intervention in the documentation of the total number of the keywords associated with delirium?

3b. Is there a significant difference between pre- and post-intervention in documentation of the frequency of non-pharmacological interventions following the documentation of identified keywords associated with delirium?

3c. Is there a significant increase in the comprehensiveness of documentation of CI care following an educational program?
Question 4. What are South Korean nurses’ perceptions of the specific CI care education program?

Question 5. What are South Korean nurses’ and family caregivers’ perceptions of nurse-initiated efforts to involve family caregivers in CI care?

Based on the quantitative research questions, this study elucidated three hypotheses for quantitative research:

Hypothesis 1: South Korean nurses’ knowledge of CI will be improved following participation in a specially designed educational program.

Hypothesis 2: South Korean nurses’ attitudes toward older adults with CI will be improved following participation in a specially designed educational program.

Hypothesis 3: South Korean nurses’ documentation of CI care will be improved following participation in a specially designed educational program. Specifically:

3a. South Korean nurses’ documentation of cognitive assessments will be increased following participation in a specially designed educational program.

3b. South Korean nurses’ documentation of non-pharmacological management following the documentation of identified keywords associated with delirium will be increased following participation in a specially designed educational program.

3c. The comprehensiveness of South Korean nurses’ documentation reporting CI care will be improved following participation in a specially designed educational program.

Conclusion

The review of the literature clearly indicates that CI is highly prevalent in hospitalised older adults and is associated with worse functional outcomes, higher mortality rates, and higher health care costs compared to patients with dementia alone or delirium alone (Bellelli et al., 2007; Fick et al., 2002; Fick et al., 2013; Morandi et al., 2014; Sampson et al., 2009; Torpilliesi et al., 2010). The care of patients with delirium and dementia also leads to family caregivers’ burden and requires a high level of assistance and training for health care professionals, mainly nurses. The impact of delirium and dementia on family caregivers is substantial, with a high level of distress reported
(Breitbart et al., 2002; Bruera et al., 2009; Jurgens, Clisett, Gladman, & Harwood, 2012; Toye et al., 2014). The overlap of delirium with dementia is likely to significantly increase patients’ need for assistance from nurses and family caregivers.

This literature review suggests that nurses’ lack of ability to recognise and manage delirium in hospitalised older adults with and without dementia is the major problem. Their limited ability to provide CI care is attributed to poor knowledge (Choi et al., 2011; Fick et al., 2007; Flagg et al., 2010; Hare, Wynaden, et al., 2008; Lee et al., 2007) and negative attitude (Neville, 2008), in combination with patient and organisational factors. Education is deemed to be of upmost importance, and recent studies have increasingly reported on positive effects of the education program on CI care (Akechi et al., 2010; Chow et al., 2015; Fick et al., 2011; Gordon et al., 2013a; Hasemann et al., 2016; Holt et al., 2013; Ingram et al., 2015; Kim & Lee, 2014; Lundström et al., 2005; Lundström et al., 2007; McCrow et al., 2014; Meako et al., 2011; Naughton et al., 2005; Pretto et al., 2009; Robinson et al., 2008; Tabet et al., 2005; van de Steeg et al., 2015; Varghese et al., 2014; Voellinger et al., 2011; Wand et al., 2014). However, little is known on the practice of CI care in the South Korean context.

The following chapter (Chapter 3) discusses the research design used in this study, including the study setting. The first part of the chapter includes the description of the education program based upon adult learning principles (Knowles, 1973), and summarises the instruments and pilot testing of the educational program materials and instruments. Issues related to the study’s ethical considerations are also discussed.
CHAPTER THREE
METHODOLOGY

Introduction

Educational program research from outside South Korea reports on the positive effects of cognitive impairment (CI) care. However, currently, little is known about the practice of CI care in South Korea. The purposes of this study were to develop an appropriate CI care education program and to evaluate the effectiveness of a specific CI care education program in improving South Korean nurses’ knowledge, attitude, documentation, and efforts to involve family caregivers in CI care. This chapter describes the methodology used to achieve the purposes of the study, including a description of the study design, setting, sampling framework, quantitative instruments and qualitative interview guide, data collection procedures, and methods for data analysis. This chapter includes the details of the educational program and concludes with an outline of the ethical considerations of the study.

Research Methodology

Mixed methods research is defined as the use of both quantitative and qualitative methods in the same research (Wilkins & Woodgate, 2008), where quantitative methods include the collection, analysis, and interpretation of data in numerical forms and qualitative methods consist of the collection, analysis, and interpretation of narrative forms of data (Polit & Lake, 2010). Johnson, Onwuegbuzie, and Turner (2007) expanded on this definition by stating that: “Mixed methods research is the type of research in which a researcher or teams of researchers combine elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration” (p. 123).

Mixed methods research is increasingly being used by nurse researchers to examine a range of problems (Hayes, Bonner, & Douglas, 2013). Andrew and Halcomb (2009) highlight that while randomised controlled trails (RCTs) are the gold standard for evidence-based practice, mixed methods research can provide a broader approach that can take into account the values and perceptions of the clinical context in which the research is conducted. Creswell (2002, p. 52) reasons, “When researchers bring together both quantitative and qualitative research, the strengths of both approaches are
combined, leading, it can be assumed, to a better understanding of research problems than either approach alone”. In addition, Tashakkori and Teddlie (2003) conclude that researchers need quantitative and qualitative data to satisfy their confirmatory and exploratory enquiries simultaneously in order to tackle practical problems.

With a mixed methods design, researchers can study a phenomenon by converging different forms of data (triangulation), which compensates for any of weakness associated with using either a quantitative or qualitative approach alone (complementarity). In this regard, the breadth of research is expanded (expansion) and the findings generated from one method can help to develop the subsequent method (development) or detect contradictions that help refine the research questions (initiation) (Johnson & Onwuegbuzie, 2004). These five strengths (triangulation, complementarity, expansion, development and initiation) paved the way for the use of a mixed methods approach when conducting this study. Specifically, according to Creswell and Plano Clark (2011, p. 83), one of the strengths of a mixed methods sequential explanatory design is the fact that it is “probably the most straightforward of the mixed methods designs”. Additional strengths of this type of mixed methods design include: (a) acceptance by quantitative researchers since this method begins with a strong quantitative position; (b) collection of data in separate phases making its design intuitive with regard to implementation, and requiring only a single researcher to conduct the study and gather the data; (c) reporting of data in sequence, first quantitatively and then qualitatively, allowing the reader to follow a clear path of delineation; and (d) providing the researcher the autonomy to rework and to refine qualitative procedures based on quantitative results (Creswell & Plano Clark 2011).

Although mixed methods research has a number of strengths, it also has limitations. These include the considerable amount of time, resources, and knowledge required to conduct mixed method research, particularly the collection and successful integration of both qualitative and quantitative data (Creswell, Shope, Plano Clark, & Green, 2006; Onwuegbuzie & Johnson, 2006). Specifically, there are a number of challenges when using a mixed methods sequential explanatory design, which include: (a) an increased amount of time is required for implementation of the two phases, particularly the qualitative phase; (b) human research ethics committee (HREC) approval may be difficult to obtain since the participants in the second qualitative phase may not be identified until the initial quantitative results are obtained; (c) the
quantitative results warranting further explanation are subjectively decided by the researcher; and (d) in the qualitative phase the researcher makes the decision regarding who to sample and what criteria to use for the selection process (Creswell & Plano Clark 2011).

**Research Design**

The research design for this study was a mixed methods sequential explanatory design, using questionnaire and documentation data, and semi-structured individual interviews. This type of design uses a sequential two-phased approach, first employing the quantitative phase followed by a qualitative phase. The follow-up explanation variant of the design allows the qualitative data results to explain in more detail the quantitative results (Creswell & Plano Clark 2011).

The mixed methods sequential explanatory design in this study began with quantitative data collection and analysis, then incorporated a qualitative phase to more thoroughly inform the quantitative results, and concluded with a mixed methods analysis. In this study, the design plans for both the quantitative and qualitative phases were included in the initial HREC application. In order to obtain HREC approval for the qualitative phase, the researcher explained the initial plan with as much detail as possible. The initial plan and procedures did not change after a review of the quantitative results, and no addendums were needed or were filed with the HREC. The sequence of the study research activities is represented in Figure 3.1.

The time and resource constraints of a PhD study reduced the researcher’s capacity to conduct a more expansive study using a RCT design. Instead, the quantitative component of this study employed a single group, pre- and post-intervention design to evaluate the effectiveness of a specific CI care education program for South Korean nurses. After the quantitative results were gathered and analysed, outlying or otherwise interesting quantitative results were selected for further exploration. The quantitative results were also used to determine which participants would be chosen for the qualitative sample. Qualitative protocols and methods were developed from the quantitative results, which were then followed by qualitative research methods, data collection, and analysis. In the follow-up phase of this study, a descriptive qualitative design with semi-structured interviews was used to describe South Korean nurses’ perceptions of the education program and South Korean nurses’ and family caregivers’ perceptions of nurse-initiated efforts to involve family caregivers
in CI care. A descriptive qualitative study aims to create a comprehensive description of a phenomenon and generate original knowledge from the perspective of study participants (Sandelowski, 2000). The final phase of the mixed methods sequential explanatory design was to integrate both the quantitative and qualitative results and interpret the merged findings (Creswell & Plano Clark 2011). The study design and data collection methods and periods can be seen in Figure 3.2.
Figure 3.1 Implementing an explanatory sequential design, adapted from Creswell and Plano Clark (2011, p. 84)
Figure 3.2 Study design and data collection periods
**Design Rationale**

Different cultural values and health care systems may influence CI care in practice, and a single paradigm could not satisfactorily deal with all of the methodological aspects of this study. It was perceived that the quantitative approach would evaluate the effectiveness of a specific CI care educational program on South Korean nurses’ knowledge, attitude, and documentation through objective measures, but obscure the complexities of how South Korean nurses acquire and apply their new knowledge to clinical situations (Polit & Beck, 2008). Conversely, it was perceived that the qualitative approach would help to deepen the interpretation of South Korean nurses’ understanding of the experiential and contextual influences on their learning (Polit & Beck, 2008). Quantitative data were collected and analysed first, the collection and analysis of qualitative data occurred after this in order to examine specific findings in more detail (Creswell & Plano Clark, 2007). Thus, a mixed methods sequential explanatory design enabled a broader exploration of the effectiveness of the specific CI care educational program beyond that provided by quantitative measures alone.

**Research Questions**

Through a mixed methods sequential explanatory study, the researcher attempted to answer research questions. The quantitative research questions included:

**Question 1.** Does a specific CI care education program improve South Korean nurses’ knowledge of CI?

**Question 2.** Does a specific CI care education program improve South Korean nurses’ attitude towards older adults with CI?

**Question 3.** Does an improvement in South Korean nurses’ knowledge and attitude translate into documentation of CI care? Specifically:

3a. Is there a significant difference between pre- and post-intervention in the nursing documentation of the total number of keywords associated with delirium?

3b. Is there a significant difference between pre- and post-intervention in nursing documentation of the frequency of non-pharmacological interventions following the documentation of keywords associated with delirium?
3c. Is there a significant increase in the nursing documentation for the comprehensiveness of reporting CI care following an educational intervention?

The qualitative research questions sought to understand:

Question 4. What are South Korean nurses’ perceptions of the specific CI care education program?

Question 5. What are South Korean nurses’ and family caregivers’ perceptions of nurse-initiated efforts to involve family caregivers in CI care?

**Study Setting**

The study site is a community medical centre located in Jeju Si, Self-Governing Province, South Korea (Figure 3.3). It is a 300-bed regional acute care hospital with six medical-surgical wards and two intensive care units. This study took place on four general internal medicine wards (i.e., neurology ward, respiratory ward, and mixed speciality wards). These wards provided care for hospitalised older adults with dementia and at risk of delirium who need medical treatment. Specifically, the neurology ward offered care for older people with the complex needs associated with ageing, stroke and neurological problems. The respiratory ward specialised in the acute care of older patients with respiratory disease, such as pneumonia and asthma. The other two mixed speciality wards cared for older people admitted with gastroenterological conditions and older patients requiring stabilisation of their diabetes mellitus and hypertension. Family caregivers on these wards were allowed to stay at the bedside 24 hours a day, providing basic care related to activities of daily living (ADLs) for their older family members.
There are four nursing position titles within this facility (i.e., director of nursing, nurse manager, charge nurse, and registered general nurse). The director of nursing is a registered nurse (RN) who supervises the care of all patients in the hospital. The nurse manager is an RN with management responsibilities of a nursing unit, such as primary responsibilities for staffing, budgeting, and day-to-day operations of the unit. The charge nurse is an RN, usually assigned for a shift, who is responsible for the immediate functioning of the unit. The charge nurse is responsible for making sure nursing care is delivered safely and that all patients on the unit are receiving adequate care. The registered general nurse typically carries out skilled, professional tasks for the patients (i.e., nursing assessment, medication administration, and patient education), and their roles are mainly treatment-oriented and implementation of physician’s orders. All nursing staff were RNs and were employed full-time.

**Sampling Framework**

Prospective participants included nurses, older patients, and family caregivers. Inclusion and exclusion criteria were set and were strictly applied to select each participant.

This section explains sample size, sampling strategies, and sample recruitment in the quantitative and qualitative components of this study.

**Quantitative sample size.** In terms of participating nurses, the calculated sample size was 36, based on an expected 2.5 change in scores on the Facts on Aging Quizzes (Palmore, 1977) in the intervention group (Harrison & Novak, 1988) and assuming $\alpha = 0.05$, power = 0.80, and medium effect size. In consideration of participant attrition we increased the desired sample size to 40.

Barton, Miller, and Yaffe (2006) used a single group, pre- and post-intervention design and demonstrated statistically significant differences in nurses’ documentation of the diagnosis and management of older patients with CI by auditing a sample of 60 consecutive records of older patients admitted two months before and two months after an educational program. As the design, objectives, and participant characteristics of this study were similar to those of Barton et al. (2006) study, the researcher in this study determined that a sample of 60 consecutive records that included documentation by participating nurses two months before and two months after the educational program would be sufficient to see statistically significant changes as a result of the current intervention.
Quantitative sampling strategies. Convenience sampling was used in the first phase of this study. This is a common approach in nursing research where probability sampling is too complicated to conduct, particularly for student researchers who usually have limited resources or access to the research participants (Polit & Beck, 2008). Convenience sampling is a form of non-probability sampling and is more prone to sampling bias compared to probability sampling (Norwood, 2010). Sampling bias refers to the systematic over-representation or under-representation of some segment of the population in terms of a characteristic that can affect the dependent variable (Norwood, 2010). Creswell (2008, p. 155) recognises the risk of using convenience sampling since “The researcher cannot say with confidence that the individuals are representative of the population”. Despite the limitation of the non-representativeness, convenience sampling was deemed acceptable for the current study because the use of probability sampling was not possible due to the time and resource constraints of a PhD study. Thus, in this study, South Korean nurses and older patients were participant samples who were available, willing, and convenient.

The inclusion and exclusion criteria for South Korean nurses were as follows:

Inclusion criteria: Nurses working on any of the four general internal medicine wards.

Exclusion criteria: Nurses being temporarily deployed from other wards to one of the four medical wards.

The inclusion and exclusion criteria for nursing documentation of CI care included as follows, older patients who:

Inclusion criteria

- were admitted to one of the four general internal medicine wards for medical management and were cared for by participating nurses in the previous two months before or two months after the educational program;
- had a minimum of 1-week hospitalisation;
- had at least one risk factor for developing delirium at admission or during hospitalisation: age (≥ 70 years); pre-existing dementia and/or cognitively functional difficulties identified in their medical record; medication; urinary retention; infection (urine, lungs, skin); hypoxia; dehydration;
hypo/hyperglycaemia; pain; immobility; sensory loss (visual and hearing impairment) (Fick & Mion, 2008);

- were identified by each general internal medicine ward manager to have experienced symptoms associated with delirium, dementia, or confusion; and
- consent was provided by older patients or their family caregivers.

Exclusion criteria

- were not being admitted to one of the four general internal medicine wards.

**Quantitative sample recruitment.** Following contact with each general internal medicine ward manager, the researcher arranged times to present the study outline to potential South Korean nurse participants who met the inclusion criteria. During the information seminar, nurses on each ward were provided with oral and written information about the study (Appendix 2) and they were assured confidentiality of their personal information. Those who agreed to participate received an informed consent form (Appendix 3). They were also provided with the name and contact details of the researcher if they required further information.

For the nursing documentation audit, each general internal medicine ward manager provided a list of potential older patients who met the inclusion criteria and arranged times for the researcher to provide an overview of the study and distribute an information sheet individually to older patients and/or their family caregivers (Appendix 2). The researcher answered any questions from older patients and/or their family caregivers, explained the study in more detail at these times, and assured them of confidentiality of personal information. Older patients’ capacity to consent was determined by their attending physician who determined capacity according to DSM-5 criteria (American Psychiatric Association, 2013). If older patients were deemed to have the capacity to consent, they were asked for permission to allow their paper-based records to be audited (Appendix 4). When older patients were deemed unable to provide consent, the appointed decision-maker, usually family caregivers, provided substituted consent. They were identified and approached by each general internal medicine ward manager, and were asked for permission for their family members’ paper-based records to be audited. To avoid possible coercion, written informed consent was obtained by each general internal medicine ward manager who had no association with this study. Further possible coercion was minimised by assuring that non-participation in this study
did not affect the quality of nursing care older patients and/or their family caregivers received.

**Qualitative sample size.** The sample sizes for the qualitative component were small. Disparity in sample sizes between the quantitative and qualitative components of the study is acceptable in an explanatory sequential mixed methods design, in which priority is given to the quantitative phase of the study (Creswell & Plano Clark, 2007). Purposive sampling was used to recruit participants for the qualitative component, with a target of 12 RNs that was 30 percent of the original sample (n=40) and 8 family caregivers. Twelve RNs from the four general internal medicine wards were approached.

**Qualitative sampling strategies.** A purposive sample is typically designed to pick a small number of cases that will yield information rich cases (Norwood, 2010). Purposive sampling is used for studying cases in depth (Patton, 1990), and was appropriate for this component of the study since it aimed to address the impact of an educational intervention on South Korean nurses and family caregivers.

The inclusion and exclusion criteria for South Korean nurses in the follow-up phase were as follows:

**Inclusion criteria:** Nurses who participated in the educational program of the first phase.

**Exclusion criteria:** Nurses who did not participate in the educational program of the first phase.

South Korean nurses who participated in the educational program and completed pre- and post-intervention surveys were the intended sample for the interviews. A mix of participants with significant and non-significant changes between the pre- and post-intervention measures of knowledge and/or attitude was recruited. Participants’ personal and professional characteristics were also considered during recruitment.

Nominated sampling is a particularly appropriate technique to use when the informants are difficult to identify by generating a sample of participants that are nominated by a third party (not another study participant) based on the knowledge that the nominee meets eligibility criteria for the study (Morse, 1991; Norwood, 2010). Nominated sampling was used to select family caregiver participants as a result of practical difficulties encountered (e.g., difficulty identifying and recruiting family caregivers due to the limited resources and access to the family caregivers).
The inclusion and exclusion criteria for family caregivers in the follow-up phase were as follows:

**Inclusion criteria:** Those whose older family members were cared for by nurses who participated in the first phase.

**Exclusion criteria:** Those whose older family members were not cared for by nurses who participated in the first phase.

**Qualitative sample recruitment.** Each general internal medicine ward manager was contacted via telephone regarding the study and provided with a list of eligible South Korean nurses for interviews. They were also requested to arrange times to invite these eligible nurses to participate in the information seminar. During the information seminar, nurses on each ward were provided with oral and written information about the study and they were assured confidentiality of their personal information (Appendix 2). Eligible nurses were given time to consider if they were interested in participating and they were asked to contact the researcher via telephone if they wished to volunteer. An equal number of participants from each general internal medicine ward (i.e., 3 RNs per each general internal medicine ward) were invited to participate in the interviews. Interview sessions were scheduled and confirmed via telephone communications between the researcher and the nurses who agreed to participate in the interviews.

Previously developed relationships with the four general internal medicine ward managers helped the researcher select family caregiver participants for interviews. Each general internal medicine ward manager was contacted via telephone and requested to nominate two family caregivers who met the inclusion criteria and to arrange times to invite eligible family caregivers to participate in a pre-interview information session. Eligible family caregivers were individually provided with oral and written information of the study (Appendix 2). The researcher answered any questions from eligible family caregivers, explained the study in more detail at these times, and assured them of confidentiality of personal information. Eligible family caregivers were given time to consider if they were interested in participating, and they were asked to contact the researcher via telephone if they wished to volunteer. A sample of 6 family caregivers was invited to participate in the interviews. Interview sessions were scheduled and confirmed via telephone communications between the researcher and volunteer family caregivers.
A CI Care Educational Program

The purpose of this study was to improve South Korean nurses’ knowledge, attitude, documentation, and efforts to involve family caregivers in CI care by means of a specially designed educational program based on the best available evidence and tailored to the specific learning needs of nurses. The preceding literature review highlighted the core areas of knowledge that needed to be targeted in the educational intervention, specifically:

- The impact of CI on older patients and their family caregivers;
- Issues facing acute care nurses in the care of older patients with CI and their family caregivers;
- Strategies to improve CI care by acute care nurses.

The literature review also identified the following themes relevant to development of an educational program:

- The importance of risk factor management for delirium in older patients with and without dementia;
- Difficulties experienced by acute care nurses in recognising delirium, dementia and delirium superimposed on dementia (DSD);
- The effectiveness of multimodal educational programs for acute care nurses;
- The benefits of family caregiver involvement in CI care.

This evidence was used as a platform to build the educational program. Adult learning principles identify that teaching can be more successful when the learner is interested in the topic, perceives potential application about the topic, is actively engaged in the process of learning, and is able to integrate new learning with his or her past experience (Knowles, 1973, 1980). Along with Knowles’ characteristics of adult learners, personality, learning styles, cognition, and culture should also be considered (Brookfield, 1995). Thus, in this study, a needs assessment was conducted in the planning stage of the educational program. Educational needs assessment can be conducted at various levels of the educational system. At the program level it can focus on revisions of curriculum offerings, within a health care organisation it can identify needs in clinical staff development, and at the individual level it can help to determine current learner status in regard to desired learner outcome (Hauer & Quill, 2011). Due to the time and resource constraints of a PhD study, the needs assessment using key
informant involvement before study commencement (see page 99 for the discussion of this process) was conducted to determine a proposed educational program.

**Development of an educational program**

Based on the literature review, the objectives of the educational program in this study were to: (1) provide information about CI and assessment and risk factor management for delirium in older patients with and without dementia; (2) improve South Korean nurses’ knowledge and attitudes in care for older patients with CI; and (3) encourage South Korean nurses to provide information about delirium to family caregivers in the provision of quality CI care.

**Outline of the content of an educational program.** The content of the educational program was developed from the literature review, the revised DSD algorithm (Fick & Mion, 2008), and delirium brochure (Australian Government Department of Health, 2011). The content of the educational program was validated through in-depth discussion with research supervisors. The content included:

- CI (i.e., definition, diagnostic criteria, differential diagnosis, clinical symptoms, prevalence, risk factors, and outcomes);
- Assessment and risk factor management for delirium in older patients with and without dementia;
- Providing information about delirium to family caregivers on hospital admission.

To engage participation in self-directed learning, a written resource of the DSD algorithm (Fick & Mion, 2008) was considered to be essential, in particular, because participating nurses were unable to take too much time away from direct patient care in practice. The DSD algorithm (Fick & Mion, 2008) can assist nurses in organising assessment, identifying consistent and clinically sound interventions, and guiding evaluation of patients’ outcomes by providing the four easy steps for DSD care (Fick & Mion, 2008; Jensen & Justic, 1995). The first step is to assess patients’ baseline mental and functional status. This step includes a review of the patient’s medical record for indications of pre-existing dementia, and checking either with the patient’s family or with staff from prior living facility as to whether the patient has a diagnosis of dementia or signs and symptoms of possible dementia. The second step is to assess for and identify delirium promptly by using the Confusion Assessment Method (CAM) (Inouye et al., 1990). The third step is to focus on risk factor management for delirium in older
patients with and without dementia. This step includes three main care areas: physiologic cause and risk factor assessment for delirium, injury prevention, and other risk factor modification for delirium. The fourth step is a follow-up assessment for evaluation.

In order to support the participating nurses in their endeavours to provide information about delirium to family caregivers, the delirium brochure (Australian Government Department of Health, 2011) was considered to be appropriate for use. This brochure includes a description of delirium, signs and symptoms of delirium, causes of delirium, and strategies the family caregivers could use to help prevent and manage delirium in their family members based on multi-component intervention studies (Gagnon et al., 2002; Inouye et al., 1999; Rosenbloom-Brunton et al., 2010).

Prior to using the English version of the DSD algorithm, permission was granted by the authors for its use and translation (Fick & Mion, 2008). To increase the appropriateness and practicability for one regional general hospital in South Korea, the researcher first revised the English version of the DSD algorithm (Fick & Mion, 2008) and delirium brochure (Australian Government Department of Health, 2011) through in-depth discussion with the research supervisors who have expertise in education theory and practice, gerontological nursing, delirium, dementia, and family caregiving. For the DSD algorithm (Fick & Mion, 2008), the term sitter was modified to informal caregivers (ganbyungin) to take into account the South Korean context. Furthermore, one item ‘Notify medical team or seek consultation’ was newly added in the follow-up section (Appendix 6).

To ensure the accuracy, comprehension, and practicability of the Korean version of the revised DSD algorithm (Fick & Mion, 2008) and delirium brochure (Australian Government Department of Health, 2011) (Appendix 7), back-translation and monolingual testing recommended by Maneesriwongul and Dixon (2004) were performed. This procedure is described in more detail in the quantitative instrument section (See page 98). As a result of the feedback, the layout and length of the revised DSD algorithm and delirium brochure was considered acceptable.

**Format of an educational program.** The development of the format of the educational program was based on the delirium training program used by Akechi et al. (2010) because it was founded on adult learning principles focused on improving acute care
nurses’ knowledge of delirium in hospital wards and used multimodal educational strategies. This delirium training program had a significant effect on 12 of the 15-item self-confidence measures, including differential diagnosis between delirium and dementia, explanation of delirium to the patient’s family, and provision of appropriate nursing care for a patient with delirium. On the other hand, there was no significant effect for the remaining three items: early detection, explanation of delirium to the patients’ physician, and provision of an appropriate environment for patients with delirium (Akechi et al., 2010).

The delirium training program used by Akechi et al. (2010) consisted of a 2-step approach. Nurse managers for each hospital ward were first asked whether their ward would like to participate in the delirium training program. The first step was to train RNs in becoming delirium-link nurses on each hospital ward where the nurse managers would like to participate in this program. This step included two workshops, one month apart, and ongoing support sessions between the workshops. The second step was that RNs who participated in the first step played a role of the delirium-link nurse in the education of other nurses on their hospital wards.

In the first workshop, participating RNs described what they wished to learn about delirium, and then a trained psychiatrist provided a 1-hour lecture on delirium. The content of the lecture included definition, diagnostic criteria, differential diagnosis, clinical symptoms, screening, characteristics, prevalence, risk factors, outcomes, management, nursing care, and clinical cases. Before the first workshop (Akechi et al., 2010), the participating RNs were given the opportunity to ask any questions about delirium that they might have; the answers to their questions were included in the lecture. Next, a trained nurse provided a lecture and training session on a delirium-screening tool, the NEECHAM Confusion Scale (Neelon et al., 1996), by utilising vignettes. At the end of the first workshop, the participating RNs were encouraged to ask questions about delirium, and these were answered by the training staff (i.e., trained psychiatrist and trained nurse). The first workshop took one-half day (Akechi et al., 2010). In the second workshop, the participating RNs presented actual case reports of patients with delirium. In small group discussion (each group consisting of 6 or 7 participants), they shared their experiences of caring for patients with delirium and discussed the underlying clinical problems related to delirium. The training staff (i.e.,
trained psychiatrist and trained nurse) answered any questions about delirium. The second workshop took three and a half hours (Akechi et al., 2010).

In the second step of the Akechi et al. (2010) study, the delirium-link nurses provided education and training for other nurses on their hospital wards. To assist with these educational activities, the delirium-link nurses were given all the materials used in the workshops (e.g., slides and text). The actual content and method of education were entrusted to each delirium-link nurse, who then conducted training according to the needs of the hospital wards (Akechi et al., 2010).

This format is appealing, as a change in practice would be possible through mentorship from the participating nurses with substantial gains in knowledge, attitude, and skills to provide appropriate CI care. However, the major obstacle to this format is that it is unlikely to be sustainable in most workplaces and it does not take account of the availability of resources and participating nurses’ workloads. The researcher therefore adapted the original Akechi et al. (2010) format and developed an educational program consisting of two 1.5 hour workshops in the first month and two 50-minute ongoing sessions in the second and third month. This format was considered to take into consideration the limited resources and participating nurses’ workload at the study hospital. Inouye et al. (1990) reported that the CAM had a high sensitivity of 94-100% and a high specificity of 90-95% in hospital settings. The CAM was determined to be a useful measure for assessing for delirium in hospitalised individuals (Inouye et al., 1990). With regard to a delirium-screening tool, the researcher therefore used the CAM (Inouye et al., 1990) instead of the NEECHAM Confusion Scale (Neelon et al., 1996) used in the Akechi et al. (2010) study. As removing nursing staff from the clinical area was challenging, a decision was made with the hospital administration to include the CI care educational program as part of the nurses’ usual in-service education.

Consideration of the cultural values and educational system is vital in the utilisation of Knowles’ adult learning theory (Brookfield, 1995). First, in the traditional didactic lecture-based learning environment in South Korea and other Asian countries, learners expect the instructor to provide information and correct answers to questions, and they do not believe that they are responsible for contributing to the development of an answer (Park, 1997; Valentine & Speece, 2002). In respecting the Confucian ethic of filial piety, it is also impolite to critique the instructor due to their hierarchical position in the social context (Kennedy, 2002). Considering the importance of face in South
Korean and other Asian cultures, learners do not want to show off what they know, nor do they want to lose face if their answers are not correct (Valentine & Speece, 2002). Brown and Levison (1987) defined face as the public self-image that each member wants to claim for himself or herself. Furthermore, given the fact that a shame culture in South Korea is related to fear of evaluation, blame, or stigmatisation (Yang & Rosenblatt, 2001), fear of shame makes learners refrain from doing anything different from others. It was considered that these factors may influence participating nurses’ learning behaviour, and thus a group, rather than an individual, approach was used.

**Strategies to work with adult learners.** The educational program was to emphasise reflective and interactive learning and active participation (Knowles, 1973, 1980). The learning methods used included case method, role playing, and small group discussion to bring the participating nurses to active participation and focus (Meyers & Jones, 1993). The reflective and interactive approach was facilitated by the use of case-based group discussion, selected presentations, and non-judgemental feedback from the instructor and colleagues. To guide reflective learning, a 4-stage cycle of experiential learning was used (Kolb, 1984). This cycle consists of four steps: concrete experience, reflective observation, abstract conceptualisation and active experimentation (Kolb, 1984). The first stage of the learning cycle began with the participating nurses sharing clinical experiences or critical incidents they had encountered in caring for older patients with CI. They described their experiences, along with the essential factors contributing to these experiences, and detailed the key processes they had followed in providing care. In the second stage, the participating nurses were encouraged to reflect on their experiences and to try to understand their actions and care decisions in particular situations through reflection. The third stage involved the participating nurses reflecting on how their experiences had changed the way in which they cared for patients with CI. It was expected that new learning on CI care would emerge. The last stage of the learning cycle involved encouraging the participating nurses to apply their newly acquired knowledge to clinical situations and to continue to reflect on their experiences. Therefore, the reflective discussions helped the participating nurses to re-examine their values and beliefs and influence their attitude toward CI care. Lectures were interspersed with group sessions and were used for the introduction of new subjects, summarising ideas, showing relationships between theory and practice, and re-emphasising main points (Cashin, 1990). The self-directed study was facilitated by the
use of a pocket-sized laminated card of the revised DSD algorithm (Fick & Mion, 2008) in daily practice.

**Key informant involvement.** As part of the needs assessment, key informant involvement was used to review and refine a proposed educational intervention in this study. The researcher involved the key informants (i.e., four participating general internal medicine ward managers) at the study hospital site. Key informants are leaders in the organisation or profession who have valuable opinions and insights into the educational needs of a specific group (Hauer & Quill, 2011). Although these individuals may not be part of the target audience, they are knowledgeable about the educational needs. They commonly participate in questionnaires and provide information in one-on-one interviews (Hauer & Quill, 2011). However, due to the time and resource constraints of a PhD study, informal meetings were used to interact with four participating general internal medicine ward managers (Grant, 2002). The informal meetings focused on identifying group learning needs rather than individual learning needs (Grant, 2002; Hauer & Quill, 2011).

The director of nursing at the study hospital was contacted via telephone and requested to arrange informal meetings with the four general internal medicine ward managers. Two informal meetings one week apart were conducted to review and refine the proposed educational program. At the first meeting, the researcher proposed an educational intervention for CI care, with explanations of the study, distributing copies of the educational program outline (Appendix 8) in the nursing director’s office. The general internal medicine ward managers verbally provided information about the current status of in-service education program for nurses. A monthly ward-based, in-service education is held in a conference format. In each ward, nurses who have more than two years’ experience present a selected topic for the in-service education program in rotation. Ward nurses usually attend the in-service education sessions because of a sense of duty. The ward managers stated that there were increasing numbers of older adults with dementia admitted to their wards. They also agreed that an educational program was essential to high quality CI care, as education and training on CI care at the study hospital had not taken place.

The researcher asked the ward managers to review the relevance and suitability of the proposed educational program with their nursing staff and answered any questions about the educational program or study. One week later, at the second
informal meeting, the ward managers verbally expressed general satisfaction with the proposed educational program. They requested the educational program be delivered as a ward-based, in-service intervention. They felt it would provide a motivating drive for nurses to voluntarily participate in the educational intervention. Thus, the educational program in this study was included in ward-based, in-service education.

**Implementation of the educational program**

The initial two workshops took place in a conference room. A workshop is a strategy with teaching and learning that is structured in small groups to enhance active participation (Tiberius & Silver, 2001). In this study, the researcher acted as a facilitator during the workshops. Facilitation was an important activity during the workshop in order to encourage the participating nurses to participate actively in discussion and to debate relevant topics regarding the improvement of CI care. The workshop would only be successful if the facilitator showed respect to the participants (Knowles, 1973).

At the first workshop, in order to create a relaxed atmosphere for learning, the researcher introduced herself as a facilitator and invited questions from the participating nurses. In the first 20 minutes the researcher also outlined what was expected of them and the purpose behind all the tasks (Appendix 9). The researcher let them choose their group. Each group consisted of five nurses, and they were asked to establish their role (e.g., leader, note-taker and so on) and responsibility of group members, which would guide their behaviour and contributions for the group activity. Participating nurses were encouraged to bring scenarios of their experience for reflection, discussion, and critical analysis when attending the first workshop.

In group discussions, the participating nurses were encouraged to share experiences they had encountered in caring for older patients with dementia and at risk of delirium. Each group role-played the cases they discussed. The nurses were encouraged to discuss and provide feedback about the essential factors contributing to these cases and the key steps they had taken in providing care. The researcher provided a 30-minute lecture on CI (i.e., definition, differential diagnosis, symptoms, prevalence, risk factors, and outcomes) (Appendix 10). The nurses were encouraged to ask questions during the lecture. The lecture also focused on answering the nurses’ questions discussed previously in groups. For self-directed study, a pocket-sized laminated card of the revised DSD algorithm (Fick & Mion, 2008) and delirium
brochure (Australian Government Department of Health, 2011) were provided to each participating nurse. They were encouraged to read and use them following the first workshop. Ten minutes were provided at the end of the first workshop for the nurses to ask any further questions about CI care. The researcher reminded the nurses that the delirium brochures were stored at the nursing station of each general internal medicine ward for use. The nurses were encouraged to use the delirium brochure to help them to provide delirium information to family caregivers on hospital admission and involve family caregivers in the CI care of their older family members. The family caregivers were those whose older family members (age ≥ 70 years) had pre-existing dementia and/or cognitively functional difficulties identified in their medical record and were at risk of delirium. The participating nurses were encouraged to call the researcher if they had any questions about the educational intervention at any time during the period of the educational intervention.

At the second workshop, in group discussions, the participating nurses were encouraged to reflect on their experiences and to try to understand their actions and care decisions in the CI care situations through this process (Schon, 1983). This was a form of dialogue in groups. The participating nurses analysed their nursing interventions, what factors had influenced their care decisions, what the consequences of their actions had been, and how they felt about their experiences. They then considered how they might deal better with the same situation in future (Johns, 1995). One nurse in each group was allocated to describe and then verbally present to all participants the group’s analysis of nursing interventions, what factors had influenced care decisions, the consequences of actions, feeling about the experiences and considering how they might deal differently with the same situation in future. Non-judgemental feedback from the facilitator and colleagues was provided for each presentation. A 30-minute lecture was provided with the use of the revised DSD algorithm (Fick & Mion, 2008) and delirium brochure (Australian Government Department of Health, 2011). The participating nurses were again encouraged to ask questions during the lecture. This lecture focused on assessment and risk factor management for delirium in older patients with and without dementia, including the family caregiver (Appendix 10). In group discussion, the participating nurses were then encouraged to consider how they might deal differently with the same situations in future. One of the nurses in each group again took notes of discussions and verbally presented the group’s consideration of how care for older patients with dementia and at risk of delirium, including their family caregivers,
could be provided. Again, non-judgemental feedback from the facilitator and colleagues was provided. At the end of second workshop, ten minutes was given for the participating nurses to ask any further questions about CI care. The nurses were reminded of ongoing support sessions to be held in the next two months. The researcher was available for any questions raised by participating nurses. The nurses were encouraged to use the pocket-sized laminated card of the revised DSD algorithm (Fick & Mion, 2008) and delirium brochure (Australian Government Department of Health, 2011) to assist with their CI care in daily practice.

The ongoing support sessions took place in the meeting room of each general internal medicine ward in the second and third months. At the first follow-up session, in group discussions, the participating nurses were encouraged to reflect on how their new learning changed the ways in which they cared for older patients with CI. One of the nurses in each group verbally presented their discussion. Non-judgemental feedback from the facilitator and colleagues was given to each presentation. They were also given question and answer time to provide ongoing support and assistance on the use of the revised DSD algorithm (Fick & Mion, 2008) and delirium brochure (Australian Government Department of Health, 2011) while caring for older patients with dementia and at risk of delirium and their family caregivers. They were encouraged to apply their newly acquired knowledge to clinical situations and to continue their learning.

At the second ongoing session, in group discussions, the participating nurses were again encouraged to reflect on their experiences and whether they had applied their newly acquired knowledge to clinical situations. One nurse in each group took notes of the reflection and verbally presented the discussion to all participants, and feedback from the facilitator and colleagues was offered. The facilitator also provided question and answer time to support and assist the ongoing use of the revised DSD algorithm (Fick & Mion, 2008) and delirium brochure (Australian Government Department of Health, 2011) while caring for older patients with dementia and at risk of delirium and their family caregivers.

