

Oral & Poster Abstracts from the 2016 International Massage Therapy Research Conference

ORAL PRESENTATIONS

EVALUATION OF QUALITATIVE GAIT ASSESSMENT SKILLS MODULE USING 3D MOTION CAPTURE TECHNOLOGY FOR MASSAGE THERAPY STUDENTS

Amanda Baskwill, MSc, BEd, RMT, Leila Kelleher,
PhD (Candidate)

Introduction: In Canada, massage therapy students are taught basic gait assessment skills as a requirement of their education. This is normally taught in a lecture-style setting with audio-visual augmentation. Three-dimensional motion capture is a frequently used quantitative tool for assessing gait in clinical and research settings; however, its use as a pedagogical tool for enhancing qualitative gait assessment skills has not been investigated. The advantage of 3D motion capture for qualitative assessment is that it allows the user to isolate the biomechanical movement patterns of the subject as only the wire frame or skeletal representation of the subject appears on-screen.

Objective: To evaluate a gait assessment model which integrates three-dimensional motion in a group of massage therapy students compared to the traditional gait assessment module.

Methods: Participants' baseline knowledge of gait assessment was tested prior to the gait assessment module. All students then participated in an online module. A second knowledge assessment was administered at the end of the online module. One section of students received the intervention, which was a single, three-hour session including instruction and experience using the Qualisys Motion Capture System. The control group received only traditional teaching techniques. At the completion of the educational module, students were assessed a third time and completed a standardized student satisfaction questionnaire.

Results: There were no statistically significant differences in the baseline and post-module knowledge of both the intervention and comparison groups (pre-module: $p=.46$; post-module: $p=.63$). There was also no statistically significant difference between groups on the final application question ($p=.13$). Participants in the intervention group enjoyed the in-class session because it helped them to visualize the content,

whereas the participants in the comparison group enjoyed the interactivity of applying the gait assessment module to a partner or small group. The intervention group thought they should have an opportunity to practice assessing gait on their classmates in partners or small groups. Both groups noted that more time was needed for the gait assessment module.

Conclusions: Based on the results of this study, it is recommended that the gait assessment module combine both the traditional in-class session and the 3D motion capture system.

THE BENEFITS OF PEDIATRIC MASSAGE IN A HOSPITAL SETTING

Tim Cowen LMT, CIMT, CPMT, Lisa Purser, RN

Introduction: To assess the efficacy and feasibility of providing massage for pediatric patients in a hospital setting.

Objectives: Primary desired patient outcomes: stress and nausea reduction, and pain relief for Pediatric Oncology patients.

Method: Universal pain assessment questionnaire primary method, 6 questions asked before and after the 25-minute session. Tension, depression, anxiety, pain, fatigue, and nausea were measures used. Also repeat requests, patient and family feedback, massage and medical staff observations are included in conclusion.

Intervention: 25-minute massage sessions, 1–3 times weekly to patients aged 7–22. Protocol incorporated light Swedish and Reflexology techniques. Areas worked—toe to knee, finger to elbow, neck, shoulders and back—varied based on patient request and access to area. Parents were also given the option for instruction.

Results: 210 patients served, 134 surveys collected, results showed a significant reduction in all areas post massage with the highest percentage being 62% reduction in tension then 54% reduction in depression, 52% reduction in anxiety, 43% reduction in pain, 38% reduction in fatigue, and 31% reduction in nausea. Nurse's observed that patients were excited day of appointment and that pain medication via PCA greatly reduced up to 2 hours post massage. Patients stated that massage was something to look forward

to and served as mini break from their treatment. Parents noticed children had a more restful sleep after a massage. Massage therapists observed patients more visibly calm and relaxed post treatment.

Conclusion: Data collected met study objectives, however more research should be done to look at using massage as a tool to help manage nausea and reduce certain types of pain which could possibly lead to the reduction of pain medication needed, and thereby reduce damage to major organs like liver and kidneys and developmental delays in younger patients, and could also represent a cost savings to hospital.

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ASSESSING AND DOCUMENTING PAIN IN CLINICAL MASSAGE THERAPY PRACTICE

Virginia S. Cowen, PhD, LMT

Introduction: Assessing factors that contribute to pain, as well as characteristics of pain (type, intensity, frequency, and duration) is important for effective treatment. As a result of massage treatment, pain relief may occur as a direct outcome (e.g. reduction of localized inflammation or loosening of restriction in soft tissues) or indirect outcome (e.g. cancer-treatment related symptoms.) Although research that pain relief is associated with a variety of massage treatments for an array of different diseases and disorders, the sample sizes employed in massage research are small. Consistent documentation of massage related outcomes could identify the equivalent of “vital signs” for massage therapists to track in clinical practice. Pain is one such outcome.

Objectives: This presentation examines assessment and documentation of pain in clinical massage practice.

Methods: Data were collected as part of three research studies examining massage in regional cancer centers, National Cancer Institute designated cancer centers, and massage therapy clinics. The overarching projects analyzed the delivery of massage. A mixed methods approach combining survey and content analysis was used to assemble a subset of data specific to pain. These data were analyzed using descriptive methods.

Results: Little consistency was evident in methods used to assess pain before and/or after massage treatment. Information about pain was gathered from open-ended questions, checklists, and a variety of pain scales. Assessment of the immediate effects of massage on pain was infrequent, and there was little evidence of information about lingering/long-term effects of massage. Limited recognition of the differentiation between the direct or indirect effects of massage on pain was noted. There were virtually no attempts to link pain to lifestyle factors or functional outcomes.

Conclusions and Implications: Biomedical informatics approaches via secure HIPAA-compliant data platforms could be a potentially useful resource in researching effects of massage in clinical settings. This analysis identified inconsistencies in the documentation of an important outcome for massage identifying a potential barrier to entry into the biomedical informatics arena. Future research should explore potential ways to consistently capture massage-relevant information for future aggregation.

