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Research Paper

Pain Management in Recreation Therapy Practice

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Abstract

The purpose of this study was to determine the scope and breadth of recreation therapy (RT) treatment interventions currently used in practice that address pain management. A total of 1,296 Certified Therapeutic Recreation Specialists participated in the study (a 21.6% response rate). Less than half (42.6%) reported that pain management (PM) was a RT treatment goal. For those not using PM, the predominant reason was a lack of training/education on pain. The top 10 RT interventions to manage pain included music, relaxation, deep breathing, exercise, distraction, coping skills, stress management, guided imagery, yoga, and play. Findings from this study provide some insight into the extent to which PM is used in RT programs and provides suggestions to address concerns regarding lack of expertise as well as lack of assessing pain. There is a clear need to develop additional training, PM protocols, and establish pain practice groups to address these needs.

Keywords

Interventions, pain, pain management, pain treatment outcomes, recreation therapy

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Need for Study

The National Center for Complementary and Integrative Health (2017) states the most common reason for individuals seeking medical care is pain (https://nccih.nih.gov/health/pain). 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. Note: Pain is always subjective." (Merskey, 1979, p. 250).

Pain has been categorized as acute, recurrent, or chronic pain (Kuttner, 2010). Acute pain is sudden, alerting the individual to potential tissue damage such as placing one's hand on a hot stove. It generally is short term and can range from mild to severe. Recurrent pain has episodes of pain alternating with recovery (absence of pain); examples include headaches or abdominal pain. Chronic pain is defined as pain that endures beyond six months and serves no protective purpose. Kuttner (2010) states chronic pain "persists often due to physiological and chemical changes to nerve fibers, which alter the way pain works" (p. 17). In the United States, chronic pain is viewed as the most pervasive, expensive, and debilitating medical condition. To understand its scope, more individuals are affected by chronic pain than those with heart disease, diabetes, and cancer combined (Gereau et al., 2014). Current estimates suggest chronic pain affects 100 million in the United States between ages 24 and 65; this estimate does not include two groups disproportionately affected by pain: older adults and children (Gereau et al., 2014).

For those with persistent pain, there are secondary consequences of pain. The Institute of Medicine (U.S.) Committee on Advancing Pain Research, Care and Education (2011) stated pain impacts an individual's ability to function, impacts family life, creates stress, depression, and reduces quality of life (QOL). The committee identified pain as a public health problem. Despite decades of studying pain, pain is still undertreated (Nuseir, Kassab, & Almomani, 2016).

Following the release of the 2001 Joint Commission on Accreditation of Healthcare Organizations (JCAHO) standards on pain management (Phillips, 2000), Stumbo (2002) identified the need for recreation therapists (RT) to become skilled in pain management (PM). The JCAHO document indicated PM is the obligation of all disciplines (Acello, 2000; Baker, 2017; Phillips, 2000). In 2002, the Center for Medicare and Medicaid Services (CMS) initiated the Nursing Home Quality Initiative that identified 10 quality indicators; one indicator was to identify those with moderate to high pain levels (Kunstler, Greenblatt, & Moreno, 2004; Platt & Reed, 2001).

Little has been written on pain management as a recreation therapy intervention. Of the three RT textbooks devoted solely to interventions (Dattilo & McKenney, 2016; Porter, 2016; Stumbo & Wardlaw, 2011), only Stumbo and Wardlaw has a chapter on pain management. Stumbo (2002) suggested that nonpharmacological approaches of cognitive behavioral interventions were within the scope of recreation therapy (RT) practice. Stumbo (2006) focused on the role of RT in managing pain in older adults emphasizing coping and exercise in managing pain. Most RT studies on pain have focused on specific diagnoses and interventions, such as a case study on the use of aquatic therapy to manage pain in a client with fibromyalgia (Mobily & Verberg, 2001). No research has focused on the prevalence of PM as a treatment outcome in RT practice. The purpose of this preliminary study was to begin to explore the scope and breadth of RT interventions that address PM across treatment settings.

Review of Literature

Definition of Pain

Over time, the concept of pain has broadened from an initial one-dimensional definition to a multidimensional definition. Kumar and Elavarasi (2016) identified the dimensions of pain as cognitive, emotional, and sensory (p. 87). The Institute of Medicine (IOM, 2011) emphasized that the IASP definition acknowledged pain was more than just a physical or biological event. This definition is holistic, considers the emotional and psychosocial aspects of pain, and recognizes that pain has multidimensional properties. There are many aspects to consider regarding pain, including intensity, duration, nature, location of pain, its impact on QOL and mood (IOM, 2011).

Prevalence of Pain

Pain is something most individuals experience. The degree and intensity vary from acute (brief) to chronic pain and from minor to severe pain according to the 2012 National Health Interview Survey (NHIS; Blackwell & Clarke, 2014). They estimated that 126 million Americans (56%) reported some type of pain in the last three months, and over 25 million have chronic pain (National Institutes of Health, 2015). The Institute of Medicine (2011) estimates chronic pain much higher at 100 million adults (aged 24-65) in the United States. Variation in estimates has been attributed to differences in how chronic pain is defined, differing populations, and methodology differences (Johannes, Le, Zhou, Johnston, & Dworkin, 2010). The cost of treating pain in the United States is estimated to be $560 to $635 billion per year, which includes medical costs and lost productivity (Gaskin & Richard, 2012; Gereau et al., 2014; Institute of Medicine, 2011).

Pain Theory

Early pain theories include the Specificity Theory, the Intensity Theory, and the Pattern Theory. The Specificity Theory was the first pain theory developed in 1901; the theory identified two different pathways for touch and pain. Pain was viewed as a sensory perception. The next theory was the Intensity Theory, which stated there was a single pathway for touch and pain rather than separate pathways. Intensity determined whether the sensation was touch (less intensity produces touch) or pain (higher intensity produces pain). The Pattern Theory stated there was no separate system for pain perception, rather the receptors were shared with other senses. Each subsequent theory built off of earlier theories when the current theory did not account for all factors associated with the pain experience (Moayedi & Davis, 2013).