As a facilitator, the researcher conducted a total of four complete educational programs (from September, 2013 to November, 2013) with the same content, and 10 participants in each program.
The application of Knowles’ adult learning theory during implementation process. The implementation of the educational program was guided by Knowles’ following andragogical approach as described in Chapter 2:

- Self-concept: The participating nurses actively participated in the learning strategies of the educational program.
- Experience: The participating nurses shared their knowledge and experiences and learned from each other through the provision of case examples from their respective wards.
- Readiness to learn depends on need: The participating nurses through their questions for clarity showed that CI care was a new concept about which they were ready to learn.
- Problem-centred focus: The participating nurses learned the application of the new concept which is CI care in daily practice.
- Internal motivation: During the implementation process of the educational program, the participating nurses showed enthusiasm in learning CI care.
- Adults need to know why they need to learn something: The participating nurses demonstrated that the knowledge that they gained in the educational program on CI care would improve their nursing care.

Quantitative Instrument and Qualitative Interview Guide

Quantitative instrument

In this study, the quantitative instrument consists of questionnaires and documentation.

Questionnaires. The intent of a questionnaire is to collect knowledge, attitude, and characteristics of a given population. Creswell (2013) stated that a questionnaire design provides a quantitative method or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population. A good questionnaire keeps people interested, reduces respondent error, facilitates data entry and analysis, and is reliable and valid (Norwood, 2010). For this research design, the questionnaires were administered to South Korean nurses in the following sequence:

- Pre-questionnaire and demographic questionnaire: Immediately prior to the educational program.
- Post-questionnaire: Three months after the educational program.

A demographic questionnaire was administered once only during the pre-educational program time period and consisted of six questions about personal and professional characteristics, including age, gender, position, highest level of nursing
education, number of years of nursing experience, and formal education in gerontological nursing (Appendix 11). The following questionnaires were administered before and three months after the educational program. Case vignettes (Fick et al., 2007) and Facts on Aging Quizzes (FAQ) (Palmore, 1977) were selected for use with this study because these are tools recommended by delirium researchers and they were considered to be consistent with the research questions (McCrow, Beattie, Sullivan, & Fick, 2013; Obiekwe, 2001).

**Case vignettes (Fick et al., 2007).** Vignettes are short scenarios that describe a scene, such as a bedside interaction between nurse and patient, about which questions are related to clinical practice can be asked (McCrow et al., 2013). A priori decision about vignette content can be made, for example, to ensure that they depict patients with or without signs and symptoms of delirium or dementia (McCrow et al., 2013). Vignette content can be: (a) standardised so that the effect of the educational program on the same depicted clinical scenario can be examined across individuals; and (b) controlled, so that specific cues or information can be included and the effect of these factors on clinical skills or knowledge can be tested (McCrow et al., 2013). Where rare or difficult-to-research phenomena are being studied, vignettes can be used without needing to wait for specific presentations to occur (Luck & Peabody, 2002). In the case of delirium, this factor is important because delirium is a fluctuating disorder and capturing the desired scenario in real life may be time-intensive and costly. Furthermore, obtaining consent from adults with CI and/or their proxies may be difficult at times (McCrow et al., 2013). However, these issues can be addressed through the use of vignettes. It has been shown that when vignettes accurately portray the phenomena of interest, they perform close to the reference standard of real patients in terms of measuring responses and quality of care provided by health care professionals to specific clinical case scenarios (Peabody, Luck, Glassman, Dresselhaus, & Lee, 2000).

Case vignettes developed by Fick et al. (2007) depict five different hospitalised patients experiencing dementia, hypoactive delirium, hyperactive delirium, hyperactive DSD, and hypoactive DSD. The case vignettes focus on assessing nurses’ ability to identify different subtypes of delirium and DSD in a standardised format, as well as to gather qualitative data from the nurses related to how they would assess and manage delirium (Fick et al., 2007). For each vignette, the individual case symptoms and behaviours are presented, and respondents are asked to answer nine multiple choice and
open-ended questions related to the patients’ mental status, the type of change (i.e., acute or chronic), what was happening to the patient (i.e., diagnosis or recognition of delirium and/or dementia), whether or not they would call the physician to tell them about the behaviour, and whether or not they would call the physician to request a medication. Open-ended questions related to the cause of the patient symptoms, how they would manage the problem, and what if any medications they would administer for the problem are also provided (Fick et al., 2007).

Prior to use of the case vignettes, Fick et al. (2007) developed the vignettes using a literature review of motoric subtypes of delirium and the vignettes were reviewed by a geropsychiatrist. To assess feasibility (i.e., duration for completion and understandability of questions) and face validity, the vignettes were administered to four nurses (Fick et al., 2007). Face validity is a judgment by members of the target population that a research instrument appears to measure what they understand it is supposed to measure (Norwood, 2010). Face validity provides important information about whether the instrument would be understood and considered relevant by the population, which can affect response rate and risk of response-set bias (Norwood, 2010). To assess construct validity, the vignettes were reviewed by an expert panel of four physicians and nurses who were recognised experts in the field of delirium, internationally and in the United States (US) (Fick et al., 2007). Construct validity refers to the validity of inferences that measurement tools actually present or measure the construct being investigated (Polit & Beck, 2008). Fick et al. (2007) demonstrated good inter-rater reliability, with Cohen’s kappa scores of 0.69 and overall agreement of 84%. Cohen’s kappa has a range of 0.1–1.00, with larger values indicating better reliability and 0.40–0.75 is generally considered to show intermediate to good agreement (Landis & Koch, 1977).

The five case vignettes (Fick et al., 2007) were used in this study to measure participating nurses’ knowledge of CI. The researcher used eight of the original nine multiple choice and open-ended questions for each vignette (Fick et al., 2007). The current study was intended to evaluate the effect of an educational program on participating nurses’ knowledge of the recognition and management of different subtypes of delirium and DSD in a standardised format, so a question of the confusional state was not included. Furthermore, question 1, determining whether the participating nurse has previous experience of caring for the symptoms of dementia, hyperactive
delirium, hyperactive DSD, and hypoactive DSD, was used only at baseline (Fick et al., 2007). Two multiple-choice questions (questions 2 and 3) have correct and incorrect answers (Fick et al., 2007). Question 2 asks about the type of change (i.e., acute or chronic) and measured participating nurses’ ability to identify key features of delirium, as acute mental changes are correct answers in the delirium and DSD vignettes (Fick et al., 2007). Question 3 is related to recognition and measured participating nurses’ ability to recognise dementia, hyperactive delirium, hyperactive DSD, hypoactive delirium, and hypoactive DSD, respectively, in each vignette (Fick et al., 2007). The other two yes/no questions are related to the decision to call the physician for managing the symptoms of CI (question 4) and for medicating the symptoms of CI (question 5) and measured participating nurses’ changes. The open-ended questions (questions 6, 7, and 8) supported the multiple-choice questions by providing participants with an opportunity to provide in-depth responses (Appendix 12).

As two multiple-choice questions (i.e., acute onset and recognition of CI) have correct and incorrect answers, the researcher in this study decided to provide pre- and post-intervention overall scores of these two questions. The researcher first created a composite by combining the items of the five vignettes, yielding an index with a minimum score of 0 and a maximum score of 5 in each question. The total scores of the five vignettes in each question ranged from 5 to 0, with a higher score indicating greater knowledge of the key features of delirium and/or recognition of CI. To examine differences in pre- and post-intervention mean scores on knowledge of the key features of delirium and recognition of CI respectively, the total scores in each question were also considered as interval data.

Prior to using the five case vignettes, permission was granted by the authors (Fick et al., 2007). The researcher in this study believed that the five case vignettes could adequately measure the attributes or phenomenon of interest and had a good construct validity (Fick et al., 2007). The quality of translation and validation of any translated instrument play a significant role in ensuring that the results obtained in research are not due to errors in translation (Maneesriwongul & Dixon, 2004), but rather are due to real changes between pre-and post-intervention. The back-translation procedure was used in this study to verify translation of the five case vignettes (Brislin, Lonner, & Thorndike, 1973). These five case vignettes (Fick et al., 2007) were translated into Korean by the researcher. The translated instrument was reviewed by a
bilingual South Korean professor with a gerontological nursing background. Based on her feedback, five rewordings were made in light of the Korean language. Another bilingual South Korean nursing professor was appointed to carry out back-translation of the five case vignettes (Fick et al., 2007). No significant discrepancies between the original English version and the back-translation version were determined by agreement between the researcher and the bilingual South Korean nursing professor who carried out back-translation.

Although back-translation is the most highly recommended by experts for translation in cross-cultural research (Brislin, 1970; Chapman & Carter, 1979; Werner & Campbell, 1970), Maneesriwongul and Dixon (2004) recommend monolingual testing, along with back-translation, in order to apply an instrument developed in another language. After confirming equivalence of the Korean and English case vignettes (Fick et al., 2007), the Korean version was pilot-tested by a convenience sample of six South Korean fourth-year undergraduate nursing students at one private university who had completed the subject and clinical placement of gerontological nursing. The pilot was conducted in July 2013. The nursing students were encouraged to give feedback to the researcher about the clarity of wording and any difficulties with the five case vignettes (Fick et al., 2007). The general feedback from these students was positive. They found the layout and length of the five case vignettes (Fick et al., 2007) acceptable. The five case vignettes (Fick et al., 2007) took approximately 30 minutes to complete. Four students found that it was difficult to immerse themselves in each vignette due to Western patient names. The researcher changed patient names in each vignette to common South Korean names (Appendix 12). This pilot test, along with back-translation, could validate the concept measured and any issues regarding wording of the case vignettes in this study. However, the case vignettes are brief and thus, certain psychometric measures such as test-retest reliability are not possible (Ferrell & McCaffery, 1998).

**Facts on Aging Quizzes (FAQ; Palmore, 1977).** The FAQ (Palmore, 1977) was used in this study to measure participants’ attitude toward older adults (i.e., negative and positive ageing bias). This instrument is comprised of 25 items with possible answers of “true” or “false” (Palmore, 1977). The FAQ was originally intended to help stimulate discussion about and reflection on misconceptions about ageing, but it has since been used to assess knowledge and bias toward older adults in a variety of settings (Palmore,
1988). The quiz is short, designed to cover the basic physical, mental and social facts about ageing, and has been tested for validity and reliability internationally (Palmore, 1998). Palmore (1977, 1981) classified 16 items as indicating a negative bias toward older adults if answered incorrectly and five items indicating a positive bias if answered incorrectly. The remaining four items were considered bias-neutral. An example of a negative bias item is “The majority of older people feel miserable most of the time”, because this statement is false. An example of a positive ageing bias item is “Lung capacity tends to decline in older age”, because this statement is true. Using these items, three measures of bias were calculated. The pro-aged bias score is the percentage of positive items marked incorrectly. The anti-aged bias scores is the percentage of negative items marked incorrectly. The net bias score is the pro-aged bias scores minus the anti-aged bias scores. This score reflects how positively or negatively older adults are perceived (Palmore, 1998). The possible range of scores is -1 to 1, with 0 indicating a neutral ageing bias. To examine differences in pre- and post-intervention mean scores on attitude, the scores of positive, negative, and net bias were considered as interval data. Furthermore, to examine pre-post change in the number of participants, the pre- and post-intervention mean scores of net bias were also considered as dichotomous variables.

For this study, Palmore (1977) provided permission for the use of the original version of the FAQ. Permission to use the Korean version was granted by the authors (Suh, Choi, Lee, Cha, & Jo, 2012) (Appendix 13). The FAQ has demonstrated good internal reliability, with Cronbach’s alpha scores ranging from 0.68 (Harris, Changas, & Palmore, 1996) to 0.83 (Pennington, Pachana, & Coyle, 2001). The Cronbach’s alpha of the Korean version has been also reported as 0.66 (Suh et al., 2012). In this study, the Cronbach’s alpha of the FAQ (Palmore, 1977) were 0.59 for the pre-intervention and 0.64 for the post-intervention. Internal consistency (i.e., Cronbach’s alpha) refers to the degree of homogeneity of items measuring the same dimension (Polit & Beck, 2008). To assess reliability, a Cronbach’s alpha equal to or greater than 0.70 is considered adequate (Polit & Beck, 2008).

**Documentation.** Existing documents can be used in a variety of ways as a data source for addressing research questions. As an example, patient records can provide information about quantitative variables such as vital signs, pain ratings, frequency of call light use, and so on (Norwood, 2010). An advantage of using documents in research
is that they are usually an inexpensive, unobtrusive, and easy-to-access means of data collection (Norwood, 2010). There are also ways in which documents such as patient records can be stripped of any identifying information before they are reviewed, thus rendering them anonymous as a source of data (Norwood, 2010). However, the limitation associated with using records is the quality of the data they contain. Entries can be illegible. Records are also prone to problems in terms of selective recording of information and retrieval. That is, sometimes, episodes or elements of care or another phenomenon are simply not documented. When this is the case, study findings could inadvertently under-present aspects of the phenomenon being investigated (Norwood, 2010). To determine whether an improvement in participants’ knowledge and attitude translated into documentation of CI care, nursing documentation was audited in the following sequence:

- Baseline audit: Two months prior to the educational program.
- Follow-up audit: Two months after the educational program.

Auditing data collection can be a laborious process. Carelessness secondary to researcher fatigue as well as the monotony of the task can lead to errors (Norwood, 2010). To guard against this, any type of documentation review should be guided by a structured review form. A data collection form usually includes instruction about where to look for the required information in the documentation, the specific information being sought, and how to record it (Norwood, 2010). In this study, the researcher developed the chart audit tool based on the literature review. This chart audit tool was reviewed through depth discussion with research supervisors for content validity (Appendix 14). This tool included assessing documentation of the patient characteristics, cognitive assessment outcomes, management, and comprehensiveness of reporting the CI care. Patient records were assessed to capture demographic details including age, gender, living situation (home or institution), reason for admission to hospital, and dementia diagnosis documented.

**Keywords associated with delirium (Inouye et al., 2005).** Ten keywords associated with symptoms and signs of delirium identified in the literature (Inouye et al., 2005) were used to describe the frequency of the cognitive assessment outcome documented by participants. Inouye et al. (2005) previously validated these 10 keywords in a chart-based review for delirium identification. Inouye et al. (2005) also demonstrated
reasonable sensitivity and specificity of the 10 keywords used for delirium identification, when compared with CAM (Inouye et al., 1990) ratings.

**Management.** Actions following the documentation of keywords associated with delirium (Inouye et al., 2005) were measured to describe the frequency of management documented by participating nurses. Actions could include pharmacological intervention, physical restraint use, non-pharmacological intervention, or follow-up assessment (Fick & Mion, 2008).

**Comprehensiveness of nursing documentation (CND) (Ehnfors & Smedby, 1993).** Ehnfors and Smedby (1993) developed the comprehensiveness of nursing documentation audit tool based on Swedish regulations for nursing documentation. Notes on the process of CI care were scored on a 5-point scale, with scoring based on the following criteria:

- Score 1. The problem is described or interventions planned or implemented.
- Score 2. The problem is described and interventions planned or implemented.
- Score 3. The problem is described and interventions planned or implemented and nursing outcome is recorded.
- Score 4. The problem is described and interventions planned and implemented and nursing outcome is recorded.
- Score 5. All aspects of the nursing process are recorded. Good description of the problem and recording of the relevance for nursing.

In this study, this tool (Ehnfors & Smedby, 1993) was used to assess documentation for the comprehensiveness of reporting CI care. A score of 5 indicates optimal comprehensiveness, covering the entire nursing process. A score of 3 is considered to be the minimum score for satisfactory documentation, encompassing problem description, intervention, and outcome. Ehnfors and Smedby (1993) reported Cohen’s kappa of 0.65 of the comprehensiveness of nursing documentation, which is interpreted as good-to-excellent inter-rater reliability (Landis & Koch, 1977).

**Qualitative interview guide**

A pragmatic, exploratory approach situated in the interpretive paradigm guided the qualitative component of this study (Boeije, 2010; Ritchie, 2006). The interpretive
paradigm is concerned with understanding the experiences of individuals and supports the view that there are many truths and multiple realities (De Vaus, 2002).

An interview guide was used in this study to guide discussion, which allowed the researcher to ask open-ended questions. Qualitative questions were developed to elicit responses that addressed the quantitative results, and these were reviewed through in-depth discussion with research supervisors to elicit responses that addressed the quantitative results.

**Qualitative interviews.** The semi-structured interview approach was selected because it stimulates a positive exchange between the researcher (i.e., interviewer) and participants (i.e., informant) and can empower those involved to provide their own interpretations and meanings of the issue under discussion (de Laine, 1997). The intent of the semi-structured interview was to administer the same question in a precise manner to selected individuals, offering each individual the same set of possible responses (Creswell, 2008). Furthermore, face-to-face interviews were used in this study to enable a rapport to develop more quickly than over the telephone. It also allowed simultaneous observation and recording of non-verbal behaviour and contextual factors that could provide additional information or assist with interpreting an informant’s responses (Boeije, 2010; Norwood, 2010; Polit & Beck, 2008).

In the follow-up phase of this study, qualitative data was collected from face-to-face, semi-structured interviews with individuals. Semi-structured interviews are a powerful data collection strategy, but the drawbacks associated with the method need to be acknowledged and addressed (Teddlie & Tashakkori, 2009). The quality of interview findings are substantially related to the role and proficiency of the researcher conducting the interviews (Polit & Beck, 2008; Ritchie, 2006). The researcher followed the strategies suggested by Creswell (2012) to ensure that the interview findings were of a high quality. The researcher had adequate recording equipment available, conducted interviews in a location free of distractions, obtained consent from each participant, explained the interview protocol at the beginning of the interview, thanked the participants for their voluntary participation, and emphasised the value their responses may have on the evaluation of the educational intervention. To maintain the trustworthiness of the data, the researcher completed each interview within the time specified, was respectful and courteous, offered little advice, was a good listener, and took notes on the interview guide in case the recording device failed (Creswell, 2012).
The researcher adhered to the interview guide (Appendix 15, 16) as much as possible during each interview and was careful to minimise the degree to which participants may have been led towards a particular response. Interview questions were semi-structured to ensure the same questions were asked of each participant, although flexibility did occur in the order of the questions, the pace, and additional probes. When doing so, the researcher utilised ‘neutral’ probing. This is described by Polit and Beck (2008) as probes that are less likely to influence the content of the participant’s response; examples include ‘how do you feel about that?’, ‘can you tell me more?’ and ‘why do you think that?’.

Data Collection Methods and Procedures

This study was conducted between July 2013 and March 2014. Creswell and Plano Clark (2011, p. 186) posited that using the same participants in both the quantitative and qualitative phases of the research provides more consistency and is the best way to “explain the phenomenon of interest”. The first part of this study focused on the collection of quantitative questionnaires and documentation audit data from participating nurses and older patients regarding their characteristics, knowledge of CI, attitude toward older adults, and documentation of CI care. The questionnaires were administered at baseline and three months after the educational program. Nursing documentation of CI care was audited two months before and after the educational program.

The second part focused on the collection of qualitative data from individual interviews of selected nurse and family caregiver participants. The results of the first quantitative phase facilitated the second phase because it allowed the researcher to identify participants who would provide additional insight into their perceptions of the educational intervention and nurse-initiated efforts to involve family caregivers in care of their older family members with CI.

The third phase was an integration of both the quantitative and qualitative data results. Data generated from the qualitative analysis of small individual interviews explained and added insight into the quantitative questionnaire and documentation audit results.
**Quantitative data collection procedures.** Questionnaires and documentation were used for quantitative data collection. This section explains questionnaire and documentation data collection procedures.

**Questionnaire data collection procedure.** Questionnaire data were collected at baseline (July 2013) and post-intervention (February 2014) to evaluate whether the educational program improved participating nurses’ knowledge of CI and attitude toward older adults.

Baseline questionnaire packets were administered to participating nurses following the signing of informed consent. The questionnaire packets included instructions on completing the instruments, five case vignettes (Fick et al., 2007), FAQ (Palmore, 1977), and a unique-identifier-numbered return envelope. The demographic questionnaire was included only in the baseline questionnaire packet. Participants were instructed to keep the unique identifier with them and write their signature on the unique-identifier-numbered return envelope. For a period of one week, questionnaire data was collected by the researcher or at a time convenient to participants under indirect supervision by each general medical ward manager. Supervised administration is efficient and associated with a high response rate. All participants received the same instructions and had the opportunity to have instructions and questionnaire items clarified and explained if not understood (Norwood, 2010). Depending on the questionnaire’s content, participants may be concerned about the privacy of their responses and therefore distort their responses so that they are more socially acceptable (Norwood, 2010). In this study, in order to assure anonymity of responses, the researcher left the room while the questionnaires were being completed and provided participants with an envelope in which to place their completed questionnaire. The envelope containing completed questionnaires was placed in a secure, pre-arranged location at each general internal medicine ward manager’s office for the researcher to collect at a later time.

Following the educational program (September 2013 to November 2013), a post-intervention questionnaire data was collected in the same way as the baseline method. Each participant’s identity remained confidential, known only to the researcher. The unique identifier assigned to each participant allowed the researcher to track and compare data between the questionnaire from baseline and post-intervention. It also allowed the researcher to interview participants based on questionnaire data.
**Documentation data collection procedure.** Documentation data were collected during a 2-month period at baseline (July–August 2013) and pre-intervention (December 2013–January 2014). Reliability and validity issues were addressed by utilising a precise chart audit tool. This chart audit tool provided consistent unbiased assessment of documentation of CI care. This assured that the variables assessed were consistent for each subject, increasing internal validity by decreasing assessment errors.

The researcher extracted data from a number of sections of the paper-based patient records. These sections included *Nursing History at Admission, Medication Administration Records, Nursing Progress Notes,* and *Nursing Care Plans.* With a list of participants’ signatures, the researcher reviewed nursing documentation by using the chart audit tool. Paper-based records of each older patient who met the inclusion criteria were independently reviewed by the two auditors until one quarter of older patient records (i.e., 15 of 60) was assessed. The nursing documentation review took 30 to 45 minutes per older patient. The researcher and one research assistant discussed the rationale behind each classification to ensure consensus at each of the audit days. The rest of the records were assessed by the researcher alone. The research assistant was an RN who has a Masters degree and had clinical experience caring for older patients with CI. The reason for having the second independent auditor was to control for researcher bias and ensure reliability for analysis. This RN auditor had no association with this study other than for this purpose. She was educated about the audit methods specific to Research Question 3. An initial inter-rater agreement of between 90% and 100% was planned to be attained and disagreement resolved with discussion (Polit & Beck, 2008). No identifying patient information was shared with the research assistant at any time. The percentage of absolute agreement was used by calculating the number of times raters agreed on a rating and then dividing by the total number of ratings. This measure can vary between 0% and 100% (Hartmann, 1977; Stemler, 2004). An agreement of 75% was achieved in this study. This demonstrates an acceptable level of agreement as suggested by various experts (Hartmann, 1977; Stemler, 2004). Values from 75% to 90% indicate a satisfactory level of agreement when using percentage of absolute agreement (Hartmann, 1977; Stemler, 2004).

Following the educational program, a post-intervention nursing documentation review was undertaken in the same way as the baseline audit.
Qualitative data collection procedure. Semi-structured interviews were conducted in February and March 2014 with a selected subgroup of South Korean nurses and with selected family caregivers following the completion of the first phase of the study. The data generated were used to support and extend the findings derived from the analysis of the quantitative aspect of the study. The interview data provided an in-depth understanding of the South Korean nurses’ experiences of the educational intervention and of the family caregivers’ experiences of being involved in care of their older family members with CI. The qualitative sample was selected after the quantitative data was analysed. Once the qualitative sample was identified through purposeful and nominated sampling techniques, the same qualitative question guide was used in each individual interview. This procedure is described in more detail in the qualitative sample recruitment section (See page 81).

Each individual met with the researcher in the offices of the four general internal medicine ward managers and private conference room arranged with the assistance of the four general internal medicine ward managers. The location of the interviews allowed convenience for the participants with the option of interviews being conducted prior to or just following work shifts. The offices and arranged conference room provided a quiet, appropriate environment with adequate lighting, table, chairs, and limited interruptions and disturbances. The conference rooms were reserved under the researcher’s name only, maintaining participants’ confidentiality.

At the beginning of each interview, the interview guide was explained and each interviewee was provided a consent form to sign and date (Appendix 5). An audio recording device was present, and this was explained to each interviewee following verification of a signed informed consent. No participant objected to having the interview recorded. All interviews were recorded for accuracy of transcription. Strict individual confidentiality was followed, each interviewee was assured that the researcher would be the only one reviewing the tapes and each piece of recorded data would be locked securely in the researcher’s office after it was reviewed. Each interviewee was asked if she understood the guide and if there were any additional questions. Once any questions were answered, the researcher began the interview. All interviews lasted from 30 minutes to one hour. Interviews were conducted in Korean by the researcher, because all participants could speak only Korean. At the end of each interview, the researcher summarised the content to ensure that the participant’s
perspective was correctly understood. Any identifying information received during the interview process (i.e., names and telephone numbers) was not transcribed and was erased and destroyed. The transcripts were read several times while listening to the audio recordings, which helped to ensure reliability of the transcripts (Polit & Beck, 2008).

Data Analysis

Analysis of the pre and post-intervention. Data from the participants’ written questionnaires (i.e., case vignettes and FAQ) and documentation audited were entered into the statistical software program Statistical Package for Social Science (SPSS), version 21.0. Strict care was taken when entering the data, and all data were double checked after the data entry.

Raw data were cleaned and checked for consistency and accuracy by visually checking all of the data and by running simple descriptive analyses for each variable (Field, 2009). In this study, no missing values were found. Before analysis, the Cronbach’s alpha of the FAQ was computed and verified for the pre- and post-intervention. Several types of statistical analyses were performed to determine the relationship between the variables. First, normal distribution was tested. Descriptive statistics summarised and described the data by employing the techniques of frequency, mean (M), standard deviation (SD) or range, in order to gather the average of the sample characteristics, to examine the accuracy of the data set, and to adjust the data to meet the requirements of inferential statistics (Field, 2009).

Univariate and bivariate analyses were performed. The assumptions underlying the statistical methods were checked before statistical analyses were conducted. Statistical significance was reported at the conventional p-value of equal to or less than 0.05 (two-tailed). The analytical approaches used in this study are discussed further, based on the research questions and hypotheses defined.

Questionnaires. Univariate and bivariate analyses were performed for demographic questionnaire, case vignettes, and FAQ.

Univariate analysis. Descriptive analyses were used to examine demographic variables. The mean and standard deviation for continuous variables (i.e., age) and frequencies for categorical and dichotomous variables (i.e., gender, history of having formal education
on geriatric care, position, educational level, and primary type of current ward) were calculated.

Each case vignette has two open-ended questions about the cause and management of the patient symptoms. A quasi-statistical analysis with manifest content analysis was used for the open-ended data, where word and phrase frequencies were summarised to determine the relative importance of the terms and concepts (Polit & Beck, 2008). Manifest content analysis was first conducted to describe themes that arose from the occurrence of specific words or phrases, as distinguished from latent content analysis (Norwood, 2010). Latent content analysis refers to themes identified from the meaning behind words and phrases (Norwood, 2010). In this study, the theme identification process is described in more detail in the qualitative content analysis section (See page 129). The frequency of the themes that occurred in response to each open-ended question was examined (Norwood, 2010). In each vignette the themes to the open-ended question of cause indicated correct or incorrect answers. The theme indicative of incorrect response was only included if themes indicative of both correct and incorrect responses were identified. For example, the theme ageing indicative of incorrect response of ageing was only included if the themes ageing and delirium were identified as causes for the hypoactive delirium vignette. In each vignette the open-ended question of management focused on how participants would manage the problem so that all identified themes were included. As more than one response to the open-ended question of management was given, the sum of the frequencies within this question was greater than the sample size of 40 participants.

**Hypothesis testing.** The two hypotheses were tested with the following method: the Wilcoxon signed-rank tests were undertaken to examine the differences between the pre- and post-intervention mean scores for the outcome variables (i.e., case vignettes of acute onset and recognition of CI and FAQ of positive, negative, and net ageing bias) due to violations of the assumptions for normality. In this study, the sample size was less than 50 (Elliott & Woodward, 2007) and thus, the Shapiro-Wilk test, a highly recommended normality test (Ghasemi & Zahediasl, 2012), was calculated and indicated non-normal distribution.

In addition, the McNemar tests were undertaken to examine pre-post change in the number of participants for dichotomous variables (i.e., each vignette of acute onset, recognition, causes, decision to call the on-call physician for management and
medication, and FAQ of net ageing bias). As categorical variables of recognition and cause have correct and incorrect answers, these two variables were converted into dichotomous variables (i.e., correct and incorrect). The main assumption of the McNemar test is that the data come from two samples that are matched. The McNemar test is a non-parametric test, and so does not require the data to be not normally distributed (Field, 2009).

**Documentation.** Univariate and bivariate analyses were performed for nursing documentation.

**Univariate analysis.** Descriptive analyses were used for pre- and post-intervention participant demographic variables. The mean and standard deviation for continuous variables (i.e., age) and frequencies for categorical and dichotomous variables (i.e., gender, pre-existing dementia, living status, and reason for admission) were calculated.

**Homogeneity between pre-and post-intervention groups.** Chi-square analyses were used to test the differences between the pre- and post-intervention groups with the following dichotomous or categorical variables: gender, pre-existing dementia, living status, and reason for admission. The assumptions underlying chi-square analysis were: a) each subject may contribute only one response to the contingency table, and b) the number of responses obtained should be large enough so that no expected frequency is less than 10 in a 2×2 contingency table or less than 5 in a contingency table larger than 2×2. If these conditions were not met, then an alternative such as the Fisher exact test was used (Field, 2009).

The *t* test was used to test the difference between the pre- and post-intervention groups when the variables were continuous data in nature (i.e., age). The assumptions underlying *t* test analysis were: a) independency of observation; b) dependent variables were normally distributed; and c) equal variance (Field, 2009). If the significance for this test was equal to or less than 0.05 (*p* < 0.05), there was a significance difference between the pre-and post-intervention groups of age. In addition, if the variable in *t* test analysis indicated a significant unequal variance (Levene’s test for equality of variable, *p* < 0.05), the result for the ‘equal variance not assumed’ was reported to reach the validity of the test (Field, 2009).

**Hypothesis testing.** The three specific hypotheses were tested with the following method: the chi-square tests were used to examine the differences between the pre- and
post-intervention with the variables of cognitive assessment outcome and management. If the assumptions underlying chi-square analysis were not met, then an alternative of Fisher’s exact test was used to improve the validity of the result.

The Wilcoxon signed-rank test was undertaken to examine the difference in the pre-and post-intervention mean scores of documentation for the comprehensiveness of reporting CI care due to violations of the assumptions for normality. In this study, the sample size was less than 50 (Elliott & Woodward, 2007) so the recommended Shapiro-Wilk tests (Ghasemi & Zahediasl, 2012) were calculated and indicated non-normal distribution.

**Qualitative content analysis.** An inductive content analysis technique (Norwood, 2010) was employed. Content analysis is the process of analysing narrative data for the purpose of identifying prominent themes, as well as relationships or patterns among themes (Norwood, 2010). Such a qualitative analysis technique enables researchers to organise, describe, and interpret the data set in rich detail relevant to the research topic (Norwood, 2010). Content analysis focuses on the recurring ‘themes’ within the data. A theme is thoroughly defined as an abstract entity that brings meaning and identity to a current experience and its variant manifestations (Polit & Beck, 2008). As such, a theme captures and unifies the nature or basis of the experience into a meaningful whole (Polit & Beck, 2008).

In content analysis, the themes within data can be identified in one of two primary ways: inductively and deductively (Norwood, 2010). Inductive content analysis identifies themes that are strongly linked to the data themselves (Norwood, 2010). In contrast, deductive content analysis is driven by the researcher’s theoretical or analytical interest area, meaning that the themes identified are based on whether the topic captures something important to the overall research framework (Norwood, 2010). The inductive content analysis is recommended when there are no previous studies dealing with the phenomenon or when knowledge is fragmented (Elo & Kyngäs, 2008). Given that few South Korean studies have previously examined participants’ perceptions of the educational intervention, the researcher used an inductive process to work from the words of each of the participant’s responses to identify themes related to their perceptions of the educational intervention.
In this study, the qualitative content analysis followed the approach recommended by Norwood (2010), which focuses on the meanings, coding of data, and identification of themes and sub-themes. The above structure allowed the researcher some clarity on the research process. Norwood’s four steps for data analysis are described as follows:

Step 1 (Data preparation): Interview tapes were transcribed verbatim in Korean by the researcher. The transcripts were structured in a word processing program with each sentence placed on a separate line in order to assist with sorting and coding.

Step 2 (Data familiarisation): The researcher became familiar with the data by reading and re-reading over the interview transcripts. Answering a question of “What is going on here?” was facilitated by adding remarks to the transcripts about thoughts, insights, and reactions that came to mind while reading them. During this process, the researcher made initial notes about possible relationships in the data. The researcher also made some initial attempts to reduce the volume of data that needed to be analysed by highlighting relevant passages of the transcripts.

The use of questions, such as “What is this?”, “What does this stand for?” and “What is this distinct from?” helped identify themes (Norwood, 2010). A theme is a recurring regularity that emerges from the analysis of qualitative data; it represents a particular category of a behaviour, process, or an affective or cognitive response to a phenomenon (Norwood, 2010). Latent content analysis was used to identify themes from the meaning behind words and phrases (i.e., reading between the lines) (Norwood, 2010). Inductive analysis was also involved in formulating themes on a case-by-case basis and then performing cross-case analysis to describe what is seen across all of the cases (Norwood, 2010). Themes were labelled with indigenous concepts. Indigenous concepts are keywords or phrases that are used by the informants and capture the essence of the content represented by a theme (Norwood, 2010).

The researcher developed a category scheme that represented a protocol for proceeding with a more systematic data analysis process (Norwood, 2010). Each theme constituted a category and is described in terms of clearly defined inclusion and exclusion criteria (Norwood, 2010). The category scheme was modified as the researcher became increasingly familiar with the data. Thus, categories were combined, re-defined, or re-named in this process (Norwood, 2010).
Step 3 (Searching for themes and patterns): The researcher began the data coding process following the developed category scheme to search for themes and patterns. This involved systematically reading and re-reading the data, identifying keywords and phrases, and linking them to a category or theme by applying a code (Norwood, 2010). The researcher used numbers as the codes for different categories because a single word or phrase could be assigned several numbers. It is important to identify specific instances of a response or experience which represent a distinct theme or a variation of a theme (Norwood, 2010). To identify variations and patterns, the use of questions such as “In what context does the variation occur?” and “Under what conditions does the variation occur?” helped identify patterns (Swanson, 1986). A pattern refers to an apparent relationship between a situational factor or informant characteristics and variation in a theme (Norwood, 2010). The themes were refined as the analysis process progressed through in-depth discussions with research supervisors about the raw interview data and the emerging themes until distinct themes emerged. Following are some examples of phrases from the qualitative learning outcomes of the educational program that were coded and the code used:

Code 1: Enhancement of Knowledge
Knowing differential diagnoses between delirium and dementia.
Gaining more knowledge of CI.
Needing to screen on admission and ongoing particularly dementia diagnosis for delirium risk factors.
Family caregivers playing a significant role in their patients’ baseline mental status assessment.

Code 2: Change of Attitude
Reminding that nurses should provide holistic care.
Helping clarify this misconception (e.g., confusion is a normal ageing process or from dementia).

Each code was applied to phrases that seemed to be speaking to the same issue or appeared to have a common theme.

Step 4 (Interpreting and attaching meaning): The final step involved reporting the themes, along with extract examples from the data, to provide a concise, coherent, logical, non-repetitive, and interesting account of the story told by the data (Braun &
Clarke, 2006). Quotations to support findings were chosen with the agreement of all research supervisors and translated to English for inclusion. The result from the final qualitative thematic analysis are reported in Chapter 4.

Validity within the context of qualitative data refers to the extent to which the research findings represent reality and are not contrived or modified by the researcher’s actions or presence (Huberman & Miles, 2002). Sensitive interviewing and ensuring that preconceived ideas or expectations about the construct examined by the research supervisors helped to address this issue.

Reliability within this context is concerned with the consistency and accuracy of the data. Audio-taping of the interviewed ensured a complete and accurate account of a participant’s response, thereby increasing the data reliability by reducing the risk of selective data-filtering by the researcher through recall or summation (Richards & Morse, 2012). Close collaboration between the researcher and the research supervisors occurred at all stages of the research analysis process, which ensured consistency and agreement in the coding of the data, themes and sub-themes.

Ethical Considerations

This study was conducted with reference to the ‘Griffith University Code for the Responsible Conduct of Research’. This describes the attributes of responsible research practice and sets the standards expected of the University and researchers (Griffith University, 2012). In recruiting people to research studies, consideration needs to be given to the risks and benefits associated with participation, and this is particularly pertinent in conducting research with people with CI (Holland & Kydd, 2015; Sherratt, Soteriou, & Evans, 2007). The key considerations related to the potential for harm, and relevant issues of confidentiality, privacy, anonymity, and informed consent (Commonwealth of Australia, 2014).

Risks associated with participation. The only possible risk to participants involved in this study was that it might increase participating nurses’ workload. The ethical implications of the study were explained to potential participants, particularly informing them that participation in the educational intervention was designed to improve their knowledge of CI, attitude toward older adults, and efforts to involve family caregivers in CI care.
Voluntary participation and informed consent. All prospective participants (i.e., nurses, older patients, and family caregivers) were invited to participate in this study. An information seminar or an individual meeting was arranged, with information sheets presented individually to each person (Appendix 2). Detailed information concerning the ongoing process of the study and its benefits or potential risks was clearly explained to the potential participants before seeking their participation. Their questions or concerns regarding the study were also answered during the information seminar or individual meeting. All participants were assured that participation and non-participation in this study would not impact on their condition of employment for nurses or their access to quality health care services for patients and family caregivers.

Anonymity and confidentiality. According to the ethical considerations of anonymity and confidentiality, full assurances were provided to all participants (i.e., nurses, older patients, and family caregivers) that all information collected was confidential and would not be disclosed to anyone other than the researcher. In other words, all participants were informed that no personal data would be requested that could identify them. Each questionnaire was identified by unique identifier number only. All information provided by nurses, older patients, and family caregivers was strictly confidential, and no information about this research was published in any form that would allow any individual to be recognised during the study period. Furthermore, the documentation of all data were to be stored in a locked filing cabinet for five years and then all data would be erased and destroyed to conform to research best practice.

Ethical approvals. At the time of the study development, the study hospital in Jeju Si, Self-Governing Province, South Korea did not have an ethics approval board. However, the researcher obtained approval from the hospital director to conduct the research. Following the permission from the study hospital, ethics approval was granted by Griffith University HREC for this study (Appendix 17).

Conclusion

This chapter described the mixed methods sequential explanatory design used to evaluate whether an education program improved participating nurses’ knowledge, attitude, documentation, and efforts to involve family caregivers in CI care of their older family members. A specific CI care education program was developed based on the literature review, the revised DSD algorithm (Fick & Mion, 2008) and delirium brochure (Australian Government Department of Health, 2011), and the intervention
was situated within the framework of Knowles’ adult learning theory (1980). Key informants (i.e., four general internal medicine ward managers) reviewed and refined the proposed education program for this study. Following review, the education program was implemented for three months.