DEVELOPMENT OF A HOSPITAL-BASED MASSAGE THERAPY COURSE IN AN ACADEMIC MEDICAL CENTER*

Liza J. Dion, BCTMB, COMT, Susanne M. Cutshall, RN, DNP, ACNS-BC, Nancy J. Rodgers, BCTMB, Jennifer L. Hauschulz, BCTMB, Nicole E. Dryer, BCTMB, Barbara S. Thomley, Dr. Brent A. Bauer, MD

Background: Massage therapy is offered increasingly in US medical facilities. While there are many massage schools throughout the United States, education is varied along with licensure and standards. As massage therapy in hospitals expands and proves its value, massage therapists need increased training and skills in working with patients who have various complex medical concerns, to provide safe, effective treatment. These services for hospitalized patients can impact patient experience substantially and provide additional treatment options for pain and anxiety, among other symptoms. This article summarizes the development of a hospital-based massage therapy course at a Midwest medical center.

Methods: A hospital-based massage therapy course was developed based on the clinical experience and learnings from massage therapists working in the complex medical environment. This hospital-based massage therapy course was developed with a three component educational experience: on-line learning, classroom study, and a 25-hour shadowing experience. The in-classroom study portion included an entire day in the Simulation Centre.

Results: This course addressed educational needs of therapists transitioning to work with interdisciplinary medical teams and patients who have complicated medical conditions. Feedback from students indicated key learning opportunities and additional content that is needed in order to address the knowledge and skills necessary when providing massage therapy in a complex medical environment.

Conclusions: The complexity of care in medical settings is increasing, while length of hospital stay is decreasing. For this reason, massage provided in the hospital setting requires much more specialized training to keep up with the changing health care system. This course provides an example of

how to address some of the educational needs of therapists transitioning to work in complex medical environment.

* Dion LJ, Cutshall SM, Rodgers NJ, Hauschulz JL, Dreyer NE, Thomley BS, Bauer B. Development of a hospital-based massage therapy course at an academic medical center. *Int J Therapeutic Massage Bodywk.* 2015;8(1):25–30.

MASSAGE THERAPY ALONE AND IN COMBINATION WITH MEDITATION FOR BREAST CANCER PATIENTS UNDERGOING AUTOLOGOUS TISSUE RECONSTRUCTION: A RANDOMIZED PILOT STUDY*

Liza J. Dion BCTMB, COMT, Deborah Engen OT, LMT, Valerie Lemaine MD, Michel Saint-Cyr MD, Donna Lawson, Charise Brock, Stephen Cha, Amit Sood, MD, Brent A. Bauer, Dietland L. Wahner Roedler, MD

Purpose: Massage therapy has been shown to be efficacious in the post-op setting and is routinely offered in our institution. The purpose of this study was to explore whether massage therapy combined with meditation would be more effective than massage alone in women recovering from autologous tissue reconstruction after mastectomy for breast cancer.

Methods: Forty women scheduled to undergo mastectomies for breast cancer followed by autologous tissue reconstruction were randomized to either massage therapy for 20 minutes on postoperative days 1–3 (group 1) or massage therapy combined with meditation (an additional 15 minutes) on postoperative days 1–3 (group 2). Instruction with DVD of Paced-breathing meditation as published by Dr. Amit Sood was used. Outcome measures: Visual Analog Scales for anxiety, relaxation, insomnia, alertness, fatigue, tension, pain, mood, and energy level (scores 0-10) prior to and after intervention on postoperative days 1–3 and at 3 weeks follow-up.

Results: 38 patients, 19 in each group, finished the study. The mean age for patients in both groups was 47 years. Pre- and post-intervention mean total VAS scores assessed during days 1–3 improved significantly in both groups ($p < .005$). Of the 10 domains listed, 5 improved significantly and consistently at all times measured (stress, anxiety, relaxation, tension, energy). However there was no significant difference in improvement between the 2 groups at day 1–3 post-op and at 3 weeks follow-up. Satisfaction with the intervention measured on post-op day 3 was high (very satisfied + satisfied 84% in group 1; 89% in group 2), but not significantly different between the 2 groups ($p = .63$).

Conclusion: In this pilot study, the addition of meditation to already available massage therapy for

the post-op care of breast cancer patients undergoing autologous tissue reconstruction after mastectomy for breast cancer did not appear to add any measurable benefit.

* Dion LJ, Engen DJ, Lemaine V, Lawson DK, Brock CG, Thomley BS, Cha SS, Sood A, Bauer BA, Wahner-Roedler DL. Massage therapy alone and in combination with meditation for breast cancer patients undergoing autologous tissue reconstruction: a randomized pilot study. *Complement Ther Clin Pract.* 2015;S1744–3881(15)00046-8. doi:10.1016/j.ctcp.2015.04.005. [Epub ahead of print] (Published with permission from Elsevier).

THE EFFECT OF MASSAGE THERAPY TO CONTROL NIGHT SHIFT RELATED STRESS: A PILOT PROSPECTIVE RANDOMIZED CROSSOVER TRIAL

Mir Sohail Fazeli MD, PhD (c), Jean-Paul Collet MD, PhD, Mir-Masoud Pourrahmat BSc, Alison Esser BHK, RMT

Background: The sympathetic and parasympathetic nervous systems (SNS and PNS) of the autonomic nervous system (ANS), keep our body in homeostasis. Disrupted homeostasis during stress (increased SNS and decreased PNS activity) is associated with increased inflammation—a known risk factor for metabolic syndrome, cardiovascular complications, and cancer. These complications are also associated with the stress of prolonged night shift experience. On the other hand, PNS stimulation has been shown to control inflammation, leading research toward new interventions that can stimulate PNS activity. Massage is among these interventions.