The Gate Control Theory (GTC, Melzack & Wall, 1965) combined two of the original theories: the Specificity Theory and the Pattern Theory. According to Moayedi and Davis, this "revolutionized pain research" (p. 9) as it was the first multidimensional model of pain. For the first time, a pain theory not only included the sensory components but added affective and cognitive components. According to the GCT, there are three systems in the spinal cord that modulate the perception of pain. These systems are the substantia gelatinosa in the dorsal horn, the dorsal horn fibers, and transmission cells. The GCT identifies two fibers: nociceptor (pain fibers) and touch fibers that transmit information to the brain. Synapse occurs in two different regions of the dorsal horn of the spinal cord: cells in the substantia gelatinosa and the transmission cells. The "gate" is the substantia gelatinosa. This modulates the transmission of sensory information

from the primary afferent neurons to transmission cells in the spinal cord. The "gates" can either "open" and allow the pain messages to travel to the brain or "close" so that pain messages cannot pass on to the brain (Catalano & Hardin, 1996; Moayedi & Davis, 2013; Ross & Ross, 1988). Information is transmitted from large and small fibers. Touch sensations travel through the large fibers; large-fiber activity inhibits (or closes) the gate. Pain sensations travel through the small fibers; small-fiber activity facilitates (or opens) the gate and allows pain signals to travel to the brain. Messages in the large fibers travel more quickly. There is a limited amount of information that can be processed at any given time; if more information is coming quickly from the large fibers, the gate closes and pain signals are blocked in part or in whole (Moayedi & Davis, 2013).

As mentioned earlier, cognitive and affective components play a role in the GCT; factors that open the gate (allow pain messages to go through) include stress and tension (anxiety, depression, anger, worry), mental factors (focus of attention is on the pain experienced), and lack of activity (sedentary due to pain). Factors that close the gate include relaxation and contentment (feelings of optimism, generally happy), mental factors (person is involved, takes interest in life, active in work and/or leisure), and activity (person is active but does not overdo, paces self) (Center for Integrated Health Care, 2013). According to Li, Montano, Chen, and Gold (2011), the GCT takes into account the level of attention paid to pain, past pain experiences, and emotions associated with the pain experience.

Another theory, the Limited Capacity of Attention (McCaul & Malott, 1984) proposes that individuals receive more sensory input than they are capable of processing. The theory proposes that there is a filtering mechanism whereby some information reaches conscious attention while other sensory input is ignored or blocked (Johnson, 2005). The premise is that the individual has a limited capacity of attention; in order for an individual to perceive a stimulus as painful, he or she must attend to the painful stimuli. If the individual is attending to other stimuli away from the pain stimulus, the painful stimuli will be perceived as less intense (Li et al., 2011; McCaul & Malott, 1984). Therefore, sensory distractions are most effective when they engage multiple sensory distractions including visual, auditory, tactile, and olfactory senses.

The Gate Control Theory and the Limited Capacity of Attention Theory present the RT with opportunities to engage clients using nonpharmacological interventions to either prevent pain messages from reaching the brain (reducing pain experienced) for those with acute pain and/or to learn coping skills to more effectively manage pain for those with chronic pain. Distraction is a coping strategy that basically diverts the individual's attention away from pain thereby reducing or managing the pain experienced. Many nonpharmacological interventions provide opportunities to divert attention away from pain, including breathing techniques, meditation, virtual reality, and other coping strategies to diminish the painful experience.

Recreation Therapy Interventions Addressing Pain

The majority of RT pain studies focused on a particular diagnosis (e.g., HIV/AIDS, cancer) with specific interventions to manage pain symptoms (e.g., aquatic therapy, guided imagery). While one study by McKey (1984) used an experimental design that studied chronic pain, most studies used single subject design or small samples. Small sample size is a concern, however, pain is an individualized experience so it may be an

effective way to measure efficacy of interventions. Conducting randomized controlled studies, while essential, is difficult because of concerns of withholding potentially beneficial treatments and methodological challenges.

McKey (1984) conducted a nine-week experimental design study that investigated the use of a biofeedback program for clients with chronic pain. Clients were randomly selected and assigned to one of four groups: (1) imagery with biofeedback, (2) biofeedback only, (3) day treatment only, or (4) no treatment control; there were five clients in each group. The two biofeedback groups had significantly less pain than the day treatment only group and all three treatment groups (1, 2, and 3) had significantly less pain than the control group. The clients in the two biofeedback groups also increased their daily activity due to a reduction in pain.

Harris, Bedini, and Etnier (2016) conducted a survey of individuals with Complex Regional Pain Syndrome to identify the impact that a chronic pain diagnosis had on overall QOL, leisure participation, and leisure satisfaction. The focus of this study is different as it did not study the efficacy of a RT intervention on PM but rather investigated the impact of chronic pain on daily functioning and QOL. Respondents (n = 497) reported that active leisure participation, leisure satisfaction, and QOL significantly decreased after diagnosis; they reported health (chronic pain) was the most significant barrier to participating in leisure and to overall QOL.

Cooper and Nelson (2015) conducted an evidenced-based (EB) review of literature that explored the impact of play/recreation on pain levels in children with cancer. Seven articles on pediatric oncology and procedural pain were reviewed. Effective interventions to manage pain were: medical/procedural education; providing choices to children (sense of control) to increase coping/self-efficacy; distraction (a technique to manage painful procedures); and parental involvement. All interventions played pivotal roles in decreasing pain, fear, and anxieties of children with cancer outcomes.