In the first part of the single group, pre- and post-intervention design study, quantitative data assessed participating nurses’ knowledge of CI and their attitudes toward older adults at baseline and post-intervention as outcomes of the education program. To determine whether an improvement in their knowledge and attitude translates into documentation of CI care, a 2-month nursing documentation audit was undertaken at baseline and post-intervention.

In the follow-up qualitative component of the study, face-to-face semi-structured interviews were conducted with a selected subsample of participating nurses and with selected family caregivers. The intent of the individual interview was to provide in-depth understandings of participating nurses’ experiences of the education program and participating nurses’ and family caregivers’ experiences of nurse-initiated efforts to involve family caregivers in CI care.

The findings from the analysis of the quantitative and qualitative data are presented in Chapter 4 and Chapter 5, respectively.
CHAPTER FOUR
PRE AND POST-INTERVENTION QUANTITATIVE FINDINGS

Introduction

The study research design and methodology were detailed in the previous chapter. In this chapter the findings from the quantitative component of the study are presented, commencing with the personal and professional characteristics of the South Korean nurse sample. The pre and post-intervention Wilcoxon signed-rank, McNemar, and Chi-square test results are presented according to the study hypotheses. Data from the key outcome variables are presented and compared between pre-and post-intervention.

South Korean Nurse Sample

The 40 female registered nurses (RNs) who participated in the educational program were aged between 25 and 54 years (M = 36, SD = 8.9). The majority of participants (n = 35) were involved in direct patient care, with a mean work experience of 11.7 years (SD = 6.7). In this study, gerontological nursing education refers to any gerontological education, either undergraduate or continuing (and/or in-service) education. More than half the participants (n = 25) reported that they studied content related to older people with and without cognitive impairment (CI) in medical-surgical or mental health nursing subjects in their undergraduate programs. Four participants reported that they did not have any formal education on gerontological nursing. Table 4.1 provides additional information about the sample.
Table 4.1 Personal and Professional Characteristics of Participating Nurses

<table>
<thead>
<tr>
<th>Variable</th>
<th>M (SD)</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>36.0 (8.9)</td>
<td>25.0</td>
<td>54.0</td>
</tr>
<tr>
<td>Nursing experience (years)</td>
<td>11.7 (6.7)</td>
<td>1.0</td>
<td>26.0</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work unit/specialty</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neurology ward</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiratory ward</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed specialty ward (1)</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed specialty ward (2)</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing position title</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registered general nurse</td>
<td>35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charge nurse</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurse manager</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-year Associate degree</td>
<td>27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-year Bachelor degree</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master degree</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal education in gerontological nursing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuous (and/or in-service)</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Work unit and nursing position title used only at the study hospital site

The following section presents the findings related to hypotheses 1, 2, and 3.

Hypothesis 1

*South Korean nurses’ knowledge of CI will be improved following participation in a specially designed educational program.*

Prior to participating in the educational program, all participants (n = 40) reported that they had experience in caring for older patients with the symptoms of dementia, hyperactive delirium, and hyperactive delirium superimposed on dementia (DSD). Three quarters of the participants (n = 30) also had experience caring for older patients with the symptoms of hypoactive delirium and hypoactive DSD.

To test Hypothesis 1, participants’ responses to the five vignettes pre- and post-intervention were compared. Each vignette included assessing participants’ understanding of: the key feature of delirium as being of acute onset; recognition of CI; causes of CI; management of CI; decision to call the on-call physician for managing the symptoms of CI; and, consideration given to calling the on-call physician for medicating the symptoms of CI.

**Acute onset: Key feature of delirium.** The Wilcoxon signed-rank test was conducted to examine the differences in the pre- and post-intervention mean acute onset scores. There was a statistically significant difference between pre- and post-intervention mean acute onset scores ($Z = -4.731, p = 0.000$) (Table 4.2). The mean scores of acute onset were
significantly improved following participation in the educational program designed for the study.

Table 4.2
Comparison of Mean Acute Onset Scores between Pre-and Post-Intervention

<table>
<thead>
<tr>
<th>Knowledge of CI</th>
<th>Pre-intervention (M, SD)</th>
<th>Post-intervention (M, SD)</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute onset</td>
<td>3.62 (0.80)</td>
<td>4.67 (0.52)</td>
<td>-4.731</td>
<td>0.000*</td>
</tr>
</tbody>
</table>

Note: Maximum Score = 5; * Significant outcome p = < 0.05

In addition, the McNemar test was conducted to examine pre-post changes in the number of participants who correctly answered acute onset as the key feature of delirium (except in the hyperactive delirium vignette). In the hyperactive delirium vignette, both variables had the same values (n = 40). There were statistically significant changes for dementia, hypoactive delirium and hypoactive DSD vignettes (all p < 0.05) (Table 4.3). There were significant increases in the number of participants who correctly answered acute onset as the key feature of delirium for dementia, hypoactive delirium and hypoactive DSD vignettes following participation in the educational program.

Table 4.3
Comparison of the Number of Correct Responses on Acute Onset as Key Feature of Delirium between Pre and Post-Intervention

<table>
<thead>
<tr>
<th>Vignette</th>
<th>Pre-intervention (N)</th>
<th>Post-intervention (N)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dementia</td>
<td>19</td>
<td>39</td>
<td>0.000*</td>
</tr>
<tr>
<td>Hypoactive delirium</td>
<td>24</td>
<td>33</td>
<td>0.049*</td>
</tr>
<tr>
<td>Hyperactive delirium</td>
<td>40</td>
<td>40</td>
<td>N/A</td>
</tr>
<tr>
<td>Hyperactive DSD</td>
<td>36</td>
<td>40</td>
<td>0.125</td>
</tr>
<tr>
<td>Hypoactive DSD</td>
<td>26</td>
<td>35</td>
<td>0.004*</td>
</tr>
</tbody>
</table>

Note: N/A = not applicable; * Significant outcome p = < 0.05

**Recognition of CI.** The Wilcoxon signed-rank test was conducted to examine differences in pre- and post-intervention mean scores for recognition of CI. There was a statistically significant difference between pre- and post-intervention mean scores for recognition of CI (Z = -4.731, p = 0.000) (Table 4.4). The mean scores of recognition of CI were significantly improved following participation in the educational program.

Table 4.4
Comparison of Mean Recognition of CI Scores between Pre-and Post-Intervention

<table>
<thead>
<tr>
<th>Knowledge of CI</th>
<th>Pre-intervention (M, SD)</th>
<th>Post-intervention (M, SD)</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognition of CI</td>
<td>2.47 (1.01)</td>
<td>3.75 (0.87)</td>
<td>-4.796</td>
<td>0.000*</td>
</tr>
</tbody>
</table>

Note: Maximum Score = 5; * Significant outcome p = < 0.05
In addition, the McNemar test was conducted to examine pre-post changes in the number of participants who were able to recognise dementia, hypoactive delirium, hyperactive delirium, hyperactive DSD, and hypoactive DSD. There were statistically significant changes for dementia, hypoactive delirium, hyperactive delirium, and hypoactive DSD vignettes (all $p < 0.05$) (Table 4.5). There were significant increases in the number of participants who were able to recognise dementia, hypoactive delirium, hyperactive delirium, and hypoactive DSD following participation in the educational program.

### Table 4.5

Comparison of the Number of Correct Responses on CI Recognition in the Vignettes between Pre- and Post-Intervention

<table>
<thead>
<tr>
<th>Vignette</th>
<th>Pre-intervention (N)</th>
<th>Post-intervention (N)</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dementia</td>
<td>30</td>
<td>40</td>
<td>0.002*</td>
</tr>
<tr>
<td>Hypoactive delirium</td>
<td>10</td>
<td>22</td>
<td>0.004*</td>
</tr>
<tr>
<td>Hyperactive delirium</td>
<td>26</td>
<td>37</td>
<td>0.001*</td>
</tr>
<tr>
<td>Hyperactive DSD</td>
<td>28</td>
<td>32</td>
<td>0.125</td>
</tr>
<tr>
<td>Hypoactive DSD</td>
<td>5</td>
<td>18</td>
<td>0.002*</td>
</tr>
</tbody>
</table>

*Significant outcome $p = < 0.05$

**Causes of CI.** The quasi-statistical analyses with manifest content analyses were conducted to determine the frequency and types of the participant responses to the open-ended questions about the causes of CI. Hypoactive delirium had four key responses and included: (1) delirium risk factor; (2) delirium; (3) age-related fatigue, lethargy and depression; and (4) dementia-related mood change. There was an increase in the number of participants who correctly responded to the causes of hypoactive delirium (i.e., delirium and delirium risk factors) following participation in the educational program.

Hyperactive delirium had four key responses and included: (1) delirium risk factors; (2) delirium; (3) dementia-related hallucination and delusion; and (4) stroke. There was an increase in the number of participants who correctly responded to the causes of hyperactive delirium (i.e., delirium and delirium risk factors) following participation in the educational program. Delirium risk factors of dehydration, drug side effects, environmental change, infection, advanced age, sensory impairment and lack of mobilisation were identified by participants as causes of hypoactive delirium, hyperactive delirium, hyperactive DSD and hypoactive DSD. Table 4.6 provides additional information about the number of correct responses on causes of CI pre- and post-intervention.
Table 4.6
Comparison of the Number of Correct Responses on Causes of CI between Pre- and Post-Intervention

<table>
<thead>
<tr>
<th>Vignette Type</th>
<th>Key responses on causes</th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Dementia</td>
<td>Alzheimer’s disease *</td>
<td>19</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Ageing</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Parkinson’s disease</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Hypoactive Delirium</td>
<td>Delirium risk factors*</td>
<td>16</td>
<td>26</td>
</tr>
<tr>
<td>Only</td>
<td>Delirium*</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Age-related fatigue, lethargy &amp; depression</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Dementia-related mood change</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Hyperactive Delirium</td>
<td>Delirium risk factors*</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>Only</td>
<td>Delirium*</td>
<td>13</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Dementia-related hallucination &amp; delusion</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Stroke</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Hyperactive DSD</td>
<td>Delirium risk factors*</td>
<td>8</td>
<td>27</td>
</tr>
<tr>
<td>DSD</td>
<td>Delirium*</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Dementia</td>
<td>29</td>
<td>5</td>
</tr>
<tr>
<td>Hypoactive DSD</td>
<td>Delirium risk factors*</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>DSD</td>
<td>Delirium*</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Dementia-related depression</td>
<td>27</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Ageing</td>
<td>7</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: *=correct answer

For the purpose of comparison, responses in each vignette were converted into dichotomous variables (i.e., correct and incorrect). The McNemar test was conducted to examine pre-post changes in the number of participants who correctly reported causes of dementia, hypoactive delirium, hyperactive delirium, hyperactive DSD, and/or hypoactive DSD. There were statistically significant changes for all five vignettes (all \( p < 0.05 \)) (Table 4.7). There were significant increases in the number of participants who correctly reported causes for all five vignettes following participation in the educational program.

Table 4.7
Comparison of the Number of Correct Responses on Causes of CI between Pre- and Post-Intervention

<table>
<thead>
<tr>
<th>Vignette</th>
<th>Pre-intervention (N)</th>
<th>Post-intervention (N)</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dementia</td>
<td>19</td>
<td>35</td>
<td>0.000'</td>
</tr>
<tr>
<td>Hypoactive delirium</td>
<td>21</td>
<td>35</td>
<td>0.007'</td>
</tr>
<tr>
<td>Hyperactive delirium</td>
<td>16</td>
<td>40</td>
<td>0.000'</td>
</tr>
<tr>
<td>Hyperactive DSD</td>
<td>11</td>
<td>35</td>
<td>0.000'</td>
</tr>
<tr>
<td>Hypoactive DSD</td>
<td>6</td>
<td>31</td>
<td>0.000'</td>
</tr>
</tbody>
</table>

* Significant outcome \( p = < 0.05 \)
Management of CI. Quasi-statistical analysis using manifest content analysis of texts were conducted to determine the frequency and type of the participant responses to the open-ended questions regarding the management of CI. Hypoactive delirium had seven key responses and included: (1) take an order for laboratory tests for possibility of dehydration and inflammation; (2) notify physicians for diagnostic tests of depression; (3) check the list of medications that have been administered; (4) emotional support and reorientation; (5) activity encouragement; (6) consultation for diagnosis; and (7) family caregiver education for CI care. There was a decrease in the number of participants who reported inappropriate responses to the management of hypoactive delirium (i.e., notify physicians for diagnostic tests of depression) following participation in the educational program.

Hyperactive delirium had six key responses regarding core management and included: (1) notify physicians for medication, such as antipsychotic or sedative drugs; (2) isolation and physical restraint use if aggressive; (3) emotional support and reorientation; (4) hazard removed for safety; (5) consultation for diagnosis; and (6) family caregiver education for CI care. There was a decrease in the number of participants who reported inappropriate responses to the management of hyperactive delirium (i.e. notify physicians for mediation and isolation and physical restraint use if aggressive) following participation in the educational program. Table 4.8 provides additional information about the number of appropriate responses on management of CI between the pre- and post-educational intervention.

Table 4.8
Comparison of the Number of Appropriate and Inappropriate Responses on Management of CI between Pre- and Post-Intervention

<table>
<thead>
<tr>
<th>Vignette Type</th>
<th>Key responses on management</th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dementia</td>
<td>Consultation for diagnosis</td>
<td>29</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Dementia medication</td>
<td>25</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Reorientation and reassurance</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Family caregiver education for CI care</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Hypoactive Delirium Only</td>
<td>Notify physicians of patients’ status and take an order for laboratory testing (e.g., dehydration and inflammation)</td>
<td>22</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Notify physicians for diagnostic tests of depression*</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Check the list of medications that have been administered</td>
<td>23</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Emotional support and reorientation</td>
<td>14</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Activity encouragement</td>
<td>13</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Consultation for diagnosis</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Family caregiver education for CI care</td>
<td>0</td>
<td>24</td>
</tr>
</tbody>
</table>
Hyperactive Delirium Only
- Notify physicians of patients’ status and take an order for medication (antipsychotic or sedative drug) *
- Isolation and physical restraint use if aggressive*
- Emotional support and reorientation
- Hazard removed for safety
- Consultation for diagnosis
- Family caregiver education for CI care

Hyperactive DSD
- Notify physicians of patients’ status and medication (antipsychotic or sedative drug) *
- Isolation and physical restraint use if aggressive*
- Emotional support and reorientation
- Family caregiver education for CI
- Consultation for diagnosis

Hypoactive DSD
- Check blood sugar, or vital signs, notify physician of patient’s status and take an order for laboratory testing (e.g., dehydration )
- Assessment of consciousness change
- Family caregiver education for CI care
- Consultation for diagnosis

Note: *=Inappropriate responses

**Decision to call the on-call physician for managing the symptoms of CI.** The McNemar test was conducted to examine pre-post changes in the number of participants who decided to call the on-call physician for management (except in the hyperactive delirium and hyperactive DSD vignettes). For these two vignettes, both variables had the same values (n = 40). There was a statistically significant change for the hypoactive delirium vignette (p = 0.008) (Table 4.9). There was a significant increase in the number of participants who decided to call the on-call physician for managing the symptoms of hypoactive delirium following participation in the educational program.

**Table 4.9**
Comparison of the Number of Yes Responses on the Decision to Call the On-Call Physician for Management of CI between Pre- and Post-intervention

<table>
<thead>
<tr>
<th>Vignette</th>
<th>Pre-intervention (N)</th>
<th>Post-intervention (N)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dementia</td>
<td>2</td>
<td>0</td>
<td>0.500</td>
</tr>
<tr>
<td>Hypoactive delirium</td>
<td>16</td>
<td>24</td>
<td>0.008*</td>
</tr>
<tr>
<td>Hyperactive delirium</td>
<td>40</td>
<td>40</td>
<td>N/A</td>
</tr>
<tr>
<td>Hyperactive DSD</td>
<td>40</td>
<td>40</td>
<td>N/A</td>
</tr>
<tr>
<td>Hypoactive DSD</td>
<td>18</td>
<td>25</td>
<td>0.092</td>
</tr>
</tbody>
</table>

Note: N/A = not applicable; * Significant outcome p = < 0.05

**Consideration given to calling the on-call physician for medicating the symptoms of CI.** The McNemar test was conducted to examine pre-post changes in the number of participants who considered calling the on-call physician for medication, except in the hyperactive delirium and hyperactive DSD vignettes. For these two vignettes, both
variables had the same values (n = 40). There were statistically significant changes for dementia (p = 0.008) and hypoactive delirium (p = 0.031) vignettes (Table 4.10). There were significant decreases in the number of participants who considered calling the on-call physician for medicating the symptoms of dementia and hypoactive delirium following participation in the educational program.

In order to manage the symptoms of hyperactive delirium and hyperactive DSD, *Haloperidol* and *Lorazepam* were reported by the participants who considered calling the on-call physician for medication. In order to manage the symptoms of hypoactive delirium and hypoactive DSD, *Trazodone, Lexapro* and *Quetiapine* were reported by the participants who considered calling the on-call physician for medication because the symptoms were incorrectly interpreted as depression.

Table 4.10
Comparison of the Number of Yes Responses on Consideration of Calling the On-Call Physician for Medication between Pre- and Post-intervention

<table>
<thead>
<tr>
<th>Vignette</th>
<th>Pre-intervention (N)</th>
<th>Post-intervention (N)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dementia</td>
<td>8</td>
<td>0</td>
<td>0.008*</td>
</tr>
<tr>
<td>Hypoactive delirium</td>
<td>14</td>
<td>8</td>
<td>0.031*</td>
</tr>
<tr>
<td>Hyperactive delirium</td>
<td>40</td>
<td>40</td>
<td>N/A</td>
</tr>
<tr>
<td>Hyperactive DSD</td>
<td>40</td>
<td>40</td>
<td>N/A</td>
</tr>
<tr>
<td>Hypoactive DSD</td>
<td>8</td>
<td>4</td>
<td>0.125</td>
</tr>
</tbody>
</table>

Note: N/A = not applicable; * Significant outcome p = < 0.05

In summary, the findings from the case vignettes provide partial support for hypothesis 1. Following participation in a specially designed educational program:

- the mean scores of acute onset and recognition of CI were significantly improved;
- there were significant increases in the number of participants who correctly answered acute onset as the key feature of delirium for dementia, hypoactive delirium, and hypoactive DSD vignettes;
- there were significant increases in the number of participants who were able to recognise dementia, hypoactive delirium, hyperactive delirium, and hypoactive DSD;
- there were significant increases in the number of participants who correctly reported causes for all five vignettes;
there was a significant increase in the number of participants who decided to call the on-call physician for managing the symptoms of hypoactive delirium; and,
there were significant decreases in the number of participants who considered calling the on-call physician for medicating the symptoms of dementia and hypoactive delirium.

Hypothesis 2

South Korean nurses’ attitudes toward older adults will be improved following participation in a specially designed educational program.

The Wilcoxon signed-rank test was conducted to examine differences in pre- and post-intervention mean scores of positive, negative, and net ageing bias. There were statistically significant differences between the pre- and post-intervention mean scores of positive ($Z = -3.000, p = 0.003$), negative ($Z = -4.894, p = 0.000$), and net ageing bias ($Z = -2.813, p = 0.005$) (Table 4.11). The mean net ageing bias scores were significantly improved following participation in a specially designed educational program.

<table>
<thead>
<tr>
<th>Attitudes toward older adults</th>
<th>Pre-intervention M (SD)</th>
<th>Post-intervention M (SD)</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive bias</td>
<td>0.13 (0.16)</td>
<td>0.08 (0.13)</td>
<td>-3.000</td>
<td>0.003*</td>
</tr>
<tr>
<td>Negative bias</td>
<td>0.54 (0.19)</td>
<td>0.43 (0.19)</td>
<td>-4.894</td>
<td>0.000*</td>
</tr>
<tr>
<td>Net bias</td>
<td>-0.41 (0.29)</td>
<td>-0.35 (0.25)</td>
<td>-2.813</td>
<td>0.005*</td>
</tr>
</tbody>
</table>

* Significant outcome $p = < 0.05$

In addition, for the purpose of comparison, the pre- and post-intervention mean scores of net bias were treated as dichotomous variables. The McNemar test was conducted to examine pre-post change in the number of participants who had negative ageing bias. There was no statistically significant change for negative ageing bias ($n = 32, p = 1.000$) (Table 4.12). There was no significant decrease in the number of participants who had negative ageing bias following participation in the educational program.
Table 4.12
Comparison of the Number of Net Ageing Bias between Pre- and Post-Intervention

<table>
<thead>
<tr>
<th></th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Net bias</td>
<td></td>
<td>Positive bias (N)</td>
<td>Negative bias (N)</td>
</tr>
<tr>
<td>Positive bias (N)</td>
<td>3</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Negative bias (N)</td>
<td>3</td>
<td></td>
<td>32</td>
<td></td>
</tr>
</tbody>
</table>

Significant outcome \( p = < 0.05 \)

In summary, the findings provide partial support for hypothesis 2. The mean net ageing bias scores were significantly improved following participation in the educational program; however, there was no significant decrease in the number of participants who had negative ageing bias following participation in the educational program.

To test hypothesis 3, the findings of nursing documentation audited pre- and post-intervention were compared. A total of 76 patient records met the inclusion criteria among the consecutive 60 records at pre-and post-intervention. Forty and 36 records were audited for nursing documentation of CI care at pre- and post-intervention, respectively. The audit included assessing documentation of the cognitive assessments and non-pharmacological management, and the comprehensiveness of documentation reporting CI care. The pre- and post-intervention older patient sample was also recorded.

**Pre and Post-Intervention Older Patient Sample**

The mean age of the participants was 82.6 (SD = 5.83) and 82.4 (SD = 4.95) years in the pre- and post-intervention groups, respectively. Both groups of participants were predominantly female. Pneumonia and stroke were the most common reasons for admission to hospital in pre- and post-intervention groups, respectively. Eight and seven participants had a documented diagnosis of Alzheimer’s disease in the pre- and post-intervention groups, respectively. The majority of the participants in both groups lived at home prior to admission. Table 4.13 provides additional information about the pre- and post-intervention older patient sample.
Table 4.13
Pre- and Post-Intervention Participating Patient Characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>M (SD)</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Pre-intervention 82.6 (5.83)</td>
<td>70</td>
<td>92</td>
</tr>
<tr>
<td>Post-intervention 82.44 (4.95)</td>
<td>71</td>
<td>91</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description (N)</th>
<th>Pre-intervention (n = 40)</th>
<th>Post-intervention (n = 36)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Women</td>
<td>28</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Men</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Diagnosis admitted to hospital</td>
<td>Pneumonia</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>UTI</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Combined pneumonia and UTI</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Cancer</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>DM</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>General weakness</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Stroke</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Dementia documented in medical record</td>
<td>Yes</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>32</td>
<td>29</td>
</tr>
<tr>
<td>Living status</td>
<td>Home</td>
<td>26</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Institution</td>
<td>14</td>
<td>9</td>
</tr>
</tbody>
</table>

Note: UTI = urinary tract infection; DM = diabetes mellitus; Other = anaemia, hypertension, gastrointestinal or rectal bleeding

Differences in demographics between the pre- and post-intervention. The pre-and post-intervention groups were compared to measure homogeneity. The differences in age, gender, reason for admission to hospital, and dementia documented in medical record were compared and there was no significant difference between the two groups for demographic variables (see Table 4.14–4.17).

Table 4.14
Age Difference between Groups

<table>
<thead>
<tr>
<th></th>
<th>Pre-intervention (n = 40)</th>
<th>Post-intervention (n = 36)</th>
<th>95% CI</th>
<th>t test</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>M (SD)</td>
<td>M (SD)</td>
<td>Lower</td>
<td>Upper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>82.62 (5.83)</td>
<td>82.44 (4.95)</td>
<td>-2.30</td>
<td>2.66</td>
<td>0.145</td>
</tr>
</tbody>
</table>

Table 4.15
Gender Difference between Groups

<table>
<thead>
<tr>
<th>Gender</th>
<th>Pre-intervention (n = 40)</th>
<th>Post-intervention (n = 36)</th>
<th>X²</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>N (%)</td>
<td>N (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>28 (70%)</td>
<td>24 (66.7%)</td>
<td>0.097</td>
<td>0.755</td>
</tr>
<tr>
<td>Men</td>
<td>12 (30%)</td>
<td>12 (33.3%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.16
Differences in Diagnosis on Admission to Hospital between Groups

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Pre-intervention (n = 40)</th>
<th>Post-intervention (n = 36)</th>
<th>$\chi^2$</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>N (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumonia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>12 (30%)</td>
<td>6 (16.7%)</td>
<td>1.864</td>
<td>0.172</td>
</tr>
<tr>
<td>No</td>
<td>28 (70%)</td>
<td>30 (83.3%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UTI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>5 (12.5%)</td>
<td>2 (5.6%)</td>
<td>0.435</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>35 (87.5%)</td>
<td>34 (92.4%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combined Pneumonia and UTI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>2 (5%)</td>
<td>3 (8.3%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>38 (95%)</td>
<td>33 (91.7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cancer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>4 (10%)</td>
<td>6 (16.7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>36 (90%)</td>
<td>30 (83.3%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>2 (5%)</td>
<td>0 (0%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>38 (95%)</td>
<td>36 (100%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General weakness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>3 (7.5%)</td>
<td>5 (13.9%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>37 (92.5%)</td>
<td>31 (86.1%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stroke</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>8 (20%)</td>
<td>9 (25%)</td>
<td>0.273</td>
<td>0.601</td>
</tr>
<tr>
<td>No</td>
<td>32 (80%)</td>
<td>27 (75%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>4 (10%)</td>
<td>5 (13.9%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>36 (90%)</td>
<td>31 (86.1%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: UTI = urinary tract infection; DM = diabetes mellitus; Other = anaemia, hypertension, gastrointestinal or rectal bleeding

Table 4.17
Differences in Dementia Documented in Medical Records between Groups

<table>
<thead>
<tr>
<th>Dementia</th>
<th>Pre-intervention (n = 40)</th>
<th>Post-intervention (n = 36)</th>
<th>$\chi^2$</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>N (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>8 (20%)</td>
<td>7 (19.4%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>32 (80%)</td>
<td>29 (80.6%)</td>
<td>0.097</td>
<td>0.952</td>
</tr>
</tbody>
</table>

Hypothesis 3

South Korean nurses’ documentation of CI will be improved following participation in a specially designed educational program.

For hypothesis 3, three specific hypotheses were tested below.
Hypothesis 3a

South Korean nurses’ documentation of cognitive assessments will be increased following participation in a specially designed educational program.

The frequency of documented cognitive assessments were 15 and 11 in the pre- and post-intervention groups, respectively. The chi-square test was conducted to examine pre-post change in the documentation of the frequency of cognitive assessments and there was no statistically significant difference ($\chi^2 = 0.406, df = 1, p = 0.522$) (Table 4.18). There was no significant increase in the frequency of nursing documentation of cognitive assessments following participation in the educational program.

Table 4.18
Comparison of the Frequency of Nursing Documentation of Cognitive Assessments between Groups

<table>
<thead>
<tr>
<th>Chart-based review</th>
<th>Pre-intervention (n = 40)</th>
<th>Post-intervention (n = 36)</th>
<th>$\chi^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive assessments</td>
<td>N (%)</td>
<td>N (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>15 (37.5%)</td>
<td>11 (30.6%)</td>
<td>0.406</td>
<td>0.524</td>
</tr>
<tr>
<td>No</td>
<td>25 (62.5%)</td>
<td>25 (69.4%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In addition, the chi-square test was conducted to examine pre-post change in the frequency of cognitive assessments in the pre-and post-intervention groups for older patients with a diagnosis of dementia and there was no statistically significant difference ($\chi^2 = 0.276, df = 1, p = 0.599$) (Table 4.19). There was no significant increase in the frequency of nursing documentation of cognitive assessments in the pre-and post-intervention groups for older patients with a diagnosis of dementia following participation in the educational program.

Table 4.19
Comparison of the Frequency of Nursing Documentation of Cognitive Assessments between Dementia Groups

<table>
<thead>
<tr>
<th>Cognitive assessment</th>
<th>Pre-intervention (n = 15)</th>
<th>Post-intervention (n = 11)</th>
<th>$\chi^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dementia</td>
<td>No dementia</td>
<td>Dementia</td>
<td>No dementia</td>
<td></td>
</tr>
<tr>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
<td></td>
</tr>
<tr>
<td>8 (53.3%)</td>
<td>7 (46.7%)</td>
<td>7 (63.6%)</td>
<td>4 (36.4%)</td>
<td>0.276</td>
</tr>
</tbody>
</table>

Agitation was the keyword documented most frequently in the pre- (n = 9) and post-intervention (n = 5) groups. The keywords delirium, inattention, and lethargy were not documented in either groups. The chi-square test was conducted to examine pre-post change in the frequency of nursing documentation of the use of the keyword agitation in the pre-and post-intervention groups and there was no statistically significant difference.
\( \chi^2 = 0.540, df = 1, p = 0.462 \) (Table 4.20). There was no significant increase in the frequency of nursing documentation of the use of the keyword *agitation* following participation in the educational program.

<table>
<thead>
<tr>
<th>Chart-based review</th>
<th>Pre-intervention (n = 15)</th>
<th>Post-intervention (n = 11)</th>
<th>( \chi^2 )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive assessment: Agitation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>9 (60%)</td>
<td>5 (45.5%)</td>
<td>0.540</td>
<td>0.462</td>
</tr>
<tr>
<td>No</td>
<td>6 (40%)</td>
<td>6 (54.5%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Hypothesis 3b**

*South Korean nurses’ documentation of non-pharmacological management strategies following the documentation of keywords associated with delirium will be increased following participation in a specially designed educational program.*

There was an increase in documentation of non-pharmacological intervention related to the keywords *disorientation* following participation in a specially designed educational program. Non-pharmacological interventions related to the keywords associated with delirium included re-orientation, reassurance, mobilisation, observation for mental status change, isolation, moving the bed close to the nursing station, family caregiver education, and notification of the physician for further action. Table 4.21 provides additional information about the frequency of nursing documentation of management strategies following documentation of keywords associated with delirium between the pre and post-intervention groups.
Table 4.21
Comparison of Nursing Documentation of the Management Strategies following Documentation of Keywords associated with Delirium between Pre- and Post-Intervention

<table>
<thead>
<tr>
<th>Chart-based review</th>
<th>Actions following documentation of keywords associated with delirium (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-pharmacological intervention alone</td>
</tr>
<tr>
<td>Pre-intervention</td>
<td></td>
</tr>
<tr>
<td>Confusion (1/1)</td>
<td></td>
</tr>
<tr>
<td>Agitation (9/5)</td>
<td></td>
</tr>
<tr>
<td>Inappropriate behaviour (3/1)</td>
<td>2 (1)</td>
</tr>
<tr>
<td>Hallucination (2/1)</td>
<td></td>
</tr>
<tr>
<td>Post-intervention</td>
<td></td>
</tr>
<tr>
<td>Disorientation (2/1)</td>
<td>2 (1)</td>
</tr>
<tr>
<td>Altered mental status (1)</td>
<td>1</td>
</tr>
<tr>
<td>Agitation (5/4)</td>
<td></td>
</tr>
<tr>
<td>Inappropriate behaviour (1/1)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Mental status change (2/1)</td>
<td>2 (1)</td>
</tr>
</tbody>
</table>

Note: Dementia documented in medical record in **Bold font**
As there were cell sizes less than five for each management variable, the Fisher’s exact test was conducted to examine pre-post change in the frequency of nursing documentation of the use of non-pharmacological management strategies following the documentation of keywords associated with delirium and there was no statistically significant difference (see Table 4.22). There were no significant increase in the frequency of nursing documentation in the use of non-pharmacological management strategies following the documentation of keywords associated with delirium following participation in the educational program.

<table>
<thead>
<tr>
<th>Table 4.22</th>
<th>Comparison of Nursing Documentation of Management Strategies between Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chart-based audit</td>
<td>N (%)</td>
</tr>
<tr>
<td>Non-pharmacological management following the keywords associated with delirium</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>15 (100%)</td>
</tr>
<tr>
<td>Non-pharmacological management and medication following the keywords associated with delirium</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>12 (80%)</td>
</tr>
<tr>
<td>Medication and physical restraint following the keywords associated with delirium</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>12 (80%)</td>
</tr>
<tr>
<td>Non-pharmacological management, medication and physical restraint following the keywords associated with delirium</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>9 (60%)</td>
</tr>
</tbody>
</table>

In addition, the chi-square test was conducted to examine pre-post change in the documentation of the use of medication in the pre-and post-intervention groups and there was no statistically significant difference ($\chi^2 = 0.949$, $df = 1$, $p = 0.330$). There was no significant decrease in the frequency of nursing documentation of the use of medication following participation in the educational intervention. Medication included *haloperidol* and *lorazepam*.

**Hypothesis 3c**

_The comprehensiveness of South Korean nurses’ documentation reporting CI care will be improved following participation in a specially designed educational program._

The Wilcoxon signed-rank test was conducted to examine difference in pre- and post-intervention mean scores of the comprehensiveness of documenting CI care and there was a statistically significant difference ($Z = -2.640$, $p = 0.008$) (Table 4.23). The mean
scores of the comprehensiveness of documenting CI care were significantly improved following participation in a specially designed educational program.

Table 4.23
Comparison of Pre- and Post-Intervention Mean Scores for the Comprehensiveness of Documenting CI Care

<table>
<thead>
<tr>
<th>Chart-based review</th>
<th>Pre-intervention M (SD)</th>
<th>Post-intervention M (SD)</th>
<th>Z</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehensiveness</td>
<td>3.30 (0.46)</td>
<td>3.55 (0.67)</td>
<td>-2.640</td>
<td>0.008*</td>
</tr>
</tbody>
</table>

*Significant outcome p = < 0.05

In summary, the findings do not provide support for hypothesis 3. There was no significant increase in the frequency of nursing documentation of cognitive assessments following participation in the educational program. There was no significant increase in the frequency of nursing documentation of the use of non-pharmacological management strategies following the documentation of keywords associated with delirium following participation in the educational program. However, the mean scores of the comprehensiveness of documenting CI care were significantly improved following participation in the educational program.

Conclusion

These results suggest that an educational program for South Korean nurses can improve knowledge of CI and attitude toward older adults, but is not effective in changing the number of them who document delirium assessment in nursing documentation. These findings will be further examined in the qualitative component of the study.

The following chapter presents the findings from qualitative data collected from a subsample of South Korean nurses and family caregivers that focused on experiences, outcome, and evaluation of the educational intervention.
CHAPTER FIVE
POST-INTERVENTION QUALITATIVE FINDINGS

Introduction

Following the quantitative data collection and analysis phase, qualitative data from a subsample of South Korean nurses and family caregivers were collected to explore perceptions of the educational program and nurse-initiated efforts to involve family caregivers in cognitive impairment (CI) care. This data also aimed to clarify and explain some of the findings from the quantitative component of the study. The findings from the semi-structured interviews are presented in this chapter.

South Korean Nurse Sample

The sample size for the qualitative component was 12 female RNs, 30 percent of the original sample, with an equal number of participants from each general internal medicine ward. The disparity in sample sizes between the quantitative and qualitative components of the study is acceptable in an explanatory sequential mixed method design in which priority is given to the quantitative phase of the study (Creswell & Plano Clark, 2007). The qualitative sample was representative of South Korean nurses who participated in the educational program and reflected differences in knowledge and/or attitude and personal and professional characteristics. Table 5.1 provides additional information about the interviewed participants.
Table 5.1
Personal and Professional Characteristics of the Interviewed South Korean Nurses

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Female</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>0</td>
</tr>
<tr>
<td>Age (years)</td>
<td>21–30</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>31–40</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>41–50</td>
<td>1</td>
</tr>
<tr>
<td>Nursing experience (years)</td>
<td>1–5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>6–10</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>&gt;11</td>
<td>3</td>
</tr>
<tr>
<td>Nursing education</td>
<td>3-year Associate degree</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>4-year Bachelor degree</td>
<td>7</td>
</tr>
<tr>
<td>Formal education on gerontology nursing</td>
<td>Yes Undergraduate</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Continuous (and/or in-service)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>0</td>
</tr>
</tbody>
</table>

Qualitative Findings

Evaluation of an educational program

In terms of the participants’ perspectives of the educational program, the findings are related to learning processes and learning outcomes as described in this section. The quotes reported in this section were translated from the Korean language transcripts. The participant quotes are followed by the bracketed acronym Registered Nurses (R), including their participant number (#).

Educational processes

In terms of the participants’ perspectives on the learning processes incorporated in the educational program, three key themes emerged, comprising of nine sub-themes. Table 5.2 summarises the themes and sub-themes generated from the qualitative data.

Table 5.2
Themes and Sub-themes Generated from Learning Process Evaluation

<table>
<thead>
<tr>
<th>Theme</th>
<th>Sub-theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active learning</td>
<td>Deep learning</td>
</tr>
<tr>
<td></td>
<td>Collaborative learning</td>
</tr>
<tr>
<td></td>
<td>Application of new concepts to practice</td>
</tr>
<tr>
<td>Influencing factors on learning processes</td>
<td>Learning preference</td>
</tr>
<tr>
<td></td>
<td>Need-based learning</td>
</tr>
<tr>
<td></td>
<td>Management support</td>
</tr>
<tr>
<td></td>
<td>Organisational culture</td>
</tr>
<tr>
<td>Recommendation for improvement</td>
<td>Educational program on an ongoing basis</td>
</tr>
<tr>
<td></td>
<td>Topics for future learning</td>
</tr>
</tbody>
</table>
Active learning

Through the participants’ reflections stating the strategies used in the educational program, three sub-themes were generated. Sub-themes related to the theme active learning are outlined below. Active learning is generally defined as any instructional method that engages learners in the learning process. In short, active learning requires learners to do meaningful learning activities and to think about what they are doing (Bonwell & Eison, 1991).