Objectives: 1) Assessing in healthy volunteers the stress effects of one night shift on the ANS. 2) Assessing the role of massage on reversing these effects via changing and rebalancing the ANS.

Methods: A pilot prospective randomized crossover trial on 8 healthy hospital staff involved in rotating night shifts. Each participant was exposed to a 30-minute-long upper body “massage” (MT) or a “relaxed-reading” intervention, randomly assigned at the end of two shifts. Spectral analysis of heart rate variability (HRV) was used to assess the activity of cardiac ANS.

Results: We did not find a significant difference in cardiac ANS activity between a regular day assessment and the end of night shifts. However, massage was associated with a significant shift in sympathovagal balance towards higher PNS activity compared to “reading”: Median percentage change from before to after intervention in HFnu (indicative of PNS/SNS balance) for MT=12.70%, reading =-16.75% ($p = .028$) and percentage change in PNS power for MT= 84.53%, reading =-7.66% ($p = .063$). The median

percentage change in total power for MT=38.86%, reading=16.86% ($p=.735$).

Conclusion: The results show that one massage session at the end of night shift is associated with a regulation of the cardiac ANS by boosting the PNS component. The final results will be used to plan stress management intervention trials.

Funded by Registered Massage Therapists' Association of British Columbia (RMTBC); ClinicalTrials.gov number: NCT02247089.

EFFECTS OF DEEP STRIPPING MASSAGE COMBINED WITH ECCENTRIC RESISTANCE ON QUADRICEPS PAIN THRESHOLD, PEAK TORQUE ANGLE, STRENGTH, AND FLEXIBILITY IN UNIVERSITY RECREATIONAL ATHLETES

Jeffrey Forman, PhD, NCTMB, CMTC, Michael E. Rogers, PhD, Qinglai Zhang, Jolaolu Medinat Jimoh

Introduction: Bi-articular muscles such as the quadriceps are highly susceptible to injuries because of the load and flexibility demands placed on them.

Objective: To determine the acute and subacute effects of deep stripping massage (DSM) combined with eccentric resistance (ER) on quadriceps peak torque firing angles, tender points, range of motion (ROM), and strength.

Method: Twenty-one recreational athletes (13 women; 8 men; 22.7 ± 1.6 yr) participated. Pretreatment quadriceps ROM was measured with a digital inclinometer. Power, peak torque, and peak torque angle during knee extension were measured with an isokinetic dynamometer. Pain threshold in four quadriceps tender points ((IVL), (SVL), (VM), (RF)) was measured with an algometer. After assessments, participants experienced 2 min warm-up massage to the dominant quadriceps. Post-warm-up, the knee was passively extended, loaded and participants resisted the pull of an elastic resistance band while DSM was performed on the quadriceps throughout full knee flexion ROM. Immediately following and 1 hr after treatment, all assessments were repeated.

Results: There was no effect on pain threshold immediately after treatment but it was increased ($p < .05$) 1 hr after treatment in 3 of 4 sites (IVL=12.9%; SVL=11.9%; VM=11.8%) with small to medium effect sizes (IVL=0.54; SVL=0.50; VM=0.45 (Cohen's d)). There was no effect on the RF pain threshold. The angle of peak torque increased 4.2% ($p=.02$) from pretreatment (71.7°) to 1 hr after treatment (74.7°) with a small effect size (Cohen's $d=0.43$). There was no effect on ROM, average power, peak torque, or average peak torque.

Conclusions: Combining ER with DSM to the quadriceps had no immediate effect. However, after

1 hr, pain thresholds were increased and peak torque angles increased towards longer muscle lengths while strength was not lost. These results suggest that combining DSM with ER may be a useful tool to increase peak torque angle.

MASSAGE, BODYWORK, AND MIND-BODY INTERVENTIONS FOR PARKINSON'S DISEASE: A CASE STUDY

Rosi Goldsmith, BA, LMT, DAFNS

Introduction: Parkinson's disease (PD) is a progressive neurodegenerative disorder, with symptoms of rigidity, tremor, postural instability, and bradykinesia. Sleep disorders, fatigue, emotional issues, and cognitive changes are some nonmotor symptoms (NMS) which negatively impact quality of life (QoL).

Objective: Research done within various populations using massage, focused exercise, mind-body practices, and imagined movement have shown benefits to associated brain areas, emotional issues, and/or motor symptoms implicated in Parkinson's. No previous studies have investigated these combined therapies for PD patients. This study asks whether a multimodal program could affect PD symptoms.

Case Presentation: A 63-year-old male with PD 5 years post-diagnosis, was taking Sinemet. Patient identified goals of pain relief, improved mobility, slowing of PD progression, and symptom control. Initial assessment showed moderately stooped posture; mild to moderate rigidity of neck and major joints; bilateral pain at shoulders; and impaired balance.

Methods: Fifty-six bodywork sessions over eight months included: Massage, Ortho-Bionomy; mindfulness and interoceptive awareness training, and neurological exercises including single leg stand and vertical eye saccades. A home program was developed from clinical practices, with adapted yoga, meditation, and mental rehearsal of his exercise/yoga routine. Joint range of motion (ROM), balance, and eye saccades were assessed clinically throughout the study. Pain, motor and NMS, and QoL were assessed by validated instruments: Visual Analog Scale (VAS), Non-Motor Symptom Scale (NMSS), PD Quality of Life-39 (PDQ-39), Modified PDQoL (PDQoL), and Unified Parkinson's Disease Rating Scale (UPDRS).

Results: ROM, balance, and eye saccades improved based on clinical assessments. VAS of pain showed a decrease from 7/10 to 4.5/10. PDQ-39 showed an 11.5% overall improvement, with the largest subscale improvement in Activities of Daily Living (ADL) (33%). PDQoL demonstrated notable subscale improvements of Emotional Functioning (12.5%) and Parkinsonian Symptoms (21.6%). NMSS showed a 26% overall improvement, with specific domain improvement in Sleep/Fatigue (10%). UPDRS

showed notable improvements in Motor Examination (15%). Patient reported he could often calm “off” symptoms of fatigue, tremors, and RLS by meditation and exercise/yoga mental rehearsal, resulting in improved sleep, confidence, and self-satisfaction.