Davis and Nelson (2015) conducted a review of literature that focused on aquatic exercise for PM in older adults with osteoarthritis and found that the buoyancy of water created less stress on joints which relieved pain. Pain was significantly reduced in participants who utilized aquatic exercise interventions. Other benefits (outcomes) included decreased depression, improved self-efficacy, increased motor functioning, increased range of motion, and increased QOL.

Brownlee and Dattilo (2002) conducted a review of literature that examined therapeutic massage as a RT facilitation technique. Findings indicated that therapeutic massage reduced pain and anxiety in participants. Reduction in pain was found with individuals with headache, neck and lower back pain, pain associated with sickle cell disease, and rheumatoid arthritis. Individuals participating in massage demonstrated an increase in functioning and decreased pain symptoms. Other benefits included muscle relaxation and improved respiratory function.

Several case studies and single-subject design articles in RT have investigated PM. Bonadies (2009) conducted a case study using guided imagery with an individual with AIDS, polysubstance abuse, depression, and chronic pain. The client reported lower pain levels at the end of each of four guided imagery sessions. Bonadies (2010) conducted another case study with a client with AIDS-related pain using guided imagery. The client's self-report of pain was an eight out of ten prior to the session and a four at the end of the session. Findings supported that guided imagery can be used to manage pain, improve QOL, and reduce stress.

Di Giovani and Piatt (2016) conducted a case study using a six-session guided imagery intervention with a client with chronic lower back pain. Symptom-specific scripts on pain (pain intensity scale, red ball of pain script, and the dimensions of pain script) were reviewed with the subject who selected the script most beneficial to him. While guided imagery reduced pain intensity in the short term, the effects were only temporary. Other benefits reported by the client included improved activities of daily living and increased social interaction.

Kunstler et al. (2004) used a multiple single-subject withdrawal design with four residents that explored the use of aromatherapy and hand massage to manage pain. Findings of reduced pain, pain relief, relaxation, and improved sleep suggest that RTs can play a role in a comprehensive PM program using relaxation interventions. Bonadies (2004) conducted an eight-week yoga program with four clients who experienced AIDS-related pain and stress. In all case studies, pain scores decreased from pretest to posttest after each session as well as a decrease in anxiety scores. Mobily and Verburg (2001) conducted a case study on the impact of aquatic therapy on pain of an individual with fibromyalgia. The participant attended aquatic therapy sessions three times a week for six weeks. Acute pain was assessed at each session as well as a functional impairment rating. The participant reported a reduction in acute pain as well as functional gains in recreation, social activity, and occupation.

The RT interventions including biofeedback, exercise, meditation, aquatic therapy, hand massage, guided imagery, and aquatic exercise have demonstrated a positive impact on PM. These are encouraging findings; however, more robust studies are needed to replicate these findings. The most rigorous study by McKey (1984) used an experimental design with random selection and assignment of subjects. Most of the research involved case studies and single-subject design. No studies on the scope and breadth of RT interventions for PM were found during the review of literature.

Methodology

The purpose of this preliminary study was to begin to explore the scope and breadth of current RT treatment interventions that address PM. Very little is known about the prevalence with which RTs are addressing pain with the clients they serve. Survey data were captured electronically through REDCap (Research Electronic Data Capture) which is a secure, web-based interface for research studies hosted at the home university of the investigator (Harris et al., 2009). Data were downloaded into a Statistical Package for the Social Sciences (SPSS) file using version 21. All data were analyzed using the .05 level of significance. The use of statistical significance (p value) has been criticized as it does not address the practical significance of the results. Statistical significance is easier to achieve with large n-sizes and many question the practical differences found in comparing the mean scores (Sun, Pan, & Wang, 2010). Effect size quantifies the strength of associations of mean differences found in statistical analysis and has been suggested as a solution to address practical significance (Sun et al., 2010). Effect size determines if the difference is meaningful. *Cramer's V* is the statistical analysis used for Chi-square analysis to measure effect size. For this study, small effect size was set at 0.1, medium was 0.3, and large was 0.5 (United States Geological Society, 2017). Effect size of moderate levels or above will be reported in this study.

Subjects and Analysis

After Institutional Review Board approval was received from the university, an electronic survey was sent to a randomly selected sample of 6,000 full-time, active CTRSs. The sample was approximately one-third of all registered CTRSs and was obtained from the National Council for Therapeutic Recreation Certification (NCTRC). The survey took place in 2017 with an initial invitation and a follow-up email two weeks later. Data were collected for a total of four weeks. Data were downloaded from REDCap into SPSS version 21. Data analysis included percentages, means, and chi-square analysis. Analyses investigated any differences in the use of PM interventions by level of education, population served, level of training in PM, expertise in PM, and number of years as a CTRS.

Instrument

A 41-item questionnaire was developed by the investigator to determine the current use of RT interventions to manage pain. Items and topics were developed based on reviewing the PM literature, experience working in PM, and RT literature on PM. The survey included a variety of topics: education and training, knowledge and attitudes, PM as a RT goal, PM interventions, use of EB practice, and interdisciplinary collaboration in treatment. There were a total of 15 demographic questions in the survey. Branching was included in the survey so that if a respondent did not use PM, additional questions about PM interventions and PM assessment instruments were skipped. The instrument was reviewed by four educators and practitioners with expertise in PM; suggestions were made to strengthen the survey. Revisions were made prior to disseminating the survey based on this feedback. In addition to the 15 demographic questions, the sections of the survey are described below.

Training and education in PM. Five items were related to training/education on PM including how RTs were educated on PM (conferences, self-taught, part of undergraduate or graduate curriculum, on-the-job training), level of training in PM, self-rating of expertise in PM, and whether PM interventions should be taught in undergraduate and graduate education programs as well as at conferences and workshops.

