

The Effectiveness of Function-Focused Care Interventions in Nursing Homes: A Systematic Review

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ABSTRACT

Background: Since the Omnibus Budget and Reconciliation Act was passed in South Korea in 1987, function-focused care (FFC) has been used in long-term care to achieve the highest possible levels of self-care and independence for older adults. However, many perceive nursing home residents with cognitive function impairments as having little restorative potential.

Purpose: The purpose of this review is to report on evidence and strategies relating to FFC interventions in nursing home settings and to summarize the effects of FFC on the functional abilities of resident subgroups.

Methods: A literature review using EMBASE, MEDLINE, and Cumulative Index to Nursing and Allied Health Literature was conducted for articles published between January 1, 2000, and February 20, 2016. Twenty-two eligible studies were identified. Relevant data were extracted, and the results were synthesized into an integrated literature review. Study quality was appraised using the Cochrane Risk of Bias tool and the Risk of Bias Assessment tool for Non-randomized Studies.

Results: This review included 22 trials that were of moderate to high quality. Our systematic review confirmed the FFC interventions as integrated and dedicated processes; the five key strategies underpinning effective FFC interventions; and the effectiveness of FFC interventions on physical, psychosocial, and cognitive functions. The five key strategies underpinning FFC interventions included interactive learning for caregivers, the content of learning programs for caregivers, residents' preferences and interests, optimizing approaches according to residents' functional status, and the conceptual frameworks of FFC interventions. Most of the studies ($n = 15$) evaluated psychosocial functions and found significant improvements in aspects such as mood, affect, and behavioral problems. Likewise, the 13 studies assessing physical function found significant improvements in effectiveness in aspects such as movement, balance, and activities of daily living. Only four studies looked at cognitive function effectiveness, using measures such as place finding, verbal use, and memory.

Conclusions/Implications for Practice: Our review found scientific evidence that FFC interventions improve functional abilities across various levels of cognitive function in nursing homes. Nursing homes may employ effective strategies to maximize the effects of FFC interventions and use educational materials to teach caregivers to implement FFC interventions competently.

KEY WORDS:

aged care, caring intervention, daily activities of living, integrated care, nursing homes.

Introduction

Restorative care is an innovative nursing care philosophy that emphasizes evaluating residents' underlying functional capabilities and helping them to optimize a variety of functional abilities and increase physical activity (Resnick, Galik, Gruber-Baldini, & Zimmerman, 2011). Research on restorative care with respect to nursing homes (NHs) and home care elderly populations (Baker, Gottschalk, Eng, Weber, & Tinetti, 2001) has been increasing. More recently, function-focused care (FFC) has begun to be used interchangeably with restorative care (Resnick, Galik, & Boltz, 2013). FFC interventions have centered on different function areas (e.g., self-care, mobility, psychosocial, cognitive, and incontinence) and included several elements (individualized assessment, staff education, teamwork, goal setting, and documenting outcomes) to break residents' cycles of dependency and optimize individual functioning (Shanti et al., 2005). As mandated by the Omnibus Budget and Reconciliation Act, NHs have attempted to implement FFC programs to provide care that allows residents to attain and maintain their highest functional ability across a variety of activities (Resnick et al., 2013). Older adults in NHs are categorized as one of the most

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functionally disabled groups and are typically in need of extensive assistance related to dressing, transfers, toileting, eating, personal hygiene, mobility, and locomotion (Carpenter, Hastie, Morris, Fries, & Ankri, 2006). In addition, it has been estimated that 41% of older NH residents in the United States have moderate to severe cognitive impairment (Zimmerman, Sloane, & Reed, 2014). Rapidly decreasing functional abilities have serious implications for the severity of health risks related to decreased mobility, the amount of functional care required, rising care costs, and, ultimately, residents' quality of life (Resnick et al., 2004, 2006; Taylor & Sloan, 2000). Moreover, the most disabled groups, that is, NH residents with cognitive impairments such as aphasia, motor apraxia, and memory loss, create a particular challenge for FFC interventions (Rabins, Lyketsos, & Steele, 2006). In short, FFC interventions that promote the optimization of functional abilities and maintain the dignity of frail residents in NHs remain a significant priority for research and clinical practice.

An analysis of FFC interventions is needed to stimulate future increases in the functional abilities of disabled older adults in NHs, to competently perform FFC, and to employ appropriate care strategies for improving residents' functioning and increasing their activity time. A recent review of the FFC approach identified studies addressing the overall effect of FFC on residents in a variety of settings (Resnick et al., 2013). This integrative review is intended to contribute to a wider project by specifically analyzing and building on the existing published work of Resnick et al. (2013). We summarize the results of the current key components of FFC interventions and analyze these components using recent trial studies. In particular, we focus on a variety of resident cognitive conditions because intervention with residents with moderate to severe cognitive impairment confers the most critical health benefits. We examine the effectiveness of FFC interventions in different functional areas, including physical, psychosocial, and cognitive, and summarize findings related to the various cognitive function subgroups. We focus on NH settings for older adults rather than on other community living facilities because a meaningful examination and comparison of FFC intervention outcomes requires data from homogeneous care environments. The object of the current study is a comprehensive evaluation of the effects of FFC interventions on a variety of functional abilities with regard to specific strategies and their efficacy and a review of the overall evidence for FFC interventions in NH settings.

Methods

Search Strategy

The following search terms were used: FFC, restorative care, dedicated and care or intervention or program, integrated and care or intervention or program, combination and care or intervention or program, abilities-focused care, skills training,

nursing home, and long-term care facility. The initial search was conducted using two key databases for nursing and allied health literature: MEDLINE and the Cumulative Index to Nursing and Allied Health Literature. The initial search of these two databases identified a large number of articles (approximately 2,000). Because of the large-scale nature of the literature review, the search database was limited to three major nursing-related databases: Ovid MEDLINE (1946 to present), Embase (1974 to 2016 Week 07), and Cumulative Index to Nursing and Allied Health Literature.

