

## ORIGINAL ARTICLE

# Examining practical nursing experiences to discover ways in which to retain and invigorate the remaining functions of the elderly with a demented and complex disability in nursing homes

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### Abstract

**Aim:** The bedridden elderly with moderate-to-severe dementia account for a large proportion of the residents in nursing homes and form a specialized group requiring customized care in order to encourage their remaining functions, which determine the quality of their residual life. The purpose of this study was to search for ways to invigorate and foster the remaining functions of this complex-disability group, based on practical nursing strategies in nursing homes.

**Methods:** The qualitative thematic analysis was done by conducting in-depth interviews with 29 nurses working at 11 different nursing homes in South Korea.

**Results:** This study proposed four main themes and 19 sub themes as keys for providing specialized nursing care to the elderly with physical and cognitive disabilities. The main themes encourage the residents' remaining functions: (i) accurate identification of an elderly resident's physical, cognitive, and behavioral baseline is necessary in order to determine their functional levels; (ii) nurses provide meticulous management to support the remaining functions in order to prevent further deterioration; (iii) optimized know-how, based on accumulated experience and knowledge, is reflected in nursing strategies that maximize the effects of nursing interventions; and (iv) steady compliance with nursing guidelines and standards in nursing homes creates the best therapeutic environment and brings unexpected positive changes in the elderly's status.

**Conclusion:** A practical nursing strategy to target the group with a demented and complex disability in nursing homes was developed through thematic analysis of the empirical knowledge of nurses. The findings provide new insights for developing specialized nursing interventions and practical nursing models in long-term care facilities.

**Key words:** dementia, elderly, functionally impaired elderly, nursing care management, nursing homes.

## INTRODUCTION

Recently, South Korea has been greatly contributing to the aging population in Asia because of its improved medical and welfare systems (Choi & Sok, 2015; OECD, 2014; United Nations, 2013). Since 2008, the Korean Government has been implementing a new

welfare policy, referred to as “National Long-Term Care Insurance,” for providing financial support for elderly residents admitted to long-term care facilities (Choi & Sok). Among such facilities, nursing homes mainly target the super-aged (>75 years) with disabilities to provide rehabilitation or to support their daily living for residual life and are classified as non-medical institutions by national rule in Korea (Ministry of Health and Welfare, 2016b). Various elderly groups with different types and degrees of disabilities can coexist in nursing homes as a result of the lowered financial

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threshold for admittance to long-term care facilities (Hoogerduijn, Grobbee, & Schuurmans, 2014). Accordingly, designing nursing management plans that consider the remaining functions of the elderly becomes a significant factor to be dealt with since each disability group requires quite different and individualized nursing goals and care (Lim *et al.*, 2014).

Many residents in nursing homes come under care levels 1 and 5, according to the grading assessment criteria of the national insurance systems in Korea and Japan, respectively (Gaugler, Yu, Krichbaum, & Wyman, 2009; Helvik, Engedal, Benth, & Selbæk, 2015; National Health Insurance System, 2016; Takai & Uchida, 2009), which means that they partially or completely depend on nurses for their activities of daily living (ADLs) (i.e. eating, bathing, dressing, toileting, walking, and continence) due to severe and complex disabilities in both physical and cognitive functions (Kashiwagi, Tamiya, Sato, & Yano, 2013; Lim *et al.*, 2014). For instance, a bedridden status with moderate-to-severe dementia is a representative symptom in this group. They retain very limited ability to conduct ADLs and are always exposed to the dangers of accidents like falling due to the problem behaviors and restricted movements. The lost functions of the elderly in this group are difficult to recover due to the super-aged's weakened ability for recovery (Kim, Kim, Kim, Choi, & Chang, 2014; Tadaka & Kanagawa, 2004). Their only desire once in a nursing home is the maintenance of their residual functions and quality of life based on nursing ethics (Ashcraft & Owen, 2014). From this perspective, the development of specialized and practical nursing strategies, which are distinguished from conventional frameworks that focus on rehabilitative purposes, is highly desired to efficiently serve this type of complex-disability group (Carpenter, Hastie, Morris, Fries, & Ankri, 2006; Ericsson, Malmberg, Langworth, Haglund, & Almborg, 2011). Although the majority of this disability group (>40%) resides in nursing homes (National Health Insurance System, 2016) and constitutes a clear need for customized nursing guidelines and standards based on empirical knowledge, qualitative case studies to develop efficient nursing interventions that target this group have not been explored to date (Hamahata, Magilvy, Hoshino, & Komatsu, 2004; Kim, Choi, Kim, Kim, & Chang, 2016; Kim *et al.*; Kobayashi, Yamamoto-Mitani, Nagata, & Mura-shima, 2008).

Here, this study first introduces practical nursing strategies for the elderly with severe levels of physical and cognitive disabilities through the qualitative thematic

analysis of nurses' experiences and knowledge, acquired by a nationwide survey covering regional diversity and facility circumstances (i.e. size, staffing, and equipment). The strong point of this work is that it concretely subdivides the resident group in nursing homes by their level of disability and selects the bedridden elderly with moderate-to-severe dementia as a specialized target. The nursing strategy that is developed here emphasizes the effort to maintain the remaining functions of the elderly in this complex-disability group and the nursing ethics to protect their human dignity, which can be easily ignorable, compared to other disability groups (Watson, 1998).