Knowledge and attitudes toward pain. Seven questions on knowledge and attitudes used in this survey came from the Knowledge and Attitudes Survey Regarding Pain (KASRP, Ferrell & McCaffery, 2014). This is a 40-item assessment used extensively to measure nurses' knowledge and attitudes of pain (Clarke et al., 1996; Ferrell & McCaffery, 2014). The instrument has good test-retest reliability ($r > .80$) and internal consistency ($r > .70$). Ferrell and McCaffery encouraged health care professionals to use this survey for educational purposes and indicated it was appropriate to use and analyze individual items. The seven most appropriate questions that suited RT practice were selected; most of the questions eliminated asked about medications and dosages which are not within the scope of RT practice.

Use of PM and pain assessment. This section had seven items that included if pain was a common problem in the clients they served; if PM was a RT goal or, if not, why pain was not addressed; the types of pain clients experience; if pain was assessed; the type(s) of pain assessed; and pain scales used to assess pain.

RT pain interventions, EB practice, co-treating with other disciplines. This section had seven items. Respondents were provided a list of 18 RT interventions and

asked to check all they used to address pain. The list was generated from information provided in chapters (Porter, 2015; Stumbo & Kinney, 2011), information on modalities and facilitation techniques research in RT (Kinney, Kinney, & Witman, 2004); and EB research reviewed in this study (e.g., Cooper & Nelson, 2015; Di Giovani & Piatt, 2016; Kunstler et al., 2004; McKey, 1984; Stumbo, 2002, 2006). Table 4 lists the 18 interventions used by population. Other questions in this section included RT outcomes; use of PM interventions; the extent that EB findings were used to select interventions; and prevalence of co-treatment with other disciplines.

Findings

Demographic Profile

A total of 6,000 randomly selected, full-time CTRSs were invited to participate in the survey. A total of 1433 (23.9%) RTs responded to the survey. Of those who responded, 1296 completed the entire survey and were used in the analyses. Below is a description of respondents.

The majority of respondents were female (n = 1131, 87.4%). In terms of education, three in four (n = 976, 75.4%) earned a bachelor's degree, 23.6% (n = 305) a master's degree, and 0.9% (n = 11) a doctoral degree. Respondents were certified from less than one year to 42 years with a mean number of 14 years. Over two in three (n = 881, 68%) stated their primary role was a therapist, 21% (n = 276) a supervisor, 6.6% (n = 85) an administrator, and 4.2% other (n = 57). Breakdown of population served included behavioral health (BH, n = 469, 36.1%), geriatrics (n = 373, 28.6%), rehabilitation (n = 236, 17.9%), intellectual and developmental disabilities (ID/DD, n = 140, 10.8%) and "other" populations (n = 77, 5.9%). Respondents were from the Midwest (n = 377, 29.2%), Northeast (n = 288, 22.3%), Southeast (n = 268, 20.8%), Southwest (n = 136, 10.6%), Mid-Atlantic (n = 76, 5.9%), Northwest (n = 68, 5.3%), and Canada (n = 55, 4.3%). Respondents identified the average length of stay (LOS) of clients in number of days; some respondents gave very high numbers (outliers) so a cut-off was established of 5 years (or 1825 days). As extreme scores affect the computation of a mean score, it seemed reasonable to cut off the LOS at 5 years. The mean LOS was 144 days (about 6 months), the median was 30 days, and the mode was 365 days (1 year). Length of stay was divided into quartiles to determine if LOS differed by population. Chi-square analysis revealed a statistically significant relationship. Those in geriatric settings (62.5%) reported the longest LOS (246 to 1825 days) and the shortest LOS (0 to 10 days) were in the "other" category (62.1%) and BH settings (45.8%); χ^2 (12) = 124.002, p = .001. *Cramer's V* was a medium effect size of .351.

Prevalence of Pain in RT Practice

Two in three (n = 859, 66.6%) indicated pain was a common issue for clients. Chi-square analysis revealed a statistically significant relationship by population; those in rehabilitation (n = 205, 86.9%), geriatric (n = 307, 82.3%), and "other" (n = 20, 61%) settings reported a higher percent of client pain than in ID/DD settings (n = 34, 21.7%), χ^2 (4) = 211.444, p = .001. *Cramer's V* was a medium effect size of .405.

Overall, 42.8% (n = 553) of the respondents reported that PM was a RT goal for their clients. Chi-square analysis revealed that there was a statistically significant relationship between the use of PM and population served. Those in rehabilitation

(n = 160, 67.8%) and "other" settings (n = 14, 51.9%) reported a higher use of PM than those in ID/DD (n = 59, 21.7%) settings, χ^2 (4) = 100.972. p = .001. *Cramer's V* was .279, which approaches a medium effect size. Table 1 provides the results of the analyses. Of note, across all populations, the percent of respondents who addressed pain was lower than the percent who indicated their clients experienced pain.

Table 1

Crosstabulations of Population Served by Length of Stay, Pain Experienced by Clients, and by Pain Management Used as RT Goal

	Population Served						
	Rehab	**Behavioral Health**	**ID**	**Geriatric**	**Other**	**χ2*** **	***V***
Length of Stay (n = 336)							
0-10 days	17	44	2	9	18	**124.002**	**.351**
	(12.9%)	(45.8%)	(28.6%)	(12.5%)	(62.1%)		
11–30 days	77	14	2	16	2		
	(58.3%)	(14.6%)	(28.6%)	(22.2%)	(6.9%)		
31-245 days	16	8	1	2	0		
	(12.1%)	(8.3%)	(14.3%)	(2.8%)	(0%)		
246-1825 days	22	30	2	45	9		
	(16.7%)	(31.3%)	(28.6%)	(62.5%)	(31.0%)		
Pain Experienced by Clients (n = 1289)							
Yes	205 (47.7)	266 (-45.2)	34 (-56.6)	307 (58.4)	47 (-4.3)	**211.444**	**.405**
No	31 (-47.7)	201 (45.2)	102 (56.6)	66 (-58.4)	30 (4.3)		
Use of Pain Management as an RT Goal (n = 1293)							
Yes	160 (59.1)	162 (-38.6)	30 (229.9)	161 (1.5)	40 7.1	**100.972**	**.279**
No	76 (-59.1)	307 (38.6)	108 (29.0)	212 (-1.5)	37 (-7.1)		

Note: ***p < .001. Adjusted unstandardized residuals appear in parentheses below group frequencies.