Inclusion Criteria

The inclusion criteria were studies that (1) focused on populations of older adults in NHs; (2) addressed the FFC (or restorative care) intervention focused on physical, psychosocial, or cognitive function care programs with components such as individualized assessment, staff education, teamwork, goal setting, or documented outcomes; (3) included physical, psychosocial, or cognitive functions as outcomes; (4) used nonrandomized controlled trials (non-RCTs) or RCTs; (5) were written in the English language; and (6) were published between 2000 and February 20, 2016.

Exclusion Criteria

Studies were excluded if they (1) included only caregiver outcomes for the FFC intervention, (2) tested a medical intervention, or (3) were qualitative or review articles.

Search Outcome

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow chart in Figure 1 shows how the articles used in this review were selected. The initial electronic database searches identified 3,310 studies, which were imported into Endnote software (Clarivate Analytics, Philadelphia, PA, USA). After duplicates were deleted, 2,056 studies remained. Two independent investigators considered all of the titles and abstracts. Where there was disagreement or uncertainty about inclusion, the two reviewers were required to work out a consensus opinion. Thus, the pool of studies was reduced to 96 articles. A full-text screening process using the criteria discussed previously excluded a further 75 studies; an additional eligible study found through a reference was included. The two researchers analyzed the remaining 22 studies.

Quality Appraisal

The methodological quality of the studies was evaluated using the following tools: Cochrane Risk of Bias (RoB) tool for RCTs (Higgins & Green, 2011) and the Risk of Bias Assessment tool for Non-randomized Studies (RoBANS; Park et al., 2011). The RoB tool considers seven criteria, including random sequence generation, allocation concealment, blinding of participants and personnel, blinding

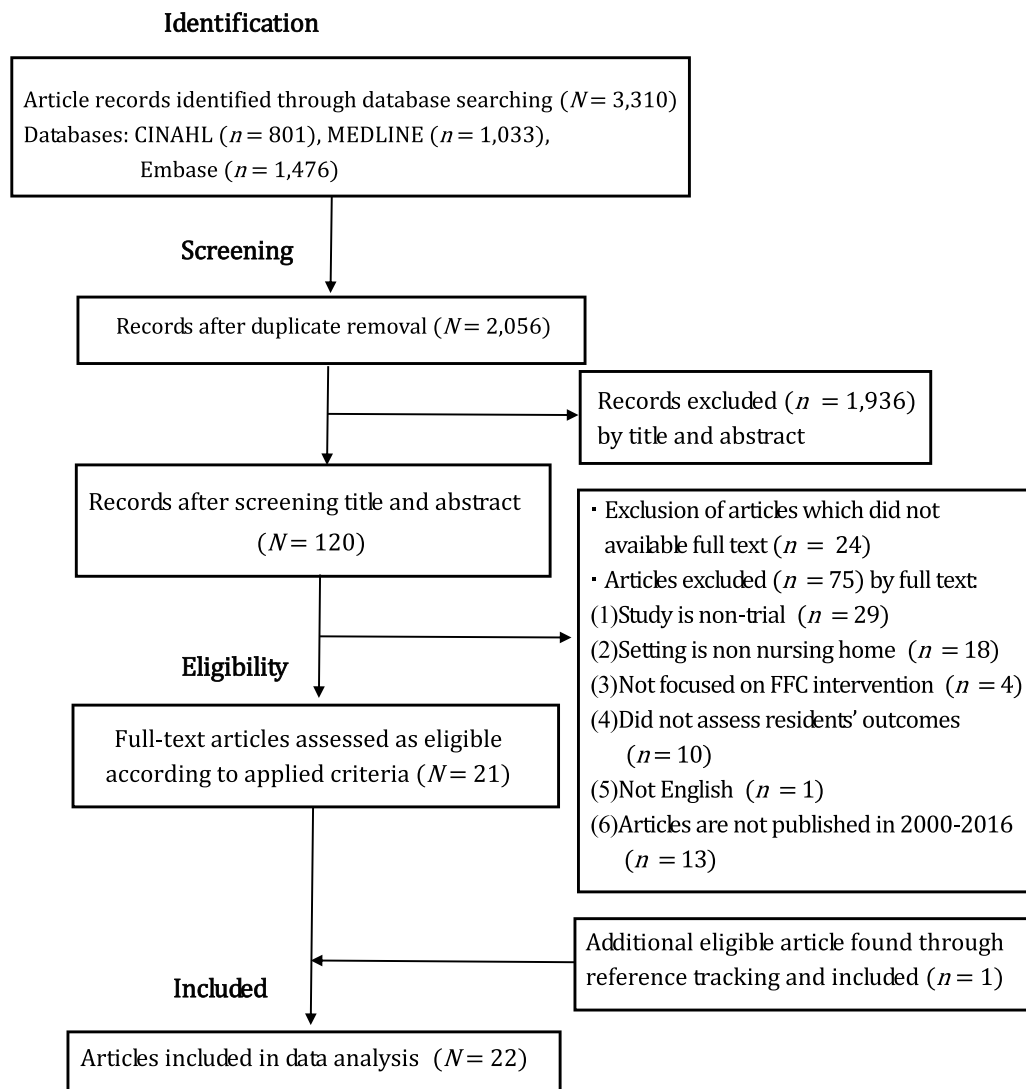


Figure 1. Systematic review: PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow chart.

of outcome assessment, incomplete outcome data, selective reporting, and other sources of bias, and rates quality as low, high, or uncertain. The RoBANS instrument considers six criteria, including selection of participants, confounding variables, intervention measurement, blinding of outcome assessment, incomplete outcome data, and selective outcome reporting, and likewise rates quality as low, high, or uncertain. After two independent reviewers had assessed the quality of each study, the evidence used for evaluation was recorded on the sheet and utilized for discussion and reevaluation when resolving differing appraisals of a particular study's quality. This study used the RoB tool to assess the quality of all nine RCTs and determined that five studies were of high quality and four were of moderate quality. The RoBANS tool was used to assess the quality of all 13 non-RCTs; 10 studies were of high quality, and three were of moderate quality. Table 1 describes the characteristics of these studies and key information on their FFC intervention components.