## METHOD

### Study aim

The purpose of this study was to develop desirable nursing strategies for the physically disabled elderly with moderate-to-severe dementia through the qualitative analysis of nurses' experiences in nursing homes and to illuminate the importance of maintaining the remaining functions of this type of group with a demented and complex disability, rather than attempting medical rehabilitation.

### Study design

A qualitative thematic analysis was applied to identify, analyze, and report the patterns, which are referred to as the "themes" in this study, of the raw material that was obtained from surveys (Braun & Clarke, 2006).

### Participants

Purposive sampling was used to collect information-rich cases until data saturation was reached, working under the belief that professional nurses' experiences increase the application of survey results to real-world nursing. Thus, 29 nurses who were working at 11 different nursing homes across seven provinces in South Korea were selected as key participants who were able to provide the most appropriate information for this research. For reference, at least one registered nurse or one nurse aid has to be assigned when there are >25 residents in a nursing home. If the number of residents is >30, one part-time doctor additionally is required, according to the national rule in Korea (Ministry of Health and Welfare, 2016a). Similarly, the scale of nursing homes in Korea can be classified as a standard of the number of residents of <30 or >30 by the enforcement regulation

of the National Long-Term Care Insurance (Ministry of Health and Welfare, 2016a). A total of 11 nursing homes was selected with various resident scales for the interview to secure the representativeness of the sample. Among those, one nursing home was small-scale, with 10–30 residents, six nursing homes belonged to the middle scale, with 30–99 residents, and four nursing homes belonged to the large scale, with >100 residents. Despite differences in environmental factors, such as the facility size and location, this study gathered information from various nursing homes to examine from the common perspective of experienced nurses the ways in which to treat those with a complex disability. The average age of the survey participants was 41.6 years old (range: 26–57 years). Among them, 12 nurses had a nursing

college degree, 12 had a Bachelor's degree, four had graduate training, and one had a PhD. The average period of hospital experience before going to work in a nursing home was 9 years and 6 months. The average period of experience in a nursing home was 4 years and 3 months (Table 1).

### Data collection

The data were collected from one-on-one in-depth interviews that were conducted two to three times with each of the 29 nurses in the 11 nursing homes. In detail, the participants were asked to answer questions in relation to their nursing experiences in caring for the elderly with physical and cognitive disabilities or empirical knowledge for efficiently managing their remaining

**Table 1** General characteristics of the participants (n = 29) (F, Female, RN, Registered Nurse)

Nurse no.	Age	Sex	Education	Work experience in nursing homes	Previous work experience in nursing homes as RNs	The number of residents	Region
N1	51	F	University	6 years 10 months	11 years	30–100	Seoul
N2	57	F	College	7 years 6 months	11 years 2 months	Over 100	Gangwon
N3	40	F	University	7 years 6 months	10 years	Over 100	Gangwon
N4	46	F	College	4 years	7 years 5 months	Over 100	Gangwon
N5	43	F	College	9 years 3 months	10 years 9 months	Over 100	Gangwon
N6	40	F	University	1 year	16 years 10 months	30–100	Gyeonggi
N7	40	F	University	2 years 7 months	9 years 8 months	30–100	Gyeonggi
N8	43	F	College	8 years	1 year 6 months	30–100	Gyeonggi
N9	43	F	College	7 years 4 months	3 years 6 months	30–100	Gyeonggi
N10	42	F	University	8 years	6 years 8 months	30–100	Gyeonggi
N11	42	F	College	8 years	9 years	30–100	Gyeonggi
N12	35	F	College	1 year 6 months	2 years	30–100	Gyeonggi
N13	39	F	University	5 years 7 months	8 years	30–100	Gyeonggi
N14	53	F	University	3 years	2 years 6 months	30–100	Gyeonggi
N15	33	F	Graduate course	5 months	9 years 2 months	Over 100	Jeolla
N16	44	F	University	5 years 2 months	15 years	Over 100	Jeolla
N17	44	F	Graduate course	3 years	19 years	Over 100	Jeolla
N18	35	F	Graduate course	3 years 7 months	9 years	Over 100	Jeolla
N19	41	F	College	4 years 1 month	7 years 6 months	Over 100	Jeolla
N20	57	F	PhD	7 years 2 months	20 years	10–30	Gyeongsang
N21	44	F	M.S.	4 years 6 months	16 years	30–100	Gyeongsang
N22	43	F	College	1 year 9 months	15 years	30–100	Gyeongsang
N23	38	F	College	1 year	7 years	Over 100	Gyeongsang
N24	37	F	University	1 year	13 years 6 months	Over 100	Gyeongsang
N25	32	F	College	1 year	8 years	Over 100	Gyeongsang
N26	35	F	College	6 months	8 years	30–90	Chungcheong
N27	38	F	University	2 months	12 years 2 months	30–90	Jeju
N28	45	F	University	8 years 7 months	6 years	Over 100	Jeju
N29	26	F	University	2 years	2 years	Over 100	Jeju

physical or cognitive functions. The target nursing home residents' mean score on the Mini-Mental State Exam, Korean version, was <10, which indicates moderate-to-severe dementia. The nursing home target residents' mean score on the modified Barthel Index, Korean version, was <5, which indicates a complete dependence on others. Most of the nursing home target residents were in a bedridden state with a loss of bladder and bowel control and could not dress, wash, bathe, or feed themselves. Each interview was conducted with semistructured questionnaires for 60–90 min and all the interviews were audio-recorded.

