

Chronic Pain Management Among Older Adults: A Scoping Review

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Abstract

Chronic pain is a significant problem for older adults. The effect of chronic pain on older people's quality of life needs to be described and identified. For a decade, the Roy Adaptation Model has been used extensively to explain nursing phenomena and guide nursing research in several settings with several populations. The objective of this study was to use the Roy Adaptation Model to describe chronic pain and present a systematic scoping review of the literature about the middle-range theory of chronic pain among older adults. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses model guided a scoping review search method. A literature search was undertaken using MEDLINE, Cumulative Index to Nursing and Allied Health Literature, Ovid, and ProQuest. The search terms were "chronic pain," "pain management," "older adult," "Roy Adaptation Model," and "a scope review." The search included articles written in English published for the period of 2004–2017. All articles were synthesized using concepts of Roy's Adaptation Model. Twenty-two studies were considered for the present review. Twenty-one articles were reports of quantitative studies, and one was a report of a qualitative study. Two outcome measures were found in this systematic scoping review. The primary outcomes reported in all articles were the reduction of pain due to interventions and an increase in coping with chronic pain. The secondary outcome measures reported in all studies were the improvement of physical function, quality of life, sleep disturbance, spiritual well-being, and psychological health related to pain management interventions among older adults. Many interventions of all studies reported improvement in chronic pain management among older adults. However, to improve chronic pain management, nurses need to understand about nursing theories, the context which instruments work, and develop empirical instruments based on the conceptual model.

Keywords

chronic pain, pain management, older adult, Roy's Adaptation Model, a scoping review

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Background

Chronic pain is a growing issue among older adults. The prevalence of chronic pain in those 65 years or older is estimated to be ranging from 60% to 75% in the United States (Malec & Shega, 2015; Molton & Terrill, 2014). In addition, between 25% and 50% of older adults living in the community experienced pain within the past month, with 41% reporting distressing, discomforting, or excruciating pain (Brown, Kirkpatrick, Swanson, & McKenzie, 2011). More specifically, estimates of musculoskeletal pain range from 25% to 43% in community-dwelling older adults, and 40% of older adults reported musculoskeletal pain in two or more sites (Eggermont et al., 2014).

Chronic pain places burdens on individuals, family, and society (Reid, Eccleston, & Pillemer, 2015). Chronic pain is associated with mobility-related disability and falls (Leveille et al., 2009). Older adults with chronic multisite pain show significant impairment of physical performance (Eggermont et al., 2014) and have lower balance confidence (Stubbs, Patchay, Soundy, & Schofield, 2014). Furthermore, chronic multisite pain leads to the development of psychological

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symptoms such as depression, anxiety, and social isolation in older adults (Parmelee, Harralson, McPherron, & Schumacher, 2013). As a result, chronic pain among older adults has an important impact on the health-care system such as increasing rates of hospitalization (Centers for Disease Control and Prevention, 2013). Persistent musculoskeletal pain is currently one reason people seek medical treatment and the most expensive nonmalignant health condition in the United States (Gibson & Lussier, 2012), with an annual cost of one trillion U.S. dollars per year (AGS Panel on Persistent Pain in Older Persons, 2002). However, despite the availability of effective pain management in the older population, inadequate and undertreated management of pain is well documented (AGS Panel on Persistent Pain in Older Persons, 2002; Kaye, Baluch, & Scott, 2010).

Therefore, the increasing pain intensity that older adults face underscores the fact that nurses, as one part of the multidisciplinary team, need to understand myths related to chronic pain and pain management among older adults. Pain management interventions in older adults are considered as all of the factors influencing affective adaptation to chronic pain (ACP). Among nursing models, adaptation is the main concept of the Roy's Adaptation Model (RAM; Andrew & Roy, 1991), which would form the main conceptual framework of this study. Hence, the purpose of the present study was to use the RAM to describe chronic pain and present a systematic scoping review of the existing literature about the middle-range theory of chronic pain in older adults.

Conceptual Model: The Roy Adaptation Model

Roy's Adaptation Model (RAM) is one of the most useful nursing conceptual frameworks that guides clinical nursing practices, organizes nursing research, and influences nursing education (Andrew & Roy, 1991). Roy's model includes four main concepts: person, health, environment, and nursing. Roy conceptualizes the person as a holistic adaptive system and focuses on the life process of adaptation to a changeable environment and guides the assessment of clients' adaptation. The process of adaptation begins when a person responds to internal and external stimuli (Fawcett & DeSanto-Madeya, 2013).

Environmental inputs in the RAM model are classified as three kinds of stimuli: focal, contextual, and residual. Focal stimuli represent an internal and external stimuli that immediately confronts the person in a particular situation. Contextual stimuli are causative factors that influence focal stimuli. The last input is a residual stimulus that includes unconscious and unknown factors affecting the system. Contextual and residual stimuli have mediating effects on focal stimuli in the adaptation process (Roy & Andrews, 1999).

The coping mechanisms in the RAM include regulator and cognator subsystems. The regulator subsystem is physiological in nature that responds through chemical, neurological, and endocrine systems, while the cognator subsystem responds through the process of learning, perception, emotion, and judgment (Roy & Andrews, 1999). In the role of nurses, caring for a client involves managing environmental stimuli so that these stimuli fall within the individual's field of positive coping, contributing to adaptation.

According to Roy and Andrews (1999), adaptation means "the process and outcome whereby thinking and feeling person as individuals or in groups, use conscious awareness and choice to create human and environment integration" (p. 152). Adaptation is described as a positive response to environmental stimuli. Adaptation includes one biological mode and three psychosocial modes. The biological mode, called the physiological mode, involves the basic human need to maintain the physical integrity such as oxygen, temperature regulation, nutrition, and fluids. The psychosocial modes include self-concept, role function, and interdependence mode. The self-concept mode is considered with psychological and spiritual aspects of an individual. The role function mode needs social integrity that involves a person's roles in society. The interdependence mode needs relationship integrity that maintains a person's relationship with significant others. The four adaptation modes are interrelated in the adaptation process. Responses in one mode affect the other modes (Andrew & Roy, 1991). Thus, RAM is such available model; it is helpful to develop the ACP.

The Conceptual–Theoretical–Empirical Structure of the ACP Model Among Older Adults

Because RAM offers general guideline, many nursing researchers have worked to apply RAM to the ACP. The RAM was used to guide the development of the ACP model because the concepts, the assumption, relational statement, and propositions are congruent with the chronic pain phenomena (Dunn, 2005).

According to Fawcett and Gigliotti (2001), there are three steps in the process of using a conceptual model to guide nursing research and practice. The first step of using the conceptual model is to understand the content of the conceptual model and the research and nursing practice. The second step is to critically review the existing literature and clinical practice guided by the conceptual model. The last step is to construct the conceptual–theoretical–empirical structure through diagram and narrative form (Fawcett & Gigliotti, 2001). This section will explain the linkage between the conceptual model, the middle-range theory, and the empirical methods of the ACP among older adults guided by the RAM.

Assessment of Stimuli

To begin with the concept of stimulus in the RAM model, this diagram includes two stimuli (focal stimuli and contextual stimuli; Figure 1). Chronic pain is a complex focal stimulus that affects human systems in the body, mind, and spirit. In the elderly population, it is reported that older adults have experienced widespread pain that affects multiple sites in the body and are also associated with disability and mobility impairment and difficulty performing activities of daily living (Cornally & McCarthy, 2011). Hence, pain intensity is conceptualized as the middle-range concept representing the focal stimulus in this diagram because pain intensity leads to the process of adaptation by activating immediate coping response in older adults (Roy & Andrews, 1999). Pain scale methods such as the numeric rating scale (NRS)

and the Verbal Descriptor Scale (VAS) were empirical indicators to use to measure the levels of pain intensity (Herr & Mobily, 1991).