Implications: Multiple therapies and medication changes may have introduced confounding variables, and variations in Parkinson’s symptoms and massage clinical practice make it hard to reproduce. The possibility of benefits to QoL and NMS suggests a controlled study using multiple evidence-based modalities, including bodywork, might be worthwhile.

CLARIFYING DEFINITIONS FOR THE PROFESSION: THE RESULTS OF THE MESSAGE THERAPY FOUNDATION’S BEST PRACTICES SYMPOSIUM*

Ann Blair Kennedy, LMT, BCTMB, DrPH, Jerrilyn Cambron LMT, DC, MPH, PhD, Patricia A. Sharpe, LMBT, MPH, PhD, Ravensara S. Travillian, PhD, NA-C, LMP, Ruth P. Saunders, PhD

Background: Massage is generally defined as manipulation of soft-tissue, whereas massage therapy is the systematic application of massage. However, research indicates that massage therapists are at times unclear about the definition of massage therapy, and the previously mentioned definitions may not give an accurate picture of what happens within massage therapy sessions.

Objectives: To determine how experts understand and describe the field of massage therapy.

Methods: A grounded theory approach was used for a secondary qualitative analysis of cross-sectional data. The data were gathered during a two-day symposium held in 2010 with the purpose of gathering knowledge to inform and aid in the creation of massage therapy best practice guidelines for stress and low back pain. The participants in the symposium were 31 experts in the field of massage therapy from the United States, United Kingdom, and Canada.

Results: While the discussions at the symposium were intended to help guide and create best practice guidelines for massage therapy for stress and low back pain, instead the discussions were more general in nature about massage therapy practice. Three over-arching themes were identified: 1) definition of massage, 2) complexity of massage therapy, and 3) framing of massage therapy practice. Each theme also has subthemes.

Conclusion: There is limited foundational research that examines how experts understand and describe the components within and the practice of massage therapy. Definitions for massage and massage therapy are offered as well as a model, which frames the context for massage therapy practice. Understanding the potential differences between the terms massage and

massage therapy could potentially transform the profession in the areas of education, practice, research, policy and/or regulation. Additionally, framing the context for massage therapy practice invites future discussions to further clarify practice issues.

* Kennedy AB, Cambron J, Sharpe PA, Travillian RS, Saunders RP. Clarifying definitions for the profession: the results of the Massage Therapy Foundation’s Best Practices Symposium. 2016. Manuscript submitted for publication.

PROCESS FOR MESSAGE THERAPY PRACTICE AND ESSENTIAL ASSESSMENT

Ann Blair Kennedy, LMT, BCTMB, DrPH, Jerrilyn Cambron LMT, DC, MPH, PhD, Patricia A. Sharpe, LMBT, MPH, PhD, Ravensara S. Travillian, PhD, NA-C, LMP, Ruth P. Saunders, PhD

Background: Little evidence exists about processes in massage therapy practice. Others have suggested massage therapy treatment has four phases including evaluate, plan, treat, and discharge. However, this framework may more accurately describe steps within the practice of massage therapy rather than treatment phases, and may not include all elements of practice.

Objective: The purpose of this cross-sectional grounded theory study was to understand how experts in the field of massage therapy describe massage therapy practice.

Methods: A qualitative study examining secondary data. In 2010, the Best Practices Committee at the Massage Therapy Foundation used purposive sampling to invite 31 experts to a 2-day symposium to discuss best practices for the massage therapy profession. Two researchers coded the data using NVivo 10 and, through qualitative analysis, memoing, and discussion, the data were summarized into themes. The findings were presented to a subset of participants via a web conference format to improve the trustworthiness of the data.

Results: The symposium participants felt that a discussion about the foundations and fundamentals of massage therapy was needed to help clarify aspects of the profession before best practices could be constructed. The discussion focused on and elucidated essential elements of the process for massage therapy practice. Three themes were identified concerning massage therapy practice: 1) client centered, 2) structure for practice, and 3) influencing factors.

Conclusion: Conceptual models were developed and a definition for massage therapy practice was identified. The practice framework can be applied to one massage therapy session or a series of sessions and is intended to be flexible and adaptive. This model builds upon the previously mentioned four-phase model, with additional elements added to the process including health messaging, reevaluation, and documentation.

The goal of providing these models is to give massage therapists tools to deliver the best possible care.

IMMEDIATE EFFECT OF THERAPEUTIC MASSAGE ON PAIN SENSATION AND UNPLEASANTNESS: A CONSECUTIVE CASE SERIES*

Martha Brown Menard, PhD, LMT

Introduction: Musculoskeletal pain is a common condition that poses a significant burden to its sufferers and costs the US economy billions of dollars each year in lost productivity. Individuals complaining of musculoskeletal pain make up a large proportion of clients treated by massage therapists in community practices, yet few studies have examined the immediate effect of therapeutic massage on this type of pain in the practice setting.

Objective: To assess the immediate effect of therapeutic massage on musculoskeletal pain sensation and unpleasantness in a community setting.

Methods: One hundred sixteen first-time clients who complained of musculoskeletal pain as a presenting symptom were recruited from a solo private practice setting in central Virginia and consented to participate in a prospective, consecutive, practice-based case series. The intervention consisted of a single 60-minute session of individualized therapeutic massage. Primary outcome measures were self-reported scores using Visual Analog Scales for pain sensation and unpleasantness.

