

Recreation Therapists' Knowledge and Attitudes toward Pain



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Abstract

The purpose of this study was to explore recreation therapists' (RT) knowledge and attitudes toward pain. A 41-item electronic survey was sent to a randomly selected sample of Certified Therapeutic Recreation Specialists (CTRSs) who were practicing full time. The response rate was 23.9% ($n = 1433$) with 1296 completed surveys. Seven items from the Knowledge and Attitudes toward Pain Survey (Ferrell & McCaffery, 2014) were used to measure respondents' knowledge and attitudes toward client pain. Overall knowledge and attitudes scores were fairly high (82.6% correct). However, several items fell below 80% correct, indicating misperceptions. Low-scoring items included young children have decreased pain sensitivity; accuracy of vital signs to assess pain; those who can be distracted are not in severe pain; and patients may sleep in spite of severe pain. Significant differences in knowledge and attitudes toward pain scores were found by level of training in pain management ($F(3, 1241) = 4.295, p < .01$) and population served ($F(7, 1227) = 2.435, p < .05$). Although there are limitations due to low response rates, the results indicate there are deficits in CTRSs' knowledge and attitudes towards pain. Attitudes impact health care professionals' responses to persons experiencing pain; thus, it is critical that the RT discipline include training in pain management in curricula, continuing education, and daily clinical practice.

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Knowledge and attitudes toward pain, pain management, recreation therapy

Introduction

Most individuals experience some level of pain during their lives. The pain experience is unique to each individual. Pain is one of the main reasons individuals seek medical treatment (Alzghoul & Abdullah, 2016; Clarke et al., 1996; National Center for Complementary and Integrative Health, 2016; Nuseir, Kassab, & Almomani, 2016; Tanabe, Buschmann, & Forrest, 2000). Whether pain is a problem area that recreation therapists (RT) can address is a question that practitioners may not agree upon. A RT's answer will depend on his or her knowledge of and attitudes toward pain. If the therapist defines managing pain in terms of analgesic administration, then the answer would most likely be no; medication administration is not within the scope of practice of a RT. If the RT defines managing pain as a multidimensional and interdisciplinary effort that includes nonpharmacological interventions developed to teach clients to cope with pain, then the answer would be yes, RTs can play a role in assisting clients in managing pain.

When pain is viewed as multidimensional rather than just a physiological response to the pain stimuli, other issues are considered, including the affective response to pain and the cognitive-evaluative response to pain (Moayedid & Davis, 2013). These added dimensions view pain more holistically and present opportunities for nonpharmacological treatments that RTs can provide to clients in regard to managing pain. The multidimensional components of pain are discussed further in the review of literature.

Although research has been conducted on specific RT interventions to manage pain, no research has measured practitioners' knowledge and attitudes toward pain in our discipline. Many of the clients that RTs treat experience some level of pain. However, the extent to which RTs address pain, how RTs have been trained to manage pain, or how their knowledge and attitudes toward pain influence the care they provide is relatively unknown.

Literature Review

Definition of Pain

Pain is a very complex (Cowen, Stasiowska, Laycock, & Bantel, 2015) and difficult concept to define. The definition of pain has changed over time from a singular focus on physiological aspects (e.g., simple neural activation) to the current multidimensional definition (Moayedid & Davis, 2013; Nuseir et al., 2016). The International Association for the Study of Pain (IASP) defined pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage" (Merskey, 1979, p. 250). Pain is subjective in nature. McCaffery and Beebe (1989) defined pain as an individualized experience that is best identified by

the person experiencing pain. They emphasize that health care professionals should respond directly to the client's indication of pain. Client self-report is considered the gold standard when assessing pain (Cowen et al., 2015; Stanley & Pollard, 2013) and should be used whenever it is possible (Merkel & Malviya, 2000).

Other factors play a role in the pain experience, including the intensity, duration, and frequency of pain. The degree and intensity of pain vary from acute to chronic pain. Each person has a different pain threshold. Melzack and Casey (1968) introduced a multidimensional model that identified three dimensions of pain: sensory-discriminative, affective-motivational, and cognitive-evaluative. According to Moayedi and Davis (2013), these dimensions are interrelated. The first dimension is the sensory-discriminative component that comprises the physical qualities of pain, including intensity, location, quality, and duration of pain. The second dimension is the affective-motivational component, which considers the unpleasant nature of the pain experience and an avoidance reaction (fight-or-flight response in Selye's General Adaptation Syndrome, 1936) by the individual. The third component, the cognitive-evaluative dimension, includes the individual's appraisal of the situation, the influence of cultural values, the context of the pain experience, the individual's cognitive state, and distraction. The multiple dimensions of pain illustrate the complex nature of pain.

Another model that can be applied to pain is the biopsychosocial approach (Engle, 1977). This approach recognizes that the client's experience is influenced by a combination of biological, psychological, and social factors. Thoughts and emotions have an impact on the pain experience; there is a dynamic interplay between these three factors which helps to explain why the pain experience is so individualized. The biopsychosocial model was presented as an alternative to the biomedical approach which took into consideration the psychological and social dimensions of illness to humanize care.

Prevalence and Consequences of Pain

According to the 2012 National Health Interview Survey (NHIS), an estimated 126 million Americans (56%) reported some type of pain in the last three months. The American Academy of Pain Medicine (2011) presents a staggering picture regarding the prevalence of pain, noting that pain affects more Americans (100 million) than the next top four illnesses combined: diabetes (25.8 million), heart disease (16.3 million), cancer (11.9 million), and stroke (7.0 million). Estimates vary depending on the source; Nahin (2015) explains that the inconsistencies in estimations of the prevalence of pain stems from the fact that data is typically collected on conditions or events, whereas pain is often viewed as a symptom. Regardless of why estimates of pain vary, RTs can play an important role in treating pain.

Recreation therapists work with many populations that have a high incidence of pain including veterans, children, and older adults. The National Center for Complementary and Integrative Health (2016) indicated that nearly two in three U.S. veterans reported they were in pain (www.ncih.nih.gov). One study in a pediatric hospital found that over three in four ($n = 135$, 76%) children experienced pain in the previous 24 hours; the causes of the reported pain included "needle pokes" (IVs), trauma/injury, surgery, and/or medical procedures (Friedrichsdorf et al., 2015). According to the IASP (Gibson, 2006), chronic pain affects over 50% of older adults living in the community and over 80% of those living in nursing homes.

The consequences of pain on individuals and society can be tremendous. According to the American Academy of Pain Medicine (<http://www.painmed.org>), when pain is not addressed, it may result in longer length of stay, higher rates of rehospitalization, increased number of outpatient visits, and/or a reduction in functional independence. Health care facilities strive to avoid these negative consequences; therefore, untreated or undertreated pain affects not only the individual but society. This leads to lost income and higher health care costs, with the estimated annual cost of pain ranging from \$560 to \$635 billion in the U.S.