Data Extraction

Data were extracted from the set of 22 selected studies for this review using a tool that incorporated the following information: author, year, country, population sample, study design, quality assessment, residents' cognitive function level, intervention method, outcome measures, and relevant findings. A data extraction sheet was displayed in tabular summaries, and an integrated review of findings from 22 key studies was constructed from narrative descriptions, complemented by tabular summaries.

Results

Trial Characteristics

Of the 22 selected studies that reported residents' functional outcomes, 13 used quasi-experimental designs (59%) and nine were RCTs (41%). The sample sizes of these 22 studies

TABLE 1.
Articles Reviewed on FFC Intervention in Nursing Homes

Author, Year (Country)	Study Design/Quality Assessment (Theoretical Bases)	Sample Size (Mean Age [Years])	Inclusion Criteria in Terms of Resident Cognitive Function
Beck et al., 2002 (United States)	Randomized controlled trial (RCT)/ High (basic psychosocial needs)	N = 127 (83.64)	Residents with dementia; moderate or severe cognitive impairment (MMSE ≤ 20)
Blair, Glaister, Brown, & Phillips, 2007 (United States)	Quasi-experimental design (QED)/ High (none)	N = 84 (79.25)	Residents had mild to moderate cognitive impairment (MMSE > 18)
Bonanni et al., 2009 (United States)	Single-group repeated-measure design/ Moderate (none)	N = 50 (50% were aged 85+)	Residents with a probability of functional decline
Bossers et al., 2015 (Netherlands)	RCT/ High (none)	N = 109 (85.5)	Residents with mild to moderate cognitive impairment (23 ≥ MMSE ≥ 9)
Chan & Pang, 2010 (China)	QED/ High (none)	N = 121 (83.54)	Residents without cognitive problems
Dechamps et al., 2010 (France)	RCT/ High (none)	N = 49 (83.2)	Residents with dementia; moderate or severe cognitive impairment (MMSE ≤ 20)
Finnema et al., 2005 (Netherlands)	RCT with matched groups/ Moderate (adaptation-coping model)	N = 146 (83.7)	Residents with dementia; mild to severe cognitive impairment
E. M. Galik et al., 2008 (United States)	Single-group repeated-measure design/ High (self-efficacy theory)	N = 46 (82.61)	Residents with dementia; moderate or severe cognitive impairment
E. Galik, Resnick, Hammersla, & Brightwater, 2014 (United States)	A cluster RCT/ Moderate (social ecological model)	N = 103 (83.7)	Residents with dementia; moderate or severe cognitive impairment (MMSE ≤ 15)
Huang, Chung, Chen, Chin, & Wang, 2016 (Taiwan)	RCT/ High (none)	N = 75 (79.43)	Residents with mild to moderate cognitive impairment (MMSE ≥ 13)

Intervention	Measure of Resident Outcome	Principal Resident Outcome
Three types of treatment: psychosocial activity, activities of daily living (ADLs), and a combination of the two	Disruptive Behavior Scale, Observable Displays of Affect Scale, Apparent Affect Rating Scale, Positive Visual Analogue Scale, and Negative Visual Analogue Scale	Findings indicated that treatment groups were positively affected but disruptive behaviors were not reduced.
Nursing staff training of “Orem’s Systems of Nursing Care (OSNC)” and Skinner’s “Applied Behavioral Analysis” and morning ADL intervention for residents	ADLs (Barthel self-care ratings), Worry Questionnaire for Continuing Care Residents, Rosenberg Self-Esteem Scale, and Geriatric Depression Scale (GDS)	There was no difference in worry or depression, ADLs, or self-esteem among the treatment groups, but the OSNC program was more independent regarding ADLs than other programs.
Training nursing staff and dedicated restorative intervention included ambulation, passive range of motion, active range of motion, balance and strength training, transfer and mobility training, splint use, and ADL intervention	ADL, locomotion and walking score, bladder continence, and depression	There was a significant improvement in ADL scores and walking and locomotion.
Combined aerobic and strength training versus aerobic-only training on cognitive and motor function	Assessment of motor functions: walking endurance, leg strength, knee extension, mobility, and balance assessment of cognitive functions: verbal memory, visual memory, face recognition, and executive functions	The combined treatment group was more positively affected than the aerobic-only group in motor decline and slowing cognitive function.
The storytelling approach	Quality of life, end-of-life care preferences	Significant improvements in functioning based on treatment preference stability and communication of treatment preferences were noted.
Cognition–action intervention using standardized exercises to enhance social interactions and communication.	Neuropsychiatric inventory (NPI), GDS, Berg Balance Scale, quality-of-life activity measure for postacute care, and muscle strength	There was a significant reduction in NPI scores and an improvement in Berg total scores. GDS scores were reduced, and muscle strength and quality of life were improved.
Integrated emotion-oriented care and usual care	Dutch Behavior Observation Scale for Psychogeriatric Inpatients, Cornell Scale for Depression in Dementia (CSDD), Cohen-Mansfield Agitation Inventory (CMAI), Geriatric Resident Goal Scale, and the Philadelphia Geriatric Center Morale Scale	Positive effects found in maintaining an emotional balance and preserving a positive self-image.
Nursing staff training and Res-Care intervention for residents	The Barthel Index, Physical Activity Survey in Long-Term Care (PASLTC), ActiGraph, CSDD, and CMAI	There was significant improvement in behavioral symptoms and mood with a decrease in physical activity but no significant change in overall physical activity or physical function.
Nursing staff training and function-focused care for the cognitively impaired intervention	Tinetti scale, Barthel Index, ActiGraph, PASLTC, CMAI-Short Form, CSDD, and Apathy Inventory	There were significant improvements in physical functioning and physical activity and a decrease in the number of fall events in the treatment group compared with the control group.
Cognitive–behavioral strategies and an exercise program	Fear of falling, depression (Taiwanese Depression Questionnaire), mobility (Tinetti Mobility Scale), and muscle strength using a MicroFET 2 device.	There was significant improvement in fear of falling, incidences of falls, mobility, depressive inclination, and muscle strength.