Results: Both pain sensation and unpleasantness were significantly reduced by a single session of therapeutic massage. Mean pain sensation decreased from 3.76 (SD=1.87) prior to massage to .89 (SD=1.35) following massage, with $t=18.87$, $p < .001$. Mean pain unpleasantness decreased from 5.21 (SD=2.48) prior to massage to .64 (SD=1.23) following massage, with $t=20.45$, $p < .001$. Effect sizes were 1.76 and 1.90, respectively.

Conclusion: In this case series, therapeutic massage appeared to be an effective intervention for common musculoskeletal pain that influenced both the physical and affective dimension of the pain experience. Although care was taken to reduce potential bias through limiting eligibility to first time clients and use of a standardized script, practice-based case series have inherent limitations. Issues in conducting practice-based research by massage therapists and recommendations for future research are discussed.

* Menard MB. Immediate effect of therapeutic massage on pain sensation and unpleasantness: a consecutive case series. *Glob Adv Health Med.* 2015;4(5):56–60. doi:10.7453/gahmj.2015.059. Epub 2015 Sep 1.

ACIH: PROMOTING INTERPROFESSIONAL EDUCATION AND COLLABORATIVE PRACTICE TO IMPROVE HEALTH CARE

Martha Brown Menard, PhD, LMT and Leena S. Guptha, DO MBA BCTMB

Introduction: The Academic Collaborative for Integrative Health (ACIH) is an organization comprised of the councils of colleges, licensing and accrediting bodies for the five licensed integrative health care disciplines in the US, including massage therapy.

Objective: Sharing ACIH’s initiatives relevant to the integration of massage therapy and pain management over the past three years. This overview of the initiatives described below will be presented by ACIH staff and volunteers participating directly in those activities.

Methods: ACIH convenes educators, clinicians, and researchers, advocates for the greater inclusion of its licensed disciplines, and provides educational resources to promote integration of those disciplines.

Results: ACIH is a member of PAINS, a collaboration of numerous national pain management groups, including patient advocacy groups, which have together influenced the development of Department of Health and Human Services’ National Pain Strategy. Working with PAINS, we published and widely disseminated an influential policy brief advocating the wider and earlier adoption of nonpharmacological approaches such as massage therapy into standard pain management. ACIH conducted a survey of hospital-based massage therapy programs in the US, which has been submitted for publication and will be available in 2016. ACIH has also been actively promoting research literacy through its PERL project, and has created numerous educational resources, such as webinars, that are currently available at no cost through its website.

STORIES OF PEOPLE LIVING WELL WITH PAIN*

Martha Brown Menard, PhD, LMT and Justine E. Owens, PhD

Introduction: Chronic pain is a challenging condition affecting 30% of the US population and 20% of the global population. People successfully meeting this challenge by achieving well-being while living with pain are a largely untapped source of information about how both clinicians and patients can reduce the suffering associated with this condition. This presentation focuses on a subset of qualitative data from a larger completed study using a concurrent mixed methods design that investigated how people develop wisdom as a result of coping with adverse circumstances.

Objective: To share the results of interviews from people with “positive stories to tell”, focusing on what helped and advice for others in similar circumstances.

Methods: Fifty-nine participants from Boston, San Francisco, Washington DC, and Charlottesville, Virginia, were purposively recruited using newspaper ads looking for people living with pain who had “positive stories to tell”. Data analysis consisted of thematic and content analysis of in-depth qualitative interviews from a larger study employing a concurrent mixed methods design. NVivo9 was used to manage the large amount of qualitative data.

Results: Major themes included acceptance, openness, self-efficacy, hope, perseverance, self-regulation, kinesthetic awareness, holistic approaches, and use of integrative therapies including massage, self-care, spirituality, social support, and therapeutic lifestyle behaviors, such as music, writing, art, gardening, physical activity, and spending time in nature.

Conclusion: These narratives provide a useful guide for living well with pain and can help clinicians working with those living with persistent pain think more broadly about individualized recommendations to improve quality of life. Massage therapy and other body-based practices may serve as a ‘bridge’ to encouraging other therapeutic and healthy lifestyle behavioral changes through improving kinesthetic awareness.

* Owens JE, Menard M, Plews-Ogan M, Calhoun LG, Ardel M. Stories of growth and wisdom: a mixed-methods of people living well with pain. *Global Adv Health Med.* 2016;5(1):16–28.

IDENTIFYING INCONSISTENCIES AND REPORTING DEFICITS IN THERAPEUTIC MASSAGE AND BODYWORK (TMB) CASE REPORTS

N. Munk, PhD, LMT, S. Shue, MS, E. Freeland, R. Ralston, MSLS, K.T. Boulanger, PhD, CMT

Introduction: Case reports are a fundamental tool through which therapeutic massage and bodywork (TMB) practitioners can inform research and impact their field by detailing the presentation, treatment, and follow-up of a single individual encountered in practice. Inconsistencies in case reporting limit their impact as fundamental sources of clinical evidence. Using the TMB adapted CAsE REport (CARE) guidelines, the current study sought to provide a rich description regarding the reporting quality of TMB practitioner authored TMB case reports in the literature.

Methods: 1) Systematic identification of published, peer-reviewed TMB case reports authored by TMB practitioners following PRISMA recommendations, 2) audit development based on TMB adapted CARE guidelines, 3) audit implementation, and 4) descriptive analysis of audit scores.

Results: Search identified 977 articles and 35 met study inclusion criteria. On average, TMB case reports included approximately 58% of the total items identified as necessary by the TMB adapted CARE guidelines. Introduction sections of case reports had the best item reporting (80% on average) while Case Presentation (54%) and Results (52%) sections scored moderately overall with only 20% of necessary Practitioner Description items included on average. Audit scores revealed inconsistent abstract reporting and few audited case reports including client race (20%), perspective (26%), and occupation/activities (40%); practitioner practice setting (12%), training (12%), scope-of-practice (29%), and credentialing (20%); adverse events or lack thereof (17%); and some aspect of informed consent (34%). Treatment descriptor item reporting varied from high to low. Various implications of concern are discussed.