Duration of Pain

Pain is usually categorized as acute or chronic (Gatchel, Peng, Fuch, Peters, & Turk, 2007; Hylands-White, Duarte, & Raphael, 2017; Koo, 2009; Kuttner, 2010). The difference between the terms is mainly related to the duration of pain (e.g., how long it is experienced). The onset of acute pain is sudden; pain alerts the person to any potential tissue damage such as a burn or cut and is generally associated with a cause, such as disease or injury (Koo, 2009). Acute pain is relatively short-lived, lasting minutes to weeks or a few months. When the underlying cause of acute pain has been resolved, the pain typically goes away. Chronic pain is pain that endures for six months or longer and can continue even when the underlying cause of pain has been resolved. The pain no longer serves a protective purpose and lasts beyond the expected resolution time. Prolonged pain may change nerve fibers and alter the way pain works (Kuttner, 2010). Some examples of chronic pain include back pain, abdominal pain, sprains, arthritis, and fibromyalgia.

Kuttner (2010) identified another type of pain called persistent pain; this is when an individual has episodes of pain experiences that alternate with recovery (no pain), such as an individual that experiences migraines. Acute and chronic pain are not mutually exclusive. Individuals can experience any or all of these types of pain in any given circumstance. Nahin (2015) identified 17 medical conditions associated with either acute, recurring, or chronic pain; some identified conditions include arthritis, back pain, fibromyalgia, and migraine.

Pain is considered to be on a continuum (Koo, 2009; Mackey, 2015). Acute and chronic pain have historically been viewed as separate entities; however, in reality, this is not always the case as there is overlap. Either acute or persistent pain can develop into chronic pain or they can exist together. For example, someone with chronic pain can experience an acute flare-up of symptoms. Koo (2009) emphasized the need to view pain on a continuum as both components need to be effectively managed. Mackey (2015) suggested that the two categories not be viewed as “discrete buckets” (p. 413); he also advocates for pain treatment to be viewed as a continuum of care.

Pain Management

Pain management (PM) involves a variety of approaches to assist clients to cope with pain including pharmacological and nonpharmacological interventions. In order for a therapist to assist the client in managing pain effectively, a comprehensive assessment is required. Assessment helps identify the symptoms associated with pain and how pain impacts the functioning level of the client. Approaches vary depending on the type of pain experienced (acute pain versus chronic pain). Acute pain typically resolves once the underlying tissue is healed. Interventions are of short duration and

assist the client in dealing with the short-term pain. Approaches to chronic PM focus on long-term interventions; assessment and treatment interventions must consider the effects of emotional distress, pain behaviors that have developed, evidence of catastrophizing, anticipation of pain, as well as any protective qualities such as perceived control, self-efficacy and resilience (Gatchel et al., 2007). The focus is for the client to learn to adjust to chronic pain and learn coping skills that will provide some relief of the pain symptoms. Goals that can be established in PM for chronic pain include to: improve functioning, reduce fatigue, provide comfort (reducing pain when eliminating pain is not realistic), improve coping skills, improve quality of life, and resume as many normal activities as possible. In acute and chronic pain, both pharmacological and nonpharmacological management should be used. Nonpharmacological interventions may include relaxation, imagery, coping skills, education, distraction, optimizing health and well-being, biofeedback, cognitive behavioral therapy, self-help strategies, and restore/recondition physical, social, and recreational functioning (American Pain Society, 2011).

Despite research findings showing that pain is often undertreated, and the development of JCAHO standards of care on PM over 15 years ago (Phillips, 2000), recent studies continue to report that individuals are “needlessly suffering” (Nuseir et al., 2016, p. 1). Nuseir and colleagues suggest all treatment team members address PM. The recommendation implies that the traditional role of nursing and medication management should move toward a more inclusive comprehensive pain management approach that involves all treatment team members including RT. This includes the use of nonpharmacological approaches to complement the pharmacological interventions. Many RT interventions can effectively address PM in clients. Some examples of studies of RT interventions to manage pain include: therapeutic massage reduced pain and anxiety in participants (Brownlee and Dattilo, 2002), guided imagery reduced client reported pain (Bonadies, 2004, 2009, 2010; Di Giovanni & Piatt, 2016), a case study found aquatic therapy reduced pain in a client with fibromyalgia (Mobily & Verburg, 2001), and biofeedback managed chronic pain (McKee, 1984).

Knowledge, Attitudes, and Practices Defined

Knowledge, attitudes, and practices (KAP) surveys are used to highlight any misunderstandings or erroneous beliefs that an individual has on a particular topic that may present possible barriers to changing behaviors (Alzghoul & Abdullah, 2016; Gumucio et al., 2011). It is important to define each of these terms as this study explores knowledge and attitudes toward pain and PM. According to the KAP Survey Model (Gumucio et al., 2011), knowledge is defined as an individual’s understanding of a topic such as information or facts. Attitude is defined as the point of view of an individual or beliefs the individual has developed on a particular topic which influence decisions the person makes. Practice is defined as observable behaviors or actions of a person in a given situation. According to the KAP model, attitudes and knowledge impact a professional’s practice. Figure 1 illustrates the KAP model.

Alzghoul and Abdullah (2016) identified three types of barriers in PM practices: patient barriers, organizational barriers, and health care professional barriers. It is essential that health care professionals understand that their knowledge and attitudes toward pain influence decisions that are made regarding the care they provide to those in pain (Alzghoul & Abdullah, 2016). Alzghoul and Abdullah found that practitioners

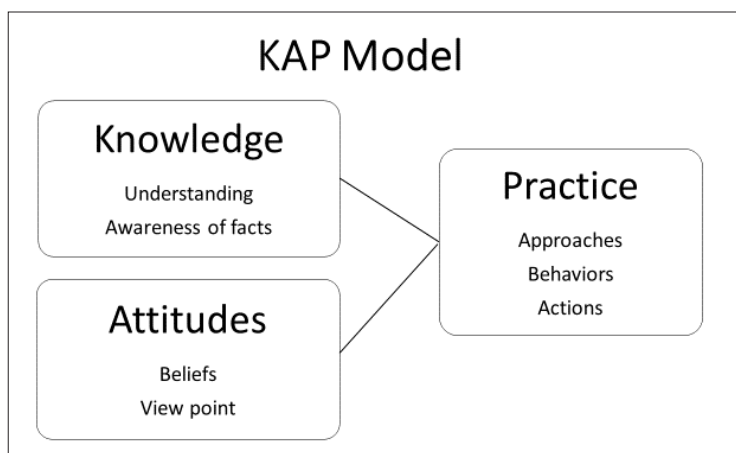


Figure 1. Example of a Knowledge, Attitudes, and Practice (KAP) Model.

with a high knowledge base about pain and a strong, positive attitude toward pain provided more effective pain management practice than those practitioners with a low knowledge base and a weak or negative attitude toward pain.