(continues)

TABLE 1.
Articles Reviewed on FFC Intervention in Nursing Homes, Continued

Author, Year (Country)	Study Design/Quality Assessment (Theoretical Bases)	Sample Size (Mean Age [Years])	Inclusion Criteria in Terms of Resident Cognitive Function
Kolanowski, Litaker, & Buettner, 2005 (United States)	Crossover experimental design with repeated-measures/ High (needs-driven dementia-compromised behavior [NDB] model)	$N = 30$ (82.3)	Residents with dementia; mild to severe cognitive impairment (MMSE ≤ 24)
Landi, Russo, & Bernabei, 2004 (Italy)	Case-control study/ High (none)	$N = 30$ (80.9)	Residents with moderate to severe cognitive impairment
Nolan, Mathews, & Harrison, 2001 (United States)	A multiple-baseline experimental design/ High (none)	$N = 3$ (86.33)	Residents with dementia with severe Alzheimer's disease (residents' respective MMSE scores were 7, 4, and 6.)
Mezey et al., 2000 (Canada)	QED/ High (none)	$N = 40$ (88.63)	Residents with dementia; moderate or severe cognitive impairment (MMSE < 19)
Resnick et al., 2006 (United States)	Single-group repeated-measure design/ Moderate (self-efficacy theory)	$N = 21$ (88.3)	Residents with mild to moderate dementia cognitive impairment (MMSE ≥ 15)
Resnick et al., 2009 (United States)	Randomized controlled repeated-measure design/ Moderate (self-efficacy theory)	$N = 487$ (83.8)	Residents with mild to moderate cognitive impairment (MMSE ≥ 11)
Schnelle et al., 2002 (United States)	RCT/ High (none)	$N = 190$ (87.5)	Residents were able to obey a one-step instruction
Shanti et al., 2005 (Canada)	QED/ High (none)	$N = 84$ (82.6)	Residents who are likely to benefit from care
Talley et al., 2015 (United States)	A longitudinal analysis of nursing home MDS data/ Moderate (none)	$N = 7,735$ (85.8)	None (excluded residents who had an end-stage disease)
Tappen, Williams, Barry, & Disesa, 2002 (United States)	Randomized trial/ Moderate (none)	$N = 55$ (87)	Residents with Alzheimer's disease; mild to severe cognitive impairment (MMSE ≤ 23)
van Weert, van Dulmen, Spreeuwenberg, Ribbe, & Bensing, 2005a (Netherlands)	QED/ High (none)	$N = 120$ (83.2)	Residents with dementia; moderate or severe cognitive impairment
van Weert et al., 2005b (Netherlands)	QED/ High (none)	$N = 125$ (83.3)	Residents with dementia; moderate or severe cognitive impairment

Note. FFC = function-focused care; MMSE = Mini-Mental State Examination.