The first interview began with a general question about residents in nursing homes (i.e. "Please describe for me the average physical, cognitive, and behavioral status of residents in your nursing homes."). After that, the researchers asked questions about the management of functions for the nursing home target residents with physical and cognitive disabilities. Concretely, the participants were asked to answer questions about their experiences and knowledge of managing the remaining functions of the elderly with physical and cognitive disabilities in terms of nursing assessment, intervention, and evaluation. The key participants had to satisfy the following two conditions: (i) a working period of >2 years, including working experience in nursing homes as legally registered nurses; and (ii) practical nursing experiences with managing the remaining functions of the elderly who were suffering from both physical and cognitive disabilities.

### Data analysis

The six phases of thematic analysis were conducted as follows (Braun & Clarke, 2006): (i) the interview data were repeatedly read in order to foster familiarity with the data; (ii) the meaningful units were transformed into initial codes; (iii) the generated codes then were collated into potential themes, based on related patterns and similarities; (iv) these potential themes were checked and reviewed to determine whether they coalesced with the extracted codes and the entire dataset. This process led to the generation of a thematic map; (v) the themes were defined and named; and (vi) the report was produced.

### Data credibility

In order to secure the reliability of the qualitative analysis, this study rigorously followed regulations, such as credibility, transferability, dependability, and confirmability. In detail, the transcripts of the audio-recordings were prepared and the code-transforming was checked carefully.

The validation of the study also was conducted by double-member checks. The collected data pool was rich, based on a large-scale, nationwide survey with professional nurses who were actively working in various types of nursing homes (i.e. facility size and region), which supports the transferability of this work. Throughout the study, the researchers' subjectivity or prejudices were excluded as much as possible for conformability of the analysis. The overall data processing followed the representative thematic analysis method (Braun & Clarke, 2006) and was supervised by an expert in qualitative research.

### Ethical considerations

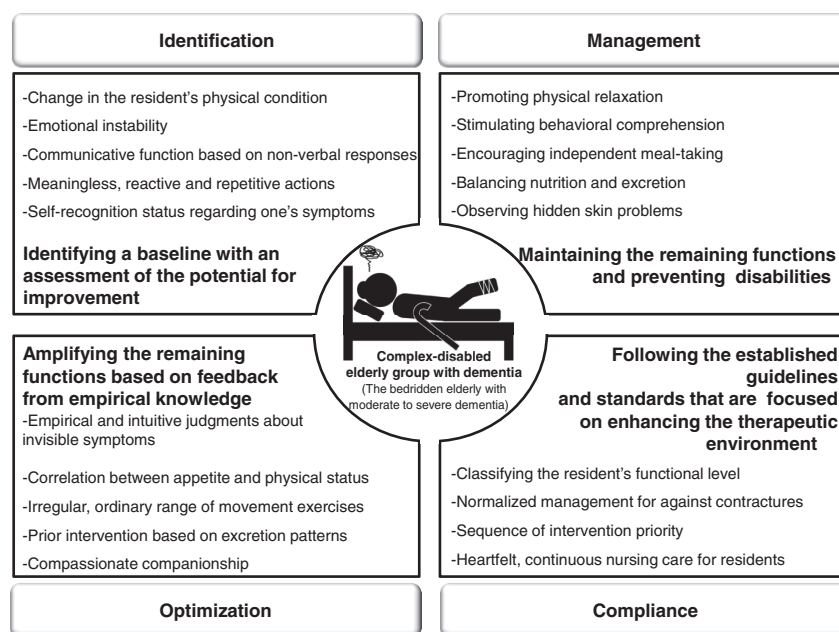
Ethics approval was obtained from the Institutional Review Board of the affiliated university and permission for this study was obtained from the authorities of each participating facility. A written explanation of the study's procedure was given to the participants and they all signed a consent form. It also was explained about the autonomy of participating and the right to stop and withdraw from the study at any time.

## RESULTS

Figure 1 schematically summarizes the overall concepts and results of this study. Four main themes and 19 sub-themes were extracted as methods for developing effective nursing strategies for caring for the bedridden elderly with moderate-to-severe dementia in nursing homes through the thematic analysis of interviews. The four main themes, which consist of "Identification: Identifying a baseline with an assessment of the potential for improvement," "Management: Maintaining the remaining functions and preventing disabilities," "Optimization: Amplifying the remaining functions based on feedback from empirical knowledge," and "Compliance: Following the established guidelines and standards that are focused on enhancing the therapeutic environment," are closely connected to one another and suggest a framework on which to construct practical nursing assessment and intervention. Tables 2–5 summarize the relevant quotations from the nurses' interviews, supporting the extracted themes and nursing strategies.