The KAP model was used in this study to survey a sample of CTRs to evaluate commonly held beliefs and specific factors that influence RTs' behaviors in relation to pain and PM. KAP surveys can reveal cultural beliefs, gaps in knowledge, and possibly identify factors that influence their behaviors in regard to a particular topic (WHO, 2008). The Knowledge and Attitudes Survey Regarding Pain (KASRP, Ferrell & McCaffery, 2014) was used in this study to explore knowledge and attitudes of health care professionals about pain. The development of the KASRP survey was based on the KAP model.

Health Care Professionals Knowledge of Pain

Research investigating knowledge and attitudes toward pain of health care professionals (medicine, nursing, and pharmacy) has occurred over several decades. The KASRP (Ferrell & McCaffery, 2014) was developed in 1987 and is a 40-item instrument. It has been used extensively to measure nurses' (Clarke et al., 1996; Ferrell & McCaffery, 2014; Keen, McCrate, McLennon, Wall & Jones, 2017) as well as other health care professionals' knowledge and attitudes toward pain. Studies of health care professionals indicated that their knowledge of pain was inadequate (Nuseir et al., 2016; Tanabe et al., 2000). Dosages, vital signs, and pharmacology tend to be the items most misunderstood. Additionally, the health care professionals' fear of client addiction to pain medications also reduced their knowledge and attitude scores (Nuseir et al., 2016).

Ferrell and McCaffery (2014) encouraged health care professionals to use the KASRP for educational programs. They state that

...the most benefit to be gained from analyzing the data is in terms of the percentage of complete scores as well as in analyzing individual items...we have

found it very helpful to isolate those items with the least number of correct responses ...to guide your educational needs. (p. 1)

Based on findings of studies on knowledge and attitudes toward pain, McCaffery and Beebe (1989) identified a critical need to re-educate health care professionals in regards to PM. Yet 10 years later, McCaffery and Pasero (1999) continued to call for re-education, as poor understanding of PM remained a barrier. According to Tanabe et al., (2000) the most critical barrier to effectively managing pain is a lack of knowledge about pain and PM.

Attitudes about Pain Influence Care

A health care professional's attitudes toward pain influence the care that is provided to his/her clients. Clarke et al. (1996) found that health care professionals have beliefs and attitudes toward pain that are inappropriate and inaccurate. All disciplines need to be aware of this important finding to ensure that personal opinions/biases do not influence the care of, and/or reaction to, clients experiencing pain. For example, Alzghoul and Abdullah (2016) examined the contribution that knowledge and attitudes have on nurses' PM practices; they used a structural model assessment and found that an individual's knowledge and attitudes accounted for 69% of the variance in PM practices. This highlights the critical importance to educate or re-educate health care providers. Interestingly, attitudes accounted for more variance ($b = 0.578, p < .001$) than knowledge ($b = 0.328, p < .001$). Therefore, it is important to educate all health care professionals, including recreation therapists, about pain and PM. One recommendation was to explore attitudes and misconceptions about pain in order to develop effective PM interventions.

Stumbo (2002) called for RTs to familiarize themselves with the JCAHO pain standards that were developed in 2001 as the standards affected all health care providers. The author provided in-depth information about pain, pain theories, barriers to PM, and recreation therapists' role in PM. While RT research has addressed the efficacy of particular treatment interventions in managing pain, no research to date has examined the knowledge, attitudes, and training that recreation therapists have in regards to PM. Recreation therapists would benefit from understanding the research from other health care disciplines related to practitioners' attitudes toward pain and the influence it has on care provided to clients.

The purpose of this study was to investigate the level of knowledge and attitudes that recreation therapists have in regard to pain and PM. What are recreation therapists' overall knowledge and attitudes toward pain? Do recreation therapists' knowledge and attitudes toward pain differ by level of education, training in PM, years of experience, level of expertise in pain, and/or by the population with which they work? This study also investigated how recreation therapists were trained in PM.

Method

Subjects

After Institutional Review Board approval was received from the university, a request to purchase a sample from National Council for Therapeutic Recreation Certification (NCTRC) was approved, which resulted in a randomly selected sample of 6,000 CTRSs. To be included in this research, individuals had to be active, full-

time CTRs (therapists, supervisors, or administrators) that provided direct care to patients; the purpose was to explore practitioners' knowledge, attitudes, and education regarding pain. According to the NCTRC website, there are currently 15,000 active certificants. NCTRC sent an initial email invitation and one reminder email to the sample described above with a link to the survey in early 2017. The survey took respondents approximately 15 minutes to complete.

Instrument

A 41-item electronic survey was developed by the investigator to determine the current use of RT interventions to manage pain. The survey had several sections or topics that were developed based on review of the PM literature. Survey topics included education and training, knowledge and attitudes, PM as a RT goal, PM interventions, use of evidenced-based practice, and co-treating with other disciplines. Branching was included in the survey so that if respondents indicated they did not use PM as a treatment option, no specific interventions related to PM were asked. The instrument was reviewed by four educators and practitioners with expertise in PM; revisions were made to strengthen the survey prior to dissemination. This study explores the knowledge, attitudes and training sections of the survey. Four demographic questions (i.e., population served, education, job role, years in practice), seven knowledge and attitudes questions, and five training and education in PM questions were also used in this analysis (16 items). These sections are briefly described below.

Knowledge and attitudes of pain. The Knowledge and Attitudes Survey Regarding Pain (KASRP) was developed in 1989 by Ferrell and McCaffery (2014). It is a 40-item survey developed to assess nurses and other health care professionals' knowledge and attitudes toward pain. The instrument has good test-retest reliability ($r > .80$) and internal consistency ($\alpha r > .70$; Ferrell & McCaffery, 2014). Seven items from the original survey were used in this study. The authors encouraged the use of the instrument "in part or in whole" and emphasized identifying individual items that had the lowest scores (lower than 80% correct) to help guide training needs (Ferrell & McCaffery, 2014). Most of the KASRP items focused on pharmacological knowledge and dosages; thus, these items were eliminated because they were not within the scope of practice for RTs. Items 1 – 4, 12, 13 and 31 were used from the original scale. The first six items used a true/false response option and included (a) Vital signs are always reliable indicators of the intensity of a patient's pain, (b) Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences, (c) Patients who can be distracted from pain usually do not have severe pain, (d) Patients may sleep in spite of severe pain, (e) Children less than 11 years old cannot reliably report pain so clinicians should rely solely on the parent's assessment of the child's pain intensity, and (f) Patients' spiritual beliefs may lead them to think pain and suffering are necessary. The last item was a multiple-choice question: "The most accurate judge of the intensity of the patient's pain is:" with the following response categories: the treating physician, the patient's primary nurse, the patient, the pharmacist, or the patient's spouse or family.