Contextual stimuli are environmental factors of human systems that lead to the effect of the focal stimuli. Contextual stimuli influence how human systems will cope with the focal stimuli (Roy & Andrews, 1999). In this diagram, background demographic factors of human systems are considered to be the middle-range concepts that represent contextual stimuli and are significantly associated with the pain intensity rating (Dunn & Horgas, 2000). Background demographic data such as age, gender, racial differences, and social status contribute to background contextual information. Therefore, the demographic data sheet is an essential tool to measure pain intensity and coping ability among older adults.

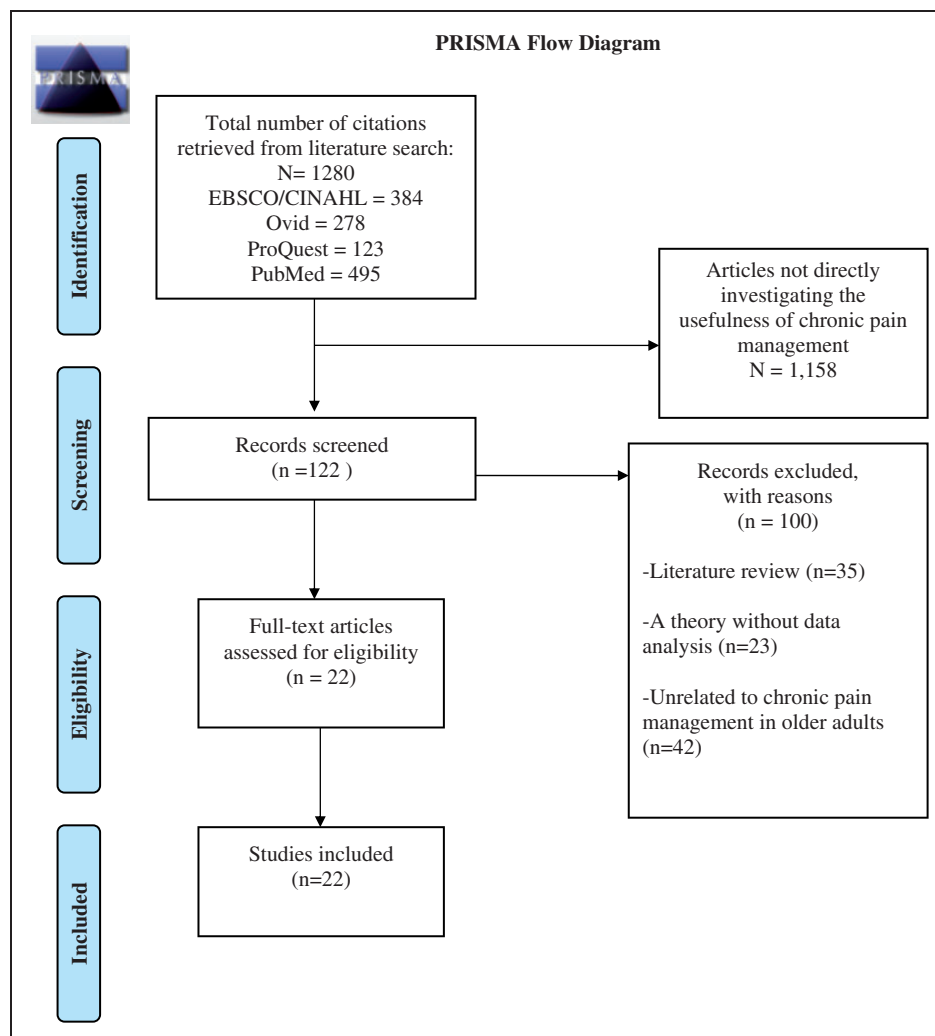


Figure 1. Flow diagram of the results of the literature search.

PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses; CINAHL = Cumulative Index to Nursing and Allied Health Literature.

Coping Process

Coping processes are activated when the regulator and cognator are challenged to life process that can be viewed in adaptive processes (Roy & Andrews, 1999). Lazarus and Folkman (1984) stated that “coping is the use of cognitive and behavior efforts to manage specific external and internal demands that are appraised as taxing or exceeding the resources of the person” (p. 141). Therefore, cognitive efforts can change the environment such as problem-focused thinking or increase a personal understanding such as emotion-focused efforts. The cognator subsystem of coping process in this diagram was represented by religious and nonreligious coping, which was measured by the short-form Religious Problem-Solving Scales (Pargament, 1997) and Pain Coping Scale (Lin, 1995; Figure 1).

Assessment of Behavior

Modes of Adaptation

Roy and Andrews (1999) stated that “individual behavioral responses (output) to stimuli (input) are evaluated as adaptive or ineffective” (p. 141). The role function mode of ACP is represented by functional ability. Functional disability focuses on functional impairment and disability to participate in social activities. Therefore, the ability to perform activities of daily living is indicative of a positive health outcome in older adults and reflects the use of coping techniques. The Inventory of Functional Status-Chronic Pain was used to measure the role function adaptive mode (Vallerand, 1998).

The self-concept mode of adaptation is represented by psychological and spiritual well-being, which focuses on individual’s feelings and beliefs in terms of the spiritual self and the physical self (Roy & Andrews, 1999). Depressive symptoms among older adults with chronic pain that disrupt the integrity of the self-concept cause an ineffective coping process (Parmelee, Kleban, Lawton, & Katz, 1991). Thus, the short-form Geriatric Depression Scale (GDS) is one empirical instrument of the adaptive modes in this model that is used to screen the presence of depressive symptoms in older adults (Yesavage et al., 1982). In addition, spiritual well-being is well recognized as a factor that affects a persons’ quality of life. The spiritual well-being mediated individuals’ experience of pain and influences their attitudes about interpretations of pain and the use of adaptive coping strategies (Dunn & Horgas, 2000). Therefore, the JAREL Spiritual Well-Being Scale that was developed by Hungelmann, Kenkel-Rossi, Klassen, and Stollenwerk (1996) can be used to measure the level

of spiritual well-being and the relationship between lifestyle and spiritual beliefs.

Methods

Design

A scoping review of literature was performed using an interpretative scoping literature review methodology (Arksey & O’Malley, 2005). This framework has five stages: (a) the identification of the initial research questions, (b) the identification of the relevant studies, (c) the selection of studies to be included in the scoping review, (d) data extraction, and (e) summarizing and reporting the results (Brien, Lorenzetti, Lewis, Kennedy, & Ghali, 2010).

Search Methods

A scoping search was undertaken using MEDLINE, Cumulative Index to Nursing and Allied Health Literature, ProQuest Nursing and Allied Health Source, and Ovid. The search included articles written in English published for the period of 2004–2017. The key search terms were “older adults,” “chronic pain,” “pain management,” “Roy Adaptation Model,” and “a scope review.” In addition, a hand search of the bibliographies of identified original articles was also done.

The inclusion criteria limited the studies to those that included older adults aged ≥ 60 years old who had chronic pain as established by medical history (e.g., lower back pain, neck pain, headaches, arthritis, and fibromyalgia) and studies published in English between 2004 and 2017. The exclusion criterion was articles that were descriptions of a theory without a quantitative and qualitative data analysis.