Conclusion: The current audit and descriptive analysis highlight several reporting inconsistencies in TMB case reports prior to 2015. Reporting guidelines for case reports are important if standards for and impact of TMB case reports are desired. Adherence to reporting specifications outlined by the TMB adapted CARE guidelines could improve the impact and usability of TMB case reports in research, education, and practice.

LEARNING INTEROCEPTIVE AWARENESS SKILLS IN BODYWORK THERAPY: RESULTS FROM MASSAGE THERAPIST PROCESS EVALUATION

Cynthia Price, PhD, MA, LMP and Susan Graham, LMT

Introduction: Interoceptive awareness involves the identification of, access to, and appraisal of inner body sensations. Neuroscience models link interoceptive awareness to emotion regulation and behavior change. While a common focus in bodywork treatment, interoceptive learning processes within the context of body therapy have not been researched.

Objectives: Mindful Awareness in Body-oriented Therapy (MABT) is designed to teach interoceptive awareness using distinct strategies for identification, access, and appraisal. An NIH-funded study of MABT for women in treatment for substance use disorder (SUD) provided the opportunity to examine the learning processes.

Methods: Licensed massage practitioners delivered the 8-week MABT intervention to women in SUD treatment. Following each MABT session, the practitioners documented participant experience and engagement in learning processes on a standardized process evaluation form. Analyses of the process evaluation data involved descriptive statistics.

Results: Eighteen participants (aged 20–61) received MABT. Of these, 68% screened positive for PTSD and 20% for moderate to severe depression. All participants learned to identify and successfully access interoceptive awareness when provided with supportive practitioner facilitation. However, in only half of the sessions were participants able to engage in sustained attention to internal awareness. The capacity for sustained attention increased over time and was associated with appraisal of interoceptive experience, evidenced by a 20% increase in reported new sensory (physical and emotional) awareness, and a 30% increase in sessions involving insight about self.

Conclusion: Results indicate that a distressed sample of women could learn interoceptive awareness with individualized coaching. The ability to engage with sustained attention to interoceptive awareness practice appears to be critical for appraisal and concomitant increases in self-awareness. The learning process appears to be incremental, involving skill acquisition and practice over a period time. Bodywork practitioners are uniquely situated to facilitate interoceptive awareness, and these findings yield new and valuable clinical implications for research and practice.

INTEROCEPTIVE AWARENESS AMONG WOMEN IN TREATMENT FOR CHEMICAL DEPENDENCY IN RESPONSE TO MINDFUL AWARENESS IN BODY-ORIENTED THERAPY

Cynthia Price, PhD MA LMP, Carole Hooven, PhD, Chieh Cheng, PhC

Introduction: Interoception, the awareness of inner body sensations, can be undeveloped and even challenging for individuals with trauma, pain or high stress who may have learned to avoid such experiential awareness. Cognitive neuroscience recognizes the importance of interoception for emotion regulation and health, however few studies have examined how interoceptive awareness may be addressed in bodywork practice.

Objectives: Mindful Awareness in Body-oriented Therapy (MABT) combines manual and mind-body approaches to teach interoceptive awareness and skills for self-care. An NIH-funded, three-group randomized control trial provided a unique opportunity to examine MABT effects on interoceptive awareness.

Methods: Women (N=94) in intensive outpatient treatment (treatment as usual or TAU) for substance use disorder (SUD) were randomly assigned to one of three study conditions: MABT, Women’s Health Education (WHE) or TAU only. Licensed massage therapists delivered the 8-week MABT intervention. Pre/post assessment included the Multidimensional Assessment of Interoceptive Awareness (MAIA) to measure awareness and appraisal of inner body

sensations. In addition, MABT participants completed a post-intervention questionnaire about skills learned and perceived benefits. RM ANOVA was used to test for group differences in interoceptive awareness; content analysis was used augment these findings.

Results: The study sample ranged in age (20-61 years), was low-income and distressed. At baseline, 68% screened positive for PTSD, 12% for an eating disorder, and 20% for depression. MABT participants, compared to WHE and TAU, showed significant improvements in interoceptive awareness on MAIA scales: Noticing ($p=.002$), Self-regulation ($p=.002$), Emotional Awareness ($p=.001$), Listening to Body ($p<.0001$) and Trust ($p=.03$). MABT participants reported learning new skills for self-care, gaining new awareness of self, and improved ability to manage negative physical and emotional sensations.

Conclusion: Results demonstrated that MABT increased interoceptive awareness and showed increased self-care and capacity to engage with interoceptive signals related to physical and emotional well-being. The findings reveal the responsiveness to MABT among a distressed sample, and highlight the relevance of interoceptive awareness to body therapy with similar populations.

QUALITATIVE AND SEMI-QUANTITATIVE SELF-REPORTED OUTCOMES IN SUSAN KOMEN RACE PARTICIPANTS WHILE MASSAGE THERAPY STUDENTS ARE EXPOSED TO RESEARCH DESIGN AND PROTOCOL

Jay Randolph, LMT, AS, and Gregory Casey, PhD, LMT

Introduction: On Oct. 25, 2014, the Anatropis Research Institute (ARI) partnered with Delgado Community College (DCC) and the New Orleans Affiliate for Susan Komen (NOASK) Race for the Cure. The organizations sought to combine education, research, and community outreach.

Objectives: 1) To measure qualitative and semi-quantitative participant outcomes for the event, 2) to establish a relationship between DCC and NOASK, and 3) to form a protocol exposing students to basic research design.

Methods: A health intake form along with a voluntary pre- and post-massage therapy survey was administered by ARI to race participants. Following initial protocol after intake, DCC massage therapy students gave 6–8 minute massages to any participants at the event regardless if they were participating in the survey. DCC students and faculty also participated in a post-event survey that was optional. All data collection, analysis, and interpretation were done by ARI personnel.