Use of PM as an RT Goal, PM Training, and Expertise

A chi-square analysis revealed a significant relationship between the use of PM as a RT goal and PM training that therapists received. Those with extensive training had higher reported use of PM as a treatment goal (90.6%) compared to those with

no training (19.0%), χ^2 (3) = 244.137. p = .001. *Cramer's V* was a medium effect size of .435. A chi-square analysis revealed a significant relationship between the use of PM as an RT goal and level of expertise. Those with "advanced" (90.4%) and "expert" (100%) levels reported higher use of PM compared to those who had "no expertise" (15.6%) in PM, χ^2 (5) = 321.603. p = .001. *Cramer's V* was .499, which approaches a large effect size (.50). See Table 2.

Table 2

Crosstabulations of Pain Management Used as a RT Goal by Level of Training and by Level of Expertise

Use of Pain Management as RT Goal	Level of Training in Pain Management				χ2***	*V*
	No Training	Minimal Training	Moderate Training	Extensive Training		
Yes	95 (-118.8)	211 (21.2)	188 (67.0)	58 (-30.6)	**244.137**	**.435**
No	405 (118.8)	233 (-21.2)	95 (-67.0)	6 (-30.6)		

Use of Pain Management as RT Goal	Level of Expertise						χ2***	*V*
	No Expertise	Novice/ Beginner	Advanced Beginner	Inter-mediate	Advanced	Expert		
Yes	77 (-134.1)	189 (12.5)	98 (32.6)	134 (60.1)	47 (24.8)	7 (4.0)	**321.603**	**.499**
No	417 (134.1)	224 (-12.5)	55 (-32.6)	39 (-60.1)	5 (-24.8)	0 (-4.0)		

Note: ***p < .001. Adjusted unstandardized residuals appear in parentheses below group frequencies.

Reasons RTs Do Not Address Pain in Practice

A total of 740 respondents (57.3%) indicated they did not use RT interventions to manage pain. A list of potential reasons as to why they did not use RT interventions to manage pain included: typical clients do not experience pain; other disciplines address PM, not RT; do not have the training or expertise to address pain; and/or PM is not in the scope of RT practice. Chi-square analysis by population revealed statistically significant relationships with a medium effect size for two items. The first item: typical clients do not experience pain had more in ID/DD settings (45.7%) who agreed compared to those in geriatric settings (5.7%), (χ^2 (4) = 83.070. p = .001). *Cramer's V* was a medium effect size of .335. The second item: other disciplines address pain management not RT had more respondents in geriatric settings (75.0%) who agreed compared to those in ID/DD settings (25.0%), χ^2 (4) = 80.504. p = .001. *Cramer's V* was a medium effect size of .330. See Table 3 for results.

Table 3

Crosstabulations of Reasons Why Respondents Do Not Use Pain Management by Population Served

	Population Served						
	Rehab	**Behavioral Health**	**ID**	**Geriatric**	**Other**	**$\chi 2$*****	***V***
Clients do not Experience Pain							
Agree	8	88	49	12	14	***83.070***	***.335***
	(-9.6)	(17.1)	(24.0)	(-37.0)	(5.5)		
Disagree	68	219	59	200	23		
	(9.6)	(-17.1)	(-24.0)	(37.0)	(-5.5)		
Other Disciplines Address Pain, not RT							
Agree	44	186	27	159	14	**80.504**	**.330**
	(-0.2)	(7.6)	(-35.8)	(35.8)	(-7.5)		
Disagree							
	32	121	81	53	23		
	(0.2)	(-7.6)	(35.8)	(-35.8)	(7.5)		
No Training/Expertise to Address Pain							
Agree	45	111	44	112	8	**29.439**	**.199**
	(12.1)	(-21.8)	(-2.7)	(20.3)	(-8.0)		
Disagree							
	31	196	64	100	29		
	(-12.1)	(21.8)	(2.7)	(-20.3)	(8.0)		

Note: ***$p < .001$. Adjusted unstandardized residuals appear in parentheses below group frequencies.

Types of Pain Experienced by Clients

Respondents who assessed clients for pain (n = 372) were asked to identify the types of pain that clients experienced including: acute pain (n = 176, 47.3%), chronic pain (n = 258, 69.4%), procedural pain (n = 103, 27.7%), and other (n = 14, 3.8%). Many indicated they assessed more than one type of pain; one in five (n = 76, 20.4%) assessed all types (acute, chronic, procedural pain) while others assessed acute and chronic pain (n = 64, 17.2%). Although chi-square analysis revealed statistically significant relationships between type of pain and population, none met the medium effect size.

Pain Assessment Instruments Used

Of the respondents that used PM as a RT goal (n = 547), two in three (n = 372, 68%) indicated they assessed pain in their clients. For those assessing pain (n = 372), three in four (n = 278, 74.7%) respondents assessed pain interference with daily functioning, 63.2% (n = 235) assessed emotional distress due to pain, 60.2% (n = 224) assessed pain intensity, and 39.8% (n = 148) assessed the impact of pain on physical functioning. The assessment instruments most frequently used included: numeric rating scales (n = 282, 75.8%), the Faces Pain Scale (n = 193, 51.9%), observational measures (n = 179, 48.1%), and verbal rating scales (n = 142, 38.2%).