Search Outcome

This scoping literature review search yielded 1,280 articles through electronic database searching. One hundred and twenty-two articles were evaluated for relevance after removing duplicates. The full-text articles were screened for eligibility, and 100 were excluded because they did not meet the inclusion criteria. Reasons for elimination of the full text were literature reviews, a theory without data analysis, and those unrelated to chronic pain management in older adults. Finally, 22 studies met the inclusion criteria and were considered for the present review (Figure 2). Of the included studies, 21 articles were reports of quantitative studies, and 1 was a report of a qualitative study. Table 1 shows all included studies that met the criteria and were discussed in this scoping review.

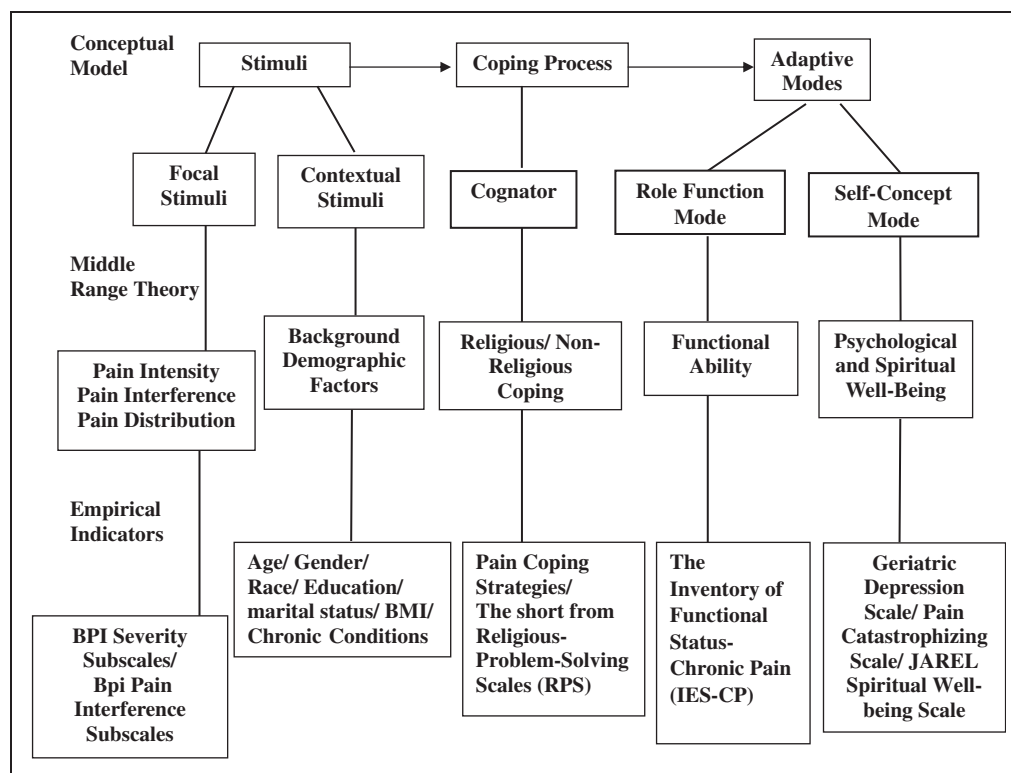


Figure 2. Conceptual–theoretical–empirical structure of the Roy's Adaptation Model of chronic pain. BPI = Brief Pain Inventory; BMI = body mass index.

Quality Appraisal

This scoping review study addressed the PICO process that outlined the problem (P): older adults with chronic pain; the intervention (I): pain management interventions; the comparison (C): compare evidence in the literature review; and the outcome (O): pain management can relieve chronic pain and improve quality of life in older adults. The quality appraisal was concentrated on the type of study design and the outcomes. The researcher analyzed each article using concepts of the RAM including focal stimuli, contextual stimuli, cognator, and adaptive modes. Then, the researcher identified research gaps and summarized the outcomes of the existing literature of chronic pain management in older adults.

Data Abstraction

The researcher reviewed titles and abstracts from the search results. Author's names, institutions, and journal of publications were not blind in the process of scoping review. The aspects were reviewed in each article including purpose of study, conceptual framework, study design, sample, and the relevance of the findings.

Synthesis

Studies were categorized regarding study subjects. Study details are given in Table 1 and in the narrative synthesis. The objective of the synthesis was to discuss the evidence about chronic pain management among older adults and identify gaps in the existing literature.

Results

Design

Five of the reports of quantitative studies were experimental designs. Of the five experimental design studies, four were a randomized control trial (RCT) design (Carson et al., 2005; Green, Hadjistavropoulos, Hadjistavropoulos, Martin, & Sharpe, 2009; Morone, Greco, & Weiner, 2008; Nicholas et al., 2013), and one was a quasi-experimental pre- to posttest control study (Tse, Wan, & Wong, 2013). Sixteen of the reports of quantitative studies were observational designs. Of the 16 quantitative studies, 5 were cohort designs (Asghari & Nicholas, 2006; Halla-aho, Tilvis, Strandberg, & Pitkala, 2013; Mallen et al., 2013; Pokela, Bell, Lihavainen, Sulkava, & Hartikainen, 2010; Sawyer, Bodner,

Table 1. Studies Included.

Author/year	Theory/concept	Definition of the middle-range theory concept	Design/sample size/ characteristics	Instruments	Results
Gong et al., 2013	Focal stimuli/contextual stimuli	Pain intensity and background demographic factors	<ul style="list-style-type: none"> - A descriptive survey - $n = 197$ participants with either osteoarthritis or rheumatoid arthritis in mainland China, aged ≥ 45 years old 	<ul style="list-style-type: none"> - Demographic data questionnaires - The Brief Pain Inventory - The Pain Management Inventory 	<ul style="list-style-type: none"> - Mean of overall pain intensity = 5.6 ($SD = 1.3$), median of number of pain sites = 7.0 ($OR = 7$) - Participants with rheumatoid arthritis had significantly more pain sites, higher pain intensity, and greater number of pain management strategies compared with participants with osteoarthritis - In 1999, the prevalence of daily joint pain interfering with functioning was 16.4% and that of back pain was 13.9% among 75- to 85-year-old people, the respective figures being 21.9% and 17.1% in 2009 ($p < .001$) - In 2009, 66.1% of all participants suffered from any musculoskeletal pain, and 28.7% of them were prescribed analgesics, the figures being more frequent among women than men
Halla-aho et al., 2013	Focal stimuli/contextual stimuli	Pain intensity and background demographic factors	<ul style="list-style-type: none"> - A cohort study/two random cohorts of home-dwelling older people with musculoskeletal pain 10 years apart in 1999 ($N = 2,044$) and in 2009 ($N = 1,610$) in Helsinki, Finland 	<ul style="list-style-type: none"> - The questionnaire included items on pain intensity - Sociodemographics and previously diagnosed diseases 	<ul style="list-style-type: none"> - 48.1% of all participants were classified as having an unfavorable outcome at 6 months - 3 generic prognostic indicators (duration of present pain episode, pain interference with daily activities, and presence of multiple-site pain) in the prognostic model improved on reliance on physicians' prognostic judgment alone (C statistic = 0.72 vs. 0.62; net reclassification index = 0.136; proportion correctly classified = 69%)
Mallen et al., 2013	Focal stimuli	Pain intensity	<ul style="list-style-type: none"> - A prospective observational cohort study - $n = 403$ older adults with noninflammatory musculoskeletal pain to 1 of the 5 participating general practices in the United Kingdom, recruited from September 1, 2006 to March 31, 2007 	<ul style="list-style-type: none"> - The Brief Generic Point of Care Prognostic Indicators (duration of patient episode, current pain intensity, pain interference with daily activities, multiple-site pain, and depression) 	<ul style="list-style-type: none"> - The PSM group was significantly improved on measures of pain distress, mood, disability, unhelpful pain beliefs, and functional reach - By 1-month follow-up, relative to the EAC group, the PSM group was better on most measures - At the 1-month follow-up, relative to a WL group, the PSM group was significantly improved on measures of pain, disability, and unhelpful pain belief
Nicholas et al., 2013	Focal stimuli/self-concept mode	Pain intensity and psychological and spiritual well-being	<ul style="list-style-type: none"> - A randomized controlled trial - $n = 141$ chronic pain patients aged > 65 years at the Pain Management and Research Centre, Royal North Shore Hospital, Sydney, Australia/comparison among the 3 study groups: PSM ($n = 49$), EAC ($n = 53$), and WL control ($n = 39$) 	<ul style="list-style-type: none"> - PSM program, using cognitive-behavioral therapy and exercise - The JAREL Spiritual Well-Being Scale 	<ul style="list-style-type: none"> - The PSM group was significantly improved on measures of pain distress, mood, disability, unhelpful pain beliefs, and functional reach - By 1-month follow-up, relative to the EAC group, the PSM group was better on most measures - At the 1-month follow-up, relative to a WL group, the PSM group was significantly improved on measures of pain, disability, and unhelpful pain belief