Deep learning. The participants reported that the educational program had facilitated their ways of learning and thinking. The participants found that they had to be more systematic in their learning to enable them to reflect on their experiences and to integrate theory with practice. The following quotes demonstrate examples of participants’ deep learning, which involved reflective learning and critical thinking:

When colleagues asked questions that I had not thought of before, I learned the way the colleagues thought and asked myself why I had not asked these questions. I seldom asked why in the past, they stimulated me to think from other perspectives. (R 09)

We shared our experiences, then I asked myself if I would have the same judgement, and how I would handle the situation. We reflect on our clinical encounters. (R 12)

Now, I can recall some of the cases that I had come across, and integrate them with textbook theories. (R 03)

Collaborative learning. The participants reported that small group learning had encouraged them to work collaboratively with colleagues. The participants found that they had to bring their own experience to discuss the topic and to be more actively involved in learning, as the following quotes highlight:

I brought the scenario of my CI care experience to find answers ... discussing with colleagues in the group ... it was good to get answers in order to ensure that any mistakes made in the past were not repeated and that improvements could be made to patient care. (R 01)
I thought I understood, but when my colleagues asked me more questions I realised that I did not. It helped me to realise my own inadequacies, which facilitated my active learning. (R 05)

The participants appreciated the opportunity for collaborative learning that encouraged them to take responsibility for working together and promoted their problem-solving, as evidenced in the following quote:

*It was good because we could share our thinking. It helped me get to know how the other colleagues solve problems and recognise other perspectives in the same situation. There were opportunities to learn various ways.* (R 07)

**Application of new concepts to practice.** The participants reported that the learning processes used had facilitated their application of new concepts to practice. Some participants believed that they were now more competent in managing risk factors for delirium in practice. They felt that they had improved skills in assessing such risk factors and providing information about delirium to family caregivers. The following quotes illustrate these points:

*I become more attentive in reading notes to find out the underlying factors of patient’s current problem in order to manage risk factors for delirium. I communicate with patients and their family caregivers regarding mental status to prevent delirium.* (R 04)

*I had practiced providing information about delirium to family caregivers to involve them in the CI care of their older family members. I encouraged them to assist their older family members in their activities of daily living, daily orientation time and place, wearing hearing aids and glasses at all the times, and maintaining their routines.* (R 03)

**Influencing factors on learning processes**

Participants also spoke of the factors that they saw were impacting on their learning. A description of the four sub-themes reported for this theme are outlined below.

**Learning preference.** The use of a group approach to learning was reported as the preferred learning style for participants and such an approach facilitated their active participation in learning. The participants felt that their combined enthusiasm and the
strong ties between participants in the work environment facilitated a safe environment and active interaction in the learning process:

*I wanted to learn together with my ward colleagues. I felt comfortable discussing case studies with them. It let me enjoy learning with them together in a comfortable atmosphere.* (R 11)

*I liked to do group work in ward-based education, because it provided an opportunity to be heard, share experiences and knowledge, and to do activities in supportive environments.* (R 03)

**Needs-based learning.** Understanding the participants’ learning needs and interests was considered important to ensure that the educational program met their needs. Participants reported that the content was relevant to their work experiences, which facilitated active participation in learning.

*As a nurse, this was something I needed to improve ... It facilitated my learning.* (R 06)

*[The educational program is relevant for me] ... because there are a lot of older patients with dementia and at risk of delirium admitted to general hospital wards.* (R 10)

The following quotes provide evidence that the participants appreciated the use of the delirium superimposed on dementia (DSD) algorithm (Fick & Mion, 2008) as a guide. The guide was also perceived as helpful in structuring content and the learning process:

*This algorithm was so useful. It has a step-by-step procedure to prevent, manage and follow up for CI care* (R 08)

*I kept the DSD algorithm in my pocket and used it to assess and manage older patients with dementia in practice. It helped me maintain what I learnt from the workshops.* (R 02)

**Management support.** Most participants felt that they had inadequate management support to apply their new knowledge in practice, and this included staff resources and policies and protocols. Staff resources involved time constraints, heavy workloads, shortage of staff, and busy daily routines, as evidenced in the following quotes:
We have one nurse to care for more than ten patients during the day shift. I need to finish all the medications, vital signs, paper work and extra in time. It is difficult to assess mental status and risk factors for delirium in my daily routine. (R 08)

Sometimes, patients or family members are willing to talk, but we are too busy to listen and respond. (R 11)

The need for hospital management to develop comprehensive policies and protocols that promote CI care was recognised as significant in the enhancement of CI care. Some of the participants identified the need for management to involve staff in policy making and developing protocols. Most participants suggested that a protocol would be useful to guide CI care. One participant said:

We do not have policies and protocols to manage risk factors for delirium in older patients with and without dementia, so that we need both to support the care. (R 01)

Organisational culture. Another area of concern identified was the existing organisational culture at the study hospital site. In a hierarchical hospital structure where physicians focus on biomedical treatment, the nurses were required to follow the physician’s perspective and focus on medical treatments rather than on psychosocial and emotional support. The following quote highlights the issue:

Nurses perceive task completion as the most important part of nurses’ work. Nurses in charge of the shift check with me whether I carry out physicians’ orders or not, so that I need to focus on medical treatments. If I am behind my duties, they, senior staff, think that I am lazy in doing my duties. I don’t want them to see me like that and so I put psychosocial and emotional support in a low priority. (R 10)

Recommendation for improvement

The participants considered a major area that modified their learning was the provision of the education program on an ongoing basis. They also recommended that there
should be updates on CI care programmed into the in-service schedule. The following quote highlights the issue:

*There is not much about CI in the in-service education ... So this kind of education needs to be provided on an ongoing basis, not just one-off course.* (R 07)

*The program is useful since an increasing number of older adults with dementia are admitted to general hospitals in South Korea. It is worth for registered nurses to gain knowledge about CI care. If possible, we preferred to learn on an ongoing basis.* (R 04)

Some participants suggested that they would like to learn about delirium-causing drugs. They also suggested the specific need for training and supervision in assessing and interpreting the four delirium core features in real patient populations with the use of CAM:

*I want to learn about delirium-causing drugs in detail, because medications including over-the-counter medicines are one of the common risk factors for developing delirium.* (R 09)

*I have more knowledge and skill about CI care in practice, but it is really hard for me to interpret for diagnosing delirium, using the CAM. I am still not competent to do it. I think that more ongoing training and supervision at the bedside are needed.* (R 03)

**Educational Outcomes**

In the quantitative component of the study, knowledge of CI and attitudes toward older adults were measured as outcomes of the educational program. In terms of the participants’ perspectives on learning outcomes related to quantitative findings, two key themes emerged, comprising of five sub-themes. Table 5.3 summarises the themes and sub-themes from the qualitative data.
Table 5.3
Themes and Sub-themes Generated in Relation to Learning Outcomes of the Educational Program

<table>
<thead>
<tr>
<th>Quantitative outcome measures</th>
<th>Qualitative themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of CI</td>
<td>1. Enhancement of knowledge</td>
</tr>
<tr>
<td></td>
<td>1) Increased awareness</td>
</tr>
<tr>
<td></td>
<td>2) Improving risk factor management for delirium</td>
</tr>
<tr>
<td></td>
<td>3) Improving family caregiver involvement in CI care</td>
</tr>
<tr>
<td>Attitude towards older adults</td>
<td>2. Change of attitude</td>
</tr>
<tr>
<td></td>
<td>1) Clarify misconceptions</td>
</tr>
<tr>
<td></td>
<td>2) Holistic care</td>
</tr>
</tbody>
</table>

**Knowledge of CI**

As reported in Chapter 4, the mean knowledge scores related to delirium being an acute onset and nurses’ recognition of CI were significantly improved following participation in the educational program. Specifically, there was a significant increase in the number of participants who correctly identified acute onset as the key feature of delirium, and they were able to correctly recognise hypoactive delirium and hypoactive DSD following participation in the program. Furthermore, the nurses’ perspectives on the management of CI was improved following participation in the program. Specifically, there was a significant increase in the number of participants who decided to call the on-call physician for managing the symptoms of hypoactive delirium following participation in the program. There was also a significant decrease in the number of participants who considered calling the on-call physician for medicating the symptoms of hypoactive delirium following participation in the program. This partial effect on knowledge of CI stimulated further examination in the interviews. The theme *enhancement of knowledge* emerged from the interviews and provided support for the significant improvement in knowledge of CI found in the qualitative analysis.

**Enhancement of knowledge.** The majority of participants believed that the educational program had enhanced their knowledge of CI. The following quotes demonstrated the increased awareness of CI, which involved improved ability to identify differential diagnoses between delirium and dementia and the enhancement of the importance of risk factor management for delirium and responsibilities towards delirium prevention:

Now, I know differential diagnoses between delirium and dementia. Dementia has a gradual cognitive decline but delirium has an acute mental change. (R 08)

I know that confusion is not a part of ageing and can be associated with delirium and dementia. So, I realise the importance of delirium prevention ... need to
screen on admission and ongoing particularly dementia diagnosis for delirium risk factors, and communicate with older patients and their family members. (R 03)

Most participants highlighted the importance of the family caregiver role in the CI care of their older family members. They reported that they needed to provide psychological and informational support to family caregivers, as evidenced in the following quote:

They can play a significant role when I do a baseline mental status assessment. They know what they need physically and mentally better than us, especially if their family members are diagnosed with dementia. I need to pay more attention to family’s psychosocial support, information and communication, and include these in my assessment and care plans. (R 02)

The participants believed that their self-confidence in caring for older patients with dementia and at risk of delirium was improved. Improved knowledge ensured that they were confident in providing information to family caregivers through communication and in assessing delirium risk factors through documentation review, as evidenced in the following quotes:

I got to know cognitive impairment care. I gained confidence in assessing delirium risk factor and providing information and emotional support to family caregivers through direct communication with older patients or their family members. (R 04)

I gained more knowledge of CI. I feel confident in screening delirium risk factors through patients’ documentation review. (R 10)

Attitudes toward older adults

The mean net ageing bias scores were statistically significantly decreased following participation in the specially designed educational program. However, there was no statistically significant decrease in the number of participants who had negative ageing bias following participation in the program. This partial effect on attitude towards older adults stimulated further examination of this area in the interviews. The theme change of attitude emerged from the interviews and provided support for an improvement in attitude towards older adults found in the qualitative component.
**Change of attitude.** Some participants reported that their attitude towards older adults with CI had positively changed and they had gained a new perspective on care. They reported that the educational program had helped to clarify the misconceptions about CI that had previously influenced their care. The clarification led them to change their attitudes toward older adults with CI. They perceived that their increased awareness of older patients with CI was related to an improved knowledge level and that they felt more confident in caring for such patients:

*I thought confusion is a normal ageing process or from dementia, and did not consider delirium. I generously admitted that confusion could happen to older patients due to their ageing, not doing anything. This program helped me to become more aware of delirium and dementia. I am now more confident in carrying out delirium risk factor assessment and asking family caregivers about their older family members’ mental status prior to hospital admission.* (R 12)

Some participants reported that the educational program had helped them to reflect on their existing practices and to gain new perspectives on the concept of holistic care as highlighted in the following quote:

*There is a tendency for those of us to focus on patients’ physical needs. The educational program reminded us that nurses should provide holistic care including patients’ emotional and psychosocial needs.* (R 06)

**Nurse-Initiated Efforts to Involve Family Caregivers in CI Care**

In terms of the participants’ perspectives on efforts to involve family caregivers in CI care, three key themes emerged, comprising five sub-themes. Table 5.4 summarises the themes and sub-themes from the qualitative data.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Sub-theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive experience</td>
<td>Fulfilling caregiver role</td>
</tr>
<tr>
<td>Influencing factors on nurse-initiated efforts to involve family caregivers in CI care</td>
<td>Educational brochure</td>
</tr>
<tr>
<td>Barriers</td>
<td>Needs driven involvement</td>
</tr>
<tr>
<td></td>
<td>A lack of time</td>
</tr>
<tr>
<td></td>
<td>A lack of formal documentation of family caregivers’ needs</td>
</tr>
</tbody>
</table>
Positive experience

Fulfilling caregiver role. Most participants reported that they had positive experiences from their efforts to involve family caregivers in CI care. They described that providing basic information about delirium and family caregivers’ role in delirium prevention to family caregivers promoted an understanding from both perspectives and assisted implementation of preventive delirium strategies. They highlighted that family caregivers provided basic care related to activities of daily living (ADLs), reassurance, comfort, and constant attention for their older family members. They also described that older family members with dementia and at risk of delirium were comfortable and cooperative because their family caregivers were constantly at the bedside. The following quotes illustrate these points:

I’m satisfied with their work ... They do basic nursing care such as assisting mobilisation and feeding and reassurance for their family members at the bedside. I saw positive changes. The patients looked more comfortable. (R 06)

I’m satisfied with their help ... The nurses are too busy to sit chatting so having a family member at the bedside is good for patients and us. Patients seem more comfortable and cooperative being with them. (R 01)

Influencing factors on nurse-initiated efforts to involve family caregivers in CI care

This theme involves the factors that influence nurse-initiated efforts to involve family caregivers in CI care. This theme involved two sub-themes and these are outlined below.

Educational brochure. The majority of participants reported that the delirium brochure was helpful for providing delirium education to family caregivers. They felt that the inclusion of the delirium brochure in ward orientation on hospital admission, with reinforcement occurring during change of shifts, was useful in facilitating their efforts to involve family caregivers in CI care. As participants said:

It did not take much time providing information with delirium brochure during the ward admission. (R 05)

Although we verbally provide delirium information to them, they do not necessarily understand what we are trying to tell them one time, so we

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repeatedly explain sometimes. They received information with the delirium brochure during the ward orientation on admission, read and asked something when they didn’t understand during change of shifts. (R 11)

**Needs driven involvement.** Participants said that they were unable to deliver basic care because their roles focused predominately on technical procedures, paperwork and administration duties, and their taking on more medical tasks. Basic care was a term used by participants to denote personal care related to ADLs such as hygiene, feeding, dressing, mobilising, and changing bed linen. Therefore, family caregivers’ involvement was critical to meeting unmet basic care needs for older patients with dementia and at risk of delirium. The following quotes highlight this:

> We are busy, taking on daily routine care such as vital sign check, medication administration, and doing paperwork and administration duties, so we need family caregivers to provide patient personal care like hygiene, feeding and changing bed linens. Without them, the place would cease to function. (R 02)

Similarly, participants viewed family caregivers’ role as helping busy nurses and ensuring that their older patients with CI received good care. They felt that an increase in patient acuity and throughput levels were additional factors that caused pressure. Participants wanted family caregivers to be involved in providing psychosocial and emotional support to their older family members with CI. Family caregivers’ presence resulted in their older family members with CI feeling less frightened. Therefore, family caregivers’ involvement was critical to the successful functioning of the ward and taken into account in the allocation of patients to nurses.

> From a time management point of view, family caregiver involvement was helpful. If I was in the middle of doing something, for example, having difficulty cannulating intravenously, being unable to respond to a call light, family caregivers do things for us, they come to the nursing station and ask another nurse ... (R 09)

> Sometimes, we have no time to stay at the bedside, providing psychosocial and emotional support. I have noticed that older patients who have a family member with them at the bedside seem more relaxed and less anxious. (R 11)
Barriers

Barriers that impacted on delirium care were identified. Two subthemes were identified in relation to this theme and these are outlined below.

A lack of time. Some participants said that a lack of time was associated with busy daily routines and this could often lead to an over-reliance on family caregiver help. They also felt that family caregivers may often feel neglected or unsupported by the nursing staff. However, two participants expressed that even when nurses had sufficient time, they might not assist family caregivers in carrying out patient personal care because they were accustomed to family caregivers always providing this personal care. They also believed that older spousal caregivers might not be able to accomplish physically demanding personal care, leading some nurses to perceive those older spouses as demanding, as the following quotes illustrate:

*Family caregivers are always there for their older family members. Sometimes, I realise I have hardly seen an older patient all day ... I make an excuse for myself, being busy to try to get everything done.* (R 01)

*Although we have time to help family caregivers, we are used to them providing patient personal care ... getting them out of bed, assisting mobilisation and feeding. Sometimes, I think that it can be too much for them. They might feel neglected and unsupported from us.* (R 12)

*I think that older spouse caregivers have limits to involvement in the care of their older family members. They cannot provide physically demanding personal care such as personal hygiene, feeding, changing position and managing excrement. Working with them is more demanding ...* (R 07)

A lack of formal documentation of family caregivers’ needs. Some participants considered a lack of formal documentation of family caregivers’ needs as a barrier contributing to a lack of clarity regarding the roles and responsibilities of family caregivers:

*We don’t know what it is that family caregivers want. We rely on them to do so much for their older family members during the hospitalisation, but don’t document the care they provide. Without documentation, they have to repeat the same information frequently and need to update us continually about their older...*
In order to explore family caregivers’ perception of being involved in CI care, qualitative data were collected from selected family caregivers. The following section presents the findings from the family caregivers’ perspectives.

**Family Caregiver Sample**

Six family caregivers whose older family members were cared for by nurses who participated in the first phase were interviewed. Four family caregivers were adult female children and two were female spousal caregivers. The mean ages of adult child and spousal caregivers was 58 and 72 years old, respectively. The hours they gave to caregiving ranged between 8 and 12 hours per day. Two of the family members had a documented diagnosis of Alzheimer’s disease.

**Nurse-Initiated Efforts to Involve Family Caregivers in CI Care**

In terms of the participants’ perspectives on nurse-initiated efforts to involve family caregivers in CI care, three key themes emerged, comprising of six sub-themes. Table 5.5 summarises the themes and sub-themes from the qualitative data. The quotes reported in this section were translated from the Korean language transcripts. The participant quotes are followed by the bracketed acronym family caregiver (F) including their participant number (#).

<table>
<thead>
<tr>
<th>Theme</th>
<th>Sub-theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive experience</td>
<td>Increased support</td>
</tr>
<tr>
<td>Influencing factors on nurse-initiated efforts to involve family caregivers in CI care</td>
<td>Educational brochure</td>
</tr>
<tr>
<td></td>
<td>Sense of responsibility</td>
</tr>
<tr>
<td></td>
<td>Nurses’ expectations of family caregivers</td>
</tr>
<tr>
<td>Barriers</td>
<td>A lack of time</td>
</tr>
<tr>
<td></td>
<td>Over-reliance on family caregiver help</td>
</tr>
</tbody>
</table>

**Positive experience**

*Increased support.* Most participants reported that they had positive experiences of increased nurse-initiated interaction with them in the CI care of their older family members. They perceived that the provision of basic information about delirium and the family caregivers’ role in delirium prevention helped them to recognise the possibility
of their relative developing delirium, as well as to identify their role in helping to prevent delirium in their older family member. Some participants also expressed that they felt supported by nurses who encouraged them to talk about their concerns and express their emotions in relation to their older family members’ hospitalisation.

Participants shared their perceptions:

*I am satisfied with a nurse who initiated an interaction to provide delirium information and advice for my mom’s care. I knew that my mom can be confused related to delirium as well as dementia. It helped me do what I particularly need to do to help prevent delirium for my mom …* (F 04)

*I am satisfied … Whenever she comes to my mother-in-law, she always first ask whether I have any concerns or problems … any help … I also feel cared by her …* (F 02)

**Influencing factors on nurse-initiated efforts to involve family caregivers in CI care**

This theme involves the factors that influence nurse-initiated efforts to involve family caregivers in CI care. There were four subthemes generated from this theme and these are outlined below.

**Educational brochure.** The participants reported that the delirium brochure was useful as it was written in lay language, which made it easy to understand. The family caregivers felt that provision of the delirium brochure was useful in facilitating their involvement in CI care as it provided a good visual reminder and an aid at the point of care:

*The brochure visually presents delirium information. It helped me to understand the nurses’ explanation … to implement delirium prevention strategies when I cared for my mom at the bedside.* (F 01)

**Sense of responsibility.** Most participants said that their sense of responsibility facilitated their involvement in the CI care of their older family members. The following quote highlights this:

*It is our responsibility. She is my mother-in-law … Whenever my mother-in-law’s care is delayed, I need to remind the nurses, so they come and do it.* (F 03)
Nurses’ expectation of family caregivers. Most participants reported that the roles expected of them by nurses facilitated their involvement in CI care as highlighted in the following quote:

*The nurses request that family caregivers need to stay at the bedside and come to the nursing station or push the call light if my husband has a problem or need … for example, if his intravenous line stopped dripping, I need to let them know.* (F 05)

Barriers

The family caregivers reported on barriers to good CI care. There were two sub-themes for this theme and these are outlined below.

A lack of time. Most participants said that nurses lacked time, which was associated with busy daily routines, and this made them hesitant to approach nurses. They also played a passive role in the relationship with nurses. For example, family caregivers tended to wait until nurses approached them first, as highlighted in the following quote:

*They are always busy … running around to do medications, vital signs and paper work. I feel like I take up their time. When I need them, I sometimes wait until they come in the room to do something [before I approach them].* (F 06)

Over-reliance on family caregiver help. Some family caregivers said that nurses relied too much on their help. They felt frustrated about the lack of support from nurses in some situations. However, they were reluctant to complain or voice their unmet needs in case it adversely affected the way their older family member was treated. The following quote highlighted this issue:

*I understand nurses are always busy … they continually expect and expect from us as family caregivers but show us little respect for our efforts … I guess we are sometimes afraid to say things to the nurses, which would affect the caring anyway.* (F 03)

Conclusion

The interviews provided a rich description of the South Korean nurses’ experiences of the educational program in relation to learning processes, and subsequently on its impact on their knowledge of CI and attitude toward older adults with CI. One of the
strengths of the educational program was that the participants considered they were involved in reflective learning and critical thinking leading to deep learning related to delirium. Additional strengths of this program included collaborative learning in small groups that stimulated discussion and promoted problem-solving, and application of new concepts to practice that made the participants more competent in managing risk factors for delirium in practice. It was evident from the themes that emerged from the learning outcomes that these provided support for the statistically significant improvements as indicated in the quantitative outcome measures. In addition, the interview data provided from the South Korean nurses’ and family caregivers’ provided insights into the benefits that resulted from nurse-initiated efforts to involve family caregivers in CI care. However, there were difficulties encountered in the application of newly acquired knowledge to practice that need further consideration.

The following chapter links the qualitative and quantitative findings to the conceptual model and discusses the study findings in the context of relevant contemporary literature.
CHAPTER SIX
DISCUSSION

Introduction

Providing care for someone with delirium is a common experience for acute care nurses, with at least one in five hospitalised older adults experiencing delirium on any given shift (Ryan et al., 2013). Delirium is distressing for patients, families, and health care professionals and is linked to a range of serious adverse outcomes (Bruera et al., 2009; Inouye et al., 2014). A mixed methods sequential explanatory study was designed to evaluate the effectiveness of a cognitive impairment (CI) care educational program developed for South Korean nurses in one regional general hospital. The quantitative data showed that the educational program had a positive impact on South Korean nurses’ knowledge of CI and their attitudes toward older adults. The qualitative data indicated that the educational program benefited the South Korean nurses by improving their knowledge of CI, attitudes toward older adults with CI, and self-confidence in dealing with patients with CI, and by increasing their initial efforts to involve family caregivers in CI care. Nurse-initiated interaction with family caregivers promoted family caregivers’ involvement in the CI care of their older family members, which resulted in positive experiences of CI care. The program did not, however, translate to improvements in the documentation of CI care. This study also provides an understanding of the factors that affect the impact of an educational program on South Korean nurses and recommendations from frontline South Korean nurses on how the CI care educational program could be improved.

This study had several methodological strengths that improved upon prior research in the field:

- To the knowledge of the researcher, this study is the first of its kind in regional South Korea. Although a recent delirium study was undertaken in South Korea, Kim and Lee (2014) undertook this study in general hospitals in the large city of Busan, South Korea. The study undertaken for this PhD was undertaken in a regional rather than a metropolitan area.

- The current study is the first known study to encourage acute care nurses to involve family caregivers in CI care in South Korea. To the knowledge of the researcher, it is also the first study assessing both acute care nurse and family
caregiver perspectives of nurse-initiated efforts to involve family caregivers in CI care in South Korea.

- It used a mixed methods design. The qualitative component validated the quantitative evidence through confirmation and substantiation of findings, while the different data collection methods neutralised each other’s biases or weaknesses (Creswell, 2012, 2013).

- The educational program was based upon sound educational principles for adult learners (Knowles, 1973) to support and facilitate the nurses’ learning processes and outcomes.

In this chapter the effectiveness of the CI care education program is discussed, with a critical review of educational outcomes and processes. The quantitative and qualitative findings are linked to the theoretical framework and interpreted in the context of relevant contemporary literature, nursing, and aged care in South Korea. Finally, the study limitations are explored.

**Pre-intervention: Knowledge of CI**

In the current study, almost all nurses reported that they had experienced caring for hospitalised older adults with the symptoms of dementia, hyperactive delirium, hypoactive delirium, hyperactive delirium superimposed on dementia (DSD), and hypoactive DSD represented in the case vignettes. This finding suggests that it is common for South Korean nurses to encounter hospitalised older adults with hyperactive delirium, hypoactive delirium, hyperactive DSD, and hypoactive DSD, as well as dementia, in their daily practice.

The current study focused on knowledge of dementia, delirium, and DSD, including different motoric subtypes, using case vignettes. Specific real-life case vignettes were used to assess South Korean nurses’ knowledge of the recognition and management of a specific condition. This study showed that the nurses’ knowledge of the recognition and management of hypoactive delirium and hypoactive DSD was poor and inappropriate for clinical practice, compared with their knowledge of dementia, hyperactive delirium, and hyperactive DSD.

There are very few studies in the literature that have assessed the knowledge and/or ability of acute care nurses to correctly identify and appropriately manage
specific situations of dementia, delirium, and DSD subtypes. Fick et al. (2007) conducted a cross-sectional survey design to assess acute care nurses’ knowledge of the recognition and management of CI in the United States (US), using the same case vignettes used in the current study. McCrow et al. (2014) conducted a cluster randomised controlled trial (CRCT), with a pre-test/post-test time series design to investigate the effect of the delirium website on acute care nurses’ ability to recognise dementia, delirium and DSD subtypes in Australia, once again using the same case vignettes. Consistent with this prior research (Fick et al., 2007; McCrow et al., 2014), the nurses in the current study had some knowledge of the recognition of hyperactive delirium and hyperactive DSD at pre-intervention. Specifically, higher percentages of nurses in the current study were able to correctly identify hyperactive delirium (65%) and hyperactive DSD (70%) compared with 52% and 59% in the Fick et al. (2007) study and 58% and 67% at pre-intervention in the McCrow et al. (2014) study. In contrast, lower percentages of nurses in the current study were able to correctly recognise hypoactive delirium (25%) and hypoactive DSD (12.5%) compared with 41% and 21% in the Fick et al. (2007) study and 50% and 37% at pre-intervention in the McCrow et al. (2014) study. There were relatively high percentages of nurses in all three studies who could correctly identify dementia in the dementia case vignettes.

Consistent with the Fick et al. (2007) study, in the current study the qualitative responses given by nurses were related to management of the problems, and reflected that even though nurses may have identified the CI problem incorrectly they appeared to recognise that there was a change in cognitive status requiring further investigation, either through notification of the physician or taking actions such as assessment of glucose levels and vital signs. However, the results from the quantitative data in the current study showed that 40% of nurses decided to call the on-call physician for the symptoms of hypoactive delirium and 45% decided to call for the symptoms of hypoactive DSD vignettes compared with 86% and 65% in the Fick et al. (2007) study. This could indicate that less attention has been paid to CI care in nursing education in South Korea. South Korean nurses may assume that the symptoms of hypoactive delirium and/or hypoactive DSD are a normal part of the ageing process or a result of dementia, rather than being related to the symptoms of delirium. In South Korea, family caregivers at the bedside have the most consistent contact with their older family member in acute care settings (Cho & Kim, 2006). Due to a lack of awareness for delirium, family caregivers do not identify the symptoms of hypoactive delirium and/or
hypoactive DSD and do not report these symptoms to staff nurses. This finding highlights the need to educate both acute care nurses and family caregivers on CI care because older adults, particularly those with dementia, are at high risk of developing this complication while hospitalised.

**Pre-intervention: Attitude toward Older Adults**

In the current study, nurses at pre-intervention had higher mean negative ageing bias scores than mean positive ageing bias scores, resulting in mean net negative ageing bias scores. This result is similar to previous Western studies that demonstrated acute care nurses’ negative attitudes toward older adults or those with dementia (Cowdell, 2010b; Higgins et al., 2007). One possible explanation is that societal values toward older adults in South Korean culture appear to be changing. In South Korea and other Asian countries, Confucian values emphasise respecting and valuing the contributions of older adults (Wang & Mentes, 2009). In the current study, changes in sociocultural values associated with westernisation may have resulted in negative attitudes. Furthermore, this negative attitude may be a reflection of nurses’ decline in perspective of older adults (McCarthy, 2003). In the current study, nurses who may have held the decline perspective believed that older adults were confused and cognitive impairment was seen as inevitable among older adults.

Therefore, the negative attitude may lead to a tendency to dismiss the seriousness of the symptoms of delirium. With negative stereotypes of older people, cognitive decline or behaviour related to delirium is accepted as a normal part of ageing process (Dahlke & Phinney, 2008; Neville, 2008). As a consequence, delirium in hospitalised older adults with dementia and at risk of delirium is under-recognised or missed, and its management remains inadequate (Dahlke & Phinney, 2008; Neville, 2008; Yevchak et al., 2012). Considering that the presence of negative stereotypes of older adults can lead to inappropriate CI care among acute care nurses, educating acute care nurses about CI care is the first vital step as a potential solution to some of the quality CI care problems.

**The Effectiveness of the CI Care Educational Program**

To evaluate the outcomes of a CI care educational program, three hypotheses including two qualitative research questions were examined. The following provides a brief overview of the main findings, followed by a discussion of the findings.
Knowledge of CI

As indicated earlier, the South Korean nurses’ pre-intervention knowledge of CI, particularly hypoactive delirium and hypoactive DSD, was poor, and thus the educational program was expected to improve their knowledge of CI care. In general, the mean knowledge scores related to delirium being an acute onset and the nurses’ recognition of CI were significantly improved following participation in the program. Specifically, there were significant increases in the number of participants who correctly identified acute onset as the key feature of delirium, and they were able to correctly recognise hypoactive delirium and hypoactive DSD following participation in the program. Furthermore, the nurses’ perspectives on the management of CI improved following participation in the program. Specifically, there was a significant increase in the number of participants who decided to call the on-call physician for managing the symptoms of hypoactive delirium following participation in the program. There was also a significant decrease in the number of participants who considered calling the on-call physician for medicating the symptoms of hypoactive delirium following participation in the program.

The results from the qualitative data in the current study supported some of the significant findings from the case vignettes. The nurses provided examples of enhanced knowledge in their interviews. They described increased awareness of CI, which involved differential diagnoses between delirium and dementia, the importance of risk factor management for delirium, and responsibilities toward delirium prevention. They also highlighted the importance of the family caregiver role in the CI care of their older family members. They described that they needed to interact with family caregivers who were able to give information about baseline mental status, particularly those whose older family members were diagnosed with dementia.

Despite the differences in care settings, study designs, analysis, educational approach and measurement instruments, the results of the current study are similar to previous Western studies that have demonstrated a significant 3-month effect of educational programs on knowledge (Chow et al., 2015; Voellinger et al., 2011; Wand et al., 2014). This study contributes to the existing knowledge on the effect of educational programs on delirium knowledge (Chow et al., 2015; Voellinger et al., 2011; Wand et al., 2014). Furthermore, the findings suggest that regardless of different cultural values, different research methods, and different health care delivery systems,
an educational program can be effective in improving acute care nurses’ knowledge of CI. However, it was impossible to directly compare the findings of the current study with these three studies, because the three studies all used different instruments and the current study used case vignettes to assess knowledge of CI. Future research should focus on using the same assessment instrument on knowledge of CI in different studies and in different countries. This would not only make it possible to compare studies and educational programs, but also provide insight into the differences in the knowledge of CI between countries with different cultural values and health care delivery systems.

However, it is not clear if the effect identified in the current study will continue once the educational programs are removed. McCrow et al. (2014) used a longitudinal design that considered sustainability. McCrow et al. (2014) also used the same vignettes as in the current study to evaluate the effect of an educational website on recognition of delirium, but used a different instrument for delirium knowledge. McCrow et al. (2014) showed that improved recognition of delirium in an intervention group was not sustained six to eight weeks post-intervention, compared with a control group who did not receive access to the educational website, when assessed using the case vignettes.

Several explanations may be given for the conflicting findings. First, the length of the educational program in the current study was longer than in the McCrow et al. (2014) study (three months vs. five weeks). In addition, the current study used a multimodal educational program that incorporated two workshops and two ongoing support sessions, and thus was different from the web-based education in the McCrow et al. (2014) study. Over a 3-month period, multimodal educational strategies used in the current study may explain why the current study reported a significant improvement in knowledge of the recognition of CI. Chow et al. (2015) and Wand et al. (2014) found a significant 3-month effect of multimodal educational programs on delirium knowledge. There were also research design differences between the current study and the McCrow et al. (2014) study. A single group, pre- and post-intervention without a control group was used in the current study, and thus was different from the Cluster-RCT design in the McCrow et al. (2014) study. The lack of a control group may explain why the current study reported a significant improvement and gives rise to uncertainty regarding to what extent the positive change was due to the educational program or other confounding factors (Norwood, 2010). Using volunteer nurses to participate in an educational program without randomisation could attract nurses who may be highly motivated
individuals, and therefore may have been an influencing factor compared with the population recruited in the McCrow et al. (2014) study. Thus, a more refined study design, such as an RCT, is needed to minimise the effect of extraneous factors and to draw more reliable conclusions about the effectiveness of the educational program for South Korean nurses (Norwood, 2010).

The current study shows that regardless of characteristics of the individual nurse, nurses on average benefited significantly from the educational program. This finding supports the van de Steeg et al. (2015) study, which did not show a significant impact of nurse characteristics on the effect of e-learning on knowledge. These characteristics included age, gender, nursing position, highest level of education, work experience, type of ward, and type of hospital. Meako et al. (2011) found that one hour of education on delirium was effective for all participating nurses, regardless of their highest level of education or shift. Meako et al. (2011) also found that those nurses with 0–2 years of work experience significantly benefited more from the education, compared with those with more than 10 years of work experience. Thus, it is not clear if the characteristics of individual nurses impact on the educational programs’ effect on knowledge. Additional studies are needed to investigate the predictors of knowledge of CI and its relation to an educational program.

**Attitude toward Older Adults with CI**

The current study showed a significant 3-month effect of the educational program on South Korean nurses’ net negative biased attitudes toward older adults. Post-intervention mean negative ageing bias scores decreased more than mean positive ageing bias scores, and thus mean net negative ageing bias scores significantly decreased. The results from the qualitative data in the current study also support the significant findings from the Facts on Ageing Quiz (FAQ) (Palmore, 1977) identified in the quantitative data. The participants provided clear examples of attitudinal change in their interviews. They described increased awareness of older patients with CI and indicated that they had become more comfortable in caring for such patients. They also described developing a more positive attitude toward older adults with CI after participation in the educational program. Despite the differences in care setting, research design, sample characteristics, educational approach, and measurement instruments, this finding is similar to a previous study in the UK that demonstrated a positive effect of comprehensive education and skill mix on staff confidence, morale,
and attitudes in a specialist unit for general hospital patients with CI (Spencer, Foster, Whittamore, Goldberg, & Harwood, 2014). These findings are particularly encouraging, considering that acute care nurses have generally unfavourable views of older adults with CI (Cowdell, 2010b; Dahlke & Phinney, 2008).

This positive finding might be explained by the nurses’ improved knowledge of CI (Flagg et al., 2010; Nilsson et al., 2012). In the current study, the educational program may have helped participants to dispel misconceptions about the cognitive and behavioural changes associated with CI, thus facilitating more positive attitudes toward older adults with CI. Furthermore, participants’ improved knowledge of CI may have influenced their self-confidence in caring for older patients with CI as well as lead to more positive attitudes toward older adults with CI. In the current study, the nurses described improved confidence when assessing delirium risk factors and asking family about the older patients’ baseline mental status prior to hospital admission. Reflective and collaborative engagement used in an educational program might positively impact on the knowledge and self-confidence of participating nurses. The literature strongly supports that reflective learning is particularly conductive to promoting deep learning by actively integrating new ideas into the cognitive structure (Branch & Paranjape, 2002; Hill & Woodland, 2002). In the current study, the reflective and interactive approach was facilitated by the use of case-based group discussion, selected presentations, and non-judgemental feedback from the instructor and colleagues. This approach helped the participating nurses to re-examine their existing knowledge and practice and to influence their attitude toward CI care. This suggests that through reflective learning opportunities to improve knowledge of CI, acute care nurses can enhance their attitude toward older adults with CI.

However, it is possible that the self-reported improvement in attitude could be attributed to social desirability. That is, respondents gave positive answers on the post-intervention questionnaire and/or in their interviews because they believed that was how the researcher wanted them to respond (Norwood, 2010). Although this argument cannot be ruled out entirely, it is unlikely because the 3-month separation from the educational program made it difficult for respondents to recall their pre-intervention answers.

In the current study, despite a significant improvement in mean net negative ageing bias scores, there was no significant decrease in the number of participants who
had negative biased attitude toward older adults following participation in the educational program. At post-intervention, 32 participants still retained a negative biased attitude toward older adults. Despite the differences in research design, sample characteristics, analysis, and measurement instruments, this finding is inconsistent with previous Western studies (King et al., 2013; Sarabia-Cobo & Pfeiffer, 2015) in which a stand-alone gerontological course has produced positive attitudes toward older people or modified negative stereotypes of older people. However, consistent with the current study, Holroyd, Dahlke, Fehr, Jung, and Hunter (2009) found no significant difference across the student cohorts by year in an integrated 4-year Baccalaureate program with a drop in positive attitudes and rise in negative attitudes at the beginning of the second and fourth years. This finding may reflect the difficulty of changing long-term negative attitudes and stereotypes.

There are several possible reasons for this difficulty. It may have been a reflection of nurses’ biomedical perspectives. In South Korea and other Asian countries, the undergraduate nursing curricula currently focuses on biomedical-oriented care, characterised by diagnosis and medical treatment (Wong, 2014). A biomedical approach associates ageing with disability and loss of function, which negatively affects a stereotypical understanding of ageing (Henderson, Xiao, Siegloff, Kelton, & Paterson, 2008). In the current study, nurses may already have viewed older people with loss of mental and physical function and loss of independence negatively, holding a biomedical approach. Despite the educational efforts in the current study, it may have been difficult for nurses to banish long-term negative stereotypes. The difficulty may also have been related to nurses’ changes in societal values toward older adults in South Korean culture. In South Korea and other Asian countries, Confucian values often emphasises respecting and valuing the contributions of older adults (Wang & Mentes, 2009). In the current study, due to changes in sociocultural values associated with westernisation it may have been difficult for nurses to change their negative attitudes. Furthermore, this difficulty may have been a reflection of society’s high values placed on youth, cure, and technological advances in health care in South Korea. Finally, this difficulty may have been related to nurses’ limited gerontological learning experience. In South Korea, a medical-surgical subject accounts for a large portion of undergraduate nursing curricula and clinical placements in settings such as acute medical and surgical wards where the focus is on praxis and not specifically care of older people (Kim et al., 2013; Yun, 2008). In the current study, nurses may not have had sufficient learning opportunities to
develop positive aspects of ageing since they learnt the gerontological nursing content in medical-surgical or mental health nursing subjects in their undergraduate programs. Thus, in order to improve attitudes toward older adults, there is a need for ongoing continuous and in-service education in gerontological nursing.