Results: 61 race participants self-reported that total pain scores decreased following massage (Pre

5 ± 7 vs. Post 2 ± 4). There was a statistically significant difference between pre- and post-massage pain scores of participants who received table massage ($F(1,60)=10.00, p=.002, N=31$) versus those of chair massage ($F(1,58)=1.87, p=.17, N=30$). Also, marked areas on the health intake silhouette did not correlate with pain scores for pre- ($R^2=0.061$) and post-massage ($R^2=0.049$). In parallel, DCC students and faculty preferred an average of 8 min and 35 sec (± 1 min 5 sec) duration for massage per participant ($N=12$). Other qualitative comments and themed specific responses support increased involvement at NOASK events.

Conclusion: The self-reported data are evidence that there were beneficial outcomes that support massage therapy in this community outreach event. Although some negative data did not support this outcome, they did not deny it either. At the same time, DCC massage therapy students were exposed to practical research design by facilitating massage therapy and adding to the protocol post study. The qualitative responses from participants, students, and faculty support the notion that research and education within a community service setting is possible and possibly beneficial to all parties concerned.

TREATING INDIVIDUALS WITH AMPUTATIONS IN THERAPEUTIC MASSAGE AND BODYWORK PRACTICE: A QUALITATIVE STUDY

S. Shue, MS, T.M. Mulvihill, PhD, A. Kania-Richmond, PhD, RMT, N. Munk, PhD, LMT

Introduction: Best practices regarding massage therapy and bodywork (TMB) for individuals with amputations is unestablished in the literature. Although anecdotal observations are available, these are of little use to amputee stakeholders wishing to seek, identify, and/or research effective care for amputees. This study is part of a multifaceted research program seeking to establish a foundation for education and investigation of TMB for amputation related conditions/symptomology. The purpose of this qualitative study was to understand how, and to what perceived effect, TMB practitioners approach and treat individuals with amputations in their practice.

Methods: Using a phenomenological approach with semi-structured interviews, data were collected over the phone by one study team member. Interviews were transcribed verbatim. Analysis consisted of descriptive coding and themes emerged through an iterative process. Codes were verified and themes discussed with the research team. IUPUI's Office of Research Integrity provided IRB approval #1505574988.

Results: Twenty-five community-practicing, professional TMB practitioners from 16 different states consented to participate and were interviewed.

Preliminary analysis identified three themes indicating TMB practitioners: value touch and consider it a core aspect of treatment for individuals with amputations; operate under a core belief that individuals with amputations greatly benefit from TMB; and consider relief that stems from TMB to be multidimensional, including physical, mental, and emotional aspects.

Conclusions: The TMB practitioner perspective is important to inform the development of a TMB practice framework for amputees. Findings support the assertion that individuals with amputations benefit from TMB. A range of health benefits were identified, yet all appeared to function through the touch element of the treatment. The exploratory nature of this research brings attention to important questions regarding approaches to treatment and potential hypothesis regarding effectiveness of TMB interventions for amputees. Next steps will consider TMB practitioner perspectives in relation to experiences and perspectives of TMB recipients with amputations.

EFFICACY OF SUSTAINED MYOFASCIAL AND RELEASE AND MANUAL LYMPHATIC FACILITATION FOR TEMPORARY PALLIATION OF ACUTE LUPUS INFLAMMATIONS: A CASE REPORT

Peter A. Smalley, MS, LMP

Introduction: Systemic lupus erythematosus (SLE) is a chronic autoimmune disorder characterized by sporadic acute inflammations (flare-ups) affecting diverse, systemic connective tissues. Massage therapy, a complementary and alternative medicine (CAM) treatment frequently sought by lupus patients, has been shown to offer relief of lupus symptoms in some cases, and no effect or slight harm in others.

Objective: Sustained Myofascial Release and Manual Lymphatic Facilitation, massage therapy modalities targeted to the specific pathophysiology of lupus, were assessed for improvements in the effectiveness of massage as palliative care.

Case presentation: A 48-year-old Caucasian female was diagnosed with lupus by her primary health care provider in 2007. Symptoms presented include malar rash, extreme fatigue, chronic pain, Raynaud's Syndrome, mental/neurological symptoms, and severe quality of life limitations. Symptoms "flare up" in response to atmospheric, environmental, and psychosocial triggers, leading to acute systemic inflammation. Therapist assessed client with moderate to severe fascial restriction, moderate anterior bend of thoracic spine, light-plus forward head posture, light medial rotation of bilateral glenohumeral joints, light-plus anterior pelvic tilt, and light knee hyperextension.

Intervention: Client was treated with five, one-hour sessions of Sustained Myofascial Release and Manual Lymphatic Facilitation. Initial treatment during an active systemic inflammation resulted in rapid attenuation of lupus flare-up. Symptoms relating to systemic inflammation, pain, fatigue, neurological effects, and quality of life limitation returned to baseline measurements for 1–2 days following treatment. Further flare-ups were neither delayed nor diminished by initial treatment, but did respond well to subsequent treatments, similar to initial treatment.

Interpretation: Chronic SLE symptoms in their active, acute inflammatory phase can be partially attenuated by the application of specific, targeted massage therapy modalities, resulting in temporary relief of symptoms.

Implications: Further research should focus on optimizing the frequency and duration of these targeted modalities for greatest benefit to the client.