(continued)

Table 1. Continued.

Author/year	Theory/concept	Definition of the middle-range theory concept	Design/sample size/ characteristics	Instruments	Results
Tse et al., 2013	Focal stimuli/cognator/role function mode/self-concept mode	Pain intensity, behavior coping, function status, and psychological and spiritual well-being	<ul style="list-style-type: none"> - Exploratory cross-sectional study - <i>n</i> = 173 older adults with musculoskeletal pain in the community centers in Hong Kong 	<ul style="list-style-type: none"> - Early Mobility Scale/Short Form-12 Questionnaire/CSQs/State-Trait Anxiety Inventory/Subjective Happiness Scales/GDS-Short Form/Pain Scale/Pain Self-Efficacy Questionnaires/IES-CP 	<ul style="list-style-type: none"> - The average pain intensity of older adults was 3.97 ± 1.80; 47.1% of participants used oral analgesic medications - 86% used nonpharmacologic techniques. Older adults with pain had lower happiness levels, levels of mobility, and physical quality of life - Pain intensity was negatively associated with self-efficacy and physical quality of life and positively correlated with permanence, mystery, and self-blame in pain belief - There were no significant differences between educational level, pain conditions, and psychologic well-being parameters ($p > .05$) - The experiment group showed a significant improvement in their knowledge of and attitudes to pain management ($p < .05$).
Tse and Ho, 2013	Focal stimuli/self-concept mode	Pain intensity and psychological well-being	<ul style="list-style-type: none"> - A quasi-experimental pre-test and posttest control design - <i>n</i> = 90 older adults living in nursing home care in Hong Kong - <i>n</i> = 48 older adults in the experiment group and 42 older adults in the control group 	<ul style="list-style-type: none"> - The experiment group received 8-week cognitive behavior strategies - 8 weeks of activities including gardening therapy and physiotherapy exercise - The JAREL Spiritual Well-Being Scale 	<ul style="list-style-type: none"> - Individual characteristics associated with help-seeking behavior were female, increasing age, higher education, living alone, and severe pain - Older adults were more likely to believe that they had superior pain control and courage in the face of pain and were not willing to disclose their pain to others - 77% patients completed the survey - 53% of patients reported moderate to severe pain lasting more than 6 months - 80% reported using complementary and alternative medicine therapy in the past - 35% of patients thought that meditation can improve their health, and 49% thought it can reduce stress - 39% of the patients reported interest in attending intensive 10-day meditation program
Cornally and McCarthy, 2011	Contextual stimuli/cognator	Background demographic factors, belief, and behavior coping strategies	<ul style="list-style-type: none"> - A descriptive correlational design - <i>n</i> = 72 older adults with chronic pain in two primary care practices 	<ul style="list-style-type: none"> - A demographic questionnaires - The Pain Attitudes Questionnaire - The Pain Beliefs Questionnaire 	<ul style="list-style-type: none"> - An 8-week mindfulness meditation training program
Goyal et al., 2010	Cognator	Religious/nonreligious coping strategies	<ul style="list-style-type: none"> - A cross-sectional anonymous survey - <i>n</i> = 1,119 older adults with chronic low-back pain, mean age = 47 years old 		

(continued)

Table 1. Continued.

Author/year	Theory/concept	Definition of the middle-range theory concept	Design/sample size/ characteristics	Instruments	Results
Pokela et al., 2010	Focal stimuli/contextual stimuli/role function mode	Pain intensity, background demographic factors, and function status	<ul style="list-style-type: none"> - A population-based interview study - $n = 700$ older adults with chronic pain, aged ≥ 75 years from the population register in Kuopio, Finland in November in 2003 	<ul style="list-style-type: none"> - Sociodemographic factors, social contact, and health behavior - The IES-CP - Self-rated mobility asking participants could walk 400 meters 	<ul style="list-style-type: none"> - 45.4% of participants took ≥ 1 analgesic on a daily basis. Factors associated with any analgesic use included female sex ($OR = 1.78$, 95% CI [1.17, 2.71]), poor self-rated health ($OR = 2.6$, 95% CI [1.22, 3.84]), living alone ($OR = 1.46$, 95% CI [1.02, 2.11]), and used of ≥ 10 nonanalgesic drugs ($OR = 2.21$, 95% CI [1.26, 3.87]) - Older adults' pain prevalence was 50.0%, and the average number of pain sites was 3.9 ($SD = 5.8$) - The mean of pain intensity was 3.1 ($SD = 1.8$) and pain interference was 2.8 ($SD = 2.1$) - Taiwanese older adults reported to have fewer self-care strategies than U.S. elders with chronic pain - Older adults' responses to the face-to-face questions were higher rates of pain compared with the MDS - There was no significant difference number of scheduled analgesic and MMSE scores - Participants had fewer maladaptive beliefs about pain and greater use of relaxation
Tsai et al., 2010	Focal stimuli/cognator	Pain intensity and behavior coping	<ul style="list-style-type: none"> - Descriptive survey-$n = 1,054$ community-dwelling elderly older adults with musculoskeletal pain in Taiwan 	<ul style="list-style-type: none"> - The BPIC - Self-care pain management strategies 	<ul style="list-style-type: none"> - Older adults' pain prevalence was 50.0%, and the average number of pain sites was 3.9 ($SD = 5.8$) - The mean of pain intensity was 3.1 ($SD = 1.8$) and pain interference was 2.8 ($SD = 2.1$) - Taiwanese older adults reported to have fewer self-care strategies than U.S. elders with chronic pain - Older adults' responses to the face-to-face questions were higher rates of pain compared with the MDS - There was no significant difference number of scheduled analgesic and MMSE scores - Participants had fewer maladaptive beliefs about pain and greater use of relaxation
Decker et al., 2009	Focal stimuli	Pain intensity	<ul style="list-style-type: none"> - A longitudinal study - $n = 215$ older adults with chronic pain from 13 rural Iowa nursing homes 	<ul style="list-style-type: none"> - Face to face pain questions - The MMSE scores 	<ul style="list-style-type: none"> - Older adults' pain prevalence was 50.0%, and the average number of pain sites was 3.9 ($SD = 5.8$) - The mean of pain intensity was 3.1 ($SD = 1.8$) and pain interference was 2.8 ($SD = 2.1$) - Taiwanese older adults reported to have fewer self-care strategies than U.S. elders with chronic pain - Older adults' responses to the face-to-face questions were higher rates of pain compared with the MDS - There was no significant difference number of scheduled analgesic and MMSE scores - Participants had fewer maladaptive beliefs about pain and greater use of relaxation
Green et al., 2009	Cognator/self-concept mode	Behavior coping/psychological and spiritual well-being	<ul style="list-style-type: none"> - A randomized controlled trial - $n = 46$ experimental and $n = 49$ wait-list control participants who suffered from musculoskeletal pain 	<ul style="list-style-type: none"> - Older adults in the treatment group took 10-week pain management program - Older adults in the wait-list group were administered the CSQ at baseline and again 10 week following at the baseline measure - The JAREL Spiritual Well-Being Scale 	<ul style="list-style-type: none"> - Older adults' pain prevalence was 50.0%, and the average number of pain sites was 3.9 ($SD = 5.8$) - The mean of pain intensity was 3.1 ($SD = 1.8$) and pain interference was 2.8 ($SD = 2.1$) - Taiwanese older adults reported to have fewer self-care strategies than U.S. elders with chronic pain - Older adults' responses to the face-to-face questions were higher rates of pain compared with the MDS - There was no significant difference number of scheduled analgesic and MMSE scores - Participants had fewer maladaptive beliefs about pain and greater use of relaxation
Chiou et al., 2009	Contextual stimuli/role function mode/self-concept mode	Background demographic factors, function status, and psychological and spiritual well-being	<ul style="list-style-type: none"> - A cross-sectional design - $n = 141$ older adults with either rheumatoid arthritis or osteoarthritis from two medical centers in northern Taiwan 	<ul style="list-style-type: none"> - Background information, the Barthel Index - The RADAR - GDS and LSIA - The IES-CP 	<ul style="list-style-type: none"> - Older adults' pain prevalence was 50.0%, and the average number of pain sites was 3.9 ($SD = 5.8$) - The mean of pain intensity was 3.1 ($SD = 1.8$) and pain interference was 2.8 ($SD = 2.1$) - Taiwanese older adults reported to have fewer self-care strategies than U.S. elders with chronic pain - Older adults' responses to the face-to-face questions were higher rates of pain compared with the MDS - There was no significant difference number of scheduled analgesic and MMSE scores - Participants had fewer maladaptive beliefs about pain and greater use of relaxation