Intervention	Measure of Resident Outcome	Principal Resident Outcome
Recreational activities derived from the NDB model	Affect Rating Scale, Dementia Mood Picture Test, activity engagement time, and CMAI	Agitation and negative affect were significantly improved in all treatment groups, but there was no significant change in mood.
Moderate-intensity exercise program (a combination of aerobic/endurance activities, flexibility training, strength training, and balance training)	Behavioral problems: physical and verbal abuse, wandering, and sleep disorders	There was a statistically significant reduction in behavioral problems and the use of hypnotic and antipsychotic medications.
Two external memory aids (photographs and signs) were placed outside residents' bedrooms	Room finding	Displaying large-print signs and photographs increased the probability of room finding.
Educational programs for caregivers on how to provide abilities-focused morning care	Interaction behaviors, level of agitation, level of function (mental disorientation/confusion, physical disability, disengagement, and socially inappropriate behavior)	The program enhanced residents' personal attendance, functional behaviors, levels of overall function, and decreased levels of agitation.
Training for nursing staff and restorative care intervention for residents	The Barthel Index, Dementia Quality of Life Instrument, self-efficacy for functional ability, outcome expectations for functional ability, and resident participation index, muscle contractures and strength	There was no difference in Res-Care Intervention; however, positive trends were shown in quality of life, outcome expectations, self-efficacy, and participation in restorative care activities, and there was decreased pain.
A two-tiered self-efficacy-based intervention focused on motivating nursing assistants and residents to engage in functional and physical activities	Barthel Index, Tinetti Gait and Balance, grip strength (muscle contractures and strength), Dementia Quality-of-Life Scale, self-efficacy, and Outcome Expectations Scales for Function	There was significant improvement in the Tinetti gait and balance subscores as well as stair climbing, walking, and bathing.
Functional incidental training (FIT) intervention that was integrated with incontinence care and exercise	Fecal and urinary incontinence frequency, maximum pounds lifted with upper body, level of assistance required to stand, average and maximum distance walked	The FIT intervention improved or prevented a decline in continence, upper-body strength, and mobility.
The "restorative care education and training program" consisting of a 5-week workshop and resource manual for both supervisory and direct care staff	Goal Attainment Scaling (GAS), Timed Up and Go, Functional Independence Measure (FIM), Multidimensional Observation Scale for Elderly Subjects (MOSES), and hierarchical assessment of balance and mobility (HABAM)	Residents who received restorative care improved significantly in GAS, FIM, MOSES self-care, and HABAM.
Restorative care programs	ADL dependency score	There was no significant improvement in ADL dependency scores.
Three types of treatment: conversation, walking, and a combination of the two	Communicative ability: total words, conciseness, and information units	The conversation-only intervention significantly improved communication performance in conciseness and the number of nonredundant units.
Training for caregivers and individual 24-hour Snoezelen program for residents	Indicators of nonverbal communication, indicators of verbal communication	Regarding residents, significant treatment effects were found for smiling, certified-nursing-assistant-directed gazing, negative verbal behaviors (less disapproval and anger), and verbally expressed autonomy.
Training for caregivers and individual 24-hour Snoezelen program for residents	Dutch Behavior Observation Scale for Psychogeriatric In-patients, CMAI-Dutch version, CSDD (Dutch version), observer assessed behavior (INTERACT) and mood (FACE)	There were significant treatment effects on levels of apathetic behavior, loss of decorum, rebellious behavior, aggressive behavior, and depression.

ranged from 3 to 7,735, comprising 9,830 participants with a mean age of 85 years.

Function-Focused Care Interventions as an Integrated and Dedicated Process

In 11 of the selected studies, the FFC intervention used an integrated process that generally addressed complex situations such as morning care. Mezey et al. (2000) and Blair et al. (2007) conducted abilities-focused programs where caregivers were engaged in activities related to dressing, bathing, toileting, and grooming residents. Shanti et al. (2005) implemented an FFC workshop program for NH staff and incorporated FFC care into daily routines. In another study, 99 NH staff members participated in a training course and incorporated emotion-oriented care into their normal, 24-hour care procedures (Finnema et al., 2005). Van Weert, van Dulmen, Spreeuwenberg, Ribbe, and Bensing (2005a, 2005b) examined the effectiveness of the Snoezelen method, a method of multisensory stimulation using light, sound, smell, and feel, implemented by certified nursing assistants who were involved in the FFC intervention during 24-hour care. Five studies suggested implementing FFC intervention components, including evaluating residents' functioning; evaluating environment and policy, education, and care goal setting; and motivating and monitoring staff for residents' participation in functional activities and exercises in daily activities (E. Galik et al., 2014; E. M. Galik et al., 2008; Resnick et al., 2006, 2009; Talley et al., 2015).

The other 11 studies used an FFC-exclusive process in which designated research or NH staff provided a scheduled program at an appointed time. One functional incidental training study applied dedicated FFC processes after research staff had assessed residents' baseline functional abilities (Schnelle et al., 2002). Schnelle et al. (2002) designed FFC processes that were scheduled every 2 hours, at which times residents received care from research staff that was designed to increase functional ability. Another four studies, completed within a predetermined time, tested dedicated FFC processes that were designed to utilize therapeutic techniques (conversational, occupational, and recreational) that were applied by trained interveners and therapists (Kolanowski et al., 2005; Tappen et al., 2002). The remaining eight studies used hired staff who were trained in FFC interventions to implement various programs (activities, room finding, exercise, and conversation) that were related to functional abilities (Beck et al., 2002; Bonanni et al., 2009; Bossers et al., 2015; Chan & Pang, 2010; Dechamps et al., 2010; Huang et al., 2016; Landi et al., 2004; Nolan et al., 2001).

Key Strategies Underpinning Effective Function-Focused Care Interventions

Interactive learning for caregivers

(Mezey et al. 2000) provided an educational program on abilities-focused morning care to caregivers who provide

functional care services. This program employed role-playing and simulations and incorporated exercises that required caregiver participation and stimulated discussions to share applied learning experiences. Another study provided a restorative care education and training program to NH staff in the form of an interactive workshop conducted by a multidisciplinary team, which included an educator. This program used teaching methods such as role-playing, group strategizing, case studies, and practice exercises (Shanti et al., 2005). In another study, NH staff members participated in a training course, received supervision through nursing consultations and emotion-oriented groups, and exchanged experiences and information to receive support (Finnema et al., 2005).

Content of the learning programs for caregivers

Several studies conducted educational sessions that were designed to teach caregivers intervention skills and knowledge to improve the functional abilities of residents (Table 2). Mezey et al. (2000) provided detailed information on the construction of their FFC intervention. The content was intended to enhance residents' social and self-care abilities through improving their skills in the realms of attention and conversation by the use of memory books, verbal cues, motor cues, and verbal prompts and the creation of relaxing environments. In another study (Shanti et al., 2005), NH staff participated in a five-module workshop designed to build skills and promote confidence; physical activity; communication; feeding and eating; positioning, mobility, and transfers; and assessment and evaluation. In a study of emotion-oriented approaches (Finnema et al., 2005), NH staff were trained in emphatic skills so that they could apply an emotion-oriented approach to daily care. Two studies (van Weert et al., 2005a, 2005b) trained certified nursing assistants to improve their practical skills and knowledge with regard to communication and Snoezelen, which involves reviewing specific behavior problems, identifying residents' sensory preferences, and applying sensory stimulation in daily care. In other studies (E. M. Galik et al., 2008; Resnick et al., 2009; Talley et al., 2015), an FFC intervention began with an in-service educational component for caregivers that included verbal encouragement or physiological feedback to foster resident self-efficacy while performing personal care activities.