RT Pain Management Interventions

A total of 553 respondents (42.7%) indicated they used RT interventions to treat pain. They indicated which of 18 RT interventions they used to treat pain. Table 4 rank orders the 18 RT interventions by percentage of use by population. For all populations combined (overall), the top 10 RT interventions to manage pain were (from highest to lowest) music, yoga, relaxation, deep breathing, exercise, distraction, coping skills, stress management, play, and guided imagery. Table 4 highlights differences by population; the top 10 for each population were ordered differently or included interventions not in the overall top 10 list. For example, play therapy was in the top ten for those in the "other" category (which included pediatrics). A chi-square analysis was conducted to determine if there was a statistically significant relationship between RT interventions used and population. While most reached statistical significance, only three interventions had medium effect sizes. The first was stress management; those in BH (87%) and rehabilitation (63.1%) settings used the intervention more than in geriatric (39.8%) and ID/DD settings (40.0%), χ^2 (4) = 85.601. p = .001. *Cramer's V* was a medium effect size of .393. The second was coping skills. Those in BH (84%) used the intervention more than those in ID/DD (36.7%) settings, χ^2 (4) = 58.691. p = .001. *Cramer's V* was a medium effect size of .326. The last was cognitive behavioral therapy (CBT). Those in BH (38.3%) used CBT more than geriatrics (8.1%), χ^2 (4) = 52.616. p = .001. *Cramer's V* was a medium effect size of .308.

No significant differences existed between interventions and level of education, LOS, or primary role (therapist, supervisor, or administrator). Respondents identified how they selected PM interventions from a list of five items. Results included: treatment goals based on assessment of need (n = 397, 71.8%); RT knowledge/skill level of the intervention (n = 309, 55.9%); used EB research to identify effective interventions (n = 285, 51.5%); interventions were limited by resources available (n = 206, 37.3%); and historical/what was done in the past (n = 185, 33.5%).

RT Outcomes for PM

Respondents who used PM as a RT goal (n = 553) identified typical outcomes for PM; reduced pain was the primary reason identified (n = 442, 79.9%) followed by improved QOL (n = 430, 77.8%); sense of control (n = 334, 60.5%); relief from pain (n = 296, 53.5%); emotional regulation (n = 280, 50.8%); empowerment (n = 263, 47.6%); self-efficacy (n = 189, 34.2%); and decreased LOS (n = 62, 11.2%). Chi-square analyses were run by population; few reached statistical significance and none reached a medium effect cut-off.

Co-Treatment on PM goals

Almost three in four (n = 406, 73.7%) respondents who used PM as a RT intervention (n = 551) indicated they co-treated with other disciplines. Over half (n = 308, 55.7%) reported they co-treated with nursing; 48.6% (n = 269) with occupational therapy (OT), 47.6% (n = 263) with physical therapy (PT), 36.5% (n = 202) with social work (SW), 30.7% (n = 170) with psychology, and 21% (n = 116) with speech and language pathology (SLP). A chi-square analysis by population revealed a significant relationship with populations; one reached moderate effect size: physical therapy. Those who worked in rehabilitation (69%) and the "other" category (63%) reported more co-treating with PTs than in behavioral health (23.5%) settings, χ^2 (4) = 67.951, p = .001. *Cramer's V* was a moderate effect size of .351.

Table 4

*Percent Who Reported Using Specific RT Interventions to Manage Pain by Population Served for Respondents Who Reported They Addressed Pain as an RT Goal**

Rank	RT Intervention	Total (*n*=553)	PM&R (*n*=160)	Behavioral Health (*n*=162)	Geriatrics (*n*=161)	ID (*n*=30)	Other (*n*=40)
1	Use of Music	**80.7**	**77.5**	**84.6**	**86.3**	**70.0**	**62.5**
2	Relaxation	**80.1**	**80.6**	**89.9**	**75.2**	**63.3**	**75.0**
3	Deep Breathing	**74.3**	**75.6**	**80.9**	**67.1**	**60.0**	**82.5**
4	Exercise	**72.0**	**61.9**	**79.0**	**78.3**	**76.7**	**55.0**
5	Distraction	**67.3**	**76.3**	**59.3**	**68.9**	**46.7**	**72.5**
6	Coping Skills	**63.5**	**63.8**	**84.0**	**46.6**	**36.7**	**67.5**
7	Stress Management	**60.0**	**63.1**	**87.0**	**39.8**	**40.0**	**47.5**
8	Guided Imagery	**59.1**	**64.4**	**64.8**	**56.5**	**30.0**	**47.5**
9	Yoga	**47.7**	**50.6**	**56.2**	**37.9**	**40.0**	**47.5**
10	Play	**36.9**	**33.8**	37.7	**27.3**	**63.3**	**65.0**
11	Writing	30.4	25.0	**48.8**	19.9	16.7	30.0
12	Tai Chi	25.5	23.8	27.8	**27.3**	20.0	20.0
13	Play Therapy	24.2	24.4	24.7	16.8	**30.0**	**47.5**
14	Cognitive Behavioral Therapy	19.7	15.0	38.3	8.1	13.3	15.0
15	Procedural/Med Education	13.7	17.5	12.3	8.1	3.3	35.0
16	Other	12.7	15.6	4.9	14.3	26.7	15.0
17	Heart Math/ PIP	8.9	12.5	10.5	5.0	6.7	5.0
18	Biofeedback	8.0	8.8	13.0	3.7	6.7	2.5
19	Virtual Reality	5.6	8.1	3.1	5.6	3.3	7.5

* Bolded scores indicate the top 10 interventions for each population

Discussion

Key Findings

The following sections discuss the implications of the findings and highlight information about the scope of RT interventions to manage pain. The results provide some preliminary understanding of the prevalence of PM in RT practice.