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Table 1. Continued.

Author/year	Theory/concept	Definition of the middle-range theory concept	Design/sample size/ characteristics	Instruments	Results
Morone et al., 2008	Cognator	Religious/nonreligious coping strategies	<ul style="list-style-type: none"> - A randomized controlled trial - Intervention group: 19 older adults with musculoskeletal pain (9 males, 10 females), the mean age was 74 years old - Control group: 18 older adults with musculoskeletal pain (7 males, 11 females) 	<ul style="list-style-type: none"> - An 8-week mindfulness-based meditation program or to a wait-list control group 	<ul style="list-style-type: none"> - Meditation group meditated on average 4.3 days/week, 31.6 minutes/day - The intervention group showed significant improvement in the Chronic Pain Acceptance Questionnaire Score and Activities Engagement Subscale ($p = .008$, $p = .004$) and Short Form-36 Physical Function ($p = .03$) when compared with the control group
Asghari and Nicholas, 2006	Focal stimuli/cognator	Pain intensity, belief, and behavior coping strategies	<ul style="list-style-type: none"> - A prospective study - $n = 145$ with chronic pain at pain center in the hospital in Australia 	<ul style="list-style-type: none"> - The NEO-Personality Inventory-Revised - Three measures of pain-related beliefs - Pain Catastrophizing scale of the Coping Strategy Questionnaire 	<ul style="list-style-type: none"> - Of the five personality dimensions studied, only neuroticism was associated with the pain-related variables - Neuroticism was a significant predictor of residualized change in pain self-efficacy beliefs and pain control appraisals over the time of the study - Neuroticism was not a significant predictor of residualized change in catastrophizing responses over the same period - 52% of all participants had daily pain, with 26% reporting agonizing pain - Logistic regression controlling for other sociodemographic factors found that rural residence was significantly associated with the reporting of pain ($OR = 1.42$, 95% CI [1.1, 1.9], $p = .02$) - Pain medications were used by 35% of older adults with pain and by 17% without pain ($p < .001$) - OTC pain medications were used by 52% of older adults with pain and by 45% of older adults without pain ($p = .06$) - 85% of all participants were experiencing pain; 50% ($n = 13$) were not taking any analgesic medication, and the rest were taking paracetamol ($n = 9$) or coanalgesics (codeine and paracetamol; $n = 4$) - The range of pain conditions including arthritis, hip pain, multiple pains, and leg ulcers - Arthritis affected 45% ($n = 12$) of all participants
Sawyer et al., 2006	Focal stimuli/contextual stimuli	Pain intensity and background demographic factors	<ul style="list-style-type: none"> - A population-based, prospective, and a observational study - $n = 1,000$ older adults with chronic pain in the UAB Study of Aging 	<ul style="list-style-type: none"> - Sociodemographic factors - Disease burden using the physician questionnaires or by review of a hospital discharge summary - Pain assessment using VDS - Medication use were asked to all medication, both prescription and nonprescription 	<ul style="list-style-type: none"> - A semistructured format that consisted of the questions of CSQ regarding their past and current pain and medical history - Further questions were associated with the ways of coping with pain and pharmacological interventions
Schofield, 2006	Focal stimuli/cognator	Pain intensity and nonreligious coping strategies	<ul style="list-style-type: none"> - A pilot study - $n = 216$ older adults were randomly selected from six care homes within a district of the United Kingdom 	<ul style="list-style-type: none"> - A semistructured format that consisted of the questions of CSQ regarding their past and current pain and medical history - Further questions were associated with the ways of coping with pain and pharmacological interventions 	<ul style="list-style-type: none"> - A semistructured format that consisted of the questions of CSQ regarding their past and current pain and medical history - Further questions were associated with the ways of coping with pain and pharmacological interventions

(continued)

Table 1. Continued.