### Theme 1. Identification: Identifying a baseline with an assessment of the potential for improvement

The nurses reported that their accurate assessment of the functional status and levels of the disabled elderly who



**Figure 1** Overall concepts and results of the qualitative thematic analysis for retaining and encouraging the remaining functions of the elderly with a demented and complex disability in nursing homes. ROM, range of motion.

were residing in nursing homes was significant for maintaining their remaining functions and for preventing further functional degradation (Ashcraft & Owen, 2014). Real-time observation of the elderly's functional levels by the nurses, who took close care of the elderly on a daily basis, could only detect very small changes in the physical and cognitive functions of the elderly in nursing homes. The detailed items, which were recommended for monitoring at this intervention stage, were classified into: change in the resident's physical condition, emotional instability, communicative function based on non-verbal responses, meaningless reactive and repetitive actions, and self-recognition status regarding one's symptoms. The details of the sub-themes in this section and corresponding quotations from the interviews are summarized in Table 2.

### *Change in the resident's physical condition*

The nurses reported that when they assessed the bedridden elderly without communicative function, finding out how and why the elderly were experiencing discomfort was significant for preserving their remaining physical functions. Not only visible physical injuries (i.e. bed sores, fall risk/external injury, fatigue/pain), but also physical function levels, such as ADLs, urination/evacuation, sleep pattern, nutritive condition, ambulatory ability, and spontaneous coordination capability of the limbs when climbing into bed, could be regarded as essential for the effective assessment of this group with a complex disability.

### *Emotional instability*

The nurses reported that keeping an eye on the elderly's emotions, which reflected their cognitive mental condition, was highly desired because the elderly with dementia tended to suffer from depression. Sometimes a patient's physical problem was revealed by a subtle change in emotion.

### *Communicative function based on non-verbal responses*

The nurses reported that one important assessment prior to constructing care plans for the elderly with both physical and cognitive disabilities was grasping their remaining communicative function. Facial expressions or gestures could be their only means of communication for expressing their immediate needs. Consistent attempts to initiate conversations with the elderly sometimes helped to elicit their physical and emotional problems.

### *Meaningless, reactive, and repetitive actions*

Most of the nurses stated that the elderly group with both physical and cognitive disabilities generally showed problem behaviors, such as self-mutilation: skin picking, hair pulling and nail biting. The nurses also emphasized that although the bedridden elderly could not harm others with their difficult behavior, repetitive problem actions could damage their skin and result in safety problems for them.

### *Self-recognition status regarding one's symptoms*

The nurses reported that when the elderly had just lost their cognitive function, they sometimes returned to their former mental state and wondered about their past problem behaviors. This kind of self-recognition of symptoms gradually decreased as their cognitive functions became degraded. Thus, the nurses could infer the remaining cognition level of the elderly by constantly observing the self-recognition state for problem behaviors.

## **Theme 2. Management: Maintaining the remaining functions and preventing disabilities**

This theme demonstrates an objective of nursing intervention for the care of the elderly with both physical and cognitive disabilities. Despite repetitive rehabilitation and proper treatment in nursing homes, the lost functions of

the elderly are difficult to rehabilitate due to the residents' complex physical and cognitive symptoms and declining recuperative powers. The main purposes of nursing intervention for this group focus on maintaining the remaining functions of the elderly, particularly related to the ADLs, and preventing further degeneration of function. The extracted key issues of nursing intervention from the interviews include promoting physical relaxation, stimulating behavioral comprehension, encouraging independent eating, balancing nutrition and excretion, and observing bed sores on the buttocks and back. The details of the sub-themes in this section and corresponding quotations from interviews are shown in Table 3.

### *Promoting physical relaxation*

Several nurses stated that the bedridden elderly with a cognitive disability are prone to suffering from a

**Table 2** Summary of main theme 1 (ADL, activity of daily living)

Theme	Sub-theme	Exploring ways to promote remaining functions	Relevant quotations from interviews (nurse no.)
Identification: identifying a baseline with an assessment of the potential for improvement	Change in the resident's physical condition	Checking external appearance to detect physical injury and ADL function status	If the elderly with severe dementia is in a bed-ridden state due to injured legs without an internal disease, we mostly pay attention to the existence of bedsores and function to eat. (N3)
	Emotional instability	Checking mental problems such as anxiety, depression, or stress to provide nursing care based on empirical intuition	Many elderly with dementia are residing in nursing homes and lots of them are suffering from depression. Thus, if we have many experiences with psychological problems stemming from a resident's disease, we can easily spot emotional symptoms. (N7)
	Communicative function based on non-verbal responses	Checking cognitive function related to communicative function to understand nursing needs	When we constantly try to initiate conversations and try to provide stimulus to the elderly, who cannot speak but can still make eye contact, some elderly react by smiling. (N1)
	Meaningless, reactive and repetitive actions	Checking the range and characteristics of unconscious problem behaviors to prevent safety problems	The elderly in this group mostly perform unhygienic behavior. For example, they pick at their skin. They never stop this problem behavior once they start. If this repetitive problem behavior continues, it can cause skin damage. (N26)
	Self-recognition status regarding one's symptoms	Checking cognitive function related to recognition function to reduce function degradation	Although the elderly have moderate to severe dementia, they sometimes return to sanity and express their opinions. I think that assessing the degree of self-recognition for their symptoms is important. (N25)