**Documentation of CI care**

Although the educational program positively changed nurses’ knowledge and attitudes in the current study, these positive effects did not translate to improvements in the documentation of CI care. There was no significant increase in the frequency of nursing documentation of cognitive assessments following participation in the program. The keyword *agitation* was documented most frequently in the pre- and post-intervention groups, but there was no significant difference. Furthermore, there was no significant increase in the frequency of nursing documentation of the use of non-pharmacological management following the documentation of keywords associated with delirium after participation in the educational program. Post-intervention, a combination of non-pharmacological management and medication was documented most frequently following the documentation of the keywords *agitation, inappropriate behaviour,* and *mental status change.*

This finding is inconsistent with previous Western studies (Chow et al., 2015; Gordon et al., 2013a). Chow et al. (2015) demonstrated that a geriatrician-guided delirium training incorporating the CAM into regular nursing assessment significantly increased the frequency of CAM documentation. Gordon et al. (2013a) also identified that a didactic session coupled with bedside coaching significantly increased the frequency of documentation of delirium screening results.

The possible explanation may be a lack of familiarity with CAM. In the current study, nurses received training in the workshops to use the CAM, but they did not receive an opportunity to situate this learning at the bedside while being assessed by the facilitator. Thus, in the current study, education about CAM use may not have been sufficient to translate into documentation for a real patient population. Further research is needed to determine the most effective ways to introduce and use a standardised assessment tool for recognising delirium in clinical practice settings in South Korea. A lack of knowledge about documentation per se may also have influenced South Korean nurses’ documentation of CI care, although learning documentation skills was outside the scope of the educational program in the current study. In South Korea, although
other factors (e.g., a lack of time) contribute to poor nursing documentation, nurses often do not document the care they provide in accordance with the nursing process (Kim & Park, 2005). This is because they lack knowledge about nursing process documentation (Kim & Park, 2005). Therefore, in order to improve nursing documentation of CI care, education and training should be provided on the importance of nursing documentation based on the nursing process.

Meanwhile, as the intent of the current study was to increase nursing documentation of cognitive assessment, we did not evaluate the accuracy of the nursing documentation of delirium. However, nurses did not document the keywords indicative of hypoactive delirium as well as the term delirium at pre- and post-intervention. This finding supports previous Western studies that have demonstrated failure of acute care nurses to use the correct term delirium in documentation, and indicated under- and non-recognition of delirium, particularly hypoactive delirium, in hospitalised older adults with and without dementia (Hare, McGowan, et al., 2008; Steis & Fick, 2012; Voyer et al., 2008).

Several factors may account for this finding. It is possible that hospitalised older adults with dementia and at risk of delirium simply did not have delirium, so there was nothing to document. For those patients in the study with dementia, nurses may have found it difficult to distinguish the overlapping symptoms of delirium if experienced. As fluctuation is a defining characteristic of delirium, cognitive assessment may also have missed delirium that was present outside the limited duration of bedside assessment.

In the current study, there was a significant increase in South Korean nurses’ comprehensiveness of documenting CI care following an educational program. Although statistically significant, the mean scores of the comprehensiveness of documenting CI care at pre-intervention were 3.30, which indicates the minimum score for satisfactory documentation, including problem description, intervention, and outcome (Ehnfors & Smedby, 1993). In the current study, regardless of the type of care, nurses may have recognised the importance of documentation as an important indicator of their care practices and organisational processes may have also assisted.

**Nurse-Initiated Efforts to Involve Family Caregivers in CI Care**

The qualitative findings of the current study showed a positive effect of the educational program on nurse-initiated efforts to involve family caregivers in CI care. Most nurses
reported that family caregivers had a better understanding of their role in CI care following the educational program, and the nurses provided examples of positive experiences in their interviews. They highlighted that family caregivers provided basic care related to activities of daily living (ADLs), reassurance, comfort, and constant attention to their older family members with dementia and at risk of delirium. They also described that older family members with dementia and at risk of delirium were comfortable and cooperative because their family caregivers were constantly at the bedside. This finding supports a previous Western study that demonstrated the feasibility of family caregiver involvement in a delirium prevention program in the acute care setting (Rosenbloom-Brunton et al., 2010).

In the current study, family caregivers reported that nurse-initiated interaction with them increased, and they provided examples of positive experiences in their interviews. Most family caregivers said that nurse-initiated interactions provided basic information about delirium and the family caregiver role in delirium prevention, and as a consequence they had recognised their older family members’ risk of developing delirium and their role in helping prevent and/or manage delirium. Some family caregivers also felt cared for by nurses who encouraged them to talk about their concerns and emotions about their older family members’ hospitalisation. Thus, the increase in nurse-initiated interaction with family caregivers led to family caregivers expressing positive experiences in the CI care of their older family members. The increased interaction between nurses and family caregivers aligns with the concept of family-centred nursing care (Rosenbloom-Brunton et al., 2010). As the patient and family are the experts, families are involved as collaborative partners in all aspects of services and decisions about care (Allen & Petr, 1996). Rosenbloom and Fick (2014) identified that a key component in establishing a partnership was communication where both the family caregivers and nurses’ daily shared concerns and/or challenges related to the hospitalised older adults’ acute care.

The current study showed the usefulness of an educational brochure for family caregivers with both the nurses and family caregivers providing examples. The majority of nurses felt that the inclusion of the delirium brochure in ward orientation on admission, with reinforcement occurring during change of shifts, was useful in facilitating their initial efforts to involve family caregivers in CI care. The majority of family caregivers also described the delirium brochure as being an easy way to
understand delirium. Despite the differences in research design, care setting, educational brochure, outcome measures, and culture, this finding is similar to previous studies (Gagnon et al., 2002; Otani et al., 2013) where family caregivers of persons with advanced cancer who received an educational brochure became more aware of delirium and felt better prepared to deal with delirium. This suggests that regardless of different cultural values, different disease, different research methods, and different health care delivery systems, an educational brochure can facilitate nurse-initiated efforts to involve family caregivers in CI care and assist family caregivers in understanding delirium and implementing delirium prevention strategies.

In the current study, the majority of nurses reported that meeting the care needs of older patients facilitated their initial efforts to involve family caregivers in CI care. They provided examples of the need for family caregiver involvement in CI care, in areas such as personal care and psychosocial and emotional support. In the health care system in South Korea, RNs are not often involved in personal care, and it is the responsibility of the nursing assistant to deliver this aspect of patient care (Korea Ministry of Health and Welfare, 2013). However, due to a shortage of nursing assistants in the hospital where the current study took place, RNs and family caregivers viewed patient personal care as a family caregiver responsibility. Kwak et al. (2010) concurs that South Korean RNs do not have to concentrate as much on patients’ ADLs, as South Korean culture assumes that this is largely a family responsibility. Therefore, unless RNs see they have a role in the education of family members they will ignore the family and their potential contribution to the provision of care.

In the current study, most family caregivers reported that their sense of responsibility and nurses’ expectations of them facilitated their involvement in CI care. They described a designated responsibility based on the principles of filial duty and feeling responsible for ensuring that their older family members received appropriate care. They also reported that nurses expected them to participate in monitoring of their older family members and timely reporting to staff nurses of any concerns or indications of delirium. This finding is similar to a previous Asian study in which family involvement in inpatient care was more a designated responsibility and an expected role in families, rather than an issue related to families’ willingness to participate (Tzeng & Yin, 2008). In South Korea and some other Asian countries (e.g., Taiwan and China), tradition has preserved a strong family bond and filial responsibility for the care of older
family members (Chee & Levkoff, 2001). Furthermore, hospitals acknowledge open visiting hours, although their visitation policies consist of set hours for inpatient wards. Family members, particularly female family members (e.g., wife, daughter and daughter-in-law), are allowed to stay at the patient’s bedside during hospitalisation (Cho & Kim, 2006). Therefore, they will be appraised when displaying filial duty as caregivers, and they may be criticised if seen to neglect such cultural values (Tzeng & Yin, 2008). Nursing staff also expect family caregivers to stay at the bedside 24 hours a day (Cho & Kim, 2006).

**Educational Processes**

The qualitative findings of the current study provided an understanding of the strengths and limitations of the educational program, as well as nurses’ CI practice changes in the context of in-service education in South Korea. The nurses reported improved knowledge, attitude, and self-confidence in CI care. Despite the differences in research design, care setting, educational approach, and outcome measures, this finding is similar to previous studies that demonstrated a positive effect of an educational program on acute care nurses’ self-confidence in delirium care practice (Akechi et al., 2010; Chow et al., 2015).

Several explanations may be given for this finding. First, key informants at the study hospital site provided support for an educational needs assessment and participating general internal medicine ward managers provided important and relevant information, which helped tailor the educational program for South Korean nurses. This key informant involvement ensured that the educational program met the readiness for learning and adult learning needs according to Knowles’ adult learning theory (Knowles, 1973, 1980), which stimulated South Korean nurses’ interest and ability to learn. Thus, it is important that compliance with educational principles relating to effective learning is incorporated into the development of an educational program. Furthermore, in the hospital where a monthly, ward-based, in-service education is held in a conference format, the educational program delivered as a ward-based, in-service education in the current study provided a motivating drive for South Korean nurses to learn through self-direction and voluntary participation in the educational program as adult learners.

Second, this positive effect can be attributed to the strength of adult learning theory applied in delivering an educational program. The literature strongly supports that adult learning methods facilitate active learning, which can enhance critical
thinking (Knowles, 1973, 1980; Youngblood & Beitz, 2001). In the current study, strategies for adult learning included case method, role playing, discussion, selected presentations, and non-judgemental feedback from the instructors and colleagues. Through these strategies, nurses achieved a deeper understanding of CI care by relating their learning to personal experience, re-examining existing practice, gaining new knowledge, and applying the knowledge in practice. In other words, the process involved new associations and integration of the concepts such that nurses would be able to apply the knowledge to new situations rather than rely on memorisation (Knowles, 1973, 1980).

Furthermore, small group learning encouraged nurses to work collaboratively with colleagues, which stimulated discussion and assisted nurses in deepening their knowledge and promoting problem-solving. Interaction in small group learning enabled nurses to identify new ideas and thoughts that they had been unable to achieve in individual-based learning. This finding supports the literature that adult learners respond to learning through personal experience and group support (Caudron, 2000). Thus, this suggests that interaction in small group learning can be facilitated where adult learners have relevant work experience. It is reasonable to infer that the adult learning approach can facilitate the enhancement of knowledge, attitude, and self-confidence in caring for older patients with CI.

The current study identified that the interpersonal relationships developed in a group learning environment facilitated interaction in the educational program. An informal relationship among the participants in the study wards, because they graduated from the same college or were born in the same geographical area, created strong group cohesion, which promoted a comfortable and supportive environment to facilitate interactive participation in the ward-based intervention (Kwak et al., 2010). This finding is similar to previous Asian studies (Chow, Harrison, McKinnon, & Wu, 1999; Valentine & Speece, 2002). Valentine and Speece (2002) in Singapore, a mostly Chinese environment, demonstrated that interpersonal relationships among learners facilitated discussion in small groups where issues of face and status became less important. Chow et al. (1999) also identified that Collectivist and Confucian Taiwanese exhibited a stronger sense of responsibility than Westerners to share information within the group. In South Korea and other Asian countries, a collectivist culture is a strong sense of belonging to a social group and there is a preference for working together in
groups to solve problems (Gieve & Clark, 2005; Kennedy, 2002; Park, 1997). The Confucian tradition highly values interpersonal harmony and relational hierarchy (Zhang, Lin, Nonaka, & Beom, 2005). In the current study, the interpersonal relationship among the participants derived from these cultures may have facilitated their group work and interaction (Gieve & Clark, 2005; Kennedy, 2002; Park, 1997), and more importantly collective problem-solving. Thus, this suggests that these learning methods can be applied in the South Korean context where a small group format and interpersonal relationships among the participants encourages interaction.

In the current study, there were suggestions from participants about the need for lengthening the duration of the education and elaborating on topics such as delirium-causing drugs. These topics reflected the participants’ learning needs and concerns in practice. Polypharmacy is a major contributor to the development of delirium (Alexander, 2009). Medications can contribute to the development of delirium in older adults including analgesics, benzodiazepines, anticholinergic medications, and antidepressants (Catic, 2011). Furthermore, the effects of polypharmacy can be increased by use of over-the-counter products (Catic, 2011). As such, including drug information into future educational programs related to CI care would be important.

**Barriers to Practice**

In the current study, nurses faced a number of barriers to the application of knowledge in practice. The identified barriers included the organisational culture, inadequate management support, and a lack of formal documentation of family caregivers’ needs. Furthermore, the organisational culture at the study hospital site was an area of concern. In a hierarchical, medically-dominated hospital structure, physicians’ biomedical perspectives dominate the treatment paradigm and thus define the roles and responsibilities of nurses (Christensen, 2014; Wong, 2014). Although nurses have autonomy for planning nursing care, they are not often involved in the decision-making process of patients’ care plans and so prioritise technological and task-driven care to support medical treatment (Christensen, 2014; Wong, 2014). With this task-oriented perspective, nurses in the current study perceived that routine cognitive assessment and patients’ medication optimisation was the responsibility of physicians rather than a nursing role. This finding supports a previous Asian study in which RNs in an intensive care unit (ICU) relied on direction from medical staff and placed little importance on
undertaking a delirium assessment or alternatively saw the assessment as a medically ordered task to be performed (Christensen, 2014).

The current study found inadequate management support as a barrier to practice change. Nurses reported difficulties applying knowledge to practice in their interviews, identifying nursing staff resources, policies, and protocols as considerable barriers. Inadequate staff resources involved time constraints, heavy workloads, shortage of staff, and busy daily routines as major challenges. Similarly, in South Korea and internationally, ICU RNs want to apply the CAM-ICU into practice, yet are constrained by inadequate nursing staff and a lack of time for them to introduce the CAM-ICU and adjust to using it in practice (Jung et al., 2013; Soja et al., 2008). In the current study, nurses also reported lack of time as a barrier to their initial efforts to involve family caregivers in CI care. They described that due to a lack of time associated with their busy daily routines, they had to over-rely on family caregivers to help deliver the care. Consistent with this, family caregivers felt frustrated with the lack of support from nurses. Despite the differences in research design, care setting, culture, and outcome measures, this finding is similar to a previous Western study that found nursing staff shortages as a barrier to facilitate family caregiver involvement in delirium prevention efforts in the acute care setting (Rosenbloom-Brunton et al., 2010). It could be argued that family caregiver involvement in the current study was a result of incorporating extra practice support for CI care, rather than the concept of family-centred nursing care.

Consistent with previous South Korean studies (Choi et al., 2011; Lee et al., 2007), nurses in the current study said that there was a need for hospital management to develop comprehensive policies and protocols that promote CI care practice in the workplace. Internationally, research increasingly recommends the use of a standardised protocol for delirium prevention and management in hospital settings (National Institute for Health and Clinical Excellence, 2014; Tullmann et al., 2008). Thus, it is important to develop and implement such a protocol and relevant policies in the study hospital site. However, a previous Asian study found that although hospitals had a CI protocol, the majority of nurses reported a lack of knowledge and education as major barriers to implementing that protocol (Koh, Manias, Hutchinson, Donath, & Johnston, 2008). This suggests that educational supports are a necessary precursor for nurses to incorporate protocols and policies in practice.
The current study also identified a lack of formal documentation of family caregivers’ needs as a barrier to practice change. Some nurses reported that inadequate documentation of communication between family caregivers and nurses could lead them to interpret differently the involvement of family caregivers in care. They also said that family caregivers and nurses had to repeatedly provide information and explain expectations until negotiations regarding the degree of family caregiver involvement were clarified. This finding supports a previous family-centred care study (Coyne, 2013) in which inadequate documentation for family caregivers contributed to a lack of clarity in the role and responsibility of family caregivers. This finding may be a reflection of nurses’ biomedical perspectives. In South Korea and other Asian countries, the health care management structure is hierarchical and medically dominated (Christensen, 2014; Wong, 2014). Due to a lack of formal documentation of family caregivers’ needs in the hospital where the current study took place, RNs prioritised skilled nursing procedures that supported medical treatment over documenting their work with families. Thus, it is important that nurses document their work with families and communicate family caregivers’ needs with other health care professionals. Appropriate documentation has been shown to positively influence family-centred nursing care (Law et al., 2005).

Therefore, we should not take a simplistic view of the effect of education. We cannot assume that nurses will automatically apply new knowledge to their practice or change their existing practice after participation in an educational program. In order to successfully facilitate practice change, South Korean nurses clearly need not only appropriate education, but also adequate resources and support from managers and from all other health care professionals.

**Limitations of the Study**

Several limitations should be considered when interpreting the findings of the current study. A limitation of self-report questionnaires and interviews is that they do not measure observed outcomes. Dihle, Bjølseth, and Helseth (2006) demonstrated in their observational and interview study that there was a gap between what nurses said they did during interviews and what they were observed doing. Thus, the researcher in the current study could not firmly reach a conclusion on whether actual attitudinal or behavioural changes had taken place in clinical practice.

Culture and beliefs, as well as hospital policies associated with CI care and family caregiver involvement, may vary across different geographic areas (e.g.,
metropolitan hospitals vs. non-metropolitan hospitals) and types of hospitals (e.g., tertiary hospital vs. general hospitals) in South Korea. Thus, the findings of the current study may not be generalisable to all hospital settings in South Korea, because the current study involved one regional general hospital in a non-metropolitan area.

The current study was confined to a convenience sample of nurses rather than a randomly selected sample. Nurses with a particular interest in CI care and a willingness to engage in learning may have chosen to participate in the educational program. It could be argued that the positive changes following the educational program were a result of simply providing an opportunity for highly-motivated nurses to gain information rather than any specific qualities of the educational program. However, this was the most feasible and efficient recruitment technique given the time and resource restraints of the current study.

Despite pilot testing with fourth-year South Korean undergraduate nursing students who had completed the subject and clinical placement related to gerontological nursing, the Korean versions of the revised DSD algorithm (Fick & Mion, 2008) for acute care nurses and delirium brochure (Australian Government Department of Health, 2011) for family caregivers have not been tested in other Korean clinical settings. It is anticipated that the Korean versions of the revised DSD algorithm (Fick & Mion, 2008) for acute care nurses and delirium brochure (Australian Government Department of Health, 2011) for family caregivers will be tested and used in other hospital settings in South Korea.

The researcher in the current study decided to conduct the post-intervention testing as late as practicable. Abruzzese (1996) recommended a 3 to 6-month timeframe for post-education measurement of nursing professional staff development. The post-test in the current study was administered three months after the educational program and not later due to time and resource restraints. Similar to other Western studies (Chow et al., 2015; Voellinger et al., 2011; Wand et al., 2014), the current study identified a 3-month positive effect of the educational program. Thus, a longitudinal study with follow-up testing at 6 months and 12 months is needed to identify sustainability of acute care nurses over time.

The next chapter offers the conclusions and implications of the findings for nursing education, practice, and future research.
Alongside an ageing population, the rapid increase in the number of South Korean older adults with dementia has the potential to lead to an increased incidence of delirium in acute hospital settings. However, little attention has been paid to improving cognitive impairment (CI) care by acute care nurses in South Korea. This chapter outlines the recommendations and conclusions drawn from this work.

**Recommendations**

Several of the study findings and experiences are notable, particularly as they have implications for nursing education, nursing practice, and future CI research.

**Implications of Findings for Nursing Education**

An ageing population, particularly older adults with dementia, is currently challenging health care delivery, and acute care nurses will be increasingly required to provide CI care to an ageing population. Educating acute care nurses about CI care is a vital step in the goal of delirium prevention, recognition, and management in hospitalised older adults with dementia and at risk of delirium (Steis & Fick, 2008; Steis & Fick, 2012).

Therefore, hospital in-service education programs should include CI care for acute care nurses. This education should be directed towards helping acute care nurses to improve their ability to provide appropriate CI care. Such education programs must address the specific needs of acute care nurses who work in different health care settings and with various target populations. The educational content has to be tailor-made to enable acute care nurses to establish and maintain specific knowledge, attitudes, and skills in caring appropriately for older patients with CI. Cultural values and institutional contexts should be considered when selecting effective teaching and learning methods to enhance acute care nurses’ learning. Furthermore, such education must take into consideration the limited time nurses have to learn in the clinical setting.

If positive changes are to be sustained, there is a need for a continuous cycle of education so that new knowledge and skills can be internalised. Feedback from this study suggests that the duration of the educational program needs to be lengthened. Ongoing evaluation of the educational program is also needed to facilitate continuous improvement. Effective training methods to ensure competent practice of cognitive
assessment also need to be considered. In addition, inclusion of content regarding delirium-causing drugs in hospital in-service education programs is needed.

As a lack of time associated with busy daily routines encourages acute care nurses to do more with less, family caregivers as partners with acute care nurses can play a large role in the CI care of their older family members. It is important to educate acute care nurses about the importance of family caregiver involvement in CI care, particularly providing delirium education to family caregivers of older adults with dementia and at risk of delirium (Rosenbloom & Fick, 2014). However, effective family-centred nursing care cannot be delivered and sustained without the development of the nurse and family caregiver partnership in which the patient and family are the experts; involving families as collaborative partners in all aspects of services and decisions about care is crucial (Allen & Petr, 1996; Rosenbloom-Brunton et al., 2010; Rosenbloom & Fick, 2014). As part of the hospital in-service educational program, there need to be more practical workshops on family-centred nursing care, such as skills for communication, developing therapeutic relationships, assessing families’ needs, and conflict resolution (Coyne, O’Neill, Murphy, Costello, & O’Shea, 2011; LeGrow & Rossen, 2005).

Nursing students in undergraduate programs should be well-prepared to provide appropriate CI care before entering into a nursing career. Nursing faculty members who are committed to gerontological nursing in undergraduate programs need to advocate for stand-alone gerontology courses to be compulsory and to increase the content of CI care in these subjects and clinical placements. Nursing students in undergraduate programs should also have an opportunity to experience family-centred nursing care theory and practice. Thus, this learning experience as students can help them as acute care nurses to implement collaborative partnerships with families. However, in South Korea and other Asian countries, the undergraduate nursing curricula currently emphasises the importance of medical-oriented and individual-focused care (Wong, 2014). This emphasis contributes to an absence of family-centred nursing care in curricula (Feeley & Gottlieb, 2000). Nursing faculty members need to review and revise the existing curricula to ensure family concepts and theories are provided to both undergraduate and graduate nursing students.
Implications of Findings for Nursing Practice

Given the time and resource restraints, the current study targeted South Korean nurses in one regional general hospital. The management of delirium can be complex, requiring the collective expertise of multiple health care professionals (Teodorczuk, Reynish, & Milisen, 2012). As a result, effective educational programs to enhance delirium care should go beyond uniprofessional education and include multiple health care professionals (Sockalingam et al., 2014). In the United Kingdom (UK), the National Institute for Health and Clinical Excellence (NICE) has published guidelines for delirium care (National Institute for Health and Clinical Excellence, 2014), which state that treatment of delirium should include a multi-disciplinary intervention delivered by a team of health care professionals trained and competent in delirium prevention and management. Furthermore, a systematic review argues that interprofessional educational programs can improve team and patient outcomes in delirium care (Sockalingam et al., 2014). As such, there is a need for combined interprofessional education and interprofessional practice interventions.

Interdisciplinary team work needs to be recognised and supported for delirium care practice. There is a need to develop, implement, regularly review and update a standardised protocol and relevant policy for delirium care practice within interdisciplinary teams. Key considerations for interdisciplinary teams are to identify: delirium-screening tools that are most valid and appropriate for the patient population predominantly cared for; the discipline that should take responsibility for various elements of the comprehensive patient assessment; the circumstances whereby a delirium diagnosis need to be confirmed by a medical professional and the workable strategies to achieve this in a timely and efficient manner; and how to streamline each discipline-specific delirium process into systems that better meet the need of inpatients (Hosie & Phillips, 2014; Koh et al., 2008). In particular, for acute care nurses to be actively engaged in delirium care, it is necessary for them to know and apply these key considerations in their daily practice. To achieve this, there is a need for educational support. Engaging nurse managers and senior nurses as change champions can be effective in encouraging and reinforcing nurses to adhere to a delirium protocol at the ward level (Koh et al., 2008). Furthermore, computerised decision support systems and reminders can assist acute care nurses to provide appropriate delirium care (Fick et al., 2011).
There needs to be sufficient staffing levels and appropriate skill mix to ensure an optimum delivery of CI care. Staffing levels and patient-nurse ratios should reflect the increasing acuity levels of older adults with CI and allow for RNs to have enough time to complete their professional nursing work, such as cognitive assessment while at the same time providing information and psychosocial support for patients and their family caregivers (Aiken et al., 2013; Coyne et al., 2011). An educational brochure for delirium care should be incorporated into routine clinical care practice, as this can help nurses provide information and psychosocial support to patients and their family caregivers. Furthermore, nursing documentation materials may need to be revised to reflect family caregiver involvement in CI care. RNs should document their work with families and communicate family caregivers’ needs with nurse managers, physicians, and other health care professionals (Coyne et al., 2011).

**Implications for Future Research**

In planning further research in the field of CI care in hospitalised older adults, the following issues/areas should be considered.

*Evaluation of clinical practice and patient health-related outcomes.* In the current study, the educational outcome measures were self-reported by the participants. It could be argued that case vignettes are not appropriate measures to report on the evaluation of change in nursing practice. Evaluation of clinical practice and patient health-related outcomes including chart audits to determine pre- and post-changes are considered as more substantial outcome measures (Wand et al., 2014). However, these outcome measurements were outside the scope of the current study. Practice change and patient health-related outcomes including incidence of delirium, length of hospital stay, and hospital acquired complications are important endpoints of nursing practice, and thus they should be part of any future delirium education research.

*Need for multi-site studies.* In South Korea, one study evaluated the effect of a delirium care educational program on acute care nurses (Kim & Lee, 2014), thus limiting potential comparisons and contrasts with the current study. Given the time and resource restraints, the current study involved only one regional general hospital in a non-metropolitan area. Personal and professional characteristics of acute care nurses and family caregivers in the current study may differ from those in metropolitan hospitals. Any future South Korean research in this area should consider using a multi-
site design to increase the generalisability of the findings and provide additional evidence from which conclusions may be drawn.

As delirium occurs in all clinical care settings (Cole et al., 2009; Fick et al., 2013; Fong, 2009), any future South Korean study should consider including a variety of hospital inpatient settings (e.g., surgical wards and palliative care wards). Other health care professionals should also be included in the educational program, as they often have a high level of interaction with patient and their families.

**Conduct family-centred nursing care intervention studies on CI care.** There has been a welcome increase in family-centred nursing care intervention studies on CI care in Western countries (Rosenbloom-Brunton et al., 2010; Rosenbloom & Fick, 2014). Further South Korean studies are needed to determine which family-centred nursing care interventions are culturally specific and most effective for nurses and family caregivers in CI care. Pre- and post-evaluative surveys and patient health-related outcomes should be used to measure the effect of family-centred nursing care on CI care.

**Psychometric properties of the Korean versions of the written resources.** Any future study should test the psychometric properties of the Korean versions of the revised DSD algorithm (Fick & Mion, 2008) and delirium brochure (Australian Government Department of Health, 2011) among health care professionals in South Korean hospitals in order to increase reliability and usefulness of the measure.

**Longitudinal design.** Internationally and in South Korea, few CI studies have used a longitudinal design to evaluate educational outcomes for acute care nurses (McCrow et al., 2014). Thus, a longitudinal study with follow-up testing at 6 months and 12 months would provide useful data on the retention of acute care nurses’ learning over time. A longitudinal study would also identify the ideal time for follow-up interventions to reinforce learning and practice change.

**Conclusion**

In summary, the findings of this study are important because this topic has received little attention in the South Korean context. This research demonstrated that South Korean nurses’ knowledge of CI was inadequate and their attitude toward older adults was negative, thus potentially resulting in inappropriate CI care in practice. The results of this study signify a need for an ongoing educational program. A purposely designed CI care educational program had a positive impact on South Korean nurses’ knowledge
of CI, attitudes toward older adults with CI, and initial efforts to involve family caregivers in CI care. This study has also contributed to an understanding of the factors that influence the effectiveness of such an educational program in South Korea and provides recommendations from frontline South Korean nurses on how the CI care educational program could be improved. Competent prevention, recognition and management of delirium in hospitalised older adults with dementia and at risk of delirium will have a significant influence on both delirium-related morbidity and mortality outcomes.
### Appendices

**Appendix 1: Review of the educational programs in acute care hospitals**

<table>
<thead>
<tr>
<th>Author/s/year/ country</th>
<th>Sample/N/ Age(years)</th>
<th>Research design</th>
<th>Educational program description</th>
<th>Outcome measures</th>
<th>Findings</th>
<th>Limitations</th>
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</thead>
<tbody>
<tr>
<td>Didactic educational program</td>
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<tr>
<td>Ingram et al. (2015) Canada</td>
<td>RNs in surgical and cardiac units of two acute care hospitals $N = 56$ in quantitative part 7 in qualitative part</td>
<td>A mixed methods sequential explanatory design</td>
<td>A 60-minute “lunch and learn” session  • Content included delirium information, standardised screening tools and management strategies for delirium.  • A slide presentation and a case study were used.</td>
<td>Knowledge: Statistically significant improvement post-intervention ($p \leq 0.001$)  • Self-efficacy: Statistically significant improvement post-intervention ($p \leq 0.001$)  • Delirium care experiences following an educational session: 3 themes emerged: (1) enhancing emotional intelligence; (2) strengthening clinical judgment to enhance quality of care; and (3) increasing competency of family care</td>
<td>1. Limited generalisability 2. Limited details on educational program 3. Researcher-developed questionnaires used 4. Not reported on reliability of knowledge and self-efficacy questionnaires 5. Pre- and post-intervention questionnaires collected during the educational session.</td>
<td></td>
</tr>
<tr>
<td>Meako et al. (2011) US</td>
<td>RNs in an orthopaedic unit of one acute care hospital $N = 21$</td>
<td>A single group, pre- and post-intervention design without a control group</td>
<td>A 1-hour in-service educational session  • Content included delirium information, delirium-causing medication, and management strategies for delirium specifically in the post-operative orthopaedic patients.  • PowerPoint slides in lecture format were used.</td>
<td>Knowledge: Significantly higher in post-intervention knowledge scores when comparing with baseline knowledge scores ($p = 0.0005$)</td>
<td>1. Limited generalisability 2. Small sample size 3. Researcher-developed knowledge questionnaires used 4. Not reported on reliability of knowledge questionnaire 5. Post-intervention knowledge data collected immediately following the educational session.</td>
<td></td>
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<tr>
<td>Varghese et al. (2014) India</td>
<td>RNs in two acute medical wards of one tertiary care hospital $N = 32$ 15 intervention 17 control</td>
<td>A non-equivalent control pre- and post-intervention design</td>
<td>An educational program on delirium provided to RNs in intervention group</td>
<td>Knowledge: Statistically significant improvement in intervention group post-intervention ($p &lt; 0.001$)  • Practice: Statistically significant improvement in intervention group post-intervention ($p &lt; 0.003$)</td>
<td>1. Limited generalisability 2. Not reported on educational program 3. Small sample size 4. Researcher-developed questionnaires used. 5. Not reported on reliability of knowledge questionnaire 6. Not reported on a non-significant difference in sample characteristics</td>
<td></td>
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</tbody>
</table>
### Computer-based educational program

<table>
<thead>
<tr>
<th>Study</th>
<th>Setting</th>
<th>Participants</th>
<th>Study Design</th>
<th>Intervention</th>
<th>Outcome Measures</th>
<th>Notes</th>
</tr>
</thead>
</table>
| McCrow et al. (2014) Australia | Nurses in four high-risk delirium areas (either critical care, orthopaedic, medical or surgical wards) of three acute care hospitals | N = 147  
75 intervention  
72 control | A pretest/post-test time series cluster randomised controlled trial | A 5-week web-based educational program  
• Content included delirium information, CAM for delirium recognition and management strategies for delirium.  
• It included videotaped vignettes of people (actors) with clinical presentations of delirium, with attached narrative captions, questions and answers and links to other educational websites, incorporating discussion forum. | • Knowledge measured by delirium knowledge questionnaire (Hare et al., 2008): Statistically significant change over time in intervention group (all p < 0.001)  
• Delirium recognition measured by case vignettes (Fick et al., 2007): Statistically non-significant improvement when comparing 6 to 8 weeks after the website was close and baseline in intervention group (t = 1.80, p = 0.074) | 1. Assessor not blinded  
2. Confounding variables not controlled including motivation of the participants, individual expectations, and the physical and emotional environment |

<table>
<thead>
<tr>
<th>Study</th>
<th>Setting</th>
<th>Participants</th>
<th>Study Design</th>
<th>Intervention</th>
<th>Outcome Measures</th>
<th>Notes</th>
</tr>
</thead>
</table>
| van de Steeg et al. (2015) The Netherlands | Nursing staff in an internal medicine ward and a surgical ward of 17 hospitals (i.e. 2 university hospitals, 4 tertiary teaching hospitals and 11 general hospitals) | N = 977  
945 RNs  
9 nursing students  
23 nursing assistants | A single group, pre- and post-intervention design without a control group | A 3-month E-learning course  
• Content included delirium information, and risk screening, preventive interventions, early recognition and diagnostics, and treatment and care for delirium.  
• It incorporated case studies and short tests for self-assessment.  
• About 4 hours were needed to complete the course including pre- and post-intervention knowledge tests.  
• Monthly email reminder was sent to participants who had not yet completed the course.  
• Monthly overview of the degree of participation was provided to each ward. | • Knowledge measured by delirium and delirium care questions developed by Leerstation Zorg, a national foundation in the Netherlands: Significantly higher in post-intervention knowledge scores (mean 87.4, 95% CI 86.7–88.2) when comparing with baseline knowledge scores (mean 79.3, 95% CI 78.57–80.1) | 1. Unclear if nursing staff only used their own knowledge when taking the online test  
2. Post-intervention data collected immediately after completing the e-learning course  
3. Not reported on reliability of knowledge questionnaire |

### Educational program in conjunction with clinical guidelines, protocols or checklists

<table>
<thead>
<tr>
<th>Study</th>
<th>Setting</th>
<th>Participants</th>
<th>Study Design</th>
<th>Intervention</th>
<th>Outcome Measures</th>
<th>Notes</th>
</tr>
</thead>
</table>
| Kim & Lee (2014) South Korea | Nurses in non-critical wards of two general hospitals (excluding paediatric and obstetric wards). | A non-equivalent control pre- and post-intervention design | • Knowledge measured by delirium knowledge questionnaire (Lee et al., 2007): Statistically significant increase in intervention group post-intervention (p < ) | 1. Limited generalisability  
2. Limited details on educational intervention | 1. Limited generalisability  
2. Limited details on educational intervention |
<table>
<thead>
<tr>
<th>Study</th>
<th>Setting</th>
<th>Design</th>
<th>Key Interventions</th>
<th>Key Findings</th>
</tr>
</thead>
</table>
| Robinson et al. (2008) US     | Older adults with delirium risk factors admitted to a 36-bed renal unit of one 562-bed hospital. | Quasi-experimental before-and-after design, retrospective cohort study       | • 4 half-day classes on delirium, dementia, sensory losses and mobility were provided to nursing assistants. Simon education to professional nurses in staff meetings and use of a delirium prevention protocol. | 1. Convenience sample  
2. Small sample size  
3. Validated and reliable instruments for formally assessing patients regarding vision, hearing and mobility not used  
4. Limited details on educational intervention |
| Voellinger et al. (2011) Switzerland | Nursing and medical staff in neurology and neurosurgery wards of one university hospital. | A single group, pre- and post-intervention design without a control group, prospective cohort study | • 1-hour interactive educational sessions in small groups were provided to introduce clinical practice guideline.  
• The clinical practice guideline contained prevention, screening, diagnosis and treatment of delirium.  
• Email and poster reminders were used to facilitate adherence to the guideline. | 1. Limited generalisability  
2. Limited details on educational intervention  
3. High non-response on the post-intervention knowledge questionnaire (n = 51 of 110)  
4. Researcher-developed questionnaires used  
5. Not reported on reliability of knowledge questionnaire  
6. Not reported on patient information |
<table>
<thead>
<tr>
<th>Multimodal educational program</th>
<th>and post-intervention groups, respectively</th>
</tr>
</thead>
</table>
| **Akechi et al. (2010)** Japan | RNs in inpatient wards of one 808-bed university hospital (including neonatal intensive care unit, and paediatric and obstetric units)  
*N* = 423  
390 intervention  
33 control  
Delirium Training Program  
- RNs selected from each inpatient ward, who become the delirium-link nurses received two 4-hour workshops held a month apart, including lecture, discussion and training to use NEECHAM Confusion scale (Neelon et al., 1996) and then provided resources, education, training and feedback to the other nurses in their wards by small group discussions and case presentations.  
- **Self-confidence:** Statistically significant improvement in 12 of 15 items in intervention group post-intervention (all *p* < 0.05)  
1. Limited generalisability  
2. Researcher-developed questionnaires used  
3. RNs working in the wards that declined to participate in the program used as a control group  
4. 26% of completion rate for pre- and post-intervention questionnaires in control group when comparing to 88% in intervention group  
5. Not reported on non-significant difference in sample characteristics |
| **Chow et al. (2015)** US | Older adults admitted to a 30-bed orthopaedic unit of one tertiary care hospital  
*N* = 128  
53 pre-intervention  
75 post-intervention  
Mean Age: 71.6 years  
RNs  
*N* = 26  
A geriatrician-guided delirium training intervention using the CAM  
- Two 45-minute “orientation” and “refresher” didactic sessions on delirium information and assessment 3-months apart were provided.  
- Content included the definition, types, pre-disposing and precipitating factors, implications and complications of delirium.  
- The mini-Cog screen for establishing baseline cognitive status and the CAM were instructed.  
- Pre-existing CAM application was built into the hospital EMR.  
- Following each didactic session, RNs were provided case-based exercises for group practice and invited to share experiences and questions for discussion.  
- **Delirium documentation:** Statistically significant increases in documentation of CAM in older patients post-intervention (13.2% to 90.9%, *p* < 0.001)  
- **Knowledge:** Statistically significant improvement post-intervention (*p* < 0.001)  
- **Self-confidence:** Statistically significant improvement post-intervention (*p* = 0.021)  
1. Limited generalisability  
2. Small sample size  
3. Researcher-developed questionnaires used  
4. Not reported on reliability of knowledge and self-confidence questionnaire |
| **Fick et al. (2011)** US | Older patients with dementia, and their family caregivers on a medical-surgical unit of one 200-bed acute care hospital.  
*N* = 15  
A 14-week Computerised Early Nurse Detection of DSD System, a multi-component delirium intervention program  
- **Adherence to EMR documentation:** 100% and 75% adherence on the delirium assessment decision support screens and the management screens, respectively.  
1. No randomised control group  
2. Long-term adherence to the computerised support over time not measured  
3. The protocol in its entirety not tested |
<table>
<thead>
<tr>
<th>Study</th>
<th>Setting</th>
<th>Intervention</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gordon et al. (2013) US</td>
<td>RNs in a 31-bed neuroscience intermediate care unit of one teaching hospital. N = 27</td>
<td>A single group, pre- and post-intervention design without a control group Educational program on delirium coupled with the bedside coaching - 30 to 40-minute educational session focused on delirium prevention and treatment as a multidisciplinary approach, including a review of hospital-developed Delirium Screening Tool and modified CAM-ICU. - A didactic session in small groups of 2–4 RNs was used. - Following the education, bedside coaching consisted of individual collaboration with each nurse; a detailed review of the hospital-developed Delirium Screening Tool; guidance, support, and encouragement in using the delirium screening tool at the bedside and the proper documentation of results. - The findings of the coach and each nurse were compared and discussed immediately after the patient assessment as the bedside.</td>
<td>• Knowledge measured by modified delirium knowledge questionnaire (Hare et al., 2008): Statistically non-significant improvement post-intervention ($p = 0.1366$). • Delirium documentation: Statistically significant increase in documentation of delirium screening results and associated behaviours or cognition in post-intervention group ($p = 0.000$). • Agreement in delirium screening results between the coach and nurse: 94% agreement of the time out of the 71 patients.</td>
</tr>
<tr>
<td>Hasemann et al. (2016) Switzerland</td>
<td>Older adults with signs of CI admitted to four medial wards of one university hospital</td>
<td>Quasi-experimental before-and-after design, retrospective and prospective cohort study</td>
<td>• Severity of delirium measured by DRS-R-98: Statistically significantly decreased in the wards where nurses adhered to the intervention from the first to the second</td>
</tr>
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</table>

**Nursing staff**
- **Mean age**: 83.4 years
- **N = 64**
  - 55 RNs
  - 9 LPNs

**Cognition measured by MMSE scores**: 14 of 15 older patients had either improved MMSE scores by more than 3 points from admission to discharge or had no significant change in their MMSE score

**Patient and family satisfaction**: 6 of 13 family members felt that the patient benefited from the intervention.
<table>
<thead>
<tr>
<th>Holt et al. (2013) UK</th>
<th>Older adults admitted as emergencies to three specialist elderly care wards (80 beds) in one general hospital</th>
<th>Quasi-experimental before-and-after design, prospective cohort study</th>
<th>Incidence of delirium measured by CAM and DRS-R-98; Statistically significant reduction in post-intervention group (13.3% vs. 4.6%; ( p = 0.006 )).</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>( N = 362 )</td>
<td>Multi-component delirium prevention intervention</td>
<td>Duration and severity of delirium during first 7 days (measured by DRS-R-98 severity scores): Statistically significant reduction in post-intervention group (both ( p \leq 0.005 )).</td>
</tr>
<tr>
<td></td>
<td>210 pre-intervention</td>
<td>• Materials for educational and practice change were modified by the local opinion leaders.</td>
<td>Mortality, Length of stay, ADL score (measured by Barthel index score) at discharge and new discharge to residential or nursing home rate:</td>
</tr>
<tr>
<td></td>
<td>152 post-intervention</td>
<td>• The educational material included a 30-minute interactive lecture with a handout, a delirium quiz, a poster, reference material and case vignettes.</td>
<td>1. Limited generalisability</td>
</tr>
<tr>
<td></td>
<td>Mean age</td>
<td>• The practice change materials comprised a delirium risk factor modification care plan</td>
<td>2. Significant differences in gender, resident in long-term care prior to admission, dehydration, and hearing impairment between pre- and post-intervention groups at baseline</td>
</tr>
<tr>
<td></td>
<td>85.01 pre-intervention</td>
<td>• Incidence of delirium measured by CAM and DRS-R-98: Statistically significant reduction in post-intervention group (13.3% vs. 4.6%; ( p = 0.006 )).</td>
<td>3. Limited details on knowledge questionnaire and data collection methods</td>
</tr>
<tr>
<td></td>
<td>85.8 post-intervention</td>
<td>• Duration and severity of delirium during first 7 days (measured by DRS-R-98 severity scores): Statistically significant reduction in post-intervention group (both ( p \leq 0.005 )).</td>
<td>4. Limited details on adherence to the protocol data collection methods</td>
</tr>
</tbody>
</table>

A nurse-led comprehensive delirium management program

- Interprofessional education: 1-day training of nurses on screening for CI and delirium, delirium prevention and treatment; two half-hour lectures of doctors on delirium management; and monthly half-hour case conferences.
- Ward nurses: screening all patients (age \( \geq 70 \)) for CI using Clock drawing test and Mental Status Questionnaire, and discussing screening results with doctors.
- Interprofessional planning of delirium prevention and treatment strategies for patients with CI: attending physicians prescribed or revised *pro re nata* medication for delirium based on signs of CI due to nurses’ screening results.
- Interprofessional delirium prevention strategies were provided.
- Ward nurses: screening for symptoms of delirium on every shift using the DOSS for 5 days after admission; confirmed delirium with CAM; administered prescribed medication if delirium was identified; and discussed further steps of causal diagnostic and treatment with doctors.