Education and training. This section contained five questions intended to determine RTs' level of education and training in pain and PM. The first question asked how respondents learned to use PM as a RT intervention; the list of response options included: it was part of the curriculum taught in college, learned during internship,

on the job training/mentor, attending conferences/workshops, self-taught, not trained in this intervention, do not use in practice, or other. The second item asked the extent of training they had in PM; the list of response options included: did not have training, minimal training (read about it, brief overview), moderate training (spent 1 to 2 classes on PM), or extensive training (spent several weeks on PM). The third item asked respondents to rate their level of expertise in PM; response options included novice or beginner, advanced beginner, intermediate, advanced, or expert. The last two items were dichotomous variables (yes/no) and asked if respondents felt that PM interventions should be taught in undergraduate curricula and if more workshops and conference presentations were needed on PM.

Data Collection

NCTRC sent out an email notifying individuals about the study, which included a link to the survey for those who wished to participate. The survey was live for four weeks; one reminder invitation was sent approximately halfway through the four-week period. Survey data were captured electronically through REDCap (Research Electronic Data Capture) which is a secure, web-based interface for research studies and provides: (a) collaborative access to data across departments and institutions, (b) real-time data validation, (c) central data storage and back-ups, and (d) data export functions for common statistical packages (Harris et al., 2009); this program is hosted at the home university of the investigator.

Data Analysis

Data were downloaded into SPSS version 21 (IBM Corporation, 2012). Data analysis included percentages, means, and one-way analysis of variance (ANOVA) when appropriate. Analyses were run to determine if there were differences in knowledge and attitudes by level of education, population served, amount of training in PM, expertise in PM, and years of practice. All data were analyzed using the .05 level of significance.

For the seven items on knowledge and attitudes toward pain scale, the responses were recoded to reflect a correct (1) or incorrect (0) response. The seven items were summed to determine the overall number of correct responses for respondents. Percent correct for the overall pain knowledge and attitude score was calculated as well as the percent correct for each individual item.

Results

Demographic Profile

The total response rate in the study was 23.9% ($N = 1433$) with 1,296 completed surveys. This analysis included the 1,296 completed surveys; only those that answered all sections of the survey that were available to them based on their responses to certain questions or who completed the entire survey were used in the analysis. Some individual items may have been skipped by these respondents, for example with the knowledge and attitude questions, only those who completed all seven questions were included in the total score analysis; a total of 1,247 (96%) out of the 1,296 answered all seven questions or 49 respondents did not answer one or more of the seven items and were not included in that analysis. The majority of respondents were female ($n = 1131$, 87.4%) and over 76% ($n = 976$) reported they had a bachelor's degree, 23.8% ($n =$

305) earned a master's degree, and 0.9% earned a doctoral degree. The average number of years certified was 14 years, with a range from less than one year to 42 years. Over two-thirds of respondents ($n = 881$, 68%) stated their primary role was as a therapist. The top three settings where participants were employed included behavioral health ($n = 469$, 36.1%), geriatrics ($n = 373$, 28.6%) and rehabilitation ($n = 236$, 17.9%). See Table 1 for a breakdown of all demographic information by number and percent of respondents.

Knowledge and Attitudes of Pain

The seven items that measured knowledge and attitudes toward pain were recoded then summed to obtain an overall knowledge and attitude score, with a range of possible scores from 0 to 7. The mean overall score was 5.78 out of 7.0. The median and mode scores were both 6.00, indicating that overall knowledge and attitudes among RTs was fairly high. Ferrell and McCaffery (2014) suggested reporting percent correct; the percent correct for the seven items was 82.6% ($n = 1247$) with a range of 0% ($n = 1$) to 100% ($n = 393$).

In addition to looking at the overall percent correct, Ferrell and McCaffery (2014) also recommended evaluating each individual item to determine what pain concepts respondents knew well and what concepts had the least number of correct responses. This evaluation was recommended to enhance teaching and training efforts. Four of the seven items (items 1, 2, 3, and 4) had percent correct scores below 80% (the threshold set by Ferrell and McCaffery). Item 2 had the lowest score with three in five ($n = 787$, 61.8%) respondents answering correctly; the topic addressed children and decreased pain sensitivity. The second lowest scoring item was item 1, in which 73.7% ($n = 947$) respondents answered correctly; the topic addressed vital signs as reliable indicators of pain. Item 3 that dealt with distraction had the third lowest score ($n = 1002$, 78.6%) and Item 4 that dealt with sleeping despite pain also had a score below the 80% threshold ($n = 1013$, 79.2%). The item with the highest overall correct percentage was Item 7 ($n = 1236$, 96.4%) which identified the patient as being the best judge of his/her pain. See Table 2 for the percent correct responses for each item.

An ANOVA was conducted to determine whether knowledge and attitude mean scores differed by level (extensiveness) of training in PM. There were four categories examined: (a) did not have training ($n = 488$), (b) minimal training (read about it, brief overview; $n = 425$), (c) moderate training (spent 1-2 classes on PM; $n = 270$), or (d) extensive training (spent several weeks or more on PM; $n = 62$). There was a statistically significant difference in scores. In this study, the Scheffe post hoc criterion for significance analysis was used as this method provides the most stringent error control (Kim, 2015) and protects against a Type I error. Those who identified having extensive training ($M = 6.13$, $SD = 0.98$) had a significantly higher mean score on knowledge and attitudes than those who reported they had no training ($M = 5.69$, $SD = 1.20$), $F(3, 1241) = 4.295$, $p = 0.005$. Table 3 reports the ANOVA results as well as the post hoc analysis results for knowledge and attitudes by level of training. Knowledge and attitude scores were also significantly different based on the population served. Those who identified as "other" (included pediatrics, community-based settings, correction facilities, and veterans) had significantly higher mean scores ($M = 6.16$, $SD = 1.10$) than those working with individuals who had intellectual or developmental