Residents' preferences and interests

Schnelle et al. (2002) implemented FFC interventions after conducting repeated interviews to assess residents' preferences. Beck et al. (2002) carried out an assessment of residents' interests, which resulted in FFC interventions that were significantly more interesting to the residents ($p = .028$). In a study of theory-based recreational activities (Kolanowski et al., 2005), FFC interventions were classified according to residents' types of interest so that the program matched

TABLE 2.
The Contents of the Function-Focused Care Learning Program

Educational Module	Content
Communication	<ul style="list-style-type: none"> • Skills of attention, conversation, use of memory books, verbal cues, motor cues, verbal prompts, verbal encouragement, cueing with self-modeling • Social conversation, jokes, greetings, showing agreement/affection/partnership, conversations about sensory stimuli, supporting demented residents in responsiveness, avoiding correcting residents' subjective perceptions, cueing with self-modeling
Focusing on residents' emotions	<ul style="list-style-type: none"> • Being alert to the effects of residents' past experiences and acknowledging residents' experiences • (Non)verbal emphatic skills, showing affection and empathy with eye contact, instrumental touch, affective touch, smiling • A relaxing environment
Physical activity	<ul style="list-style-type: none"> • Specific exercises for bed- or wheelchair-bound residents and those with urinary incontinence, arthritis, and osteoporosis • Exercise training activities, range-of-motion exercises, brace and splint training, and amputation-prosthesis care
Positioning, mobility, and transfers	<ul style="list-style-type: none"> • Correct use of gait aids, transfer techniques for resident positioning (in bed and chairs), and other strategies for safe, independent ambulation
Activities of daily living	<ul style="list-style-type: none"> • Feeding/eating: hydration and aspiration problems; strategies to promote safe, independent eating practices; bathing; dressing; grooming; bowel and bladder training
Physiological feedback	<ul style="list-style-type: none"> • Pain management: medications, complementary techniques • Fear management: building confidence • Fatigue management: schedule rest times and reinforce their benefits • Management of shortness of breath: encourage breathing skills or use oxygen
Assessment and evaluation	<ul style="list-style-type: none"> • Setting individualized goals, awareness of residents' needs

residents' preferences for novelty (openness) and social stimulation (extraversion). This interest-matching strategy improved residents' behavioral function much more than treatment alone. Two studies of Snoezelen-integrated care focused on the discovery of which stimuli residents liked most and the integration of those stimuli into daily care (van Weert et al., 2005a, 2005b).

Individualized approach for each functional status

A notable study by Beck et al. (2002) applied an activities of daily living (ADL) intervention that used different behavioral methods that were designed to address residents' individual cognitive deficits. For example, residents with ideomotor apraxia required strategies such as physical guidance and touch to begin movement, whereas residents with dementia received single-step recommendations to guide ADL performance using behavior and communication techniques. In another study, the FFC intervention used a needs-driven dementia-compromised behavior (NDB) model that was intended to meet individual need and skill (physical and cognitive function) levels (Kolanowski et al., 2005). For example, passive residents became more functional and joined activities that were designed to provide social stimulation and novelty because the intervention reduced their with-

drawn behavior. One study addressed FFC intervention strategies for residents with functional impairments (Shanti et al., 2005). It examined residents with communication impairments (speech, voice, language, hearing, cognition, and/or vision) resulting from conditions such as dementia, stroke, and other neurological or medical conditions. Because of the potential diversity of functional status of older adults with complex diseases, Shanti et al. (2005) and E. Galik et al. (2014) focused on developing an individualized goal-setting strategy and then documenting outcomes. Two studies of Snoezelen-integrated care incorporated an underlying philosophy of person-centered care, which intends to maintain personhood even in cases of failing mental powers by grasping knowledge of the individual and showing affective involvement (van Weert et al., 2005a, 2005b).

Conceptual frameworks of function-focused care interventions

The theoretical basis of the FFC intervention study by Beck et al. (2002) was that the basic psychosocial needs of residents include territoriality, autonomy, communication, personal identity, self-esteem, cognitive understanding, safety, and security and that meeting these needs reduces disruptive behavior. The recreational activities efficacy study

of Kolanowski et al. (2005) hypothesized that residents would realize improved psychosocial outcomes when the NDB model was implemented. The NDB model changes negative behavioral symptoms into appropriate ones by meeting residents' needs. Finnema et al. (2005) reported designing an emotion-oriented FFC intervention specifically for residents with dementia, using an adaptation–coping model based on the crisis and stress–appraisal–coping models. Resnick et al. (2006, 2009) and E. M. Galik et al. (2008) applied self-efficacy and outcome expectations according to the self-efficacy theory and showed that efficacy expectations are enhanced by mastery experiences, verbal encouragement, vicarious experiences, and the management of affective and physiological states. Finally, E. Galik et al. (2014) used the Social Ecological Model, which addresses the effect of intrapersonal, interpersonal, policy, and environmental factors on behavior, as an FFC intervention framework.

Effectiveness of Function-Focused Care Interventions on Physical, Psychosocial, and Cognitive Functions

Most studies ($n = 19$, 86%) reported significant effects associated with FFC interventions as principal outcomes. These studies will be discussed according to NH residents' levels of cognitive function.