**Table 3** Summary of main theme 2 (ROM, range of motion)

Theme	Sub-theme	Exploring ways to promote remaining functions	Relevant quotations from interviews (nurse no.)
Management: maintaining the remaining functions and preventing disabilities	Promoting physical relaxation	Periodically changing bed position with stimulation of muscles and joints to prevent them from stiffening	When we apply a position change for the elderly or let them do the ROM exercises, we usually stimulate their muscles and joints by patting them on the back or supporting their back with a rolled towel since the muscles and joints of the bedridden elderly are apt to stiffen. Changing their position and making them tick steadily play a key role in maintaining their physical functions.(N14) We need to directly confirm the remaining physical functions of the elderly because this group is incommunicative and immovable. After checking their status, we provide adequate aids to maintain their functions. If the elderly can keep a function of the left arm intact, we help them to use it frequently by changing the position of the bed. (N24)
	Stimulating behavioral comprehension	Repetitively providing guidance for desirable behavior in essential life activities	The elderly with moderate to severe dementia require detailed explanations for their status and a method for urination/evacuation. When we thoroughly give instruction to them with patience, they sometimes succeed in toilet training. (N19)
	Encouraging independent meal-taking	Providing safe food and training for self-eating in sitting position	For the elderly who can swallow and don't need L-tube feeding, we prevent dysphagia by providing gel-like soft foods after sitting them up and encouraging them to feed themselves. (N9)
	Balancing nutrition and excretion	Managing diet and frequency of bowel massage considering evacuation condition	If the elderly do not eat as much as before, L-tube feeding can be considered under doctor's instruction. If the elderly who wear a diaper have difficulty in evacuation, we make them drink sufficient water and give them a bowel massage to help their evacuation.(N24)
	Observing hidden skin problems	Frequently changing of diaper with checking for bedsores on hips and back	When we change a diaper of the bed-ridden elderly, we usually check their skin status daily, even if they do not have any skin problems. The best intervention is the prevention of bedsores ahead of time. (N26)

stiffening of derelict muscles and joints. They also mentioned that even though the elderly do not express physical discomfort, continuously provided special care, such as a change in bed position and an occasional relaxing massage, prevented the further degradation of their remaining physical functions.

### *Stimulating behavioral comprehension*

The nurses noted that although the elderly had difficulty in understanding behavioral instructions due to their cognitive disability, patient, repetitive explanation of the reasons for, and meaning of, the instructions facilitated the elderly's comprehension. Blaming

and pressuring the elderly when they misunderstand, which can make matters worse, should be avoided in order to protect their remaining cognitive functions and emotions.

### *Encouraging independent meal-taking*

Many nurses explained that the functions for taking in food and drink were essential for maintaining the activity of life and were generally the last remaining functions of the elderly to go. A target of this intervention was to prevent the deterioration of abilities related to eating in terms of safety and independence. When the elderly are spoon-fed in a recumbent position due to their bedridden state, critical problems, including inadequate respiration, cyanosis, and airway obstruction, are caused by the unstable transfer of food and drink. Thus, encouraging the elderly to eat a sufficient amount of the meal independently in a sitting position and providing a customized diet (i.e. soft, gel-like foods) based on the individual's physical status were recommended.

### *Balancing nutrition and excretion*

The nurses reported that providing an optimal diet based on the assessment of intake and output (I/O), eating habits and excretion behaviors, was important for maintaining the digestive functions of the elderly because urination and evacuation are closely connected to the nutritive condition. A bowel massage was occasionally implemented to assist the elderly's evacuation.

### *Observing hidden skin problems*

Most of the nurses were worried that the bedridden elderly were apt to experience rashes and bed sores. Moreover, such ailments can cause severe secondary skin damage for the bedridden elderly with dementia because they unconsciously scratch or pick at the affected area. Above all, avoiding the primary generation of skin damage by meticulously checking every part of the elderly's body, including the buttocks and back, is highly desired.

## **Theme 3. Optimization: Amplifying the remaining functions based on feedback from empirical knowledge**

This theme introduces individual nursing strategies that are especially for caring for the elderly with physical and cognitive disabilities based on accumulated practical experience in nursing homes. A unique

feature of this complex-disabled elderly group is that they are greatly restricted in both communication and movement. Although most nursing strategies that target this group follow a commonsense and theoretical framework, which means general guidelines for nursing assessment and intervention in nursing homes, some significant nursing strategies can be developed only from repetitive feedback that is generated by accumulated practical experiences and evaluations of achievement.

The specialized nursing knowledge that is extracted from a hands-on background in nursing homes consists of empirical and intuitive judgments about invisible symptoms, correlations between appetite and physical status, irregular, ordinary range of movement (ROM) exercises, prior interventions based on excretion patterns, and a lengthy relationship between the resident and the nurse. The details of the subthemes in this section and corresponding quotations from the interviews are described in Table 4.

### *Empirical and intuitive judgments about invisible symptoms*

The nurses pointed out that the physical problems and symptoms of the bedridden elderly with a cognitive disability were difficult to discover due to their restricted communication skills. This elderly group expressed bodily discomfort by unconscious behaviors (i.e. irritation, crying, kicking). The quick recognition of subtle changes in behavioral patterns and intuitive judgment about the elderly's physical problems, based on previous nursing experiences, could be key elements for preventing the further degradation of the remaining functions of this group.