Prevalence of pain and reasons why pain is not addressed. Results from the survey on PM confirmed that many clients who receive RT services (*n* = 589, 67%) experience pain. However, fewer respondents provided RT interventions to address PM (*n* = 553, 43%). The top reasons why respondents did not utilize PM included: clients do not experience pain, other disciplines provide PM, and lack of training/ expertise on PM. It stands to reason that if pain is not an issue, there is no need to provide PM. However, if the client is not assessed for pain, the problem may be missed. JCAHO (Phillips, 2000) set the standard that all disciplines are obligated to provide

PM to those they serve. Therefore, RTs should assess for pain and identify appropriate goals and interventions for clients who are dealing with pain.

Relying on others to address PM may be a result of lack of expertise; therefore, training is important to ensure client issues related to pain can be addressed. While many respondents felt they had no or beginner level of expertise (n = 443, 80.7%), almost all felt that PM was within the scope of RT practice (n = 1263, 97.4%). Many respondents in this study who used PM indicated they co-treated (n = 406, 74%) with other disciplines. Interdisciplinary collaboration is critical to ensure the most comprehensive care is provided. To address the issue of training/expertise, undergraduate and graduate education programs should consider teaching PM in the most appropriate course(s) based on their curriculum. Practitioners skilled in PM can train intern students to use PM interventions. Providing workshops and conference sessions on PM will provide information to those who do not possess PM skills who are currently practicing. Most respondents indicated they had no or beginner level skills in PM; this can be addressed through education and training. In this study, respondents with PM training and higher levels of expertise in PM used PM interventions at a higher rate than those with less training and/or expertise.

Type of pain. The most common type of pain that respondents addressed was chronic pain, followed by acute and procedural pain. Many addressed more than one type of pain. As chronic pain is the most prevalent type of pain experienced and has long term implications for functional impairment and decrease in QOL (Gereau et al., 2014; Kuttner, 2010), it should be a focus of RT treatment when appropriate. An analysis of respondents who worked with clients with chronic pain (n = 258) was conducted; the focus on PM was clear—all (100%) indicated PM was a RT goal. It is important that RTs understand the different types of pain in order to select the most appropriate RT interventions to manage pain; in addition, it is essential that they understand that some interventions may be contra-indicated.

Pain assessments. Respondents who assessed pain predominantly used a numeric rating scale or a faces pain scale. Both assessment scales are easy and quick to administer; they can be used prior to, during, and after interventions to measure the impact that the intervention had on level of pain and have established validity and reliability. It is unclear why only two in three (67%) respondents who used PM interventions assessed pain. This is an additional area that needs to be addressed with education/training; it is imperative to assess pain due to its variability and changing nature. Respondents also assessed how pain interferes with daily functioning, emotional distress due to pain, and pain intensity.

Several factors need to be considered when selecting pain assessment instruments including age of the clients, the type(s) of pain (acute, chronic, or both) and whether the individual is verbal or nonverbal. For children, especially those under the age of 3 or who are nonverbal, the Baker Wong FACES scale is predominantly used and has established validity and reliability. For individuals with acute pain, the assessment can be unidimensional which measures intensity of pain. The Visual Analog Scale (VAS) is a continuous scale from 0 (no pain at all) to 100 (worst pain imaginable) and is easy to administer. It has good validity and reliability in adults and children (Bodian, Freedman, Hossain, Eisenkraft, & Beilin, 2001; Katz & Melzack, 1999). The Numeric Rating Scale (NRS) is also sensitive in terms of assessing acute pain and has established validity and reliability.

In chronic pain, emotional and cognitive aspects in addition to sensory aspects must be assessed, therefore, the assessment instrument has to be multidimensional and consider quality of life issues (Breivik et al., 2008). Several assessments are multidimensional and have established validity and reliability. The Brief Pain Inventory (BPI) assesses intensity of pain as well as the level of interference in daily life activities as a result of chronic pain. The instrument can be either self-administered or a clinical interview can be conducted. A second assessment is the McGill Pain Questionnaire and Short Form (MPQ and SF-MPQ) which assesses sensory, affective-emotional, evaluative and temporal aspects of pain (Breivik et al., 2008).

Assessment is essential to identify impact of pain on functioning. Several issues identified in this study can be addressed by the RT discipline. In addition to training, another concern identified was one in three (n = 175, 32%) who developed PM goals did not assess for pain. Pain is not constant and it varies greatly depending on the day or situation. RTs need to continuously assess clients for pain as it can impact participation (Harris et al., 2016), cooperation (Cooper & Nelson, 2015), and/or outcomes in any treatment intervention. Best practice in terms of monitoring pain is to ask the client their current level of pain prior to any intervention. It is suggested that during and after the intervention pain intensity is measured again to determine any changes in pain intensity. Similar questions regarding stress levels can be asked. In addition, homework can be given to the clients to practice coping skills learned to manage pain during treatment interventions. In addition, journals can be used to record pain episodes, the intensity of pain, and whether coping skills were initiated. If so, clients are encouraged to record the effectiveness of the interventions in managing their pain.

RT pain management interventions. The top ten interventions identified by respondents were common modalities that are, or can be, addressed in academic curricula (use of music, relaxation, deep breathing, exercise, distraction, coping skills, stress management, guided imagery, yoga, and play). RTs need to understand how to utilize these interventions to specifically address pain and pain management. While there were differences in the types of interventions used by setting, only three had a moderate effect size: stress management, coping skills, and cognitive behavioral therapy (CBT). To enhance PM training, education programs can identify EBP literature that address PM interventions and typical PM outcomes. Education programs interested in adding PM to their curriculum need to identify the appropriate RT course to add learning modules on PM that include defining pain, pain processes, theories of pain, assessing pain and pain assessment instruments, and interventions to effectively address pain. Those with expertise in PM should be encouraged to present conferences and/or workshops to provide current practitioners with best practices in PM. Conference planners could also encourage submission of proposals that address PM. Preconference half-day sessions could provide more in-depth training that provides both theoretical and best practice information on how to establish a PM protocol or program for populations where pain is prevalent. Clinical privileging could also be considered for those who have demonstrated proficiency in PM.