Of the nine studies of FFC interventions for residents with moderate to severe cognitive impairment, seven reported improvements and two reported mixed effects (no change or improvement). One experimental study (Nolan et al., 2001) revealed a 50% greater probability of residents with severe cognitive impairments finding their rooms using external memory aids. One RCT (E. Galik et al., 2014) found significant improvements in physical function at 3 months ($p = .01$) and physical activity (according to actigraphies and surveys) at 6 months ($p = .05$, $p = .01$) and a decrease in the number of fall events in the treatment group compared with the control group (28% vs. 50%, respectively; $p = .02$). The two RCTs for residents with moderate to severe dementia who received behavioral interventions reported the following effects—positive facial expressions ($p < .001$), contentment ($p = .037$), interest ($p = .028$), positive body posture/movements ($p < .001$), improved neuropsychiatric inventory scores ($p < .01$), improved Berg balance scores ($p = .01$), improved depressive symptoms ($p < .001$), improved quality of life ($p < .01$), and improved strength ($p < .01$; Beck et al., 2002; Dechamps et al., 2010)—but found also that disruptive behaviors were not significantly reduced (Beck et al., 2002). One quasi-experimental study (Mezey et al., 2000) that was conducted on participants with moderate to severe dementia showed that an abilities-focused program led to postintervention improvements in residents' psychosocial functions on the three subscales of personal attending, calm-functional behaviors, and agitation ($p = .046$) and in their level of overall function ($p = .023$). Two quasi-experimental studies of residents with moderate to severe dementia (van Weert et al.,

2005a, 2005b) found significant Snoezelen-integrated care effects for verbal expressed autonomy ($p < .01$), negative verbal behaviors ($p < .05$), nursing staff-directed gaze ($p < .05$), smiling ($p < .01$), apathetic behavior ($p < .05$), aggressive behavior ($p < .05$), loss of decorum ($p < .05$), rebellious behavior ($p < .05$), depression ($p < .05$), well-being (e.g., mood, enjoyment, happiness, sadness), and adaptive behavior (e.g., responding to speaking, normal-length sentences). One case–control study that incorporated physical activity with a psychosocial and behavior management training program (Landi et al., 2004) found a significant reduction in behavioral problems, such as physical and verbal abuse, wandering, and sleep disorders; as a consequence, the use of hypnotic and antipsychotic medications was reduced. Another study of 46 subjects (E. M. Galik et al., 2008) that employed a Res-Care intervention found an improvement in behavioral symptoms ($p = .04$) and mood ($p < .02$) and a decrease in physical activity, as measured by actigraphy ($p = .005$), but no significant change in overall physical activity or physical function.

Of the six studies of FFC interventions that were conducted on residents with mild to moderate cognitive impairment, four reported improvement and two reported no significant effects. One RCT study of restorative care (Resnick et al., 2009) found that physical performance such as gait and balance, stair climbing, walking, and bathing improved significantly ($p < .05$). Specifically, there was a significant improvement in overall balance and mobility from baseline to 4 months and a reduced decline in gait function at 12 months. Two RCTs for residents with mild to moderate dementia (Bossers et al., 2015; Huang et al., 2016) that was composed of behavioral and exercise interventions reported improvements in cognitive function ($p < .001$), visual memory ($p < .001$), verbal memory ($p = .003$), executive function ($p < .001$), walking endurance ($p = .004$), leg muscle strength ($p < .001$), balance ($p = .002$), fear of falling ($p < .001$), mobility ($p < .001$), depressive symptoms ($p < .001$), and muscle strength in the extremities ($p < .001$ or $.01$). One quasi-experimental study (Chan & Pang, 2010) that addressed residents with mild to moderate dementia found significant effects for the Let-Me-Talk advanced care planning program on treatment preference stability ($p \leq .001$) and communication treatment preferences ($p = .012$) as well as positive effects on existential distress ($p = .038$). However, two studies of residents with mild to moderate dementia (Blair et al., 2007; Resnick et al., 2006), which did not find significant results using an FFC intervention, did show some positive trends in terms of quality of life, outcome expectations, self-efficacy, participation in care activities, decline in pain, and independence during ADLs.

Of the seven studies that used an FFC intervention on residents with various cognitive conditions, six reported improvements and one found no significant effects. One RCT study (Tappen et al., 2002) on residents with mild to severe levels of cognitive impairment that implemented conversation and exercise interventions found significant

improvement in the conciseness ($p = .0101$) and number of information units ($p = .0433$) in the conversation-only treatment group compared with the control group. Another RCT on residents who were able to obey instructions found that functional incidental training exercise improved continence, upper-body strength, and mobility significantly ($p = .0001-.05$; Schnelle et al., 2002). In addition, another RCT study on residents with mild to severe levels of cognitive impairment that implemented integrated emotion-oriented care found positive effects for the care approach in terms of maintaining emotional balance ($p = .04$) and preserving a positive self-image ($p = .04$; Finnema et al., 2005). A quasi-experimental study (Shanti et al., 2005) on residents who were able to benefit from an FFC intervention found that physical function in Goal Attainment Scaling ($p = .05$), Functional Independence Measure ($p < .001$), the Multidimensional Observation Scale for Elderly Subjects self-care ($p = .04$), and a hierarchical assessment of balance and mobility ($p = .03$) were improved significantly by the Restorative Care Education and Training Program. A trial of a dedicated restorative care program that was conducted on residents with a probability of functional decline found that ADL scores (33% of the residents), walking (30% of the residents), and locomotion (20% of the residents) had improved at 6 months (Bonanni et al., 2009). Another experimental study (Kolanowski et al., 2005) that was conducted on residents with mild to severe levels of cognitive impairment found that agitation ($p < .001$) and negative affect ($p = .056$) had significantly improved in the treatment groups. However, a longitudinal study (Talley et al., 2015) that analyzed data from a national NH survey found no increase in the ADL dependency score.