Author/year	Theory/concept	Definition of the middle-range theory concept	Design/sample size/ characteristics	Instruments	Results
Barry et al., 2004	Focal stimuli/contextual stimuli	Pain intensity and background demographic factors	<ul style="list-style-type: none"> - A cross-sectional study - $n = 272$ community-dwelling older adults with musculoskeletal pain, aged 73 years or older in New Heaven 	<ul style="list-style-type: none"> - Background demographic questionnaires - Assessment of participants' pain status and pain reduction strategies 	<ul style="list-style-type: none"> - Age and gender were independently associated with any of pain-reduction strategies - 91% of participants reported at least one effective strategy for reducing pain, and 60% rated their pain as "quite a bit" or "extremely" bothersome - 59% of all participants used analgesic medication; 38% of all participants had activity restriction; 28% of all participants used hot or cold modalities
Carson et al., 2005	Cognator	Religious/nonreligious coping strategies	<ul style="list-style-type: none"> - A randomized controlled trial - $n = 43$ patients with low-back pain, mean age 51.1 years, mean of pain duration = 148.46 months 	<ul style="list-style-type: none"> - An 8-week loving-kindness meditation program for chronic low-back pain patients 	<ul style="list-style-type: none"> - Follow-up analyses showed significant improvements in psychological distress and pain with participants in the loving-kindness group - More loving-kindness practice on a given day was associated with lower pain that day and lower anger the next day
Kemp et al., 2005	Focal stimuli/contextual stimuli/cognator/self-concept mode	Pain intensity, background demographic factors, behavior coping, and psychological well-being	<ul style="list-style-type: none"> - A descriptive study - $n = 235$ adults, age ≥ 65 years old and living in retirement facilities who reported persistent pain 	<ul style="list-style-type: none"> - The demographic data questionnaires - The short-form GDS - A pain management strategies survey 	<ul style="list-style-type: none"> - Pain coping strategies used by > 25% of the participants that were rated moderately or more helpful (i.e., > 2 on a 0 to 4 scale) were—mean (SD)—prayer = 2.9 (0.9), opioids = 2.6 (0.8), regular exercise = 2.5 (1.0), heat/cold = 2.5 (1.0), nonsteroidal anti-inflammatory drugs = 2.4 (1.0), and acetaminophen = 2.3 (1.0)
Tse et al., 2005	Focal stimuli/contextual stimuli	Pain intensity and background demographic factors	<ul style="list-style-type: none"> - A descriptive qualitative study - $n = 44$ older adults in nursing home in Hong Kong 	<ul style="list-style-type: none"> - The demographic data questionnaires - The Brief Pain Inventory - Nonprescription intervention: types, frequency, and perceived effectiveness 	<ul style="list-style-type: none"> - 80% of participants had experienced moderate to severe pain in the previous 3 months - The most common sites of pain were muscles and joints; 35% of subjects reported continuous pain, 27% reported pain associated with activities of daily living, and 38% reported pain during exercise but not at rest - Only a few of the study group had taken prescribed medication to relieve pain, and only 2 of the 44 participants had used a combination of drug and nonprescription intervention for pain relief

(continued)

Table 1. Continued.

Author/year	Theory/concept	Definition of the middle-range theory concept	Design/sample size/ characteristics	Instruments	Results
Dunn and Horgas, 2004	Cognator	Religious and nonreligious coping strategies	<ul style="list-style-type: none"> - A cross-sectional study - <i>n</i> = 200 community-dwelling older adults with chronic pain from 11 senior centers, 2 senior apartment complexes, 1 Health-O-Rama, and 1 volunteer center in the Detroit metropolitan area 	<ul style="list-style-type: none"> - Four dimensions of self-rated pain questions (presence, duration, location, and intensity) - Nonreligious pain coping strategies using a modified version of the CSQ (e.g., diverting attention, using self-statements, and catastrophizing) - Religious coping strategies using the short-form RPS 	<ul style="list-style-type: none"> - On average, pain level of participants was moderate intensity - Older adults report using a repertoire of pharmacologic and nonpharmacologic strategies to manage their chronic pain - Older women and older people of minority racial background reported using religious coping strategies to manage their pain more often than did older Caucasian men - Older women also reported using diversion and exercise significantly more often than did older men

Note. PSM = pain self-management; EAC = exercise-attention control; WL = waiting list; IES-CP = Inventory of Functional Status Chronic Pain; OR = odds ratio; CI = confidence interval; BPIC = Brief Pain Inventory-Chinese version; MMSE = Mini-Mental State Exam; MDS = minimum data set; CSQ = Coping Strategies Questionnaire; RADAR = Rapid Assessment of Disease Activity in Rheumatology; GDS = Geriatric Depression Scale; LSIA = Life Satisfaction Index A; VDS = Verbal Descriptor Scale; OTC = over-the-counter; RPS = Religious Problem-Solving Scale; UAB = The University of Alabama at Birmingham.

Ritchie, & Allman, 2006); 3 were case-control designs (Barry et al., 2004; Chiou et al., 2009; Goyal et al., 2010); 3 were descriptive observational designs (Gong, Li, Li, & Mao, 2013; Kemp, Ersek, & Turner, 2005; Tsai, Liu, & Chung, 2010); 2 were cross-sectional designs (Dunn & Horgas, 2004; Tse & Ho, 2013); 2 were longitudinal designs (Cornally & McCarthy, 2011; Decker, Culp, & Cacchione, 2009); and only 1 study was a pilot design (Schofield, 2006).

Participants

Participants in all studies were older adults. The ages of the samples in all studies were between 60 and 90 years old. Eleven articles were reports of studies of pain management among American older adults (Asghari & Nicholas, 2006; Barry et al., 2004; Carson et al., 2005; Cornally & McCarthy, 2011; Decker et al., 2009; Dunn & Horgas, 2004; Goyal et al., 2010; Green et al., 2009; Kemp et al., 2005; Morone et al., 2008; Sawyer et al., 2006). Six articles were reports of studies of pain management among Chinese older adults (Chiou et al., 2009; Gong et al., 2013; Tsai et al., 2010; Tse & Ho, 2013; Tse, Pun, & Benzie, 2005; Tse et al., 2013). Two articles were reports of studies of pain management among older adults in Finland (Halla-aho et al., 2013; Pokela et al., 2010). Two articles were reports of studies of pain management among older adults in the United Kingdom (Mallen et al., 2013; Schofield, 2006). Only one article was a report of studies of pain management among older adults in Sydney, Australia (Nicholas et al., 2013). The sample sizes ranged from 13 to 2,000 participants. Most participants in all articles were more likely to be female, unmarried, obese, and with less education. The most common chronic pain conditions studied were chronic lower back pain, headache and migraine, arthritis, and fibromyalgia. Most pain levels in all studies were mild to moderate intensity.

Pain Interventions

This scoping review showed a variety of pain management interventions, as can be seen in Table 1. Most interventions were associated with the RAM. According to the concept of the assessment of stimuli in the RAM, 15 studies related to the concept of focal stimuli (Asghari & Nicholas, 2006; Barry et al., 2004; Decker et al., 2009; Dunn & Horgas, 2004; Gong et al., 2013; Halla-aho et al., 2013; Kemp et al., 2005; Mallen et al., 2013; Nicholas et al., 2013; Pokela et al., 2010; Sawyer et al., 2006; Schofield, 2006; Tsai et al., 2010; Tse et al., 2005, 2013). The focal stimulus in these studies was represented by pain intensity. VDS were used to measure pain intensity in nine studies (Asghari & Nicholas, 2006; Barry et al., 2004; Kemp et al., 2005; Mallen et al., 2013;

Pokela et al., 2010; Sawyer et al., 2006; Schofield, 2006; Tsai et al., 2010; Tse et al., 2013). In all nine studies, researchers used the VAS by asking clients to describe their pain by using four reference points including current pain, least pain levels in the last week, worst pain levels in the last week, and average pain levels in the last week (Tan et al., 2004). Assessing pain levels in the last week creates the total pain index conceptualized as the focal stimuli in the conceptual model. In addition, the NRSs were used to assess pain intensity in five studies (Dunn & Horgas, 2004; Gong et al., 2013; Halla-aho et al., 2013; Nicholas et al., 2013; Tse et al., 2005). The NRS can be used to measure the level of pain intensity. NRSs measure pain intensity by asking clients to rate their pain levels by reporting a numerical value with 0 meaning *no pain* and 10 indicating the *worst pain* (Tan et al., 2004). Face-to-face questions were used to measure pain levels in only one study (Decker et al., 2009). Researchers in this study showed older adults pictures of faces with different emotions and asked the older adults to indicate which face best represents their pain level (Decker et al., 2009).