### *Correlation between appetite and physical status*

The nurses reported that when the physically disabled elderly without communicative ability suffered from digestive problems (i.e. diarrhea, acute indigestion), they refused to eat or showed a suppressed appetite. Consistent checking of the amounts that are eaten and changes in eating habits could indirectly suggest problems in the elderly's physical status, which was particularly important for the uncommunicative and immovable elderly group.

### *Irregular, ordinary range of movement exercises*

Although regular ROM exercises with a physical therapist could help to strengthen residual physical functions,



**Table 4** Summary of main theme 3 (ROM, range of motion)

Theme	Sub-theme	Exploring ways to promote remaining functions	Relevant quotations from interviews (nurse no.)
Optimization: amplifying the remaining functions based on feedback from empirical knowledge	Empirical and intuitive judgments about invisible symptoms	Constantly observing unconscious behavioral patterns to detect subtle changes based on intuitive nursing experiences	Some bedridden elderly with certain cognitive disabilities have difficulty expressing their pain even though they have suffered a fracture. We found out about their function problems by relying on our experience based on their face color and dietary intake state. (N10) If the elderly kick or pinch us when we help change their diapers, we usually check out terminal neurological symptoms or complications. If the elderly nap too much, we worry about over-sedation. (N2)
	Correlation between appetite and physical status	Checking amounts eaten and changes in eating habits to judge the elderly's stability	We usually confirm the elderly's condition by their appetite. When they suddenly skip or reject a meal, a problem in excretion usually appears. If a stroke is generated, the elderly also used to skip their meals. (N28)
	Irregular, ordinary range of movement exercises	Integrating ROM exercises into daily life and creating an optimal environment for physical relaxation	Despite the elderly being bedridden, we let them sit up straight at least 50 min while eating. How can any physical therapist spend as much time as this to treat one resident? I believe that this type of nursing intervention in daily life can prevent the further worsening of physical functions. (N1) An <i>ondol</i> room, which uses the Korean floor heating system, is better than a bedroom for the immobile elderly at risk of falling. The acts of crawling and standing up by themselves can be effective as treatment in improving their physical functions. (N20)
	Prior intervention based on excretion patterns	Recording evacuation timing daily and frequently checking the diaper around that time	Although the timing of urination of the bedridden elderly is variable, we become accustomed to the timing of their evacuation. This is a kind of evacuation training. When the evacuation time comes closer, we frequently touch their diaper to check it. We sometimes provide an enema every fourth day for the elderly suffering from severe constipation. (N13)
	Compassionate companionship	Constructing close relationships with residents and constantly attempting conversation to provide a therapeutic environment	Although the bedridden elderly with dementia have difficulty in communicating with others, they recognize familiar persons and try to talk to them about something. If I act like I know them, they stop and react like a baby and their pupils dilate. (N1)

the bedridden elderly with dementia had difficulties in concentrating on ROM exercises, even for a short time (>10 min) and in keeping regular exercise schedules due to their unexpected problem behaviors and physical status. The integration of ROM exercises into their

basic daily life and the construction of a bed-less, floor-heated environment, which is the traditional Korean sleeping and heating system, was highly desired to prevent the physical contractures of the elderly.

*Prior intervention based on excretion patterns*

The nurses pointed out that most bedridden elderly with dementia had bowel troubles, such as constipation and diarrhea, due to their undesirable recumbent posture. The nurses roughly estimated the intervals of their evacuation and urination by steady I/O assessment and they provided intervention prior to the occurrence of problems.

*Compassionate companionship*

Most of the nurses emphasized that establishing a rapport with the elderly, who have cognitive problems, was the first thing that nurses had to do in nursing homes. When the nurses consistently maintained close relationships with the elderly, the residents sometimes tried to deliver messages about their discomforts or physical status to them.

#### **Theme 4. Compliance: Following the established guidelines and standards that are focused on enhancing the therapeutic environment**

This theme demonstrates the significance of compliance with practical nursing guidelines and standards that are developed from a theoretical framework and empirical experiences in nursing homes. The nurses stated that this was their most vital duty because they had more responsibility for their residents' health status than the nurses who work in general hospitals because their nursing care has a direct impact on the maintenance of the disabled elderly's remaining functions. They made choices regarding the proper guidelines and standards in their affiliated nursing homes and obeyed them when they undertook an assignment to care for the elderly with certain levels of physical and cognitive disabilities. The details of the key subcategories in this section and corresponding quotations from the interviews are listed in Table 5.

*Classifying the resident's functional level*

The nurses stated that when the residents were admitted to nursing homes, they classified their level of physical and cognitive functions according to the chief complaint and other symptoms. Most of the nurses would set appropriate nursing plans and interventions for the individuals, based on an accurate classification. The nurses also emphasized that the provision of optimized caring environments for the elderly was a prerequisite for the effective and safe management of their physical and cognitive health.

*Normalized management against contractures*

The nurses stated that they not only always checked out complaints, such as edema, vascular lesions, and intestinal disorders, but also steadily conducted ROM exercises with the physically disabled elderly during their working hours because the nursing guidelines included the prevention of joint contraction and muscle stiffening as a key intervention. The muscles and joints are strongly related to the ADLs and are the only improvable physical parts of the elderly's bodies via repetitive exercises, even while bedridden. Several nurses stated that degenerated functions were sometimes partially recovered by repetitive intervention and steady management of the remaining functions of the elderly, as the guidelines directed.