Table 1*Demographic Information about Respondents*

Characteristic	<i>N</i>	Percent
Gender		
Female	1131	87.4%
Male	163	12.6%
Education		
Bachelor's Degree	976	76.2%
Master's Degree	305	23.8%
Doctoral Degree	11	0.9%
Geographic Location		
Midwest	377	29.2%
Northeast	288	22.3%
Southeast	268	20.8%
Southwest	136	10.6%
Mid-Atlantic	76	5.9%
Northwest	68	5.3%
Canada	55	4.3%
Other	21	1.6%
Population		
Behavioral Health	469	36.2%
Geriatrics	373	28.8%
Rehabilitation	236	18.2%
ID/DD	140	10.8%
Other	77	5.9%
Setting		
Inpatient hospital	515	39.8%
Community	208	16.1%
LTC	203	15.7%
Skilled Nursing	163	12.6%
Other	129	11.4%
Out-patient hospital	58	4.5%
Primary Role as CTRS		
Therapist	881	68.0%
Supervisor	272	21.0%
Administrator	85	6.6%
Consultant	23	1.8%
Other	34	2.4%

disabilities ($M = 5.66$, $SD = 1.24$), $F(4, 1242) = 2.435$, $p = 0.046$. Table 4 reports the ANOVA results as well as the post hoc analysis results for knowledge and attitudes by population served. No significant differences were found by years of experience (0-4 years, 5-9 years, 10-14 years, 15-19 years, 20-24 years, 25-29 years, 30-34 years, 35-42 years) $F(7, 1227) = 0.575$, $p = 0.777$, job role (therapist, supervisor/administrator, other), $F(2, 1244) = 0.24$, $p = 0.976$, level of expertise (novice or beginner, advanced beginner, intermediate, advanced, expert), $F(5, 1240) = 1.800$, $p = 0.110$, or education level (bachelor's, master's), $F(1, 1231) = 3.412$, $p = 0.065$.

Table 2

Percent Correct Scores on Items Measuring Knowledge and Attitudes toward Pain from Low to High Scores

Item	Response Option	Percent Correct (<i>n</i>)
Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful procedures.	T/F	61.8% (787)
Vital signs are always reliable indicators of the intensity of a patient's pain.	T/F	73.7% (947)
Patients who can be distracted from pain usually do not have severe pain.	T/F	78.1% (1002)
Patients may sleep in spite of severe pain.	T/F	79.2% (1013)
Patient's spiritual beliefs may lead them to think pain and suffering are necessary.	T/F	92.9% (1192)
Children less than 11 years old cannot reliably report pain so clinicians should rely solely on the parent's assessment of the child's pain intensity.	T/F	95.3% (1214)
The most accurate judge of the intensity of the patient's pain is:	Physician Nurse Patient Pharmacist Family	96.4% (1236)

Table 3

One-Way Analysis of Variance of Knowledge and Attitudes toward Pain by Level of Training and Scheffe Post Hoc Analysis Results

Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Between Groups	3	16.911	5.637	4.295	0.005
Within Groups	1241	1628.829	1.313		
Total	1244	1645.740			

Scheffe Post Hoc Analysis Results for Knowledge and Attitudes towards Pain by Level of Training

(I) Training	(J) Training	Mean Difference (I – J)	Standard Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
No training	Minimal	-.07383	.07601	.815	-.2866	.1390
	Moderate	-.22999	.08689	.072	-.4732	.0133
	Extensive	-.44051*	.15446	.044	-.8729	-.0081
Minimal	No training	.07383	.07601	.815	-.1390	.2856
	Moderate	-.15617	.08916	.382	-.4058	.0934
	Extensive	-.36668	.15575	.137	-.8027	.0693
Moderate	No training	.22999	.08689	.072	-.0133	.4732
	Minimal	.15617	.08916	.382	-.0934	.4058
	Extensive	-.21051	.16134	.636	-.6622	.2411
Extensive	No training	.44051*	.15446	.044	.0081	.8729
	Minimal	.36668	.15575	.137	-.0693	.8027
	Moderate	.21021	.16134	.636	-.2411	.6622

*The mean difference is significant at the 0.05 level.

Table 4

One-Way Analysis of Variance of Knowledge and Attitudes toward Pain by Population Served and Scheffe Post Hoc Analysis Results

Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Between Groups	4	12.889	3.222	3.601	0.046
Within Groups	1242	1643.781	1.323		
Total	1246	1656.670			

Scheffe Post Hoc Analysis for Knowledge and Attitudes toward Pain by Population Served

(I) Population	(J) Population	Mean Difference (I – J)	Standard Error	Sig.	95% Confidence Interval Lower Bound Upper Bound	
Rehab	Beh Health	.01908	.09342	1.000	-.2691	.3073
	Geriatrics	.01889	.09764	1.000	-.2823	.3201
	ID/DD	.12332	.12465	.913	-.2612	.5078
	Other	-.37491	.15314	.200	-.8473	.0975
Beh Health	Rehab	-.01908	.09342	1.000	-.3073	.2691
	Geriatrics	-.00019	.08155	1.000	-.2518	.2514
	ID/DD	.10424	.11249	.930	-.2428	.4512
	Other	-.39380	.14342	.110	-.8364	.0484
Geriatrics	Rehab	-.01889	.09764	1.000	-.3201	.2823
	Beh Health	.00019	.08155	1.000	-.2514	.2518
	ID/DD	.10443	.11602	.937	-.2535	.4623
	Other	-.39380	.14620	.124	-.8448	.0572
ID/DD	Rehab	-.12332	.12465	.913	-.5078	.2612
	Beh Health	-.10424	.11249	.930	-.4512	.2428
	Geriatrics	-.10443	.11602	.937	-.4623	.2535
	Other	-.49824	.16546	.060	-1.0087	.0122
Other	Rehab	.37491	.15314	.200	-.0975	.8473
	Beh Health	.39400	.14342	.110	-.0484	.8364
	Geriatrics	.39380	.14620	.124	-.0572	.8448
	ID/DD	.49824	.16546	.060	-.0122	1.0087

*The mean difference is significant at the 0.05 level.

Education and Training

To determine respondents training in PM interventions, individuals were asked to check all that apply to the question “how did you learn to use PM as a RT intervention?” One in three ($n = 428$, 33%) respondents received PM training at conferences or workshops, 28.8% ($n = 374$) had on the job training, 25.8% ($n = 299$) were self-taught, 23.1% ($n = 299$) had no training in PM, 22.1% ($n = 286$) did not use PM in practice, 18.9% ($n = 245$) were taught PM as part of their curriculum in college, and 12.8% ($n = 166$) learned PM during their internship. Over half of the respondents selected only one of these seven options ($n = 713$, 55%), 29% ($n = 376$) indicated two options, and 11% ($n = 143$) indicated three options with an average of 1.66 forms of training and a median of 1.00 form of training.

When asked about the extensiveness of training in PM, over one in three ($n = 500$, 38.7%) had no training, 34.4% ($n = 445$) had minimal training, 21.9% ($n = 283$) had

moderate training, and 5% ($n = 64$) had extensive training. These results were similar to ratings of their level of expertise; 38.3% ($n = 495$) indicated no expertise, 31.9% ($n = 413$) were novices or beginners, 13.4% ($n = 173$) rated themselves as intermediate, 11.8% ($n = 153$) were advanced beginners, 4% ($n = 52$) indicated their expertise was advanced, and 0.5% ($n = 7$) noted they were experts. Overall, seven in 10 ($n = 908$, 70.2%) indicated they either had no experience or novice expertise in relation to pain.