Furthermore, nine studies included concepts that represent the RAM concept of contextual stimuli. These articles used background data sheets to assess demographic factors such as age, gender, racial differences, and social status that measure pain intensity and coping ability among older adults. (Barry et al., 2004; Chiou et al., 2009; Cornally & McCarthy, 2011; Gong et al., 2013; Halla-aho et al., 2013; Kemp et al., 2005; Pokela et al., 2010; Sawyer et al., 2006; Tse et al., 2005).

Regarding the interventions of the cognator subsystem of the coping process, 11 studies related to the concept of cognator (Asghari & Nicholas, 2006; Carson et al., 2005; Cornally & McCarthy, 2011; Dunn & Horgas, 2004; Goyal et al., 2010; Green et al., 2009; Kemp et al., 2005; Morone et al., 2008; Pokela et al., 2010; Schofield, 2006; Tse et al., 2013). The cognator in these studies was represented by religious and nonreligious coping strategies. Only one article used both religious and nonreligious coping techniques (Dunn & Horgas, 2004). Religious coping strategies composed of the use of prayer, reading the Bible, attending religious services, listening to religious programs, and seeking counsel from clergy (Pargament, 1997). The short-form Religious Problem-Solving Scales were used to assess the frequency of using religious techniques to cope with pain. This form included 18-item scales that were composed of three religious coping subscales: self-directive, collaborative, and defining (Pargament, 1997). In addition, three studies used mindfulness medication techniques as an intervention to cope with chronic pain (Carson et al., 2005; Goyal et al., 2010; Morone et al., 2008). Two RCTs used 8-week meditation

programs with 1.5-hour weekly sessions. Half of each session covered mindfulness meditation including body scan, sitting, lying, and walking meditation, and the other half session was dedicated to discussion and education (Goyal et al., 2010; Morone et al., 2008). One RCT used 8-week loving-kindness meditation (concentration meditation) with 90-minute group sessions conducted at Duke University. Each session was dedicated to the actual feeling of love and kindness in the present moment, then gave a positive feeling as best as possible toward a loved one and toward oneself, and finally had meditation with attention to any positive feeling at the end of session (Carson et al., 2005).

In addition, eight articles used nonreligious coping strategies (Asghari & Nicholas, 2006; Cornally & McCarthy, 2011; Dunn & Horgas, 2004; Green et al., 2009; Kemp et al., 2005; Pokela et al., 2010; Tsai et al., 2010; Tse et al., 2013). Nonreligious coping strategies in these studies include exercising, resting, and using heat and cold (Dunn & Horgas, 2004). Five studies used the Coping Strategies Questionnaire (CSQ) to assess pain coping (Asghari & Nicholas, 2006; Dunn & Horgas, 2004; Kemp et al., 2005; Schofield, 2006; Tse et al., 2013). The CSQ was developed by Rosenstiel and Keefe (1983) to assess coping strategies among people with chronic low-back pain, measuring six cognitive and two behavioral coping strategies including Reinterpreting Pain Sensation, Diverting Attention, Coping Self-Statements, Praying or Hoping, Ignoring Pain Sensations, Catastrophizing, Increasing Pain Behaviors, and Increasing Activity Level. The CSQ are grouped into three scales including Cognitive Coping and Suppression, Praying, and Helplessness and Diverting Attention (Kraaimaat & Evers, 2003). Only one study used self-management strategies using self-report, open-ended, and semistructured questionnaires about coping with pain by themselves (Tsai et al., 2010).

There were six studies that used instruments that related to the concept of self-concept mode (Chiou et al., 2009; Green et al., 2009; Kemp et al., 2005; Nicholas et al., 2013; Tse & Ho, 2013; Tse et al., 2013). The self-concept mode in these studies was represented by psychological and spiritual well-being. Three studies used the short-form GDS as intervention to assess psychological and spiritual well-being (Chiou et al., 2009; Kemp et al., 2005; Tse et al., 2013). The short-form GDS is one empirical indicator of the adaptive modes in this model that is used to screen the presence of depressive symptoms in older adults (Yesavage et al., 1982). Older adults were asked to answer "yes" or "no" to describe how they felt about last week. This empirical instrument summed 15 items for total depression score. The score of more than five indicate the depressive symptoms (Yesavage et al., 1982). Moreover, the JAREL Spiritual Well-Being Scale was

used to measure psychological and spiritual well-being in three studies (Green et al., 2009; Nicholas et al., 2013; Tse & Ho, 2013). The JAREL Spiritual Well-Being Scale developed by Hungelmann et al. (1996) can be used to assess the level of spiritual well-being and the relationship between lifestyle and spiritual beliefs. Older adults were asked to describe their beliefs over the past week. In this empirical instrument, seven-item subscales were analyzed to measure a total score.

Furthermore, three studies had interventions that were associated with the concept of role function (Chiou et al., 2009; Pokela et al., 2010; Tse et al., 2013). All of them used the Inventory of Functional Status-Chronic Pain to measure functional ability including 57 items with 7 subscales assessing the frequency of pain that affected the client's participation in household, childcare, social and community, care of parents or dependent family members, personal care, and educational and work activities during the previous 2 weeks (Vallerand, 1998).

Outcomes

The primary outcomes reported in all articles were the reduction of pain due to interventions and an increase in coping with chronic pain. The secondary outcome measures reported in all studies were the improvement of physical function, quality of life, sleep disturbance, and psychological health related to pain management interventions among older adults.

Discussion

The objectives of this study were to report the results of a scoping review of the existing literature about chronic pain management among older adults, to illustrate the strengths and limitation of the literature, to identify gaps in the literature, and to recommend future research about pain management in older adults. Pain management in older populations is a challenge not only because of the various meanings of pain but also because of the differing responses to treatments (Reid et al., 2015). With reference to the aims of this study, 22 publications were included. Two outcome measures were found in this scoping review. The first outcome was that chronic pain management could decrease pain intensity. Another was that chronic pain management could improve physical function and health related to quality of life and reduce depressive symptoms. Both nonpharmacologic and pharmacologic pain management interventions in all reviewed studies led to improvement in coping with pain, quality of life, physical function, and psychological and spiritual well-being in older adults. Regarding pharmacology, of the studies identified, there were a variety of pharmacologic agents used in

treating pain in older adults including analgesics, psychiatric medications, and a number of adjuvant medications. However, selection of drug therapy requires an understanding of age-related pharmacodynamics and pharmacokinetic changes and needs to take into account any coexisting diseases and use of over-the-counter medications (Haslam & Nurmikko, 2008; Pokela et al., 2010). Age-related alterations in drug distribution, excretion, and metabolism may lead to a longer duration of action and decreased or increased plasma concentration for many pain medications. These aging changes may contribute to increased responsiveness or sensitivity to opioids and other analgesics, with an accompanying increased risk of adverse reactions and drug toxicity (McDonald, Coughlin, & Jin, 2018; McLean & LeCouteur, 2004). The studies showed that older adults are also the most susceptible to adverse effects of pharmacologic treatment, which increase polypharmacy, multiple morbidities, physiologic vulnerability, and functional impairment (Pokela et al., 2010; Sawyer et al., 2006). As a result, physicians may be hesitant to prescribe pain medications to older adults (Bressler & Bahl, 2003; Kaye et al., 2010).