*Sequence of intervention priorities*

Most of the nurses reported that a top priority among the objectives of nursing intervention for the complex-disabled elderly group was safety in daily life, such as the prevention of falls and airway obstruction. The elderly with both physical and cognitive disabilities were apt to experience accidents because their movement and cognition were simultaneously restricted. The nurses stated that sometimes the maintenance of the remaining functions was regarded as a secondary issue and that the improvement of functions was the least important task. This intervention priority was the biggest difference that distinguished this group from other elderly groups with different physical and cognitive functions.

*Heartfelt, continuous nursing care for the residents*

The nurses reported that an ultimate goal of nursing interventions for the complex-disabled elderly group was to help their emotional well-being by providing compassionate nursing care and preventing further degeneration of their remaining functions. Most of the elderly in this group, as a matter of fact, would have to spend the rest of their life in nursing homes because it was nearly impossible for them to recover their functions through treatment. The nurses become such residents' closest companions as their family's time with them is limited by their circumstances. They must keep in mind that they are responsible for shepherding the complex-disabled elderly during this last stage of life.

## DISCUSSION

This study uses the qualitative thematic analysis of nurses' interviews that are related to their knowledge based on experiences in nursing homes to propose optimal nursing strategies to target the elderly who suffer from both physical and cognitive disabilities. According to the qualitative study, the maintenance of the remaining functions of the elderly and the quality of their residual life have to take priority over medical rehabilitation for this complex-disability group. To achieve this, four major themes and 19 supporting subthemes that determine the quality and effectiveness of nursing care from the nurses' practical knowledge were extracted. This extraction of multiple categories to maintain and

invigorate the remaining functions of the specialized, complex-disability group in this work is the first demonstration, to the best of the authors' knowledge, of such an examination.

The four major themes to develop efficient nursing assessments and interventions are identification, management, optimization, and compliance (Fig. 1). The theme of identification emphasizes the importance of accurate assessments of the physical and cognitive status of the elderly. In the case of the bedridden elderly with moderate-to-severe dementia, discussing the disability or functional status with them is nearly impossible due to their deteriorated verbal communication ability. Yet, inappropriate nursing interventions from a misjudgment

**Table 5** Summary of main theme 4 (ROM, range of motion)

Theme	Sub-theme	Exploring ways to promote remaining ability	Relevant quotations from interviews (Nurse No.)
Compliance: following the established guidelines and standards that are focused on enhancing therapeutic environment	Classifying the resident's function levels	Accurately grading the physical and cognitive function levels of the elderly prior to assigning a room and a bed	We assign a bed in the lowest position to the highest risk elderly based on assessment of fall risk. (N28) We sometimes assign an elderly group with different levels of disabilities to the same room. For example, two bedridden elderly and two normal elderly with mild physical disabilities might reside together in a room for four. In this case, the nurses can provide relatively high quality nursing for all residents due to the reduced burden of caring for them in one room. (N23)
	Normalized management for against contractures	Conducting a regular, professional ROM exercise program in daily life	Although physical contracture is already under way, the nurses regularly let the elderly conduct ROM exercises. Someday, the angles of turning their heads and moving their arms suddenly improve. (N17)
	Sequence of intervention priority	Putting priority on safety intervention for the complex-disabled elderly group	The dementia takes sudden turns for the worse for the elderly with moderate to severe dementia. They become completely bedridden state and gradually forget to eat and to dress themselves. In this case, we should make an effort to keep them safe rather than providing enhancement programs for physical functions. We focus on supporting their meals through safe methods and preventing airway obstructions or falls. (N7)
	Heartfelt, continuous nursing care for residents	Constantly providing the best nursing care to even those residents with no hope of recovery	The elderly with moderate to severe dementia do not have any ability to control their cognitive functions. We continue to offer basic nursing care to them and try to preserve their remaining functions. Although the elderly lose all cognitive functions, we still conduct the position change and manage their bedsores. (N10)

of the elderly's functional status could lead to very serious accidents (i.e. falling, suffocation) in this high-risk disability group. Thus, the assigned nurse has to constantly check for subtle changes in the elderly's habits and non-verbal reactions to make accurate assessments (Ashcraft & Owen, 2014). The theme of management focuses on the details of practical nursing intervention for maintaining the remaining functions and preventing the risk of further disabilities. Providing balanced nursing intervention between dependent and independent ADLs without risk is highly desired in this disability group, including repetitive and proper stimulus to the remaining functions, which is somewhat different from other elderly groups who are facing death or have moderate or non-complex disabilities (Beaupre, Jones, Wilson, & Majumdar, 2012; Kim *et al.*, 2014, 2016). The theme of optimization suggests useful empirical knowledge for managing the group with a demented and complex disability, which only can be derived from accumulated feedback between nursing intervention and evaluation. The last theme of compliance presents the significance of following nursing guidelines and ethics without tiring to care for this kind of horizonless disability group during its residual life in nursing homes (Resnick, Galik, & Boltz, 2013).