For the questions that asked about future education and training efforts, 96.4% ($n = 1241$) respondents indicated that PM interventions should be part of the interventions taught in an undergraduate RT curriculum and 98.1% ($n = 1264$) indicated more workshops or conference presentations on PM should be offered. See Table 5 for results on education and training that report both number and percent of respondents.

Table 5
Responses on the Education and Training Questions

Question	N	Percent
Identify Learning Methods on PM (check all that apply)		
Attended conferences or workshops	428	33.0%
On the job training or mentor	374	28.8%
Self-taught	335	25.8%
Not trained in PM	299	23.1%
Do not use in practice	286	22.1%
Part of curriculum taught in college	245	18.9%
Learned during internship	166	12.8%
Other	26	2.0%
Level of Training in PM		
No training	500	38.7%
Minimal training (read about it; brief overview)	445	34.4%
Moderate training (1-2 classes on PM)	283	21.9%
Extensive training (several weeks on PM)	64	5.0%
Level of Expertise in Using PM as a Treatment Intervention		
No expertise	495	38.3%
Novice or beginner	413	31.9%
Advanced beginner	153	11.8%
Intermediate	173	13.4%
Advanced	52	4.0%
Expert	7	0.5%
Should PM Interventions be Taught in Undergraduate RT Curriculum		
Yes	1241	96.4%
No	47	3.6%
Should More Workshops/Conference Presentations Cover Topic of PM		
Yes	1264	98.1%
No	25	1.9%

Discussion

Knowledge and Attitudes toward Pain

The overall percentage of the respondents' correct knowledge and attitudes toward pain scores in this study was 82.6% ($n = 1247$). This initially seems like a high score considering the scores reported in studies of knowledge and attitudes toward pain of nurses and other health care professionals were often in the 60 to 70% range. However, it should be noted that only a portion of items from the complete KASRP instrument (McCaffery & Bebee, 1989) were used in this study—seven (7) out of 40 items (less than 20%). Most of the items on the KASRP dealt with medication dosages and pharmacology—items that were frequently missed by health care professionals—and not used in this study. It may be reasonable to assume that scores would be similar

or higher for nurses and other health care professionals if only the seven items were compared.

As suggested by Ferrell and McCaffery (2014), individual item scores were reviewed to provide some direction in terms of how to focus training and education on knowledge and attitudes in the RT profession. Results on several items of the knowledge and attitudes toward pain scale had lower percent correct scores than the 80% level suggested by the authors. The items included an age-related question regarding young children, vital signs, distraction, and sleep. This is not surprising as there are many myths about pain (particularly regarding children). The two age groups that are the most misunderstood in relation to pain are children and older adults (Nuseir et al., 2016). So, it is not surprising that there were misconceptions about children as well as distraction. While only a small portion of the respondents indicated they worked with children, recreation therapists should be knowledgeable about all developmental stages. The literature clearly states that our attitudes as professionals influence the care that is provided to clients (Alzghoul & Abdullah, 2016). Therefore, it is imperative that these myths and misperceptions are corrected through education and training. Also, observations of individuals in pain are not as accurate as self-report. Some behaviors that are used to cope with pain, such as sleep and the use of distraction, may often be misinterpreted by professionals as a sign that the individual is not experiencing a high level of pain. Normal vital signs and sleeping are not an indication that the person is not in pain. RTs who understand and utilize PM are better prepared to provide best practices to clients and validate clients when they indicate they are in pain.

In addition to investigating specific gaps in knowledge and attitudes, differences between groups (i.e., level of training, education, population) were investigated in terms of overall scores on knowledge and attitudes; the variable with the strongest difference between groups was level of training. As expected, those with extensive training had significantly higher mean scores on knowledge and attitudes than did those that identified as not having any training. Since almost three in four respondents ($n = 945$, 73.1%) in this study indicated they had no or minimal PM training; this is of concern for the discipline.

Although treatment of pain by RTs did vary by population served, respondents indicated pain was something their clients experienced in all the primary populations of rehabilitation, behavioral health, geriatrics, intellectual and developmental disabilities, and those in the "other" category. Many respondents who worked in geriatrics indicated that although their residents were in pain, they did not address pain; they indicated other disciplines addressed pain in this setting. Exercise is an effective means of managing pain (Tse, Wan, & Ho, 2011; Wang & Feinstein, 2011) and could be easily implemented to address pain with older adults. Tse et al. (2011) found additional benefits of an exercise program; exercise significantly alleviated pain and improved "range of motion" and enhanced "functional mobility and activities of daily living" (p. 640) with residents in nursing homes. There are other pain management techniques that RTs could facilitate that has the potential to yield effective outcomes with older adults. It is essential that RTs working with older adults understand the need to address PM as well as learn how to address pain with their residents.

An interesting finding was that those who worked in rehabilitation settings did not have as high knowledge and attitude scores as expected since this is a setting where many clients experience pain on a regular basis. The respondents with the highest mean

score were those that identified in the “other” category which included pediatrics, community-based settings, veterans, and correctional facilities; these respondents had significantly higher knowledge and attitudes scores than those who reported they worked with individuals with intellectual and developmental disorders. Over half ($n = 40$, 51.9%) of those in the “other” category indicated that PM was a RT goal for their clients compared to 21.7% ($n = 30$) of therapists that worked with individuals with intellectual or developmental disabilities. Two populations in the “other” category—pediatrics and veterans—were the most likely to deal with pain on a regular basis. For example, pediatric diagnoses such as oncology, sickle cell, and procedural or medical procedures that produce pain, create almost daily pain experiences (Czarnecki et al., 2011). In terms of the veteran population, some common diagnoses include PTSD, amputations, and spinal cord injuries where pain would be a primary concern. Due to the low number of respondents in each of these groups (8 to 25), these categories were too small to analyze independently. One potential reason for the low numbers could be that these populations were not listed as options, therefore only those who self-identified these populations were recorded. This study has provided some preliminary information for the discipline to identify what is known in relation to PM and to identify steps that need to be taken to improve knowledge and attitudes toward pain in the RT profession.

Limitations of the Study

Several limitations should be noted in regard to this study. There was a relatively low response rate ($n = 1433$, 23.9%). Time of year (early January, right after the holidays) could have influenced the low response rate. The length of the survey (up to 41 questions) could also have limited participation in the study. In addition, the topic area on pain might have prevented some from participating if they did not use pain management as an intervention or were not trained in PM. This was also a voluntary study, thus those that chose to respond might be very different than the recreation therapists that chose not to respond. The low response rate prevents generalization of the findings of this study.

One additional item on the original KASRP survey should have been used in this study. This item asked “What is the best approach for cultural considerations in caring for patients in pain?” This multiple-choice item determines the health care provider’s knowledge on cultural sensitivity. Since sensitivity to cultural diversity impacts all health care providers, this question would have been appropriate to ask recreation therapists and would have provided important additional information. In future studies, this question should be added to the knowledge and attitudes section of the survey.