According to nonpharmacologic approaches, all studies found that nonpharmacologic interventions lead to improvement in pain acceptance. Nevertheless, some studies showed little evidence for actual documented reduction in pain intensity. For example, in the experimental studies, three RCTs showed no difference in the outcome between the mindfulness meditation group and a wait-list control group in pain intensity after the end of the program and after 1-month follow-up (Carson et al., 2005; Green et al., 2009; Morone et al., 2008). However, while the level of chronic pain did not always decrease, other outcomes such as quality of life and psychological and spiritual well-being could improve as a result of mindfulness meditation interventions (Carson et al., 2005; Green et al., 2009; Morone et al., 2008; Nicholas et al., 2013). One benefit of nonpharmacologic techniques found that there was a decrease in the use of pain medications (Pokela et al., 2010; Schofield, 2006; Tse et al., 2013). Moreover, it could be a benefit to the quality of sleep and reduce the use of sleep medication (Carson et al., 2005; Goyal et al., 2010). In physical function outcome, there was a significant improvement in one experimental study by Morone et al. (2008) about mindfulness meditation in older adults. To follow-up the study, Morone et al. (2008) reported that mindfulness meditation can improve the psychological well-being as seen by improved coping ability and reduced measure of disability after completing the program. In addition, older adults also continued to meditate at 4-month follow-up.

In observational studies, there were differences in results in improvement in coping with chronic pain and physical function across the population. Patients with

osteoarthritis showed the largest treatment effects for psychological distress and health-related quality of life (Chiou et al., 2009; Schofield, 2006). However, patients with severe headaches and migraines showed the smallest improvement in pain and health-related quality of life (Decker et al., 2009; Tse et al., 2013). Therefore, while pain management interventions-related changes in psychosocial and physical variables appear for older adults with different chronic pain conditions, the outcomes within the same pain management interventions intervention can vary by diagnosis (Blomqvist, 2003). In addition, several studies in the observational study did not have a control group. For example, the study of Goyal et al. (2010) was an observational study without a control group. Hence, it is possible that the samples may have experienced spontaneous improvement in chronic pain, physical and psychological function that was not due to mindfulness meditation intervention (Goyal et al., 2010).

Although all studies have suggested both the pharmacologic and nonpharmacologic approaches can relieve chronic pain, they have several limitations. The first limitation of all studies reviewed is methodology. It could be found that the studies from RCTs had a small sample size ($n=5-10$ per group) to investigate the level of evidence (Carson et al., 2005; Green et al., 2009; Morone et al., 2008). Sample sizes were statistical power and the reliability of effect size in the studies. Therefore, the results may not be generalizable to a wider sample. In addition, there was a lack of randomization of the samples. Hence, large RCTs are needed to investigate the effectiveness of interventions to reduce the risk of bias (Nicholas et al., 2013). The second limitation is using self-report questionnaires in the process of collecting data in all studies which may lead to the subject bias. The samples may answer the questions in the way to prevent embarrassment and can create the answers by themselves (Gong et al., 2013; Tsai et al., 2010). The third limitation is that there was a lack of heterogeneity of disease. There was no study that included specific chronic pain other than chronic lower back pain, fibromyalgia, and headaches. Therefore, common pain syndromes such as neuropathic pain and multiple sclerosis should also be explored in the benefit of pain management strategies. Moreover, older adults with chronic pain often have comorbid conditions such as heart diseases and depression. Hence, researchers should be careful about medical histories that can overlap with symptoms and diagnosis of chronic pain.

Implications for Practice

The findings of this scoping review have a number of implications for further study. First, more field-based

exploration and research on the RAM are required. In particular, the nursing interventions that promote coping with chronic pain and the best time for their implementation need to be explored. Research to assess the benefits of using pharmacological approaches versus nonpharmacological approaches for older adults in each pain severity is also required. Ethical issues are present in each of these pain management situations, and nurses need to be familiar with what the issues are and trained to resolve them.

Nurses spend more time with older adults with chronic pain than any other health-care professionals. Therefore, nurses have a special ethical obligation to respond to all of older adults' needs. Pain management may be a paramount need. Nurses must monitor pain, assess treatment needs, and provide interventions that meet professional standards. Complex ethical issues may be involved at this time. This difficulty often occurs when nurses work with older adults who have undertreated or untreated pain. If the nurse herself is unable to provide appropriate pain treatment, the ethical situation may become acute. Nurses must be prepared with strategies to identify, resolve, and reduce such ethical distress.

The Interagency Pain Research Coordinating Committee (2016) has stated that "Effective pain control strategies emphasize shared decision-making, informed and through pain assessment, and integrated, multimodal, and interdisciplinary treatment approaches that balance effectiveness with concerns for safety" (p. 12). A patient-centered approach can be helpful in reducing the ethical concerns. Nurses are involved in patient decision-making and also play a number of roles in managing pain with elderly patients. Further, they must be advocates for their patients. They consult with the patients to explore treatment options and decide what course to take. Ethical conflict may occur when meeting these diverse roles. Before making a decision, it is important that nurses thoroughly analyze themselves and understand their view of pain in older adults. They must also understand the patient's view of pain and pain management: Who describes the pain? Whose views are paramount? If their answer is the patient, then they are on the proper ethical path (Hicks, 2000).

It has been suggested that the application of moral principles, including beneficence, nonmaleficence, autonomy, and justice, should be key values in managing pain (Carvalho et al., 2018). Beneficence is defined as the duty to do the best thing for an individual while considering what each individual values and desires. This is closely aligned with the principle of nonmaleficence that is the duty not to inflict harm on older adults intentionally or carelessly. The principle of autonomy requires that nurses respect older adults' right to make their own decisions, including decisions about pain treatment. Nurses

should give information and provide choices but be free from exercising controlling influences or attempting too much external pressure. In addition to respecting autonomy, nurses have a responsibility to promote justice in the distribution of health-care resources. Justice refers to equitable and appropriate distribution in society of a health-care services, benefit, and privilege (Carvalho et al., 2018; Seaman & Erlen, 2013).

In practice, nurses prioritize the patient's specific needs by ensuring that each person has an individualized pain management plan with appropriate monitoring to avoid undertreatment or addiction. Nurses need to assess older adults' clinical status and determine what he or she needs to make sure the treatment is appropriate, reasonable, and safe. The ethical principle of beneficence suggests an approach nurses should use when they advocate for older adults. Respect and ethics go hand in hand. Each older adult with pain is a unique combination of particular life events, situations, and culture.

Elderly patients experiencing pain must be seen and treated as unique individuals with unique physical, psychological, social, and spiritual needs. This approach is consistent with principles and assumptions of the RAM. Nurses view the person as both an adaptive system and also as a unique biopsychosocial being. Improvements in pain management therefore need to incorporate a holistic perspective. The personal and ethical knowledge of the nurse are essential components in pain management with older adults.

Conclusion

This study presents the findings of a scoping review using concepts of the RAM that was for assessing and managing of chronic pain in older adults. All studies showed that chronic pain management strategies could help to improve coping with pain, physical function, quality of life, sleep disturbance, and psychological health in older people. Findings from this present study support the conceptualization that chronic pain is a complex multidimensional phenomenon that consists of physiological, psychological, sociological, and spiritual factors. Chronic pain leads to the process of adaptation by activating an immediate coping response in older adults. The RAM will be appropriate to explain chronic pain and adaptation processes in older adults with persistent pain. Moreover, the specific focus of the RAM on older people with chronic pain makes it more applicable in clinical practice. The results from this study advance nursing knowledge in using the RAM in nursing practice to deal with older adults experiencing chronic pain. Hence, nurses need to understand the concepts of the RAM, the process of chronic pain, and the progression of the coping process to improve coping-based intervention strategies based on the RAM to reduce levels of chronic pain and other pain-

related poor outcomes and also improve quality of life in older adults in the near future.

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