Mean age

- 81.6 control
- 81.8 intervention

Day of delirium \( (F(1,48) = 5.531; p = 0.023; \text{power } 63\%) \) and over the complete course of delirium \( (F(1,48) = 4.079; p = 0.050; \text{power } 50.6\%) \)

- Duration of delirium: Non-significant differences in a mean duration of episodes of delirium between the control group and intervention group (3.0 days (SD 3.1) vs. 4.1 days (SD 3.4)).
- Use of benzodiazepines: Statistically significant decrease in the intervention group when comparing to control group (2 vs. 17 \( p = 0.027 \)).

Holt et al. (2013) UK

Older adults admitted as emergencies to three specialist elderly care wards (80 beds) in one general hospital

\( N = 362 \)

210 pre-intervention

152 post-intervention

Mean age

- 85.01 pre-intervention
- 85.8 post-intervention

Incidence of delirium measured by CAM and DRS-R-98: Statistically significant reduction in post-intervention group (13.3% vs. 4.6%; \( p = 0.006 \)).

Duration and severity of delirium during first 7 days (measured by DRS-R-98 severity scores): Statistically significant reduction in post-intervention group (both \( p \leq 0.005 \)).

Mortality, Length of stay, ADL score (measured by Barthel index score) at discharge and new discharge to residential or nursing home rate:

1. Limited generalisability
2. Significant differences in gender, resident in long-term care prior to admission, dehydration, and hearing impairment between pre- and post-intervention groups at baseline
3. Limited details on knowledge questionnaire and data collection methods
4. Limited details on adherence to the protocol data collection methods
placed at the end of the patients’ bed and required signed actions 3 times each day, a delirium assessment protocol for ward doctors and an escalation flowchart for suspected delirium for nurses.

<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>Intervention Details</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lundström et al. (2005) Sweden</td>
<td>Older adults consecutively admitted on separate control and intervention units of general internal medicine of one hospital. N = 400 200 intervention 200 control</td>
<td>Randomised clinical trial 8-month delirium education program 2-day course for medical and nursing staff focused on assessment, prevention and treatment of delirium including training interaction between nurse and medical staff and older patients, particularly those with dementia and delirium It incorporated lectures and discussion The nursing care was organised according to individualised care. Nursing activities supported the patients’ individuality in the nursing care. Monthly support meeting for nursing staff was performed individually or in a group and was focused on nurse-patient interaction (direct observation of practice and feedback)</td>
<td>• The number of delirium cases on day 7: Statistically significant difference between intervention and control groups (30.2% vs. 59.7%; p = 0.001). • Length of stay: Statistically significant shorter in intervention group post-intervention (p &lt; 0.001). • Mortality during hospitalisation: Statistically significant decrease in older patients with delirium in intervention group post-intervention (p = 0.03).</td>
</tr>
<tr>
<td>Lundström et al. (2007) Sweden</td>
<td>Older adults consecutively admitted to the geriatric unit specialising in orthopaedics of one university hospital. N = 199 102 intervention 97 control</td>
<td>Randomised clinical trial 4-day course in individual care planning, rehabilitation, teamwork, delirium knowledge, and how to prevent post-operative complications. Use of protocols for pain management and risk factors for post-operative complications and delirium (risk factors, prevention and treatment)</td>
<td>• The number of days of post-operative delirium: Statistically significant fewer (5 vs.10 days, p = 0.009) in intervention group post-intervention. • The portion of post-operative delirium: Statistically significant lower (54.9% vs. 75.3%, p = 0.003) in intervention group post-intervention. • Length of stay: Statistically significant shorter (28 vs. 38 days, p = 0.028) in intervention group post-intervention.</td>
</tr>
</tbody>
</table>

1. Randomised by bed availability 2. The staff and assessors not blinded
<table>
<thead>
<tr>
<th>Study</th>
<th>Setting Description</th>
<th>Study Design</th>
<th>Intervention Details</th>
<th>Findings</th>
<th>Notes</th>
</tr>
</thead>
</table>
| Naughton et al.     | Medically ill patients admitted from the ED to AGU of one 350-bed university hospital.                  | Quasi-experimental before-and-after design, prospective cohort study           | Multifactorial intervention  
  • Development of guidelines for assessment and management of older patients with CI.  
  • ED: small group meetings and grand rounds to introduce the guidelines; reminders to assess for CI in ED and to direct targeted patients to AGU. Audit and feedback to ED on adherence.  
  • AGU: For nurses, 8-hour education program on delirium, small group discussions on assessment and recording; nursing reminders to physicians about the guidelines; feedback to physicians. For physicians, small group conferences to review data, procedures, and guidelines. Regular auditing and feedback of prescribing and performance. | • Prevalence of delirium on day 4 of hospitalisation measured by CAM: Statistically significant reduction at 4 (22.7%) and 9 months (19.1%) compared with baseline (40.95) (both \( p < 0.01 \)).  
  • Admission to AGU: More delirious patients admitted to the AGU than to non-AGU units at 4 months and 9 months (both \( p < 0.01 \)).  
  • Psychotropic medication use: Statistically significant lower in benzodiazepine use at 9 months on AGU (\( p < 0.01 \)).  
  • Length of stay: Each case of delirium prevented saved a mean of 3.3 hospital days (11.5 days at baseline vs. 8.2 days at 4 and 9 months) | 1. Only focused on community-dwelling older adults thus the generalisation for frail nursing home residents was concerned.  
  2. The unit involved in the study was staffed with rotating postgraduate medical trainees. |
| Pretto et al.       | Older adults with hip fracture admitted to trauma ward or other surgical wards of one university hospital.  
                      | Quasi-experimental before-and-after design, retrospective and prospective cohort pilot study | Interdisciplinary nurse-led delirium prevention and management program  
  • 1-day education program focused on the symptoms, risk factors, screening, prevention, and treatment of delirium.  
  • 8 resource nurses were given advanced bedside training in the recognition and treatment of delirium over a further 3 days.  
  • Use of a geriatric medication protocol.  
  • Nurse screening for delirium for 3 days post-operatively, positive cases had further assessment by the resource nurses.  
  • Monthly case discussions for nursing staff focusing on delirious patients. | • Nursing workload: Statistically significant reduced by 22% at night on the trauma ward compared with other surgical wards (\( p = 0.004 \)). | 1. Small sample size  
  2. Validated and reliable instruments for patient characteristics not used  
  3. Confounding factors for workload not controlled while different wards being compared. |
| Tabet et al.        | Older adults admitted to two medical wards of one teaching hospital.                                     | Single-blind case-control study                                               | An educational package  
  • A 1-hour session included a didactic | • Point prevalence of delirium measured by MMSE and modified DRS: Statistically significant reduction in the intervention ward comparing to the | 1. Assessor not blinded  
  2. Randomised by bed availability  
  3. Significant differences in age between intervention and control. |
<table>
<thead>
<tr>
<th>Intervention</th>
<th>Control</th>
<th>Groups at baseline</th>
<th>Significant differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>122</td>
<td>128</td>
<td>9.8% vs. 19.5%</td>
<td>p &lt; 0.05</td>
</tr>
<tr>
<td>81.39</td>
<td>79.28</td>
<td>8.0% vs. 12.0%</td>
<td>p &lt; 0.01</td>
</tr>
<tr>
<td>presentation and small group discussion.</td>
<td>control ward post-intervention</td>
<td>Random differences in mean number of medical comorbidities and age between pre- and post-intervention groups at baseline</td>
<td></td>
</tr>
<tr>
<td>• Written information and guidelines on prevention, recognition and management of delirium were provided.</td>
<td></td>
<td>1. Limited generalisability</td>
<td></td>
</tr>
<tr>
<td>• Regular 1-hour case discussion in one-to-one and small group was provided.</td>
<td></td>
<td>2. Assessor not blinded</td>
<td></td>
</tr>
<tr>
<td>• Follow-up meetings used the question and answer method, and a supportive feedback to reinforce learning.</td>
<td></td>
<td>3. Significant differences in mean number of medical comorbidities and age between pre- and post-intervention groups at baseline</td>
<td></td>
</tr>
<tr>
<td>Multifaceted educational program</td>
<td></td>
<td>4. Single comprehensive assessment interview and documentation in the medical records used to determine early and overall incident delirium</td>
<td></td>
</tr>
<tr>
<td>1-hour in-service educational workshop on delirium prevention in lecture format followed by weekly interactive tutorials to ask questions, discuss difficult cases, to receive reminders and feedback on clinical practice and support regarding the management of patients at risk of or with established delirium.</td>
<td></td>
<td>5. Researcher-developed questionnaires used</td>
<td></td>
</tr>
<tr>
<td>Incidence of delirium:</td>
<td></td>
<td>6. Limited details on knowledge, confidence and clinical practice questionnaires</td>
<td></td>
</tr>
<tr>
<td>Statistically significant lower in post-intervention group (19% vs. 10.1%, p = 0.042).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Barthel activities of daily living index: Statistically significant improvement in post-intervention (Mean 5.3 points, p &lt; 0.001).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Knowledge: Statistically significant improvement post-intervention (p = 0.041)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Confidence: Statistically significantly improvement in staff confidence in addressing and managing risk factors for delirium (p = 0.004) and accessing help managing patients with delirium (p = 0.04) post-intervention</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Clinical practice: Statistically significant increase in the number of risk factors for delirium(p &lt; 0.001)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: RN = Registered nurse; CAM = Confusion Assessment Method; EMR = Electronic Medical Record; LPN = Licensed practical nurse; DSD = delirium superimposed on dementia; MMSE = Mini-mental State Examination; ICU = intensive care unit; CI = Cognitive impairment; DRS-R-98 = Delirium Rating Scale Revised 98; ADL = Activities of daily living; ED = Emergency department; AGU = Acute geriatric unit; DOSS = Delirium Observation Screening Scale; DRS = Delirium Rating Scale
Appendix 2: Information sheet for survey participation (English Version)

INFORMATION SHEET FOR SURVEY PARTICIPATION

Korean Acute Care Nurses’ Management of Acute or Chronic Confusion in Older Adults

Student Investigator: Yun Young KANG
School of Nursing and Midwifery, Griffith University
Telephone: +82 01 2797 1295, Fax: +82647417639, Email: lily01157@gmail.com

Supervisors:
Prof. Prof. External supervisor Local supervisor
Wendy Moyle Marie Cooke Dr. Siobhan O’Dwyer Assistant Prof.
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Background
The number of older adults with dementia, also termed as chronic confusion, admitted to acute care settings, has rapidly increased. In Korea, little attention has been paid to enhance acute care nurses’ management of cognitive impairment (CI) in older adults. Delirium also known as acute confusion is often missed in hospitalised older adults and this condition may be mislabelled as dementia, and therefore the person involved may miss out important treatment and as a result their health is placed at risk. A lack of awareness among nurses of the clinical importance of acute confusion and its impact on health can result in an increase in sedative medication use among hospitalised older adults with delirium, which can worsen the condition or further delay recognition of the problem. As well, in Korea, family members are primary caregivers at the bedside 24-hour a day for hospitalised older adults and they are usually asked to observe the symptoms of cognitive decline. This study aims to examine acute care nurses’ response to an educational intervention, which focuses on improving the care management of older adults with CI in Korea. With a better understanding of CI, acute care nurses could empower the family members to understand the symptoms and management of delirium and therefore enable a reduction in the complications associated with the development of delirium.

What participation in this study involves
In the first phase of this study, your participation as a (registered nurse (RN), charge RN, or ward manager) working in the general internal medicine wards of Jeju Medical Centre in southern Korea, is to complete questionnaires that inquire about your knowledge and attitudes towards older patients with CI such as dementia or delirium before and after a 3-month educational intervention. Each of the questionnaires will take you approximately 20-30 minutes to complete. Additionally, nursing documentation regarding CI care skills is to be reviewed during a two-month period before and after the educational intervention. The
educational intervention in this study will consist of two two-hour workshops in the 1st month, and two one-hour Q & A sessions in the 2nd and 3rd month. This will be followed by the introduction of the CI assessment and management tools in the clinical setting. All classes will be led by the researcher. The first workshops, will consist of small group discussions and didactic lectures. Each one-hour Q & A session in the second and third month will give participant RNs the opportunity to ask any questions they have.

In the second phase of this study, sixteen RNs and eight family members will participate in individual interviews, and express their experiences and perceptions of the educational intervention. Individual interviews will take approximately 40 to 60 minutes. The interview data will be transcribed and following transcription the audio tapes will be destroyed.

Consent to participate
Your participation is voluntary and you are not under any obligation to consent to participate in this research. Non-participation will not involve any penalty or loss of benefits to which you might otherwise be entitled. If you choose to participate, you may discontinue participation at any time without penalty or without providing an explanation. We hope that you will consider participation in this study. While it may not benefit you directly, it may have the potential to improve the quality of care management of older patients with CI in acute care settings.

Benefits
Although this study may not benefit you directly, it may have the potential to improve CI care practice for older adults following the educational intervention. The knowledge gained from this study will help researchers and health care providers establish and organise educational programs and further contribute to personal health outcome achievements. It will also produce useful information for current CI care practice.

Risk
In the first phase of this study, participation poses no risks as the research asks you only to examine your knowledge and attitudes towards older patients with CI in acute care settings before and after the three-month implementation of the educational intervention. In the second phase of this study, the interview questions relate to experiences of implementing the 3-month educational intervention. The participant’s identity will not be disclosed.

Confidentiality
Your identity as a participant in this research will remain confidential. The data collected from this research will be reported in general terms and will not involve any identifying features. All data will be kept confidential and in a locked filing cabinet in the student researcher’s office and then stored in the School of Nursing at Griffith University for a period of 5 years before being destroyed. A report of the general findings from the study will be made available to participants.

Participants may contact Professor Wendy Moyle or the student researcher if they have any matter of concern regarding the research that they wish to discuss. If they prefer an independent person they may
Griffith University thanks you for your consent and participation in this research.

Yours sincerely

Yun Young KANG RN BN MN MAP(Hons) (Gerontology)
설문지 설명서

(노인의 급성 또는 만성 혼동에 대한 간호사의 관리)

연구담당자: 강윤영
그리피스대학교간호대학 (호주)
연락처 010 2797 1295(핸드폰), lily01157@gamil.com (이메일)

연구감독자
연구감독자 교수
웬디 모yle
마리 쿡
박사
시본 오디어
지역 감독자 (교수)
박창승
그리피스대학교 간호대학

배경
금성병원에 입원하는 치매 노인(혹은 '만성 혼동' 알려짐)의 수는 급격히 증가하고 있다.
한국에서는 간호사들의 노인 인지장애 관리 향상을 위한 관심이 부족한 상태이다.
또한, 노인에게 나타난 섬망은 (혹은 '급성 혼동' 알려짐) 종종 놓쳐지거나 치매에 잘못 진단 내려지고 있다.
따라서 위와 같은 상황에 있는 노인 환자들은 중요한 치료를 놓칠 수 있으며 그 결과로 그들의 건강이 위험에 놓일 수 있다.
급성 혼동의 임상적 중요성 및 섬망이 건강에 미치는 영향에 대한 간호사의 인식 부족은 섬망이 있는 노인 환자들에게 치매 의심을 줄여줄 수 있으며 그에 따라 건강 상태를 더 악화시킬 뿐만 아니라 문제 인식을 더 지연시킬 수 있다.
한국에서는 가족 구성원이 하루 24시간 노인 환자 옆에서 돌보는 간병인으로서, 항상 노인 환자의 인지기능 감퇴증상을 관찰하도록 요구된다.
본 연구는 한국에서 인지장애가 있는 노인환자들의 간호관리에 초점을 맞춘 교육중재에 대한 간호사들의 반응을 조사하기 위함이다.
인지장애에 대한 좀 더 나은 이해로, 간호사는 가족 구성원들이 섬망에 대한 증상 및 관리를 잘 이해하고 관찰하게 함에 따라, 심해진 섬망에 따른 합병증을 감소시킬 수 있다.

연구방법에 관한 설명

본 연구의 첫 번째 단계에서 제주의료원 내과 병동에서 근무하는 간호사 또는 수간호사는 치매 혹은 섬망 같은 인지장애가 있는 노인에 관한 지식 및 태도에 대한 설문지를 교육중재 전 그리고 후에 작성한다.
설문지를 작성할 때마다 약 20~30분 소요된다. 또한, 임상에서의 인지장애 관리에 초점을 맞춘 교육중재 전·후의 태도 변화를 조사하기 위함이다.
첫번째 워크숍은 소규모 토론/강의로 이루어진다. 질문답변 시간에는 간호사들에 질문을 질문할 기회를 제공할 것이다.
본 연구의 두 번째 단계에서는 16 명의 간호사와 8 명의 가족 구성원들에게 개별 인터뷰에 참여하여 교육중재에 대한 경험 및 인식을 표현하도록 할 것이다. 개별 인터뷰는 약 40~60 분 정도 소요될 것이다. 인터뷰 오디오 테이프는 글로 기록된 후 파괴될 것이다.

참여에 관한 동의

당신의 참여는 자발적이면 이 연구에 참여에 동의하는 것은 의무 되지 않습니다. 참여하지 않는 것에 대한 별급 또한 해택에 따른 손해를 포함하지 않습니다. 당신이 만약 참여한다고 하더라도, 언제든지 이유 없이 참여를 중단할 수 있습니다. 당신이 이 연구에 참여를 고려해주시길 진심으로 바랍니다. 이번 연구의 참여가 직접으로 해택을 주지 않을 수도 있지만, 급성병원에서 인지장애를 가진 노인 환자의 간호관리 질을 향상할 잠재력이 있습니다.

위험

본 연구의 첫 번째 단계에서, 연구자가 단지 3 개월 교육중재 전후 참여자에게 인지장애가 있는 노인환자에 대한 지식 및 태도를 묻어보기 때문에 위험이 포함되어있지 않습니다. 두 번째 단계에서 면접 질문은 3 개월 교육중재 경향과 관련되어있으면 참가자의 신원은 공개되지 않습니다.

비밀 보장

본 연구의 참여자의 신분은 비밀로 유지될 것입니다. 본 연구에서 수집된 자료는 일반적인 용어로 보고될 것입니다. 모든 자료는 5 년 동안 기밀로 연구원의 사무실에 캐비닛에 잠겨서 보관 후 파쇄될 것입니다. 일반적인 연구 결과의 보고서는 참가자에 제공될 것입니다.

만일 자세한 연구와 여러분의 권익에 관해 추가적인 정보가 필요하시면, 교수 Wendy Moyle 혹은 연구담당자 강윤영에게 연락 주십시오. 혹은 개별적인 연락을 원하는 경우 인간 연구 윤리 담당자(the manager, Research Ethics: Office for Research, Bray Centre, Griffith University, Kessels Road, Nathan, Old 4111, Australia, telephone +61 7 3875 5585 or email research-ethics@griffithg.edu.au.)에게 연락할 수 있습니다.

강윤영배상
PARTICIPANT CONSENT FORM

Korean Acute Care Nurses’ Management of Acute or Chronic Confusion in Older Adults

Statement of consent

I, __________________________ consent to participate in the above named project. I have been given information about the survey, as well as an information sheet outlining details of the survey. I understand that any information collected for the survey will remain strictly confidential.

By signing below, you are indicating that you:

1. have read and understand the Participant Information Sheet about this survey;
2. understand the nature and purpose of the study;
3. have been given the opportunity to ask questions regarding the research study;
4. understand that the confidentiality of all information you provide will be safeguarded;
5. understand that participation is voluntary, and I am free to withdraw from the study at any time without comment or penalty;
6. I understand results from this study will be published however I will not be identified in any way;
7. I agree to participate in this study.

_________________________________________  __________________________
Participant Name and Signature            Date

I have explained the nature and purpose of this study to the above participant and have answered their questions.

_________________________________________  __________________________
Investigator Name and Signature            Date
Appendix 3: Consent form for survey participation (Korean Version)

연구 참여 동의서

노인의 급성 또는 만성 혼동에 대한 간호사의 관리

동의에 대한 진술

저는, ______________ 본 연구참여에 동의합니다. 저는 본 연구에 대한 충분한 설명을 듣었으며, 수집된 모든 내용은 비밀보장 및 연구목적으로만 사용될 것이라는 사실을 이해합니다.

아래에 서명함으로써, 저는:
1. 본 연구의 설명서를 읽었습니다;
2. 본 연구의 배경 및 목적을 이해합니다
3. 본 연구에 관한 질문을 할 수 있는 기회가 주어졌습니다;
4. 신원을 파악할 수 있는 모든 내용은 비밀로 보장될 것이라는 사실을 이해합니다;
5. 본 연구 참여 여부결정은 자발적인 것이며, 원래 받을 수 있는 이익에 대한 손실 없이도 연구참여를 거부하거나 연구 도중 언제라도 연구참여를 포기할 수 있다는 사실을 이해합니다;
6. 나는 연구결과가 출판될 경우 나의 신원은 비밀 상태로 유지될 것이라는 사실을 이해합니다;
7. 나는 본 연구에 참여하기로 동의합니다.

참여자 성함 및 서명

참여자 성함 및 서명

연구책임자 성함 및 서명

연구책임자 성함 및 서명
Appendix 4: Consent form for chart review (English Version)

Dear Sir or Madam,

My name is Yun Young KANG and I am studying for a PhD of Nursing (Gerontological Nursing) under the supervision of Professor Wendy Moyle, Professor Marie Cooke and Dr. Siobhan O’Dwyer at Griffith University, Brisbane, Australia. The aim of my research is to examine Korean acute care nurses’ documentation of cognitive impairment (CI) practices in assessment, management, and evaluation before and after a 3-month implementation of an educational intervention. Permission to conduct this study has been obtained from the Griffith University Human Research Ethics Committee (HREC).

I am writing to ask for your agreement, reviewing records from you or your relative for my research. If you agree to volunteer to participate in this study, I would appreciate if you would please sign in the consent form, and return it to me.

I am very grateful for your help and assistance and look forward to receiving your consent form. Please do not hesitate to ask me if you would like any further information about the study or any questions answered.

__________________________________________  __________________________________________
Participant Name and Signature                                   Date

I have explained the nature and purpose of this study to the above participant and have answered their questions.

__________________________________________  __________________________________________
Investigator Name and Signature                                   Date
연구 참여 (차트 검토) 동의서

친애하는 선생님께

안녕하십니까?

저는 그리피스대학교 (브리즈번, 호주) 간호 대학원에서 노인정신간호학 과정을 전공하면서, 웬디 몰 교수님, 마리 쿡 교수님, 시본 드워 박사님 지도로 박사논문을 준비하고 있습니다. 본 연구의 목적은 3개월 교육중재 전·후, 노인의 인지장애 관리에 대한 간호사의 지식 및 태도를 조사하는 것입니다. 그리피스대학교 인간 연구 윤리위원회로부터 본 연구 수행을 위한 승인을 받았습니다.

본 연구에서 교육중재 전·후 당신의 혹은 가족의 차트를 검토할 수 있도록 부탁합니다. 본 연구에 관한 설명서 포함되어 있습니다. 본 연구에 자발적으로 참여하신다면, 동의하신다면, 동의서에 서명해주신 후, 저에게 돌려주시면 정말로 감사합니다.

연구에 참여해주신 모든 분께 진심으로 감사드립니다. 본 연구에 대해 자세한 정보나 질문이 있으시면, 저에게 물어보시는 것을 주저하지 말아주시기 바랍니다.

참여자 성함 및 서명

참여자 성함 및 서명

연구책임자 성함 및 서명

研究책임자 성함 및 서명
Appendix 5: Consent form for individual interview (English Version)

Dear Sir or Madam,

My name is Yun Young KANG and I am studying for a PhD of Nursing (Gerontological Nursing) under the supervision of Professor Wendy Moyle, Professor Marie Cooke and Dr. Siobhan O’Dwyer at Griffith University, Brisbane, Australia. As a follow-up study, the aim of my research is to explore Korean acute care nurses’ experiences of an educational intervention including collaborating with family members for cognitive impairment management. Permission to conduct this study has been obtained from the Griffith University Human Research Ethics Committee (HREC).

I am writing to ask for your participation for my research. Your participation would involve the individual interview that will take approximately from 40 to 60 minutes to complete. Information about this research is attached. If you agree to volunteer to participate in an individual interview, I would appreciate if you would please sign in the consent form, and return it to me with telephone number. Following the return of them, I will make a contact to arrange a suitable time for individual interviews.

I am very grateful for your help and assistance and look forward to receiving your consent form. Please do not hesitate to ask me if you would like any further information about the study or any questions answered.

Participant Name and Signature

Date

I have explained the nature and purpose of this study to the above participant and have answered their questions.

Investigator Name and Signature

Date
연구 참여 (개별 인터뷰) 동의서

친애하는 선생님께

안녕하십니까?

저는 그리피스대학교(브리즈번, 호주) 간호대학원에서 노인정신간호학 과정을 전공하면서, 웬디 몰, 마리 쿡 교수님, 시본 드워 박사님 지도로 박사논문을 준비하고 있습니다. 후속연구로, 본 연구의 목적은 노인의 인지장애 관리를 위한 간호사의 교육 중재 경험 및 가족구성원과의 협력을 탐구하는 것입니다. 그리피스대학교 인간 연구 윤리위원회로부터 본 연구 수행을 위한 승인을 받았습니다.

본 연구에 참여해주실 것을 부탁합니다. 개별 인터뷰로 약 40분에서 1시간 정도 소요됩니다. 본 연구에 관한 설명서 포함되어 있습니다. 본 연구 개별 인터뷰에 자발적으로 참여하는 데 동의하신다면, 동의서에 서명해주신 후, 저에게 돌려주시면 정말로 감사합니다. 동의서를 받은 후, 개별 인터뷰를 위한 적절한 시간을 마련하기 위해 연락 드리겠습니다.

연구에 참여해주시는 모든 분께 진심으로 감사드립니다. 본 연구에 대한 자세한 정보나 질문이 있으시면, 저에게 물어보시는 것을 주저하지 말아주시기 바랍니다.

참여자 성함 및 서명

저는 위 참여자에게 본 연구의 배경 및 목적을 설명했으며, 질문에 대해 답변해드렸습니다

연구책임자 성함 및 서명

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Appendix 6: Delirium superimposed on dementia algorithm (Fick & Mion, 2008) (English Version)
지매에 병별된 심각(Delirium Superimposed on Dementia)관리 알고리즘 (Fick & Mion, 2008) (Korean Version)

How can you help care for someone with delirium?

It is reassuring for people with delirium to see familiar people, visit as often as you can and try to be available to help with their care. Encourage other family members or primary carers to help as well.
- Speak slowly in a clear voice when talking to someone who has delirium. Identify both yourself and the person by name.
- Encourage and assist someone with delirium to have adequate food and fluids.
- Knowing the time of day can reduce confusion. Remind them where they are, and when day and time it is. Open the curtains in their room.
- Visual or hearing impairment can make their confusion worse. If someone with delirium usually wears glasses or hearing aids, help them to put them on.
- If someone with delirium is agitated or aggressive, do not try to restrain them. If they want to walk around, let them, but try to make sure that they are safe from falling and that the area is free from hazards.
- Bring personal mementos that help remind the person of home, such as photos, their dressing gown, radio or CD/tape player with favorite music.
- Let staff know any special personal information that may help calm and orient someone with delirium, such as the names of family and friends, hobbies, significant events, etc.

Who is at risk of developing delirium?

People who:
- are very sick
- have dementia
- are 70 years of age or more
- suffer from depression
- have poor eyesight
- have poor hearing
- are taking sedative medications
- are having a surgical procedure (e.g., heart or hip surgery)

What are the symptoms of delirium people with delirium may have:
- appear confused and forgetful
- be unable to pay attention
- be different from their normal selves
- be either very agitated or quiet and withdrawn or sleepy
- be unsure of the time of day or where they are
- have changes to their sleeping habits such as staying awake at night and being drowsy during the day
- feel fearful, upset, irritable, angry or sad
- see things that are not there, but that seem very real to them
- lose control of their bladder or bowels
How common is delirium
- 61% of older people and 50% to 80% of older people with dementia admitted to hospital will experience delirium at some stage of their care.

What causes delirium?
Common causes of delirium in older people include:
- Infection
- Multiple physical illness
- Constipation
- Dehydration/malnutrition
- Severe pain
- Medication, including ‘over-the-counter’ medicines
- Heavy alcohol consumption
- Withdrawal from alcohol or medication, particularly sleeping pills

How long does delirium last?
- The symptoms happen very quickly, usually over hours or days. A person’s behaviour can also fluctuate during the course of a single day.
- Delirium is sometimes mistaken for dementia or depression, so it is important for family/primary carers to notify medical/nursing staff of any sudden change in a person’s mental state.

How long does delirium last?
- Delirium usually only lasts for a few days but sometimes it will continue for weeks or even months. If delirium is not resolved quickly, it can lead to serious complications such as falls, pressure ulcers, longer length of stay in hospital, and even death.

Will delirium recur?
- Delirium is generally associated with an underlying physical illness. However it is not always possible to identify the cause.
- Staff will do a thorough medical assessment to look for and treat the underlying cause of the delirium. Treatment also includes reducing the risk of complications and lessening symptoms.

Role of family and carers
- Family members/carers can provide valuable information to the staff caring for the person with delirium.
- It is important to notify staff of any sudden change in a person’s mental or physical condition.
성당은 자주 일어나는 현상인가요?

• 생명에 일정한 노인이 85% 그리고 노인 체력치 증가 58%에서 88% 낮아하는
    분들이 성당을 경험합니다.

성당의 원인은 무엇인가요?

노인에게 발생하는 성당의 원인 중 음란 예는 다음과 같습니다.

• 감염성(총은 여성의 목표 감염) 우리
• 다발적인 신체 질환
• 범죄
• 체석증/뇌혈질
• 신장 질환
• 췌장면이 체어 한 약물의 포 함한 약물 복용
• 괴로운 음주
• 음주나 약물 복용 중단, 특히 수면제

성당은 어떻게 시작되나요?

• 증상은 매우 혼란 발생하는데, 대기 및 시간이 너무 길게 발생함.
• 행동 양상은 하루 동안에도 변할 수 있습니다.
• 성당은 가끔 세발이나 무릎으로 오인될 수 있으므로 간호사의 정신 상태 변화가 있을 경우 그 사람의 가족/간병인들이 의료진/간호사에게 통보하는 것이 중요합니다.

성당은 얼마나 지속되나요?

• 성당은 어게 일정 동안 지속되지만 몇 주 혹은 몇 달까지 지속되기도 합니다.
• 성당이 헬스 없이 지속할 경우 낙상, 목관, 입원 기간 연장 등 심각한 합병증을 유발
    할 수 있으며 심장에 사망도 초래될 수 있습니다.

성당은 재발하나요?

• 성당을 경험한 사람들은 재발할 위험이 높습니다.

성당은 어떻게 치료할까요?

• 성당은 알약으로 정상적 신체 질환과 연결됩니다. 하지만 항상 원인을 떠나낼 수
    있는 것을 아닙니다.
• 어려움이 발생의 징상적 원인을 찾고 최적화하기 위해 적절한 약물 명령을 실시할 것
    입니다.
• 상황에는 합병증 위험을 줄이고 증상을 완화하는 것도 포함됩니다.

가족과 간병인의 역할

• 가족구성원/간병인들은 성당을 가진 사람을 담당하는 의료진에게 중요한 정보를 제공
    할 수 있습니다.
• 정신적 혹은 신체적 상태의 간호사와 일반화 내용을 발견하면 의료진에게 이를 알리는 것이
    중요합니다.
Appendix 8: A CI care educational program outline (English version)

The educational program on CI care will be implemented for 3 months. The objectives of the educational program in the study are to; (1) provide information about assessment and risk factor management for delirium in older patients with dementia and at risk of delirium; (2) enhance confidence in participating nurses’ ability to properly prevent, recognise and manage cognitive impairment (CI); and (3) encourage participating nurses to initiate interactions with family caregivers in the provision of quality CI care.

The intervention consists of the follow steps:

- All participating nurses will join two one-and-a half hour workshops in the 1st month and two fifty-minute ongoing support sessions in the 2nd and 3rd month.
- The content of the educational intervention includes CI (i.e., definition, diagnostic criteria, differential diagnosis, clinical symptoms, prevalence, risk factors and outcomes), assessment and risk factor management for delirium in older patients with and without dementia and providing delirium information to family caregivers on hospital admission.
- The learning methods include case method, role playing, discussion, critical incident analysis, lectures, and self-directed study. The reflective and interactive approach will be facilitated by the use of case-based group discussion, selected presentations and non-judgmental feedback from the instructor and colleagues.
- A pocket-sized laminated card of the revised delirium superimposed on dementia (DSD) algorithm (Fick & Mion, 2008) will be provided to participants for self-directed study in CI care practice.
- Delirium brochure (Australian Government Department of Health, 2011) will be provided to each general internal medicine ward to assist participating nurses in providing delirium information to family caregivers on hospital admission.
- The educational intervention is to emphasise reflective and interactive learning and active participation.
- The researcher will be available on call for any questions raised by the participating nurses, while implementing the educational intervention.
Appendix 8: A CI care educational program outline (Korean version)

인지장애 간호 교육은 3 달 동안 실행될 계획입니다. 이번 간호 교육의 학습 목표는: (1) 치매 환자와 노인환자의 성망 사정 및 위험요인 관리에 관한 정보를 제공한 것입니다; (2) 간호사의 인지 장애 예방, 인식 및 관리 관련 자신감을 향상하는 것입니다; (3) 최상의 인지 장애 간호를 제공하기 위해 가족 간병인과 상호작용을 격려할 것입니다.