The options listed in the populations served item were too limited and did not include community settings, pediatric settings, or veteran settings in the list of options provided. Adding these options could potentially increase the number of respondents who work with these populations and would provide more rich information about differences in PM by population.

Recommendations

Since many of our clients experience some level of pain, and recommendations call for all health care professionals to address pain (Nuseir et al., 2016), education

curricula and trainings via workshops or conferences should include topics on pain and PM to increase the level knowledge and attitudes of recreation therapists. Most respondents indicated that PM was within the scope of practice of RTs, but the fact that many do not use PM as a clinical outcome appears to be a lack of training and knowledge on pain. Education and training of RTs in PM could have a significant impact on the clients we serve.

Attitudes can impact health care professionals' responses to clients when they are in pain, so it is critical that RTs begin to address this deficit in our teaching, continuing education programs, and in our daily clinical practice. There were several items on the knowledge and attitudes scale that had lower correct response rates that should be emphasized in training in academic curricula and conferences or workshops. The low scoring items focused on vital signs, young children have decreased pain sensitivity, distraction, and sleep. It is imperative that RTs have a thorough understanding about pain as there are many myths that surround the concept of pain that could have a negative impact on the interactions therapists have with clients who experience pain.

Education and training in pain and PM should be a consideration of the discipline since three in four respondents indicated they had little or no training on this topic. For future professionals, undergraduate and graduate curricula should consider teaching one or more modules on pain and identify evidence-based RT interventions that are effective in managing pain in the clients we serve. Although there were differences in knowledge and attitudes toward pain by population served, therapists working with all the populations indicated their clients experienced pain. For practitioners, workshops and conference presentations should be developed to provide training on pain and PM. Research and publications on pain and PM should also continue as another avenue to educate RTs on this topic. Pain education programs developed for nurses have been shown to increase their knowledge and attitudes regarding pain (Keen et al., 2016), so it stands to reason that the impact would be similar for recreation therapists.

According to the Institute of Medicine of the National Academies (2011) "major gaps" in knowledge regarding pain exists not only in health care providers but society in general. They call for a "redesign" of education programs. Undergraduate and graduate training programs should provide "standardized information about pain and include experience in caring for pain in interprofessional settings" (p. 3).

Suggestions in the literature to address knowledge and attitudes regarding pain (Tanabe et al., 2000) included developing PM protocols; interdisciplinary protocols would be ideal but, if not, RT programs should develop protocols to standardize the approach used with clients. Protocols set clear and consistent standards; those with expertise in this area can mentor those who are not trained. Some PM protocols for RT interventions already exist (Bonadies, 2009, 2010; Di Giovani & Piatt, 2016; Stumbo & Kinney, 2011). Second, pain practice groups (Clarke et al., 1996) could be developed; this is another excellent suggestion that could take on an interdisciplinary focus/approach at agencies that combine pharmacological and nonpharmacological approaches to address pain. A third suggestion was to develop state or national pain practice group(s) for recreation therapists to provide support to practitioners who use PM in practice. Education and training are essential to support the use of PM in RT practice.

Additional research needs to be conducted on this topic as the response rate for this study prevented generalization of the findings. Information from this study can

provide preliminary information and guidance for future studies. Addressing some of the limitations in future studies would provide more insight into this topic.

References

- Alzghoul, B. I., & Abdullah, N. A. C. (2016). PM practices by nurses: An application of the knowledge, attitude, and practices (KAP) model. *Global Journal of Health Science*, 8, 154–160.
- American Pain Society. (2011). Pain monograph: Section IV: Management of acute pain and chronic noncancer pain. Retrieved from http://americanpainsociety.org/uploads/education/section_4.pdf
- Bonadies, V. (2004). A yoga therapy program for AIDS-related pain and anxiety: Implications for therapeutic recreation. *Therapeutic Recreation Journal*, 38(2), 148–166.
- Bonadies, V. (2009). Guided imagery as a therapeutic recreation modality to reduce pain and anxiety. *Therapeutic Recreation Journal*, 43(2), 43–55.
- Bonadies, V. (2010). Guided imagery to reduce pain. *Annual in Therapeutic Recreation*, 18, 164–174.
- Brownlee, S., & Dattilo, J. (2002). Therapeutic massage as a therapeutic recreation facilitation technique. *Therapeutic Recreation Journal*, 36, 369–381.
- Clarke, E. B., French, B., Bilodeau, M. L., Capasso, V. C., Edwards, A., & Empoliti, J. (1996). PM knowledge, attitudes, and clinical practice: The impact of nurses' characteristics and education. *Journal of Pain and Symptom Management*, 11, 18–31.
- Cowen, R., Strasiowska, M. K., Laycock, H., & Bantel, C. (2015). Assessing pain objectively: The use of physiological markers. *Anaesthesia*, 70, 828–847. doi:10.1111/anae.13018
- Craig, J. A. (2014). Nursing knowledge and attitudes toward PM. *Nursing Theses and Capstone Projects*. Paper 8.
- Czarnecki, M. L., Turner, H. N., Collins, P. M., Doellman, D., Wrona, S., & Reynolds, J. (2011). Procedural pain management: A position statement with clinical practice recommendations. *PM Nursing*, 12(2), 95–111.
- Di Giovanni, V. I., & Piatt, J. A. (2016). Evidenced based protocol: Guided imagery: A therapeutic intervention for clients with chronic lower back pain. *Annual in Therapeutic Recreation*, 23, 64–72.
- Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science*, 196(4286), 129–136.
- Evidence-based Practice Center Systematic Review Protocol. (2017). Noninvasive, nonpharmacological treatment for chronic pain. Retrieved from www.effective-health.care.ahrq.gov.
- Ferrell, B., & McCaffery, M. (2014). Knowledge and attitudes survey regarding pain. Retrieved from [http://prc.coh.org/Knowledge%20%20&%20Attitude%20Survey%207-14%20\(1\).pdf](http://prc.coh.org/Knowledge%20%20&%20Attitude%20Survey%207-14%20(1).pdf).
- Friedrichsdorf, S. J., Postier, A., Eull, D., Weldner, C., Foster, L., Gilbert, M., & Campbell, F. (2015). Pain outcomes in a U.S. children's hospital: A prospective cross-sectional survey. *Hospital Pediatrics*, 5, 18–26. doi: 10.1542/hpeds.2014-0084
- Gatchel, R. J., Peng, Y. B., Fuchs, P. N., Peters, M. L., & Turk, D. C. (2007). The biopsychosocial approach to chronic pain: Scientific advances and future directions. *Psychological Bulletin*, 133(4), 581–624. doi: 10.1037/0033-2909.133.4.581