RT outcomes. Two common outcomes specific to pain were identified by respondents: decrease pain and obtain relief from pain. Other outcomes identified by respondents included typical RT outcomes that are used by many RTs but these interventions must focus on the pain experience and methods to manage pain. The interventions included: improve QOL, increase sense of control, emotion regulation,

and increase self-efficacy. University RT programs should specifically address pain and PM and accentuate the utility of specific, RT outcomes that have established EB research in terms of efficacy of treating pain. In addition, this preliminary study revealed the need to teach about the mechanisms of pain and pain theories to provide a general foundational knowledge and develop clinical skills for managing pain. Education regarding the use of appropriate pain assessment instruments depending on the age, type of pain, and ability to verbalize pain also is recommended.

Limitations

There are several limitations that need to be identified in regard to this study. The response rate (23.9%) was low; this prevents generalization of the results from this study. In general, according to Saldivar (2012), the average response rate for online surveys is 30%. Compared to the response rate of the 2014 Task Analysis Study (26%) conducted by NCTRC, the response rate in this study was also lower. Potential reasons for the low response rate included time of year (early January) and the length of the survey (respondents completed up to 41 questions). Although there was a robust number of respondents (n = 1296), the low response rate prevents generalizing the findings beyond this study.

This was a voluntary study therefore, those who did not respond could be very different than those who responded. Non-response bias addresses if there are distinct differences between those who respond to a survey versus those who do not. For example, those who knew about and used pain management may have been more likely to reply to the survey than those who did not use pain management. Another example of response bias could be that the email invitation might have not reached the inbox but rather went to a potential respondents' spam folder.

The fact that a pilot study was not conducted prior to this study is another limitation of the study. This would have strengthened the study and could have provided some important information about items and response options in the survey that could have been adjusted prior to the full study that was conducted.

Another limitation is that survey questions were structured in a way that limited the type of statistical analysis that could be conducted. Likert-scale items rather than check all that apply should have been used. Having respondents rate the frequency of use of interventions (Likert scale) would have yielded more detailed information and increased analysis options (e.g., analysis of variance). Also, several disciplines were not listed including music therapy, art therapy and movement therapy on the co-treatment question. Although some respondents identified the disciplines in the "other" category, having them listed may have elicited a greater number of responses.

Recommendations for Applying Research Findings

Preliminary findings from this study, although not conclusive due to poor response rates, indicated that education and training regarding pain and pain management as a RT intervention should be considered in both university curricula and in workshops and conference presentations. Respondents indicated both a lack of training in pain management and little to no expertise on this topic. Education and training efforts can improve the skill level of recreation therapists.

Another recommendation is that practitioners and educators continue to conduct evidenced-based research on recreation therapy interventions that address pain management. Past RT research has shown the benefits of many interventions including guided imagery, massage, and aquatic therapy in managing client pain. A focus on the nonpharmacological benefits of pain management interventions should be stressed to address current concerns of opioid addiction in the US. Interdisciplinary collaboration is also recommended so that a comprehensive pain management plan can be developed for clients in pain. This will address the call by JCAHO (Phillips, 2000) that all disciplines must address pain.

The use of pain management protocols should continue to be developed to establish consistency in approaches used by RTs. Some RT articles and chapters have provided examples of PM protocols to guide practitioners (Bonadies, 2009, 2010; DiGiovani & Piatt, 2016; Stumbo & Kinney, 2011). Others have provided scripts (Bonadies, 2009, 2010) and preparation/procedures for a particular intervention (Kunstler et al., 2004). These provide guidance for those beginning to address PM. Another idea is to develop pain practice groups (Clarke et al., 1996) either in state or national RT organizations and/or for agencies to create interdisciplinary pain practice guidelines.

Recommendations for Future Research

It is recommended that additional research be conducted on the prevalence of pain management interventions in RT to either support or reject the preliminary findings of this study. Efforts should be taken to ensure a good response rate by possibly extending the period of time the survey is open and including additional reminders to complete the survey. In addition, adjustments to scaling of items on the survey using Likert scales to replace the lists where respondents check all that apply would provide more comparison analyses that may yield more in-depth information of the prevalence of interventions used.

Intervention-specific research needs to have more rigor, including random assignment of subjects and larger *n*-sizes to enable generalization of results. The study by McKey (1984) provides a strong research protocol as an example for future studies. Replication of case studies will provide additional support for the efficacy of RT interventions to manage pain.

Developing partnerships between practice settings and universities will be important to develop additional research on RT interventions in PM. In 2004, ATRA charged a work group of practitioners and educators to establish clinical practice guidelines for the treatment of pain-based behaviors in RT similar to the RT clinical practice guidelines for dementia by Buettner and Fitzsimmons (2008). While the PM work group was active for several years and a substantial draft was created, the work was never completed. Perhaps it is time to revisit this document to provide a set of guidelines for practitioners.

Conclusion

This preliminary study investigated the scope and breadth of RT interventions used to manage pain in clients. Due to limitations in the sample size and a lack of a pilot study to further develop the survey instrument, generalizations regarding RTs' PM practices should be viewed with caution yet may serve as initial baseline for

practice. Common interventions, goals, and outcomes were identified overall and by population served. Considering the magnitude and prevalence of pain in the U.S. along with the call for all health care professionals to address pain management, the clear message is that RTs need to minimally assess for pain, establish goals, and treatment interventions if pain is determined to be an issue. Many RTs are already effectively addressing pain in their practice as can be seen by the responses to this survey. Several issues were highlighted regarding the use of PM in RT practice. Many practitioners did not feel they had the knowledge and/or skills to address PM. Education, training, and developing clinical practice guidelines were suggestions to address these issues. Continued research is needed to support these findings.

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