In the past decade, some research has tried to develop effective practical nursing strategies through the qualitative study of interview data (Ellis & Rawson, 2015; Hamahata *et al.*, 2004; Kobayashi *et al.*, 2008; Lillekroken, Hauge, & Slettebø, 2015; Liu, 2013; Oosterveld-Vlug *et al.*, 2014). However, the results from those studies do not go much beyond a conventional framework and are difficult to apply in the field due to several critical reasons. The three strong points of this work that overcome the intrinsic limits of previous studies are: (i) sample diversity (i.e. regions covering an entire country, facility scale); (ii) representative respondents (i.e. a working period of >2 years, including working experience in nursing homes as legally registered nurses; and (iii) a specialized subject (i.e. both physically and cognitively disabled elderly). Furthermore, new light has been shed on the concept of the resident's remaining functions, which are easily ignored and require long-term care, whereas most previous studies that claim the importance of nurses' perceptions on managing the elderly's functions focus on the physical or cognitive impairments that need urgent intervention, such as pain relief or rapid rehabilitation (Kirksey, McGlory, & Sefcik, 2015; Rantala, Hartikainen, Kvist, & Kankkunen, 2014).

One notable achievement of this study, which only could be derived from the accumulated feedback regarding the practical nursing experiences and evaluation of nurses, is discovering that the complex-disabled elderly group requires specialized assessments and interventions that are distinct from the nursing strategies for other elderly groups with different levels of disabilities. For instance, finding hidden skin problems on the buttocks or back by constantly checking for them is highly recommended because a cognitive disability hinders the residents from voicing their symptoms to the nurses (Yang, Wang, & Wang, 2015), although their bedridden state frequently generates bed sores (Omote *et al.*, 2005) and because such ailments can lead to severe secondary maladies via problem behaviors (i.e. unconscious scratching or skin picking). Above all, the prioritization of interventions by a standard of safety is the most significant aspect of the nursing care strategy for this elderly group because they have been admitted to a long-term care facility, not for the recovery of atrophied functions but for the maintenance of any remaining functions and the protection of their dignity, as much as possible, at the end of their life (Oosterveld-Vlug *et al.*, 2014).

On the whole, this study contains slightly different nursing goals and strategies that have been developed from an ethical nursing perspective than previous studies that focused on rehabilitative aims. A variety of elderly groups with a different physical and cognitive status coexist in a single nursing home and their expectations regarding nursing home services differ. The nursing home is not a place for only the elderly nearing their moment of death any longer (Bollig, Gjengedal, & Rosland, 2016). From this viewpoint, nurses have to ensure a safe environment and their consistent and best efforts to promote the remaining functions of the elderly who reside in nursing homes and to maintain their quality of residual life, even though they have no hope of recovery. In particular, the extracted nursing strategies through the thematic analysis of practical nursing experiences can be applied to the type of long-term resident who requires nursing care based on nursing ethics, which cannot be achievable by medical and theoretical knowledge alone.

The collective set of results that has been derived here proposes working-level nursing strategies that are immediately applicable in the real world and are built on nursing ethical points that are distinct from a medical approach (Anderberg, Lepp, Berglund, & Segesten, 2007; Oosterveld-Vlug *et al.*, 2014). Similar discussions can be found in previous studies that mention the

significance of lengthy nursing experience for developing nursing strategies and their effectiveness in “the practice domain” (Kim, 1999, 2010). Consequently, this newly constructed framework that is based on nurses’ empirical knowledge that focuses on this specialized elderly group can be regarded as a valuable resource for educating recruits before they are assigned to work (Lillekroken *et al.*, 2015).

Although this study exploits several turning points in the field of practical gerontological nursing and provides generalizable nursing strategies that are not restricted to Korea but cross intercontinental boundaries due to the manner of data collection for this study (a reliance on nurses’ personal knowledge based on nursing perspectives), further work that considers the various environmental factors, such as tradition, religion, type of medical science (i.e. Oriental or Western), and citizen consciousness is worth doing. Considering how the numbers of the aged are skyrocketing all over the world, the work and results that are presented here can prove useful in order to develop individualized and efficient nursing strategies for various disability groups of the elderly who reside in nursing homes. Exploring other countries in Asia, especially Japan or China, which like Korea have been strongly influenced by Confucianism, and comparing them with Western countries represents another promising direction for future work as a case study.

## CONCLUSION

In this study, a qualitative thematic analysis was conducted that dealt with the accumulated empirical knowledge of nurses who work with the elderly with a demented and complex disability and four main themes were extracted that determined the practical nursing guidelines that are applicable to this elderly group. The ultimate goal of nursing intervention for the elderly with physical and cognitive disabilities should be the maintenance and encouragement of their remaining functions and the construction of a safe environment and emotional stability by complying with optimized guidelines and standards. The framework that was derived in this work may serve as a foundation for developing practical nursing strategies and as an educational resource for junior nurses who lack experience in nursing homes.

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## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## AUTHOR CONTRIBUTIONS

S. O. C. and M. S. P. were involved in the conception, design, data collection, and analysis of this study and critically reviewed the manuscript; S. Y. L., E. Y. K., and S. J. L. critically reviewed the manuscript and contributed to the study process. All the authors read and approved the final manuscript.

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