- Gibson, S. J. (2006). International Association for the Study of Pain. Facts on pain in older persons. Retrieved from <https://s3.amazonaws.com/rdcms-iasp/files/production/public/Content/ContentFolders/GlobalYearAgainstPain2/20062007PaininOlderPersons/fspainolderpersons.pdf>
- Gumucio, S., Merica, M., Luhmann, N., Fauvel, G., Zompl, S, Ronsse, A....du Monde, M. (2011). KAP Survey Model (Knowledge, attitude and practices). Retrieved from file:///C:/Users/jskinney/Downloads/47-the-kap-survey-model-knowledge-attitude-practices%20(1).pdf
- Harris, P., Taylor, R., Thielke, R., Payne, J., Gonzalez, N., & Conde, J. (2009). Research electronic data capture (REDCap): A metadata-driven methodology and workflow process for providing translational research informatics support. *Journal of Biomedical Informatics*, 42, 377–381.
- Hylands-White, N., Duarte, R. V., & Raphael, J. H. (2017). An overview of treatment approaches for chronic pain management. *Rheumatology International*, 37(1), 29–42. doi:10.1007/s00296-016-3481-8
- Institute of Medicine of the National Academies. (2011). *Relieving pain in America: A blueprint for transforming prevention, care, education and research*. Report Brief, June 2011.
- IBM Corp. (2012). *IBM SPSS Statistics for Windows, Version 21.0*. Armonk, NY: IBM Corp.
- Keen, A., McCrate, B., McLennon, S., Wall, D., & Jones, S. (2017). Influencing nursing knowledge and attitudes to positively affect care of patients with persistent pain in the hospital setting. *PM Nursing*, 18, 137–143.
- Kim, H. Y. (2015). Statistical notes for clinical researchers: Post-hoc multiple comparisons. *Restorative Dentistry & Endontics*, 40(2), 172–176.
- Koo, P. J. (2009). The pain continuum: From acute treatment to chronic management. *Advanced Studies in Pharmacology*, 6(4), 94–99.
- Kuttner, L. (2010). *A child in pain: What health professionals can do to help*. Bethel, CT: Crown House Publishing Company LLC.
- Mackey, S. (2015). The “continuum of pain” and the American Academy of Pain Medicine. *Pain Medicine*, 16, 413–415.
- McCaffery, M., & Beebe, A. (1989). *Pain: Clinical manual for nursing practice*. St. Louis, MO: C.V Mosby.
- McCaffery, M., & Pasero, C. (1999). *Pain: Clinical manual* (2nd ed.). St. Louis, MO: C. V. Mosby.
- McKey, P. (1984). Effects of using enjoyable imagery with biofeedback induced relaxation for chronic pain patients. *Therapeutic Recreation Journal*, 18(1), 50–61.
- Melzack, R., & Casey, K. L. (1968). Sensory, motivational, and central control determinants of pain: A new conceptual model (Chapter 20). In D. R. Kenshalo (Ed.), *The skin senses: Proceedings of the first international symposium on the skin senses* (pp. 423–439). Springfield, IL: Charles C Thomas.
- Merkel, S., & Malviya, S. (2000). Pediatric pain, tools and assessment. *Journal of Peri-Anesthesia Nursing*, 15, 408–414. doi: 10.1053/jpan.2000.19504
- Merskey, H. (1979). Editorial: The need of a taxonomy. *PAIN*, 6, 247–250. doi: 10.1016/0304-3959(79)90046-0
- Moayed, M., & Davis, K. D. (2013). Theories of pain: From specificity to gate control. *Journal of Neurophysiology*, 109, 5–12. doi: 10.1152/jn.00457.2012

- Mobily, K. E., & Verburg, M. D. (2001). Aquatic therapy in community-based therapeutic recreation: Pain management in a case of fibromyalgia. *Therapeutic Recreation Journal*, 35(1), 56–69.
- Nahin, R. L. (2015). Estimates of pain prevalence and severity in adults: United States, 2012. *The Journal of Pain*, 16, 769–780.
- National Center for Complementary and Integrative Health. (2016). Pain. Retrieved from <https://nccih.nih.gov/health/pain>.
- National Center for Complementary and Integrative Health. (2016). Veterans are in pain, according to analysis of National Health Survey. Retrieved from https://nccih.nih.gov/research/results/spotlight/veterans_pain
- National Health Interview Survey (NHIS). (2012). Retrieved from <https://nccih.nih.gov/research/statistics/NHIS/2012/key-findings>.
- Nuseir, K., Kassab, M., & Almomani, A. (2016). Health care providers' knowledge and current practice of pain assessment and management: How much progress have we made? *Pain Research and Management*, 2016. doi:10.1155/2016/8432973
- Phillips, D. M. (2000). JCAHO pain management standards are unveiled. Joint Commission on Accreditation of Health care Organizations. *JAMA*, 284(4), 428–429.
- Seyle, H. 1936. A syndrome produced by diverse nocuous agents. *Nature*, 138(3479), 32.
- Shahriary, S., Shiryazdi, S. M., Shiryazdi, S. A., Arjomandi, A., Haghighi, F., Vakili, F. M., & Mostafaie, N. (2015). Oncology nurses' knowledge and attitudes regarding cancer PM. *Asian Pacific Journal of Cancer Prevention*, 16(17), 7501–7506.
- Stanley, M., & Pollard, D. (2013). Relationship between knowledge, attitudes and self-efficacy of nurses in the management of pediatric pain. *Continuing Nursing Education*, 39(4), 165–171.
- Stumbo, N. J. (2002). Implications of PM for therapeutic recreation services. *Annual in Therapeutic Recreation*, 11, 11–31.
- Tanabe, P., Buschmann, M. B., & Forest, R. (2000). Emergency nurses' knowledge of PM principles. *Journal of Emergency Nursing*, 26, 299–305.
- The American Academy of Pain Medicine. (N. D.). AAPM facts and figures on pain. Retrieved from http://www.painmed.org/patientcenter/facts_on_pain.aspx
- Tse, M. M. Y., Wan, V. T. C., & Ho, S. S. K. (2011). Physical exercise: Does it help in relieving pain and increasing mobility among older adults with chronic pain? *Journal of Clinical Nursing*, 20, 635–644. doi: 10.1111/j.1365-2702.2010.03548.x
- Wang, D., & Feinstein, A. (2011). Managing pain in older adults: The benefits of yoga postures, meditation and mindfulness. *Geriatric Rehabilitation*, 27, 104–109. doi: 10.1097/TGR.0b013e31801bffa
- World Health Organization (WHO). (2008). Advocacy, communication and social mobilization for TB control: A guide to developing knowledge, attitude and practice surveys. Retrieved from http://apps.who.int/iris/bitstream/handle/10665/43790/9789241596176_eng.pdf;jsessionid=2754571C973926DBDA65050EFD78AB68?sequence=1