간호 교육은 다음과 같이 구성되어 있습니다:

- 간호사는 첫째 달에는 1 시간 30 분 워크숍을 2 번 참석하고 두세 번째 달에 진행되는 50 분 추후 지원 수업을 참석할 것입니다.
- 교육 내용은 인지장애(즉, 정의, 진단, 증상, 발병률, 위험 요인, 결과), 치매에 병발된 노인 환자와 노인 환자에 관한 성망 사정 및 성망 위험요인 관리, 입원 시 가족간병인에게 성망 정보를 제공으로 구성되어있습니다.
- 교육 방법은 사례 연구, 역할극, 중요한 사건 분석, 토론, 강의, 자기 주도적 학습으로 구성되어있습니다. 반영 그리고 상호 접근은 사례 그룹 토론, 발표, 피드백으로 촉진될 것입니다.
- 임상 인지장애 간호 시 자기 주도적 학습을 할 수 있도록 주머니 크기의 치매에 병발된 성망 알고리즘 카드를 모든 간호사에게 제공될 것입니다.
- 간호사가 입원 시 가족 간병인에게 성망 정보를 제공하는 데 도움이 될 수 있도록 성망 책자를 각 내과 병동에 배치될 것입니다.
- 이번 교육은 반영 상호 학습과 적극적인 참여를 강조할 것입니다.
- 연구는 인지 장애 간호를 실행하는 동안 질문이 있는 경우 언제든지 답변이 가능할 것입니다.
### Appendix 9: Educational program to improve CI care (English version)

<table>
<thead>
<tr>
<th>Type</th>
<th>Time (minutes)</th>
<th>Topic</th>
<th>Learning objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workshop 1</td>
<td>20</td>
<td>Welcome and Introduction</td>
<td>By the end of this session participants will be able to:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Overview of the educational intervention on CI care</td>
<td>• describe their clinical experiences they had encountered in caring for older patients with dementia and at risk of delirium and their family members, along with the essential factors contributing to these experiences.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Expectation of participants</td>
<td>• detail the key processes they had followed in providing care.</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>Discussion in group and whole, role play and non-judgmental feedback from the instructor and colleagues</td>
<td>• describe differences in dementia, delirium and delirium superimposed on dementia (DSD).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• CI care experiences in older patients including their family caregivers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>Lecture</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• CI (i.e., definition, differential diagnosis, symptoms, prevalence, risk factors and outcomes)</td>
<td>By the end of this session participants will be able to:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Introduction of the revised DSD algorithm (Fick, &amp; Mion, 2008) and delirium brochure (Australian Government Department of Health, 2011)</td>
<td>• reflect on their experiences and understand their actions and care decisions in particular situations through reflection.</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Q &amp; A</td>
<td>• describe the assessment of delirium in older patients with dementia and at risk of delirium.</td>
</tr>
<tr>
<td>Workshop 2</td>
<td>20</td>
<td>Group discussion, presentation and non-judgmental feedback from the instructor and colleagues</td>
<td>• describe the risk factor management for delirium in older patients with dementia and at risk of delirium.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Decision-making and problem-solving with regard to CI care in the cases presented at workshop 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>Lecture</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Assessment and risk factor management for delirium in older patients with dementia and at risk of delirium.</td>
<td></td>
</tr>
</tbody>
</table>
patients with and without dementia

20 Group discussion, presentation and non-judgmental feedback from the instructor and colleagues
• Reapplication to the previous cases with regard to CI care with the use of the revised DSDA (Fick, & Mion, 2008) tool and delirium brochure (Australian Government Department of Health, 20116)

10 Q & A
Reminder about the expectations and self-study
Two month follow-up support

Ongoing support
session 1
(50 minutes)
25 Whole group discussion, presentation and non-judgmental feedback from the instructor and colleagues
• Reflection on their experiences in CI care practice

By the end of this session participants will be able to:
• describe the importance of providing delirium information to family caregivers for CI care.
• identify how to use the revised DSD algorithm (Fick, & Mion, 2008) to assist clinical decision making with regard to CI care in practice.
• identify how to use the delirium brochure (Australian Government Department of Health, 2011) to provide delirium information to family caregivers for CI care.

25 Q & A

Ongoing support
session 2
(50 minutes)
25 Whole group discussion, presentation and non-judgmental feedback from the instructor and colleagues
• Reflection on their experiences in CI care practice

By the end of this session participants will be able to:
• reflect on how their experiences had changed the ways in which they cared for older patients with dementia and at risk of delirium and their family caregivers.
• apply their newly acquired knowledge to clinical situations.
• continue to reflect on their experiences.
• describe when and how the revised DSD algorithm (Fick, & Mion, 2008) and delirium brochure (Australian Government Department of Health, 2011) could be used with the patient and/or family caregiver.

25 Q & A
• continue to reflect on their experiences.
• describe when and how the revised DSD algorithm (Fick, & Mion, 2008) and delirium brochure (Australian Government Department of Health, 2011) could be used with the patient and/or family caregiver.
# Appendix 9: Educational program to improve CI care (Korean version)

<table>
<thead>
<tr>
<th>유형</th>
<th>소요시간(분)</th>
<th>주제</th>
<th>학습 목표</th>
</tr>
</thead>
<tbody>
<tr>
<td>워크숍 1</td>
<td>20</td>
<td>환영 및 소개</td>
<td>이 수업이 끝날 무렵, 간호사는 다음과 같이 할 수 있다:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 인지장애 간호 교육 소개</td>
<td>• 가족 구성원 포함 노인 치매 환자와 성장을 탐색하여 간호를 이해할 수 있다.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 학습 목표 설명</td>
<td>• 인지 장애 간호할 때 과정을 자세히 설명할 수 있다.</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>그룹 토론, 역할극 및 피드백</td>
<td>• 섬망, 치매, 치매에 병발된 성망의 차이를 설명할 수 있다.</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>휴식</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>강의</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 인지장애(정의, 진단, 증상, 발병률, 위험요인, 결과)</td>
<td>• 성장에 병발된 성망 알고리즘 (Fick, &amp; Mion, 2008)와 성장 책자 (Australian Government Department of Health, 2011) 소개</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 치매에 병발된 성망 알고리즘 (Fick, &amp; Mion, 2008)와 성장 책자 (Australian Government Department of Health, 2011) 소개</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>점의 &amp; 응답</td>
<td></td>
</tr>
<tr>
<td>워크숍 2</td>
<td>20</td>
<td>그룹 토론, 발표 및 피드백</td>
<td>이 수업이 끝날 무렵, 간호사는 다음과 같이 할 수 있다:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 첫번째 워크숍에서 토론된 케이스의 인지장애 간호 관련 결정과 문제 해결</td>
<td>• 인지장애 간호 경험을 반영하고 그 상황에서 자신의 간호 및 간호 결정을 이해할 수 있다.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 치매에 병발된 노인 환자와 노인 환자 사망을 설명할 수 있다.</td>
<td>• 치매에 병발된 노인 환자와 노인 성장 위험 요인을 설명할 수 있다.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 치매에 병발된 노인 환자와 노인 환자를 위한 성장 사정 및 성장 위험요인 관리</td>
<td>• 성장 환경에서 가족 구성원에서 성장 정보 제공의 중요성을 설명할 수 있다.</td>
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<tr>
<td></td>
<td>10</td>
<td>휴식</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>강의</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 치매에 병발된 노인 환자와 노인 환자로 인한 성장 사정 및 성장 위험요인 관련</td>
<td>• 성장에 병발된 성망 알고리즘 (Fick, &amp; Mion, 2008)을 인지 장애 간호에서 어떻게 사용하는지 알고 있다.</td>
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<td>20</td>
<td>그룹 토론, 발표 및 피드백</td>
<td>• 성장에 병발된 알로리즘 (Fick, &amp; Mion, 2008)를 인지 장애 간호에서 어떻게 사용하는지 알고 있다.</td>
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<td></td>
<td>10</td>
<td>점의 &amp; 응답</td>
<td>• 성장 책자 (Australian Government Department of Health, 2011)를 가족 구성원에게 제공을 어떻게 하는지 알고 있다</td>
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<td>학습 목표 및 자율 학습 알림 2 달 동안 진행되는 자원 알림</td>
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<tr>
<td>추후 지원</td>
<td>25</td>
<td>전체 그룹 토론, 발표 및 피드백</td>
<td>이 수업이 끝날 무렵, 간호사는 다음과 같이 할 수 있다:</td>
</tr>
<tr>
<td>수업 1</td>
<td></td>
<td>• 임상 인지장애 간호 상황 반영</td>
<td>• 이번 교육이 어떻게 인지장애 간호를 변화시켰는지 반영할 수 있다.</td>
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<thead>
<tr>
<th>추후 지원 수업 2</th>
<th>25</th>
<th>질의 &amp; 응답</th>
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<tr>
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(50 분) 25 질의 & 응답
• 새로 배운 지식을 임상 인지장애 간호 상황에 적용할 수 있다. |
• 인지장애 간호 경험 반영을 계속할 수 있다. |
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Cognitive Impairment Care in Hospitalised Older Adults

Why Do We Need Cognitive Impairment Care Education?

Group Discussion

Contents

- Definition of Delirium and Dementia
- Prevalence of Delirium
- Delirium superimposed on Dementia (DSD)
- Consequences of Inappropriate Cognitive Impairment Care
- Assessment and Risk Factor Management for Delirium in Hospitalised Older Adults with and without dementia
Delirium and Dementia Definition

**Delirium**
- A mental disturbance characterised by acute onset, disturbed consciousness, impaired cognition, and an identifiable underlying medical cause (i.e., medication, anesthesia, sleep disturbance, electrolyte imbalance, etc.) (American Psychiatric Association, 2000; Inouye, 2006)

**Dementia**
- A syndrome characterised by the persistent presence of multiple cognitive deficits, including memory loss, and at least one of the following cognitive disturbances: aphasia, apraxia, agnosia, or a disturbance in executive functioning (American Psychiatric Association, 2000; Holsinger et al., 2007)

Delirium subtypes

- **Hyperactive Delirium**
  - A change in baseline over the past 24 hours including at least two of the following symptoms: increased quantity of psychomotor activity, loss of activity control, restlessness, and/or wandering.

- **Hypotensive Delirium**
  - A change from baseline over a 24 period with decreased speed and/or amount of activity, and at least one of the following additional symptoms: reduced environmental awareness, decreased amount and/or speed of speech, lethargy, withdrawal, and reduced alertness.

- **Mixed Delirium**
  - Symptoms of both hyperactive and hypotensive delirium present within a 24 hour period.

Differences between Delirium and Dementia

<table>
<thead>
<tr>
<th>Clinical Features</th>
<th>Delirium</th>
<th>Dementia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset</td>
<td>Acute</td>
<td>Insidious</td>
</tr>
<tr>
<td>Duration</td>
<td>Hours to weeks/months</td>
<td>Months to years</td>
</tr>
<tr>
<td>Course</td>
<td>Fluctuating</td>
<td>Chronic and progressive</td>
</tr>
<tr>
<td>Progress</td>
<td>Usually reversible</td>
<td>Irreversible</td>
</tr>
<tr>
<td>Level of consciousness</td>
<td>Altered</td>
<td>Usually clear</td>
</tr>
<tr>
<td>Orientation</td>
<td>Variable</td>
<td>Usually clear</td>
</tr>
<tr>
<td>Attention and concentration</td>
<td>Poor</td>
<td>Normal except in late stage</td>
</tr>
<tr>
<td>Speech</td>
<td>Incoherent</td>
<td>Coherent until the late stage</td>
</tr>
<tr>
<td>Thought process</td>
<td>Disorganised</td>
<td>Limited</td>
</tr>
<tr>
<td>Perception</td>
<td>Visual hallucinations, delusions, and illusions</td>
<td>Often no change</td>
</tr>
<tr>
<td>Psychomotor activity</td>
<td>Variable</td>
<td>Normal</td>
</tr>
</tbody>
</table>
Prevalence of Delirium
(Cole et al., 2009; Fong, 2009; Gonzalez et al., 2009; Margiotta et al., 2006; Siddiqi, et al. 2006)

• 11% to 42% at hospital admission
• 6% to 56% following admission
• 10% to 30% in medical inpatients
• 44.7% at discharge, 32.8%, and 25.6%, and 21% at 1, 3, and 6 months post-discharge, respectively

Important link between dementia and delirium
(Franco et al., 2010; Margiotta et al., 2006)

• Delirium four times likely to occur in persons with pre-existing dementia
• Delirium in only 13% of those without pre-existing dementia, but 59% of older medical inpatients with dementia

Delirium superimposed on Dementia (DSD)
(Inouye, 2006; Fick & Foreman, 2000; Fick et al., 2007; Fick et al., 2002; Laurila et al., 2003; Margiotta et al., 2006; Meagher et al., 2008)

• Delirium in a person with pre-existing dementia
• Older adults with dementia who became acutely ill more likely to develop a quick decline in cognition and a more direct path to delirium than those without dementia
• DSD subtypes: hyperactive, hypoactive and mixed
• The prevalence of DSD: 59% to 89% in hospitalised older adults
Consequences of Inappropriate Cognitive Impairment Care

**Hospitalised Older Adults’ Outcomes**
- Adverse outcomes more common in individuals with DSD, compared with those with dementia alone or delirium alone
- Functional and cognitive status ↓
  - Psychological distress ↑
  - Morbidity and mortality ↑
  - Length of hospital stay and hospital costs ↑
  - Likelihood of nursing home placement ↑

(Bellelli et al., 2007; Cohen et al., 2009; González et al., 2009; Siddiqi et al., 2006; Torpilliesi et al., 2010)

**Family Outcomes**
- Family caregivers’ burden
  - Close monitoring of their family members who experience delirium symptoms
  - Communication impeded by the delirium symptoms
- Frustration and emotional distress ↑

(Cohen et al., 2009)

**Economic Outcomes**
- Nursing time per patient ↑
  - Per-day hospital costs ↑
- Further costs after hospital discharge
  (i.e., a greater need for long-term care or additional home care, rehabilitation services, and informal caregiving)

(Siddiqi et al., 2006)
Assessment and Risk Factor Management for Delirium in Hospitalised Older Adults with and without Dementia

Why Do We Need Cognitive Impairment Care Education?
Group Discussion
Delirium Superimposed on Dementia (DSD) Care
(Fick & Mion, 2008)

Assessment for pre-hospital cognitive function

• Family members
• Staff from prior living facility

• Review the patient’s medical record for indications of pre-existing dementia and/or function difficulties
• Ask the patient’s family, if any, whether the patient has a diagnosis of dementia or signs and symptoms of possible dementia.
• If a patient is admitted from an assisted living or long term care facility, question the staff about the patient’s baseline mental and functional status.
• Complete a tool, such as the Family Questionnaire, to help assess pre-hospital cognitive and functional abilities

Family Questionnaire
(Maslow & Mezey 2008)

Assessment for recognising dementia

1. Repeating or asking the same thing over and over.
2. Forgetting appointments, family occasions, holidays?
3. Writing checks, paying bills, balancing the checkbook?
4. Shopping independently for clothing or groceries?
5. Taking medications according to instructions?
6. Getting lost while walking or driving in familiar places?
7. Making decisions that arise in everyday living?

• Scoring:
  - Not at all: 0
  - Sometimes: 1
  - Frequently: 2

• Total score interpretation:
  - 0-3: prompt further assessment
  - 3-6: possible dementia
  - 7-10: probable dementia

Confusion Assessment Method (CAM)
(Inouye et al., 1990)

Acute onset and fluctuating course
Inattention
Disorganised thinking
Altered level of consciousness

1 and 2 and 3 or 4: Delirium
Guide to Assessing Delirium Using the CAM (Inouye et al., 1990)

**Acute onset and fluctuating course**
- Informal caregiver
- Family members
- Staff from prior living facility
- Nurse from prior shift or admitting nurse

If patient is exhibiting confusion, ask family and/or caregiver:
- Is this a change from the patient's normal behaviour?
- Is this a change in the patient’s usual mental status, and what is different?
- Note that change can be prior to hospitalisation, day to day, hour to hour, or shift to shift.

**Inattention**
- Patient observation

If patient is exhibiting inattention, observe the following:
- Is the patient easily distractible?
- Does the patient have trouble keeping track of what is said or following directions?
- Ask the patient to spell world backward or recall digits backward and forward (e.g. telephone number)

**Disorganised thinking**
- Patient observation
- Informal caregiver
- Prior shift communication

If patient is exhibiting irregular thought patterns, observe patient or ask family and/or informal caregiver:
- Is the patient rambling or having irrelevant conversation (e.g. jumping from topic to topic without making sense)?
- Is the patient showing signs of incoherent thought processing?
Altered level of consciousness

- Observe patient (wake patient up if he or she is excessively sleepy during the day)

If patient is exhibiting a change from his or her normal level of consciousness, observe the following:
- Is the patient hyper-alert, drowsy but easy to arouse, or unarousable?

Potential Causes of Delirium

(Fick & Mion, 2008)

<table>
<thead>
<tr>
<th>Potential Cause</th>
<th>Considerations</th>
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<tbody>
<tr>
<td>Medications</td>
<td>- Has any new medications added to patient’s regimen?</td>
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<tr>
<td>- Have there been any recent increases or decreases in dosages?</td>
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<td>- Has the patient exhibited fever, urinary, or respiratory symptoms?</td>
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<td>- Is the patient’s white blood cell count elevated?</td>
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<tr>
<td>Infection</td>
<td>- What were the patient’s most recent blood-urea nitrogen, creatinine, and sodium levels?</td>
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<tr>
<td>- Has the patient’s cardiopulmonary status been assessed? (e.g., heart rate, lung sounds, pulse oximetry)</td>
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<tr>
<td>Dehydration; electrolyte disturbances</td>
<td>- Are the patient’s symptoms due to withdrawal from medication or alcohol?</td>
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<td>- Are the patient’s symptoms self-controlled?</td>
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<tr>
<td>- Does the patient have vision or hearing loss?</td>
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<tr>
<td>- Does the patient exhibit signs of nutritional depletion?</td>
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<tr>
<td>- Is there evidence of neurological changes (e.g., aphasia, incontinence, delirium, delirium)?</td>
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<tr>
<td>- Has the patient slipped recently?</td>
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<td>- Does the patient have sensory symptoms or incontinence?</td>
<td></td>
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<tr>
<td>- When was the patient’s last bowel movement (i.e., possible fecal impaction)?</td>
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<tr>
<td>- Has the patient’s cardiopulmonary status been assessed? (e.g., heart rate, lung sounds, pulse oximetry)</td>
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<tr>
<td>Lack of medications</td>
<td>- Has the patient’s blood sugar levels been checked?</td>
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<tr>
<td>- Is there adequate glucose control?</td>
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<tr>
<td>Sensory deprivation</td>
<td>- Are the patient’s vision or hearing loss due to medication or alcohol?</td>
</tr>
<tr>
<td>- Are the patient’s pain symptoms well controlled?</td>
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<tr>
<td>- Does the patient have vision or hearing loss?</td>
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<tr>
<td>- Are the patient’s eyeglasses on and/or hearing aids in?</td>
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<tr>
<td>- Is there evidence of neurological changes (e.g., aphasia, incontinence, delirium)?</td>
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<tr>
<td>- Has the patient fallen recently?</td>
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<tr>
<td>- Is there adequate glucose control?</td>
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<tr>
<td>Intracranial symptoms</td>
<td>- Has the patient’s cardiopulmonary status been assessed? (e.g., heart rate, lung sounds, pulse oximetry)</td>
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<tr>
<td>- Has the patient’s cardiopulmonary status been assessed? (e.g., heart rate, lung sounds, pulse oximetry)</td>
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<tr>
<td>Urinary/fecal difficulties</td>
<td>- Has the patient’s blood sugar levels been checked?</td>
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<td>- Has the patient fallen recently?</td>
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<tr>
<td>- Is there adequate glucose control?</td>
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<tr>
<td>Myocardial/pulmonary problems</td>
<td>- Has the patient’s cardiopulmonary status been assessed? (e.g., heart rate, lung sounds, pulse oximetry)</td>
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<td>- Has the patient’s blood sugar levels been checked?</td>
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<td>- Is there adequate glucose control?</td>
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<td>Hypo/hyperglycemia</td>
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<td>- Is there adequate glucose control?</td>
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</table>
Orientation
- Maintain patient’s home routine as much as possible
- Have family bring in favourite objects and photographs
- Avoid confrontations; speak in calm, short sentences
- Provide feedback to validate patient/family feelings and get reassurance

Calendar
- Tell patients what you are doing whenever you enter the room
- Place call light and personal items within reach

Mobility
- Document function at admission and with any changes
- Ensure that mobility is discussed with medical team
- Obtain needed assistive devices
- Encourage independence in ADLs
- Provide adequate footwear
- Supervise movement as appropriate
- Use bedside commode as appropriate
- Avoid restraints

Family
- Encourage family presence
- Give family the educational brochure regarding delirium prevention on hospital admission

Sleep
- Obtain sleep history
- Consider medical causes for sleep disturbances
- Limit caffeine prior to bed
- Warm milk/tea
- Avoid naps
- Avoid waking patient in the night
- Low level lighting and reduced noise
- Ask family to bring in hearing aides/glasses
- Clean glasses during morning care
- Stand in front of patient to communicate
- Call audiology if hearing aide is not working
- Ask informal caregivers to check for ear wax if patient is hard of hearing
- Ask patient if they are too hot or too cold

Feeding: Hydration
- Record I&O
- Contact nutrition services if patient consumes <50% of diet for 2 days
- Observe for early breakdown
- Perform nutrition screen
- Obtain and chart weight and height at admission and PRN
- Assess dementia; obtain dementia from home
- Ensure that patient can order food and feed self or arrange assistance
- Assess for (psychiatric as needed)
- Follow care protocols regarding fluids, foods, and toileting
- Encourage fluid intake of at least 1200cc/day unless contraindicated

Depression
- Ensure that depression treatment is discussed with medical team
- Encourage expression of feelings
- Consider pet therapy
- Relaxation therapy
Follow-up Management of DSD
(Fick & Mion, 2008)

Follow-up management

- Continue to assess cognition using CAM and observing behaviours
- Notify medical team or seek consultation
- Monitor hydration and nutrition
- Educate and counsel family regarding signs of reoccurrence and duration (2 weeks to 6 months) of delirium

Why Do We Need Cognitive Impairment Care Education?

Group Discussion

Why Do We Need Cognitive Impairment Care Education?
노인 입원 환자의 인지장애 간호

왜 인지장애 간호 교육이 필요한가?

그룹 토론

목차

불충분한 인지 장애간호의 현실태
치매에 발병된 환자
섬망과 치매 정의
섬망 발병률
노인 환자에 대한 섬망 예방 간호
노인 환자와 노인 환자를 위한 섬망 예방 간호
섬망 & 치매 정의

• 임상 정의의 핵심 변동을 두 특징으로 하는 급성 정신질환으로, 인지기능 및 정신운동량의 강한 집중 변화로 인해 일상생활에서의 문제를 일으키는 상태
  (American Psychiatric Association, 2000; Inouye, 2006)

• 남성 연령 또는 장기생존자에 관해 인체기능의 감소로 인한 신체적 건강 문제를 포함할 수 있는 여러 가지 흔한 상황을 제외하고 정신기능의 흔한 특성으로 적절한 행동, 판단력 등의 정신 및 행동적 선행(behavioral and psychological symptoms of dementia, BPSD)을 포함하기 때문에 환자의 증상을 관리하는 전략

여성의 정의

• 24시간 이내에 다음과 같은 증상 중에 적어도 두가지 증상이 나타난 경우 발생
  • 정신 활동량의 증가
  • 환경에 대한 인식 감소
  • 말하는 양 감소
  • 무관심함
  • 기민 감소
  • 철수
  * 최소한 활동의 양 혹은 활동의 속도 중 한 가지 변화가 반드시 나타나야 함

• 24시간 이내 과 운동형과 저 운동형의 증상, 둘 다 보여주므로

섬망의 종류

(Revised DSM-IV-TR, 2000; McHugh et al., 2006; Medical, 2000)

• 정신활동형 증상
  • 24시간 이내에 다음과 같은 증상 중에 적어도 두가지 증상이 나타난 경우 발생

• 정신활동형 증상
  • 24시간 이내에 다음과 같은 증상 중에 적어도 두가지 증상이 나타난 경우 발생

혼합형 증상

• 24시간 이내 과 운동형과 저 운동형의 증상, 둘 다 보여주므로

섬망 증상과 치매 비교

(Fann, 2000; Muralee et al., 2011)

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<thead>
<tr>
<th>특징</th>
<th>섬망</th>
<th>치매</th>
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<td>감정</td>
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<td>정신 활동량</td>
<td>감소</td>
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<td>받음</td>
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섬망 발생률
(Cole et al., 2009; Fong, 2009; Gonzalez et al., 2009; Margiotta et al., 2006; Siddiqi, et al. 2006)
• 병원 입원시 11% to 42%
• 병원 입원후 6% to 56%
• 치매 환자 10% to 30%
• 병원 퇴원 후 44.7%, 1 달 후 32.8%, 3달 후 25.6%, 6달 후 21%

섬망과 치매의 강력한 연관
(Franco et al., 2010; Margiotta et al., 2006)
• 섬망은 기존 치매 진단을 받은 사람에게 4배 정도 더 일어남
• 섬망은 일반적으로 13% 발생하나 기존 치매 진단을 받은 사람 중에서는 59% 발생함

치매에 병발한 섬망
(Inouye, 2006; Fick & Foreman, 2000; Fick et al., 2007; Fick et al., 2002; Laurila et al., 2003; Meagher et al., 2008)
• 기존 치매 진단을 받은 사람에게 발생하는 섬망
• 치매 진단을 받지 않은 노인보다, 치매 진단을 받은 노인이 급작스러운 급성으로 이론 경우 더 빨리 인지 기능 감소와 섬망이 발생
• 치매에 병발한 섬망 종류: 과 운동형, 과 운동형, 혼합형
• 치매에 병발한 섬망 발생률: 노인총의 59%~89%
불충분한 인지장애 간호의 현 실태
(Bellelli et al., 2007; Cohen et al., 2009; Fong et al., 2009; González et al., 2009; Leslie et al., 2008; Siddiqi et al., 2006; Torpillosi et al., 2010)

• 인지적 기능적 상하 ↓
  심리적 고통 ↑
  유병률과 사망률 ↑
  재원 기간과 병원 ↑
  요양원 등 시설 입원 ↑

• 저능 혹은 성능 하나만 가진 환자보다
  저능에 병발된 성능 환자에게
  위와 같은 부작용 더 흔히 나타남.

불충분한 인지장애 간호의 현 실태
(Siddiqi et al., 2006)

• 환자당 간호시간 ↑
  하루 병원 비용 ↑

• 퇴원 후 추가적인 비용 증가
  (즉. 노인시설 혹은 요양원 입원, 추가적인 재활, 간병인 비용)

불충분한 인지장애 간호의 현 실태
(Cohen et al., 2009)

가족의 경우
• 가족 간병인의 부담
  -성향 중상들 보이는 가족 가까이에서 모니터링 필요
  -성향 증상으로 인해 가족과 의사소통 어려움

  좌절과 정신적 고통 ↑
치매 노인 환자와 노인 환자를 위한
섬망 사정 및 섬망 위험요인 관리

왜 인지장애 간호 교육이 필요하냐?
그룹 토론
치매노인 환자와 노인환자를 위한 섬방 예방 간호

확실한 인지기능 사정

• 가족 간병인
• 치매가능성의 증상이나 증후가 있는지 물어보세요.
• 기존의 치매 혹은 인지기능 장애에 대한 환자의 의료기록 검토
• 환자가 노인시설이나 요양원에서 입원한 경우, 설문에 관해 물어보세요.
• 입원전 인지기능을 사정하는 데 도움이 되는 '가족 설문지'와 같은 도구를 활용하세요.

가족 설문지

치매를 알아내기 위한 사정

1. 계속하여 같은 것을 반복하거나 묻는다.
2. 약속, 가족행사, 휴일을 잊어버립니까?
3. 고지서를 계산하고 가계부 잔액을 맞춥니까?
4. 옷이나 식료품을 혼자 사러 갑니까?
5. 약을 지시대로 스스로 투약합니까?
6. 익숙한 장소에서 걷거나 운전하는 중 길을 잃어버립니까?
7. 스스로 매일 생기는 일에 관해 결정합니까?

• 점수
전혀 그렇지 않다: 0점, 가끔 그렇다: 1점, 자주 그렇다: 2점, 적용할 수 없음: 3점
• 총점수 해석
0-3점: 즉각적인 다른 사정 필요, 3-6점: 치매 가능성이 있음, 7-10점: 치매

혼돈 평가 도구

(Confusion Assessment Method: CAM) 

CAM 흐름도

1. 정신상태의 갑작스런 변화
2. 주관적 부족
3. 혼란화된 감각의 반응
4. 의사 소통의 변화

• 혼돈 평가 도구
(Confusion Assessment Method: CAM) (Inouye et al. 1990)
혼돈 평가도구(CAM)을 사용한 섬망 사정

혼돈 평가도구(CAM)을 사용한 섬망 사정
(Inouye et al. 1990)

정신상태의 갑작스러운 행동 및 변화
- 갑작신경
- 갑작 구성
- 갑작 생각
- 갑작 사고
- 갑작 말
- 갑작 행동

만약 환자가 혼돈을 보이며, 갑작 구성 혹은 갑작 신경에 대해 보이는 행동들은 다음과 같습니다:
- 혼돈 평가도구(CAM)을 사용한 섬망 사정

혼돈 평가도구(CAM)을 사용한 섬망 사정
(Inouye et al. 1990)

주의력 부족
- 혼자 관찰

만약 환자가 주의력 부족이 나타나면, 다음을 관찰하세요:
- 혼자 관찰

혼돈 평가도구(CAM)을 사용한 섬망 사정
(Inouye et al. 1990)

조직화되지 않은 사고
- 혼자 관찰
- 신경학적 기능 장애
- 간병인과의 의사소통

환자의 사고가 재테각적이거나 일관성이 없는 경우, 환자를 관찰하거나 간병인 혹은 간호사에게 확인해보세요:
- 환자가 일관성이나 일관성이 없는 경우, 관찰을 관찰하거나 간병인 혹은 간호사에게 확인해보세요.
혼돈 평가도구(CAM)을 사용한 섬망 사정

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혼동 평가도구의 사용

• 혼동 평가도구 사용은 환자 의식 수준 변화를 알아내는 데 중요합니다.

환자 관찰

1. 환자 관찰 (낮 동안 환자가 지나치게 졸려보이면 깨워주세요)
2. 환자가 평소 자신의 의식 수준에서 변화가 보이면, 다음을 관찰하세요:
   - 환자가 과다 명료한지, 졸리나 쉽게 깨어나는지, 깨어나기 어려운지, 혹은 깰 수 없는지?
   - 환자의 심폐상태 (예., 맥박, 폐음, 맥박산소 측정)는 사정했는가?

환자 증상

1. 환자 증상은 환자에 대해 설명할 수 있는가?
2. 환자는 최근 혈액 요소성질소, 크레아티닌, 나트륨 수치는 무엇인가?
3. 환자의 증상은 약물 혹은 알코올 금단 증상인가?
4. 환자는 적절한 혈당 조절이 있는가?
5. 환자는 요정체 혹은 요실صلة이 있는가?
6. 환자는 최근 언제 배변을 보았는가? (즉., 분변매복 가능성이)

지면 노인 환자와 노인환자를 위한 섬망 예방 간호

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지면학

1. 지면학
2. 우울
3. 영양
4. 수화
5. 가족 간병인 교육
6. 환경 자극
7. 활동 수준
8. 감각
9. 수면
10. 지면학
11. 균형 방지
12. 수면
13. 활동 수준
14. 감각
15. 수면
16. 균형 방지

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Slide 24
지남력
• 가능한 환자 집에서의 규칙적인 습관을 유지
• 환자가 좋아하는 것과 사진을 갖고 오도록 부탁
• 환자와의 대립을 피함; 짧고 간단한 문장 사용
• 환자/가족의 감을 화인하고 안심시키기 위해 피드백 제공

활동수준
• 환자방에 들어갈 때마다 당신이 무엇을 하고 있는지 이야기
• 호출벨과 환자의 개인용품이 닿을 수 있는 곳에 배치

활동
• 환자 입원 시 신체적 기능과 변경 사항 기록
• 환자의 신체적 기능 상태를 의료팀과 논의
• 필요한 보조 장치 제공
• 독립적으로 일상생활을 겪도록 하여
• 보청기와 안경을 갖고 오도록 부탁
• 필요할 때 침실용 변기 사용
• 억제대 사용 피함

수면
• 수면력 사정
• 수면 장애를 일으키는 의학적 원인 고려
• 잠자기 전 카페인 섭취 제한
• 따뜻한 우유/차 제공
• 낮잠 피함
• 밤에 환자 깨우는 것을 피함
• 야간 조명과 소음을 줄임
• 보청기와 안경을 갖고 오도록 부탁
• 필요할 때 안경 청소
• 적절한 전송/이동 감도
• 필요할 때 침실용 변기 사용
• 억제대 사용 피함

감각
• 가족의 환자 옆에 있도록 장려
• 병원 입원 시 환자 가족에게 섬망 예방 교육 책자 제공 및 교육

우울
• 우울 치료가 필요하면 의료팀과 의논
• 감정 표현 격려
• 반려동물 요법 고려
• 이완 요법
• 섭취량 배설량 기록
• 이틀 동안 절반 이하 식사하는 경우 영양 부서 연락
• 열량 계산
• 피부 손상 사정
• 영양 상태 사정
• 입원 및 이동 사정
• 종이 보고서, 환자 간담회, 환자 교육 등
• 치아 상태
• 음료, 식사, 배변 관련 간호 프로토콜 수행
• 영양 및 치료, 카페인, 알코올 등

영양: 수화
치매 노인 환자와 노인환자를 위한
섬망 예방 간호
(Fick & Mion, 2008)

후속 간호

• CAM을 이용한 인지기능 사정과 행동 관찰을 계속하세요.
• 의료팀에 알리거나, 자문하세요.
• 수화 및 영양 상태를 모니터하세요.
• 가족에게 섬망의 재발 징후와 지속기간(2주부터 6달)에 대해 교육하고 상담하세요.

왜 인지장애 간호 교육이 필요한가?

그룹 토론
Korean Acute Care Nurses’ Questionnaire

You have been invited to take part in a research study to learn more about the nurses’ management of acute or chronic confusion in older adults. This study will be conducted by Yun KANG School of Nursing and Midwifery, Griffith University, Australia as part of her doctoral dissertation.

This questionnaire consists of three parts. The first part asks for some basic personal and professional characteristic information. The second part is a 5-standardised case vignettes about knowledge of cognitive impairment (CI) and the third part is a 25-item questionnaire, Palmore Facts on Aging Quiz about attitude toward older adults

Please complete the following questionnaire about your knowledge of CI and attitude toward older adults. Completion of the questionnaire takes approximately 30 minutes. The questionnaire can be returned to me or ward manager.

If there is anything about the study or your participation that is unclear or that you do not understand or if you have any questions or wish to report a research-related problem, you may contact.

Yun KANG
010-2797-1295
Lily01157@gmail.com

Again, thank you for taking the time to completing this questionnaire.

Your responses are valuable and appreciated.
(Post-intervention Questionnaire Cover)

Korean Acute Care Nurses’ Questionnaire

You have been invited to take part in a follow-up research study to evaluate RNs’ experiences of an educational intervention for cognitive impairment management. This study will be conducted by Yun KANG School of Nursing and Midwifery, Griffith University, Australia as part of her doctoral dissertation.

This questionnaire consists of two parts. The first part is a 5-standardised case vignettes about knowledge of cognitive impairment (CI). The second part is a 25-item questionnaire, Palmore Facts on Aging Quiz, about nurses’ attitudes toward older adults.

Please complete the following questionnaire about your knowledge of CI and attitude toward older adults. Completion of the questionnaire takes approximately 30 minutes. The questionnaire can be returned to me or ward manager.

If there is anything about the study or your participation that is unclear or that you do not understand or if you have any questions or wish to report a research-related problem, you may contact.

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Lily01157@gmail.com

Again, thank you for taking the time to completing this questionnaire.

Your responses are valuable and appreciated.
Appendix 11: Personal and professional characteristics (English Version)

Please indicate your response to each question by marking the box or circle next to your answer of choice or writing your answer in the space provided. If you an answer choice does not fit your situation exactly, please select the answer that you think is closest to your situation. Unless the question asks you to select all that apply, please only mark one answer for each question.

1. Your age in years?
   ( _______ ) years old

2. Your gender?
   (1) Male □   (2) Female □

3. Educational level
   (1) 3-year college diploma □   (2) Bachelor’s degree □
   (3) Master’s degree □       (4) Other ()

4. Length of work experience
   ( _______ ) months or years

5. Your position?
   (1) Registered nurses (RNs) □   (2) Charge RN □   (3) Ward manager □

6. Have you had formal education on geriatric care?
   (1) Yes □   (2) No □

6a. If yes, please write the name of the formal education and where/when you used this tool.
Appendix 11: Personal and professional characteristics (Korean Version)

일반사항: 해당사항을 기입하거나 표시해주시오.

1. 연령: 만 (  ) 세

2. 성별: (1) 남 □ (2) 여 □

3. 최종학력
   (1) 3년제 졸업□ (2) 학사 졸업□
   (3) 대학원 졸업□ (4) 기타 (  )

4. 총 임상 경력: 만 (  ) 년 (  ) 개월

5. 직급: (1) 간호사 □ (2) 책임 간호사□ (3) 수간호사 □

6. 노인 간호에 대한 체계적 교육을 받은 적이 있습니까?
   (1) 있었다 □ (2) 없었다 □

6a. 있다면, 어디에서 받으셨나요?
Appendix 12: Case vignettes of hospitalised older adults (English Version)

Please read the following five scenarios about patients in the hospital. In each story, the older adult has been hospitalised for a medical reason. After reading the scenario, please answer each of the questions that follow. There is only one correct answer for each multiple choice question, therefore please answer with the response you think is most likely. Do not refer to a text book or compare to colleagues’ answers. DO NOT PLACE YOUR NAME IN QUESTIONNAIRES.

[Each Vignette inserted here]

1. Please rate the patient’s mental status as:
   
   A. Not Confused □
   B. Somewhat confused □
   C. Very confused □
   D. Uncertain of mental status □

2. Do you think this patient has experienced an acute change in mental status (yes or no)?
   
   Yes □ No □

3. Please choose ONE ANSWER from the choices below regarding what you think is happening to this patient
   
   A. Dementia □
   B. Delirium □
   C. Delirium Superimposed on Dementia □
   D. Normal aging □
   E. None of the above □

4. Have you ever had this happen before with patients that you have cared for?
   
   Yes □ No □

5. What, if anything, do you think may be causing it?
6. What, if anything, do you think you need to do about the problem?


7a. Would you call the on-call physician for this patient?

7b. If yes, why?

8. Would you consider calling the on-call physician to medicate this patient, and if so with what medication?

Yes □ No □

Medication: 

9. Is there anything else you would like to add regarding this case?
Case vignettes of hospitalised older adults (English Version)

1 The Case of Al
Al is a 76-year-old male, who has been in the hospital for one day. Al has not had any unusual behaviours, but his family reports that slowly over the course of the past year, he has been getting gradually more forgetful. Al has more trouble dressing than he did last year. Al seems to have more trouble finding the right words to say than he did a year ago. Al gets confused more often than last year about where he is going. None of these changes happened all at once, but Al seems to be slowly getting more confused in his memory and thinking. Vital signs, physical examination and ECG have been normal, and all lab values were within normal limits.

2. The Case of Betty
Betty is an 80-year-old female who has been in the hospital for two days. Betty has been doing fine, and has no memory complaints. One morning, Betty does not want to get out of bed. Betty does not seem to be interested in food and seems very slowed down. She appears sleepier than usual, and is disoriented to time, place, and mistakes her nurse for one of her relatives. Betty does not seem to be paying much attention when you talk to her. Over the next few days, Betty spends a lot of time just lying in bed and staring into space. According to the family, she did not have a history of depression, sadness, or feeling blue.