Discussion

The findings of this systematic review offer several recommendations for making FFC interventions more effective. This review revealed that both integrated and dedicated FFC intervention processes were accompanied by training and that dedicated-process caregivers, usually external staff, were trained in advance. This review covered an equal number of integrated-process ($n = 11$) and dedicated-process ($n = 11$) studies of FFC interventions. Because of the variety of measures of residents' functional abilities and types of study designs, this review was unable to determine which FFC intervention programs were most effective or whether integrated or dedicated processes are better. The decision to choose either an integrated or dedicated FFC intervention process may be made based on the preferences of the specific NH nursing work force (Schnelle et al., 2002).

Caregiver education about FFC interventions is an effective approach to optimizing the functioning of residents. A summary of the potential educational content for FFC interventions is provided in Table 2. An example of FFC interventions during ADLs is encouraging residents to walk to the bathroom rather than using a commode in their beds.

Regarding education method, interactive teaching is suggested to provide the knowledge and skills related to the FFC intervention because this method provides feedback from simulations (Shanti et al., 2005). Another suggestion is that education alone is insufficient and that supervisory support is crucial for successful implementation (Blair et al., 2007). These educational strategies may enhance the positive care behavior of caregivers and their communications related to the delivery of FFC interventions to residents.

Some studies used several conceptual frameworks. Self-efficacy theory was the most frequently used. Evidence is accumulating regarding the importance of theory-based FFC interventions. Thus, various educational materials are used in FFC interventions to train caregivers to encourage residents' self-efficacy and outcome expectations. In addition, the findings emphasized that FFC interventions should focus on individual resident-centered care by considering individual needs and preferences. The NDB model states that individuals have basic psychosocial needs and that negative behaviors may relate to these needs (Kolanowski et al., 2005). Even in studies that did not directly refer to this theory, the FFC intervention was conducted in a similar way because it was based on the social cognitive theory, which focuses on perceived self-efficacy and beliefs (Liu, Galik, Nahm, Boltz, & Resnick, 2015). Overall consideration of these conceptual frameworks suggests that functional interventions based on FFC philosophy will be more effective when they focus on the self-motivation and empowerment of the individual.

In terms of the effects of FFC, the effects on physical function, as reported in 13 studies, belonged to three outcome types: motor function, self-care ability, and incontinence. Motor function was presented as muscle strength or balance and mobility, and self-care ability was presented as independence measurements using ADL items. Of these 13 studies, 10 trials showed that the FFC interventions not only delay declines in physical function but also may improve physical function significantly.

Regarding the effects on psychosocial function, 12 of the 15 studies reported the positive effects of FFC on disruptive behavior or mood-specific outcomes. Because of the prevalence of behavioral problems in NH residents with dementia, FFC testing was often performed using psychosocial measurements. In particular, Harwood, Barker, Ownby, and Duara (2000) noted that behavioral symptoms (agitation and passivity) accounted for poor health outcomes, including social isolation and weakened physical functioning. In addition, FFC interventions stimulated more positive care interactions and emotional balance. The present review indicated that the resident-centered FFC approach made the relationship between caregivers and residents more satisfying and cooperative.

From an analysis of the three studies that focused directly on the effects on cognitive functions, we found that finding place and communication performance using words and information, memory, and Mini-Mental State Examination/Geriatric Depression Scale points was better. Although no shift in cognitive functioning level from moderate to mild or

from severe to moderate was reported because of the progressive nature of dementia, the results did confirm additional benefits. Several studies indirectly confirmed improvements in psychosocial functioning that were related to behavioral symptoms associated with dementia.

Most of the studies included in this review used multiple positive measures of functional ability outcomes. Therefore, it was impossible to accurately determine which functional ability had improved the most. These findings support a previous research review (Resnick et al., 2013) on FFC interventions in multiple care settings that showed that FFC interventions with older adults showed positive results, either of less functional decline or of functional maintenance. Overall, this review further confirmed that implementing FFC interventions, regardless of the cognitive status of residents, is beneficial for optimizing their physical, psychosocial, and cognitive functional abilities.

There were some limitations of this review. Although several search strategies were employed to identify published FFC intervention studies, it is possible that some relevant published studies may have been missed because of the search terms used. In addition, because this review included only 22 studies, the combined sample is not large enough to generalize the findings widely beyond the surveyed populations. However, on the basis of currently published articles, these results provide evidence to support the efficacy of FFC interventions in NHs and an overview of various aspects of implementation for FFC interventions.

On the basis of this review, caregivers working in NH practice should accept FFC interventions as effective for residents who are more active and should consider the multidimensional benefits of FFC interventions on their residents' physical, psychological, and cognitive functions. Expanding this work to cover interventions that were designed to address residents with differing functional statuses across a larger population of residents will be critical, so as to optimize all of the functions necessary to develop a comprehensive FFC intervention.

Conclusions

The studies that were included in this review describe different FFC intervention programs and the numerous ways in which these programs were implemented. Most of the studies on the integrated FFC intervention process educated caregivers on related communication skills and on how to focus properly on residents' emotions, physical activity, physiological feedback, positioning, mobility and transfers, ADL, and assessment and evaluation. These FFC interventions used social cognitive theory as a framework to motivate residents. Most FFC interventions relate to physical and psychosocial functions. However, the lack of studies on cognitive and spiritual functions in the literature means that relational interventions have been developed in various ways. Therefore, future studies should focus on these functional areas to identify effective FFC interventions that optimize comprehensive functional abilities.

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