3. The Case of Donald
Donald is a 69-year-old male who was admitted to the hospital this morning. Donald has been doing fine, with only mild forgetfulness but no obvious memory issues. Suddenly at midnight, Donald walks down the hall towards the nursing station looking for his father, who you know passed away many years ago. When you remind him of this, Donald says he just saw his father walk past his room, and insists on finding him. When directed to go back to bed, Donald becomes angry, and accuses you of stealing from him and kidnapping his father and demands that you take him to his father. Donald is up all night, out of bed pacing and searching through everything in his room. Over the next few days, Donald still has trouble sleeping. He seems much more distracted and forgetful than he did on admission. When sitting up in a chair he is pulling off his dressings and asking to leave the hospital. Donald says he sees people who died
years ago. He is reaching out at the air as if he sees something. When you try to reassure Donald, he tries to hit you.

4. The Case of Diane

Diane is an 83-year-old female who has been in the hospital one day. According to her family, Diane has had increasing memory problems over the past year, and problems getting lost while driving to a local restaurant where she has been many times. She has more difficulty finding the right name for things. She has also experienced increased difficulty in completing daily ADL’s. In the morning, you go in to check her vital signs and suddenly she is more confused. She tells you to stay away and tries to punch you. This is not her usual behaviour at home. She accuses you of trying to kill her and steal her belongings. She is disoriented to time and place, and does not recognise you as her nurse. You leave the room, and you hear her talking to herself and moving things around in the room. You return to check on her and find that she has pulled out her IV.

5. The Case of Carol

Carol is a 74-year-old female who has been in the hospital three days. According to her family, she has had increasing memory problems over the past year, and problems getting lost while driving to many familiar places where she has driven numerous times. She has also experienced increased difficulty in completing daily ADL’s. The family reports, she does not have a history of depression, sadness, or feeling blue.

Carol does not seem to notice when you talk to her and is much sleepier than before, and falls asleep while you try to assess her. She is disoriented to time and place, and does not recognise you at all. She will not eat or take her medicines. The next morning, Carol will not get out of bed. She is awake, although somnolent, and is staring blankly at the wall. She will not eat, nor show any interest in her food. When you attempt to assess her status, you notice that she is once again sleepier than usual, and she will not remain awake when you are taking her vital signs.
입원 노인의 사례 상황

다음에 나오는 다섯 명의 노인 입원환자에 대한 시나리오를 읽어주시기 바랍니다. 각각의 노인 환자는 건강상의 문제로 병원에 입원했습니다. 각 시나리오를 천천히 읽고 다음에 나오는 질문에 각각 답을 해주시길 바랍니다. 특히 객관식 질문에서는 가장 정답에 가깝다고 생각하는 보기 하나를 선택해주실 바랍니다.

[각 사례 상황 제시함]

1. 이 환자의 정신 상태를 다음의 보기 중에서 하나만 선택해주십시오.
   A. 혼돈 상태가 아님 □
   B. 약간 혼돈 상태임 □
   C. 매우 혼돈 상태임 □
   D. 정신 상태가 불확실함 □

2. 이 환자가 급성 정신 상태의 변화를 경험한다고 생각하십니까?
   예 □ 아니오 □

3. 이 환자에게 일어난 것에 대한 당신의 생각을 아래의 보기 중에서 하나만 선택해주십시오.
   A. 치매 □
   B. 성망 □
   C. 치매에 병발된 성망 □
   D. 정상적인 노화 □
   E. 위의 보기에 없음 □

4. 당신이 간호한 환자 중에서 이러한 경우를 전에 경험해 본 적 있습니까?
   예 □ 아니오 □

5. 당신은 어떤 원인이 이것을 일으킬 수 있다고 생각하십니까?

6. 이 문제에 대해 당신이 해야 할 필요가 있는 것은 무엇이라고 생각하십니까?

7a. 당신은 이 환자를 위해 당직 의사에 연락하시겠습니까?
   예 □ 아니오 □
7b. 만약 예라면, 그 이유는?

8. 이 환자에게 투약하기 위해 당직 의사에게 연락하는 것을 고려하십니까?
만약 그렇다면, 어떠한 약물을 투약하였습니까?
   예 □ 아니오 □
   약물

9. 이 상황과 관련하여 덧붙이고 싶은 것이 있습니까?
1. 강민수 환자의 상황

병원 입원 1일째, 강민수 환자(76세/남성)는 비정상적인 행동을 한 적이 없으나, 가족들은 그가 지난 1년 동안 서서히 더 잘 잊어버리다고 진술한다. 강민수 환자는 지난해보다 옷 입는 것에 어려움을 느끼고, 일 년 전보다 말할 때, 알맞은 단어를 찾는데 어려움을 겪는 것처럼 보인다고 한다. 또한, 강민수 환자는 그가 가지고 있는 곳에 대해 종종 더 흔히 생각하는데 이러한 변화는 모두 한꺼번에 일어난 것은 아니지만, 그의 기억과 사고에 점점 더 많은 혼란을 겪는 것처럼 보인다. 활동징후, 신체검진 그리고 ECG는 정상이었으며, 모든 lab 검사 수치도 정상 범위 안에 있었다.

2. 김부선 환자의 상황

병원 입원 2일째, 김부선 환자(80세/여성)는 잘 지내왔으며, 기억력 저하를 보이지 않았다. 어느 날 아침, 김부선 환자는 침대에서 나와 식욕도 잃고, 기력이 쇠약해진 것처럼 보인다. 그녀는 평소보다 더 졸려하며, 시간과 장소에 대한 인지가 불명확하고, 간호사를 그녀의 친척 중 한 명이라 잘못 생각하고 있다. 김부선 환자는 당신이 그녀에게 말을 걸 때, 관심을 보이지 않는 것처럼 보였다. 며칠이 지나고, 김부선 환자는 많은 시간을 침대에 누워서 멍하게 응시하며 보냈다. 가족에 의하면, 그녀는 우울증이나 슬픈 일의 과거력이 없다고 한다.

3. 이현우 환자의 상황

오늘 아침 입원한 이현우 환자(69세/남)는 그 동안 잘 지내왔으며, 약간의 건망증이 있으나 명백한 기억력 문제는 없었다. 지정해, 갓자기, 이현우 환자는 몇 년 전에 죽은 그의 아버지를 찾기 위해 간호사 스테이션을 향하여 복도로 걸어온다. 당신이 그에게 그의 아버지를 찾아주라고 하였을 때, 이현우 환자는 그의 아버지가 그의 방을 지나가는 것을 보고 말하며, 그를 찾아야 한다고 주장한다. 당신을 찾아가라고 얘기했을 때, 그는 화를 내면서, 당신이 잘못하고 그의 아버지를 빼앗겼다는 것을 봤다고 말하며, 당신을 때리려고 한다. 이현우 환자는 침대에서 나와서 걸어 다니고, 그의 병실의 모든 것을 뒤지면서 방새 깨어있었다.

며칠 뒤, 이현우 환자는 여전히 장을 잡지 않는데 어려움을 겪고 있다. 그는 입원했을 때보다 더 산만하며, 잘 잊는 것처럼 보인다. 그가 의자에 앉아있을 때, 그는 옷을 벗으려 하며, 병원에서 나가고 싶다면서 요구한다. 이현우 환자는 몇 년 전에 죽은 사람들이 보인다고 말한다. 그는 마치 무언가를 본 것처럼 허공에 손을 뻗는다. 당신이 이현우 환자를 안심시키려 하면, 그는 당신을 때리려고 한다.
4. 박소영 환자의 상황

병원 입원 1 일째, 박소영 환자(83 세/여) 가족에 의하면, 그녀는 지난 몇 년에 걸쳐 기억력 문제가 더 심해지고 있으며, 그녀가 많이 졌었던 동네 레스토랑으로 운전하는 중, 길을 잃어버리는 문제를 겪고 있다고 한다. 그녀는 물건의 알맞은 이름을 찾는 것을 어려워하며, 일상생활 활동에 어려움이 점점 증가하는 것을 겪고 있다. 아침에, 당신은 그녀의 활약징후를 확인하기 위해 갔을 때, 그녀는 감자가 더 훈련스러웠다. 그녀는 당신에게 접근하지 말라고 말하며, 당신을 때리려고 한다. 이것은 집에서의 평소 행동이 아니다. 그녀는 당신이 그녀를 죽이려 했으며, 그녀의 소지품을 훔치려 했다고 비난한다. 그녀는 당신이 그녀의 간호사라는 것인지 또는 당신이 그녀를 사정하는 도중에 잠들어 버린다. 당신은 시간과 장소에 대한 인지가 불명확하고, 당신이 그녀의 간호사라는 것을 인지하지 못한다. 당신이 병실을 떠날 때, 당신이 병실 안에서 그녀 자신과 이야기를 하고, 물건들을 옮기는 소리를 듣는다. 당신은 그녀를 확인하기 위해 다시 그녀의 병실에 들어갈 때, 그녀가 IV를 빼내는 것을 발견한다.

5. 고지희 환자의 상황

병원 입원 3 일째, 고지희 환자(74 세/여)는 그녀의 가족에 의하면 지난 몇 년에 걸쳐 기억력 문제가 더 심해지고 있으며, 수없이 운전해왔던 여러 친근한 장소에 운전해 가는 도중 길을 잃어버리는 문제를 겪고 있다고 한다. 또한 그녀는 일상생활 활동에 어려움이 점점 증가하는 것을 경험하고 있다. 그녀의 가족이 말한 바로는 그녀는 우울증이나 술픈 일의 과거력이 없고, 고지희 환자는 당신이 그녀에게 말을 걸 때, 주목하지 않는 것처럼 보이며, 전보다 더 졸려 하고, 당신이 그녀를 사정하는 도중에 잠들여 버린다. 그녀는 시간과 장소에 대해 훈련스러워하고 있으며, 당신에 대해 전혀 인지하지 못한다. 다음 날 아침, 고지희 환자는 침대에서 나오지 않고, 거의 잠들었거나 쫒여있으면, 벽을 막히지 바람만 보고 있다. 그녀는 음식도 먹지 않으며, 음식에 대해 어떠한 관심도 보이지 않는다. 당신이 그녀의 상태를 확인하고자 했을 때, 당신은 그녀가 또다시 평소보다 더 졸리 한다는 것을 알아차렸고, 당신이 그녀의 활약 징후를 사정할 때에는 그녀는 깨어있지 않을 것이다.
Appendix 13: Facts on aging quizzes (English Version)

Facts on Aging Quizzes

Please answer (V) the following questions.

<table>
<thead>
<tr>
<th></th>
<th>Questions</th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The majority of old people over 65 are senile (have impaired memory, disorientation, or dementia.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>The five senses (sight, hearing, taste, touch, smell) all tend to weaken in old age.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>The majority of old people have no interest in, nor capacity for, sexual relations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Lung vital capacity tends to decline with old age.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>The majority of old people feel miserable most of the time.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Physical strength tends to decline with age.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>At least one-tenth of the aged are living in long-stay institutions such as nursing homes, mental hospitals, and homes for the aged.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Aged drivers have fewer accidents per driver than those under age 65.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Older workers usually cannot work as effectively as younger workers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>More than three-fourths of the aged are healthy enough to do their normal activities without help.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>The majority of old people are unable to adapt to change.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Older people usually take longer to learn something new.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Depression is more frequent among the elderly than among younger people.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Older people tend to react slower than younger people.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>In general, old people tend to be pretty much alike.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>The majority of old people say they are seldom bored</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>The majority of older people are socially isolated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Older workers have fewer accidents than younger workers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>More than 20 percent of the population is now 65 and older.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>The majority of medical practitioners tend to give low priority to the aged.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>The majority of old people have incomes below the poverty line, as defined by the U.S. federal government.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>The majority of older people are working or would like to have some kind of work to do, including housework and volunteer work.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Old people tend to become more religious as they age.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>The majority of old people say they are seldom irritated or angry.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>The health and economic status of old people will be about the same or worse in the year 2010, compared with younger people.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
각 문항을 천천히 읽고 해당되는 부분에 V 표를 해 주십시오.
(선생님의 노인에 대한 태도를 파악하기 위한 질문이나 편하게 응답해 주시기 바랍니다.)

<table>
<thead>
<tr>
<th>질문 내용</th>
<th>그렇다</th>
<th>아니다</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 노인(65 세 이상)은 대부분 기억력이 감퇴하거나 치매에 걸린다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 노년기에는 오감(시각, 청각, 미각, 촉각, 후각)이 약해지기 쉽다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 대부분의 노인은 성관계를 할 능력이 없을 뿐만 아니라 성에 대한 흥미도 없다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 노년기에는 피 활량이 감소된다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 노인들은 대부분의 시간을 비참하다고 느낀다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 나이가 들어감에 따라 체력이 떨어진다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 노인의 10% 정도는 장기보호시설(단기보호 가정, 장신병원, 노인주거시설(양로원), 노인요양병원 등)에서 생활한다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 노인 운전자는 65 세 이하의 운전자들에 비해 사고를 거의 내지 않는다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 노인 근로자는 대부분 젊은 근로자만큼 효과적으로 일할 수 없다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 노인들의 75% 이상이 타인의 도움 없이 정상적인 생활을 할 정도로 충분히 건강하다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 대부분의 노인들은 변화에 잘 적응할 수 없다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 노인들은 대개 새로운 것을 배우는데 더 오랜 시간이 걸린다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 무술증은 젊은 사람보다는 노인에게 흔하다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 노인들은 젊은 사람보다 더 느리게 반응하기 쉽다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 일반적으로, 노인들은 매우 바쁜 것으로 여겨진다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 대부분의 노인들은 자주하고 하지 않는다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17 대부분의 노인들은 사회적으로 고립되어 있다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 노인 근로자들은 젊은 근로자들에 비해 거의 사고를 내지 않는다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 현재 인구의 20% 이상이 65세 이상이다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 대부분의 의료인들은 노인에게 의료서비스를 우선적으로 제공하지 않는다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21 대부분의 노인들은 최저소득층이나 이하의 수입을 갖고 있다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 대부분의 노인들은 집단일과 지원봉사자 같은 일을 하거나, 하고 싶어 한다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23 노인들은 나이가 들여감에 따라 좀 더 종교에 성취하게 된다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24 대부분의 노인들은 종차량 파종내거나 화내지 않는다.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 미래 노인의 건강과 경제수준은 현재 노인에 비해 갈거나 더 나빠질 것이다.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 14: Chart audit tool (English Version)

1. General demographic

1). Age: ( ) years  2) Gender: Male □ Female □  3) Living Situation: Home □ Institution □

4) Reason for admission to hospital: ( )   5) Dementia diagnosis documented: Yes □ No □

2. The total number of the keywords associated with delirium
   (Cognitive assessment outcome)

Confusion □ Disorientation □ Altered mental status □ Delirium □ Agitation □

Inappropriate behaviour □ Mental status change □ Inattention □ Hallucination □ Lethargy □

3. Frequency of non-pharmacological interventions following the documentation of identified keyword associated with delirium (If Yes, V)

<table>
<thead>
<tr>
<th>Pharmacological intervention</th>
<th>Medication:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical restraint</td>
<td></td>
</tr>
</tbody>
</table>

Non-pharmacological intervention

Assess for physiological causes and risk factors for delirium

<table>
<thead>
<tr>
<th>Medication</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fecal impaction</td>
<td></td>
</tr>
<tr>
<td>Urinary retention</td>
<td></td>
</tr>
</tbody>
</table>
Infection (Urine, lungs, skin)
Hypoxia
Dehydration
Hypo/hyperglycemia
Pain
Immobility
Sensory loss

**Prevent injury**
Room near nurses’ station (monitor for excessive noise and stimulation due to location)
Motion sensor alarm
Fall risk: low bed, hid pads, etc.
Remove/camouflage tubes when possible
Use of informal caregivers

**Modify other risk factors**
Environmental stimuli
Level of activity
Non-pharmacological treatments
Sensory aides

**Educate and counsel family regarding signs and prevention of delirium**

**Follow-up assessment**
Continue to assess cognition observing behaviours
Notify medical team or seek consultation
Monitor hydration and nutrition
Educate and consult family regarding signs of re-occurrence and duration (2 weeks to 6 months) of delirium

4. **Documentation for the comprehensiveness of the reporting CI care (Please tick, v)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>The problem is described or interventions planned or implemented.</td>
<td>Score 1</td>
</tr>
<tr>
<td>The problem is described and interventions planned or implemented.</td>
<td>Score 2</td>
</tr>
<tr>
<td>The problem is described and interventions planned or implemented and nursing outcome is recorded.</td>
<td>Score 3</td>
</tr>
<tr>
<td>Description</td>
<td>Score</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>The problem is described and interventions planned and implemented and nursing outcome is recorded.</td>
<td>4</td>
</tr>
<tr>
<td>All aspects of the nursing process are recorded. Good description of the problem and recording of the relevance for nursing.</td>
<td>5</td>
</tr>
</tbody>
</table>
Appendix 14: Chart audit tool (Korean Version)

차트 번호:

1. 일반적 특성
   1) 나이: 만 ( )세
   2) 성별: 남 □ 여 □
   3) 주거 형태: 집 □ 요양원 □
   4) 병원 입원 원인: ( )
   5) 병원 입원 전 치매진단: 유 □ 무 □

2. 섬망 사정 결과
   혼돈 □ 방향감각 상실 □ 정신상태 변화 □ 섬망 □ 동요 □ 비 이상적 행동 □
   급성 정신상태 변동 □ 부주의 □ 황각 □ 무기력 □

3. 섬망 사정 후 간호
   약물 치료
   약물:

   억제대 사용

비약물적 간호

성양의 생리적 원인과 위험요인을 위한 사정
   약물
   분변매복
   요정제
   감염(요, 폐, 피부)
   자산소증
   탈수
   지/고혈당
통증
부동
감각상실(시각, 청각 장애)

부상 예방관리
간호사 스테이션근처 병실(과도한 소음과 위치로 인한 자극 확인)
움직임 감지 경보
낙상 위험(낮은 침대, 영양이 패드 등)
가능하면 관 제거/보호
간병인력 활용

다른 위험요인 조정
환경 자극
활동 수준
비약물적 치료
감각 보조기 이용

가족에게 성장 및 성장 예방에 대한 교육 및 상담
후속 사정
인지 기능 사정 및 행동 관찰 모니터
의료팀에 알리거나 자문
수화 및 영상 상태 모니터
가족에서 성장의 재발 정후 및 지속기간 (2주부터 6달) 교육 및 상담

4. 인지장애 간호 포괄적인 문서 보고

<table>
<thead>
<tr>
<th>기준</th>
<th>점수</th>
</tr>
</thead>
<tbody>
<tr>
<td>문제 기술, 혹은 간호 중재 계획 혹은 중재</td>
<td>점수 1</td>
</tr>
<tr>
<td>문제 기술, 그리고 간호 중재 계획 혹은 중재</td>
<td>점수 2</td>
</tr>
<tr>
<td>문제 기술, 그리고 간호 중재 계획 혹은 중재 그리고 간호 결과 작성</td>
<td>점수 3</td>
</tr>
<tr>
<td>문제 기술, 간호 중재 계획 그리고 중재, 그리고 간호 결과 기록</td>
<td>점수 4</td>
</tr>
<tr>
<td>간호과정 모든 면 기록(문제와 그와 관련 간호 좋은 기술)</td>
<td>점수 5</td>
</tr>
</tbody>
</table>
Appendix 15: Nurse qualitative interview guide (English Version)

Overview

Individual face-to-face interviews will be conducted with nurses following the completion of the quantitative component of the study. All nurses who participated in the educational program will be invited to participate in an interview once they have completed their questionnaires. The interviews will last approximately one hour and will be audio recorded to ensure an accurate record. The interviews will provide an opportunity to examine the strengths and weakness of the educational program and explore nurse-initiated efforts to involve family caregivers in cognitive impairment (CI) care. This will enhance the data collected from the questionnaires and may assist in identifying needs for improvement in the CI care educational program.

The interview questions are semi-structured to ensure the same questions are asked of each participant although flexibility may occur in the order of the questions, the pace, and additional probes. The questions will focus on nurses’ experiences of participating in the educational program and initial efforts to involve family caregivers in CI care.

Initial contact

1. The researcher will contact nurses via telephone to arrange interview.
2. The researcher will explain that the interview is not mandatory but appreciate their feedback/experiences in participating in the educational program and making initial efforts to involve family caregivers in CI care.
3. The researcher will advise that the interview will be recorded.

Before Beginning the Interview

The researcher will verify location and any required materials and equipment are available and in working order as follow:

1) The location is private and suitable to perform the interview without any disturbances or interruptions.
2) The audio equipment functionality will be verified in advance with additional batteries and audio equipment readily available.
3) Note-taking material will be present as a backup to audio recording.

Instructions during interview process:

1. The researcher will be respectful, courteous, and professional.
2. The study participants will have assigned random identification numbers: Participants (R) 1-16.
3. The researcher must apply language and terminology appropriate for the interviewees.
4. The random identification number from each interviewee will be recorded before answering each question allowing for interviewee identification during the transcription process.
5. The researcher will summarise the study.
6. The researcher will check that the interviewee has read and understood the participant information sheet.
7. The researcher will ask if the interviewee has any questions.
8. The researcher will emphasise the confidentiality policy: written and oral reports and other material coming out of this study will present only grouped data and information. ‘Your responses will be kept confidential and your name will not appear in any of the material from this study’.
9. The researcher will advise the interviewee that they may decline to answer any questions or discontinue the interview at any time without comment or penalty.

Introduction
The interview usually takes about an hour, but it can be anywhere between 30 minutes and an hour and will focus on what you thought of participating in the educational program and making initial efforts to involve family caregivers in CI care.
I’ll be asking you questions about your experience of participating in the educational program and making efforts to involve family caregivers in CI care. This will assist in identifying improvements to the current educational program and needs for improvements in CI care practice.

Questions
Evaluation of the educational program
1. How did the educational program meet your expectations?
   Probe: If so, how? If not, why not?
2. What aspect (part) of the educational program has been helpful to you?
   Probe: content, learning activities, and mode of delivery.
3. What aspects of the educational program could be improved and how?
   Probe: content, learning activities, and mode of delivery.
4. How do you perceive your ability and competence in caring for older patients with dementia and at risk of delirium?
   Probe: Use examples to illustrate if possible.
5. What are the factors that contribute or hinder your application of newly acquired knowledge to clinical situations?
   Probe: Relate to environment, resource, and people. Use examples to illustrate if possible.
Evaluation of nurse-initiated efforts to involve family caregivers in CI care

1. How did you involve family caregivers in the CI care of their older family member?
   
   Probe: *Use examples to illustrate if possible.*

2. What has been helpful to you?

   Probe: *Use examples to illustrate if possible.*

3. What are the factors that contribute or hinder your initial efforts to involve family caregivers in CI care?

   Probe: *Relate to environment, recourse, and people. Use examples to illustrate if possible.*

End of interview

Thank you for taking the time to speak with me about your experiences.

1. Each study participant will be asked if they have any additional questions or comments.

2. Each study participants will be thanked for their participation, input, and time.
Appendix 15: Nurse qualitative interview guide (Korean Version)

개요

개별 인터뷰는 양적 연구 후 하려고 합니다. 교육 후 설문 조사가 완성되면, 교육 중재에 참여한 모든 간호사는 개인 인터뷰에 초대하려고 합니다. 개별 인터뷰는 1시간 정도 소요될 것이고 인터뷰 오디오 테이프는 글로 기록된 후 파괴될 것이다. 인터뷰는 교육중재 과정 및 결과에 대한 평가의 기회를 제공하려고 합니다. 인터뷰는 설문 조사 결과를 향상시켜서 이번 교육중재 관련 항상이 필요한 부분들을 알아내는 데 도움이 될 것입니다.

인터뷰 질문은 모든 인터뷰 참여자들에게 같은 질문을 하기 위해서 반구조화된 형식으로 이루어져 있습니다. 그렇지만, 질문 순서, 속도, 그리고 추가적인 질문에 대해서 유연성 있게 이루어질 예정입니다. 교육 중재 경험 및 환자 가족보호자 인지정해 간호참여 노력관련 질문들로 이루어져 있습니다.

초기 접촉

1. 연구자는 전화로 인터뷰 날짜를 정하기 위해서 간호사들에게 연락할 예정입니다.
2. 연구자는 ‘개별 인터뷰는 의무적이지 않다.’ 설명을 하지만 이번 인터뷰 참여에 대한 감사함을 표현할 것이다.
3. 연구자는 ‘интер뷰는 오디오 테이프로 기록될 것이다.’ 알릴 것이다.

개별 인터뷰 하기 전

연구자는 개별 인터뷰 장소 및 아례와 같이 필요한 용품을 확인할 것이다:

1) 인터뷰 장소는 어떤 방에 없이 개별적으로 인터뷰가 이루어질 수 있는 곳인지 확인한다.
2) 추가 건전지 준비와 함께, 오디오 테이프 기능이 제대로 되는지 미리 확인 및 사용할 수 있도록 준비한다.
3) 오디오 테이프 기능이 문제가 있을 시 대체할 노트가 있는지 확인한다.

개별 인터뷰 지침서:

1. 연구자는 개별 인터뷰 참여자에게 정중하고 배려하면서 전문적인 태도를 보일 것이다.
2. 개별 인터뷰 참여자는 무작위로 식별 번호를 받을 것이다.
   개별 인터뷰 참여자 (R) 1-16.
3. 연구자는 개별 인터뷰 참여자를 위해 적합한 언어 및 단어를 사용해야 한다.
4. 글로 몇기는 과정에서 개별 인터뷰 확인을 위해 무작위 식별 번호는 개별 인터뷰 매 질문하기 전에 오디오 테이프로 기록될 것이다.
5. 연구자는 이번 연구를 요약해서 설명할 것이다.
6. 연구자는 개별 인터뷰 참여자가 인터뷰 설명서를 읽고 이해했는지 확인할 것이다.
7. 연구자는 개별 인터뷰 참여자와 질문이 있는지를 확인할 것이다.
8. 연구자는 비밀 보장을 강조할 것이다: '모든 개별 인터뷰 반응 및 이름은 이번 연구 관련 보고서에 쓰이지 않을 것이다.'
9. 연구자는 개별 인터뷰 참여자에게 '처벌 없이 언제든지 이유 없이 참여를 중단할 수 있다'고 알릴 것이다.

개별 인터뷰 시작

개별 인터뷰는 항상 1시간 정도 소요되는데 상황에 따라 30분에서 1시간 정도 사이 이루어질 수 있습니다. 개별 인터뷰는 교육 중재 경험 및 환자 가족보호자 인지장애 간호참여 노력에 초점을 맞추어 질문할 예정입니다.

개별 인터뷰는 이번 인지장애 교육중재 및 환자 가족보호자 인지장애 간호참여 노력 관련 항성이 필요한 부분을 알아내는 데 도움이 될 예정입니다.

개별 인터뷰 질문들

교육 중재 평가

1. 인지장애 간호 교육 중재가 어떻게 당신의 기대치에 충족을 시켰나요?
   추가 질문: 그렇게 생각하면, 어떻게? 그렇게 생각하지 않으면, 왜 그렇지 않았는지?
2. 인지장애 간호 교육중재의 어떤 부분이 당신에게 도움이 되었나요?
   추가 질문: 내용, 학습 활동, 교육 중재 전달 방법.
3. 인지장애 간호교육중재의 어떤 부분이, 그리고 어떻게, 항상이 필요한지요?
   추가 질문: 내용, 학습 활동, 교육 중재 전달 방법.
4. 인지장애 간호에 대한 당신의 능력 및 능숙도에 대해서 어떻게 생각하십니까?
   추가 질문: 가능하면 예제 사용.
5. 어떤 요인들이 이번에 배운 내용을 실제로 적용하는 데 도움 혹은 방해가 되었나요?
   추가 질문: 환경, 자원 및 인력 관련, 가능하면 예제 사용.

환자 가족보호자 인지장애 간호참여 관련 노력 평가

1. 당신은 어떻게 환자 가족보호자들 인지장애 간호 참여를 시키셨습니까?
   추가 질문: 가능하면 예제 사용.
2. 어떤 부분이 당신에게 도움이 되었나요?
   추가 질문: 가능하면 예제 사용.
3. 어떤 요인들이 환자가족보호자 인지 장애 간호 참여 노력에 도움 혹은 방해가 되었나요?
   추가 질문: 환경, 자원 및 인력 관련, 가능하면 예제 사용.

개별 인터뷰 마무리
개별 인터뷰 시간을 내주신 것에 대해 감사를 표현한다.
1. 개별인터뷰 참여자에게 질문 혹은 언급하고 싶은 것이 있으신지 물어볼 것이다.
2. 개별인터뷰 참여자에게 참여, 조언 및 시간에 대해 감사를 표현할 것이다.
Appendix 16: Family caregiver qualitative interview guide (English Version)

Overview

Individual face-to-face interviews will be conducted with family caregivers nominated by the four general internal medicine ward manager following the completion of the first phase of the study. Nominated family caregivers whose older family members were cared for by nurses who participated in the first phase will be asked to participate in an interview. The interviews will last approximately one hour and will be audio recorded to ensure an accurate record.

The interviews will focus on exploring the family caregivers’ experiences of nurse-initiated efforts to involve family caregivers in cognitive impairment (CI) care. This may assist in identifying improvements in nurse-initial efforts to involve family caregivers in CI care in practice.

The interview questions are semi-structured to ensure the same questions are asked of each participant although flexibility may occur in the order of the questions, the pace, and additional probes. The questions will focus on family caregivers’ experiences of being involved in the CI care of their older family members.

Initial contact
1. The researcher will contact nurses via telephone to arrange interview.
2. The researcher will explain that the interview is not mandatory but appreciate their feedback/experiences in participating in nurse-initiated efforts to involve family caregivers in CI care.
3. The researcher will advise that the interview will be recorded.

Before Beginning the Interview
1. The researcher will verify location and any required materials and equipment are available and in working order as follow:
   1) The location is private and suitable to perform the interview without any disturbances or interruptions.
   2) The audio equipment functionality will be verified in advance with additional batteries and audio equipment readily available.
   3) Note-taking material will be present as a backup to audio recording.

Instructions during interview process:
1. The researcher will be respectful, courteous, and professional.
2. The study participants will have assigned random identification numbers:
   Participants (F) 1-6.
3. The researcher must apply language and terminology appropriate for the interviewees.
4. The random identification number from each interviewee will be recorded before answering each question allowing for interviewee identification during the transcription process.
5. The researcher will summarise the study.
6. The researcher will check that the interviewee has read and understood the participant information sheet.
7. The researcher will ask if the interviewee has any questions.
8. The researcher will emphasise the confidentiality policy: written and oral reports and other material coming out of this study will present only grouped data and information. ‘Your responses will be kept confidential and your name will not appear in any of the material from this study’.
9. The researcher will advise the interviewee that they may decline to answer any questions or discontinue the interview at any time without comment or penalty.

**Introduction**

The interview usually takes about an hour, but it can be anywhere between 30 minutes and an hour and will focus on what you thought of the nurse-initiated efforts to involve family caregivers in CI care.

I’ll be asking you questions about your experience of being involved in the CI care of your older family members. This will assist in identifying improvements to the current nurse-initiated efforts to involve family caregivers in CI care and needs for improvements in CI care practice.

**Questions**

**Evaluation of nurse-initiated efforts to involve family caregivers in CI care**

1. Please tell me who was admitted to the general internal medicine ward and the reason of admission to hospital.
2. How did nurse involve you in the CI care of their older family member?
   
   *Probe: Use examples to illustrate if possible.*

3. What has been helpful to you?
   
   *Probe: Use examples to illustrate if possible.*

4. What are the factors that contribute or hinder your involvement in the CI care of your family members?
   
   *Probe: Relate to environment, recourse, and people. Use examples to illustrate if possible.*

**End of interview**

Thank you for taking the time to speak with me about your experiences;

1. Each study participant will be asked if they have any additional questions or comments.
2. Each study participants will be thanked for their participation, input, and time.
Appendix 16: Family caregiver qualitative interview guide (Korean Version)

개요
개별 인터뷰는 내과 병동 수간호사가 추천한 환자 가족보호자와 이루어질 예정입니다. 첫 번째 연구 단계에서 교육 중재에 참여한 간호사가 돌보는 환자의 가족보호자를 개인 인터뷰에 초대하려고 합니다. 개별 인터뷰는 1시간 정도 소요될 것이고 인터뷰 오디오 테이프는 글로 기록된 후 파괴될 것입니다. 인터뷰는 가족보호자 입장에서 간호사의 환자 가족보호자 인지장애 간호참여 관련 노력 평가에 초점을 맞출 것입니다. 인터뷰는 간호사의 환자 가족보호자 인지장애 간호 참여 관련 노력 관련 것들이 필요한 부분들을 알아내는 데 도움이 될 것입니다.

인터뷰 질문은 모든 인터뷰 참여자들에게 같은 질문을 하기 위해서 반구조화된 형식으로 이루어져 있습니다. 그림지만, 질문 순서, 속도, 그리고 추가적인 질문에 대해서 유연성이 있게 이루어질 예정입니다. 질문들은 간호사의 환자 가족보호자 인지장애 간호 참여에 대한 노력에 초점을 맞추어 이루어져 있습니다.

초기 접촉
1. 연구자는 전화로 인터뷰를 잡기 위해서 간호사들에게 연락할 예정입니다.
2. 연구자는 ‘개별 인터뷰는 의무적이지 않다.’ 설명을 하지만 이번 인터뷰 참여에 대한 감사함을 표현할 것이다.
3. 연구자는 ‘интер뷰는 오디오 테이프로 기록할 것이다.’ 알릴 것이다.

개별 인터뷰 하기 전
연구자는 개별 인터뷰 장소 및 아래와 같이 필요한 용품을 확인할 것이다:
1) 인터뷰 장소는 어떤 방해 없이 개별적으로 인터뷰가 이루어질 수 있는 곳인지 확인한다.
2) 추가 건전지 준비와 함께, 오디오 테이프 기능이 제대로 되는지 미리 확인 및 사용할 수 있도록 준비한다.
3) 오디오 테이프 기능이 문제가 있을 시 대체할 노트가 있는지 확인한다.

개별 인터뷰 지침서:
1. 연구자는 개별 인터뷰 참여자에게 정중하고 배려하면서 전문적인 태도를 보일 것이다.
2. 개별 인터뷰 참여자는 무작위로 식별 번호를 받을 것이다.
   개별 인터뷰 참여자 (F) 1-16.
3. 연구자는 개별 인터뷰 참여자에게 음반을 등어 및 단어를 사용해야 한다.
4. 글로 융기는 과정에서 개별 인터뷰 확인을 위해 무작위 식별 번호는 개별 인터뷰 때에서 매 질문하기 전에 오디오 테이프로 기록될 것이다.
5. 연구자는 이번 연구를 요약해서 설명할 것이다.
6. 연구자는 개별 인터뷰 참여자가 인터뷰 설명서를 읽고 이해했는지 확인할 것이다.

초기 접촉
1. 연구자는 전화로 인터뷰를 잡기 위해서 간호사들에게 연락할 예정입니다.
2. 연구자는 ‘개별 인터뷰는 의무적이지 않다.’ 설명을 하지만 이번 인터뷰 참여에 대한 감사함을 표현할 것이다.
3. 연구자는 ‘интер뷰는 오디오 테이프로 기록할 것이다.’ 알릴 것이다.

개별 인터뷰 하기 전
연구자는 개별 인터뷰 장소 및 아래와 같이 필요한 용품을 확인할 것이다:
1) 인터뷰 장소는 어떤 방해 없이 개별적으로 인터뷰가 이루어질 수 있는 곳인지 확인한다.
2) 추가 건전지 준비와 함께, 오디오 테이프 기능이 제대로 되는지 미리 확인 및 사용할 수 있도록 준비한다.
3) 오디오 테이프 기능이 문제가 있을 시 대체할 노트가 있는지 확인한다.

개별 인터뷰 지침서:
1. 연구자는 개별 인터뷰 참여자에게 정중하고 배려하면서 전문적인 태도를 보일 것이다.
2. 개별 인터뷰 참여자는 무작위로 식별 번호를 받을 것이다.
   개별 인터뷰 참여자 (F) 1-16.
3. 연구자는 개별 인터뷰 참여자에게 음반을 등어 및 단어를 사용해야 한다.
4. 글로 융기는 과정에서 개별 인터뷰 확인을 위해 무작위 식별 번호는 개별 인터뷰 때에서 매 질문하기 전에 오디오 테이프로 기록될 것이다.
5. 연구자는 이번 연구를 요약해서 설명할 것이다.
6. 연구자는 개별 인터뷰 참여자가 인터뷰 설명서를 읽고 이해했는지 확인할 것이다.
7. 연구자는 개별 인터뷰 참여자 자질문이 있는지를 확인할 것이다.
8. 연구자는 비밀 보장을 강조할 것이다: '모든 개별 인터뷰 반응 및 이름은 이번 연구 관련 보고서에 쓰이지 않을 것이다.'
9. 연구자는 개별 인터뷰 참여자에게 '쳐벌 없이 언제든지 이유 없이 참여를 중단할 수 있다'고 알릴 것이다.

개별 인터뷰 시작
개별 인터뷰는 항상 1시간 정도 소요되는데 언제든지 30분에서 1시간 정도 사이 이루어질 수 있습니다. 개별 인터뷰는 환자 가족보호자 인지장애 간호참여 관련 조정을 맞추어 질문할 예정입니다. 개별 인터뷰는 환자 가족 보호자 인지장애 간호 참여관련 항상이 필요한 부분을 알아내는 데 도움이 될 예정입니다.

개별 인터뷰 질문들
환자 보호자 인지장애 간호참여 관련 노력 평가
1. 누가 어떤 이유로 내과 병원에 입원을 하셨습니까?
2. 어떻게 간호사가 당신 가족의 인지장애 간호에 참여시키셨습니까?
   추가 질문: 가능하면 예제 사용.
3. 어떤 부분이 당신에게 도움이 되었나요?
   추가 질문: 가능하면 예제 사용.
4. 어떤 요인들이 환자 보호자 인지 장애 간호 참여 노력에 도움이 되었거나 방해를 했나요?
   추가 질문: 환경, 자원 및 인력 관련, 가능하면 예제 사용

개별 인터뷰 마무리
개별 인터뷰 시간을 내주신 것에 대해 감사를 표현한다.
1. 개별인터뷰 참여자에게 질문 혹은 언급하고 싶은 것이 있으신지 물어볼 것이다.
2. 개별인터뷰 참여자에게 참여, 조언 및 시간에 대해 감사를 표현할 것이다.
Appendix 17: Ethical approval from Griffith University

GRIFFITH UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE

Jul-2013

Dear MS KANG

I write further to the additional information provided in relation to the provisional approval granted to your application for ethical clearance for your project "Korean Acute Care Nurses' Management of Acute or Chronic Confusion in Older Adults" (GU Ref No: NRS/56/12/HREC).

The additional information was considered by Chair.

This is to confirm that this response has addressed the comments and concerns of the HREC.

Consequently, you are authorised to immediately commence this research on this basis.

The standard conditions of approval attached to our previous correspondence about this protocol continue to apply.

Regards

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Researchers are reminded that the Griffith University Code for the Responsible Conduct of Research provides guidance to researchers in areas such as conflict of interest, authorship, storage of data, & the training of research students. You can find further information, resources and a link to the University's Code by visiting http://policies.griffith.edu.au/pdf/Code%20for%20the%20Responsible%20Conduct%20Research.pdf

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