POSTER PRESENTATIONS

INTEGRATING COMPLEMENTARY HEALTH APPROACHES INTO PATIENT CARE BENEFITS PATIENTS AND CONTROLS COSTS TO THE HEALTH CARE INSURANCE PROVIDER

Maureen M Anderson, MD, Karen Armstrong, LMT, NCTM, Katherine Nori Janosz, MD, FACP, Michael Tocco, DAOM Fellow, R.Ac., R.N., Nancy A. DeVore RN, BS, CCM, Geoffrey Stachura, Linda Styczynski RN, BSN, CCP, WHE, Karen Stachura, Hallie Armstrong ND, Gail Elliott Patricolo BA(Hons), Grad Cert CAM

Introduction: Health care costs continue to increase, affecting patients and insurance providers. As people look to control health care costs, complementary health approaches are increasingly used to augment traditional medicine, and integrative medicine (IM) incorporates these complementary approaches into traditional patient care. The IM Department was established in our institution in 2004 and now offers a wide range of services to patients. Our institution provides health care coverage to all benefit-eligible hospital personnel and their dependents; this health care program is an employer self-insured health plan.

Objectives: To evaluate the clinical and financial impact of incorporating IM modalities into patient care.

Results: We found that the coverage of certain IM modalities for specific conditions had positive clinical results and resulted in dramatic cost savings to the insurance plan: there was a savings of \$1 million in 2010 due to changes in chiropractic coverage, and, in 2014, there was a 19.7% reduction in costs related

to musculoskeletal conditions. At the same time, this partnership supports patients by providing appropriate and effective care, and we have seen success in terms of patient recovery and patient satisfaction. Here, we present the history of the relationship, how the coverage of IM modalities has expanded, and the current practice at our institution.

Conclusions: We demonstrate that this innovative relationship has benefitted patients and resulted in cost-savings for the insurance provider. Therefore, this partnership will continue to expand, thus providing patients with a wide range of treatment options and effective care.

MASSAGE THERAPY TO REDUCE PAIN AND IMPROVE HEALTH AND QUALITY OF LIFE IN PEOPLE WITH MULTIPLE SCLEROSIS

Deborah Backus, PT, PhD, Lisa Ruger, LMT, Anneke Bender, MPT, Christine Manella, PT, LMT, MCMT, Michelle Long, BS, LMT, ACSM C-EP, Mark Sweatman, PhD

Introduction: Multiple sclerosis (MS) is a chronic inflammatory disease of the central nervous system affecting over 2 million people world-wide. Pain, fatigue, and spasticity are common symptoms in people with MS (PwMS). Approximately one third of surveyed PwMS indicate they use massage therapy (MT) for symptom management because conventional treatment is not effective these symptoms, which can therefore decrease their quality of life (QOL).

Objective: To assess the impact of MT on pain, fatigue, spasticity, perception of health, and QOL in PwMS.

Methods: This pre–post design pilot study assessed changes in pain (MOS Pain Effects Scale; PES), fatigue (Modified Fatigue Impact Scale; MFIS) spasticity (Modified Ashworth Scale; MAS), perception of health (Mental Health Inventory; MHI) and QOL (Health Status Questionnaire; HSQ) in PwMS over the age of 18 who received a standardized routine of MT by a licensed massage therapist (LMT) one time a week for 6 weeks. Symptoms were assessed pre- and post- each MT session; deviations from the MT protocol were documented. Outcome measures were collected pre- and postintervention.

Results: Twenty-four participants completed the study. Pain (PES) and fatigue (MFIS) decreased significantly ($p=.00$) at post-test. There was no significant change in spasticity (MAS). QOL significantly improved (MHI and HSQ, both $p=.00$). Change in pain was positively correlated with change in fatigue (MFIS) ($r=0.532$, $p=.01$), and negatively correlated with perception of health (MHI) ($r=-0.647$, $p=.00$), and physical and emotional QOL (HSQ). There were no other significant relationships.

Conclusions: MT may lead to less pain in PwMS, and as pain decreases, fatigue, perception of health, and QOL may improve. Given the small number of participants and no control group, further study is warranted. However, based on these findings, PwMS are excellent candidates for massage therapy to help manage pain and fatigue to improve their health and QOL.

EFFECT OF MASSAGE THERAPY ON THE PROPRIOCEPTIVE SYSTEM OF AN AUTISTIC CHILD—A CASE STUDY

Rachel Benbow, LMT, BA, MLIS

Introduction: Children with Autism Spectrum Disorder (ASD) often have an underdeveloped or dysfunctional proprioceptive system, leading to significant motor skill delays and increased anxiety. There is not enough clinical research to indicate the efficacy of massage therapy on proprioceptive dysfunction in children with ASD, but if shown effective, massage therapy could offer a new intervention for this issue.

Objective: The objective of this case report is to describe changes in the proprioceptive abilities of a child with ASD after the application of 8 massage therapy sessions over a four-week period.

Case Presentation: The subject of the case report was a 5-year-old Caucasian female client with mid- to high-functioning autism and proprioceptive dysfunction. The client's proprioceptive dysfunction impairs gross motor planning and execution, creating gross motor developmental delays.

Intervention: Eight 40 minute massage therapy sessions, consisting of Swedish massage and foot reflexology, were administered twice a week over four weeks. The Swedish massage protocol utilized strokes stimulating to muscle spindle proprioceptive neurons. The foot reflexology focused on reflex points specific to the nervous system. Improvements in proprioceptive abilities were monitored through pre- and post-massage testing activities that included single foot balancing, jumping rope, back-and-forth ball bouncing, and independent ball dribbling.

Interpretation: The client displayed improvement in proprioceptive testing tasks at a much faster rate than her usual learning curve. Proprioceptive progress was demonstrated by gains in gross motor skills pertaining to postural control, overall body coordination, and use of force.

Implications: Although positive results were achieved within this case study, more extensive studies are needed to support the efficacy of massage therapy on proprioceptive dysfunction in children with ASD. Further research is needed to determine which intervention in this case study, Swedish

massage, foot reflexology, or the combination of the two, is responsible for the observed changes.

PILOT STUDY OF MIXED LIGHT TOUCH MANUAL THERAPIES ON SOLDIERS WITH CHRONIC POST-TRAUMATIC STRESS DISORDER AND INJURY TO THE HEAD*

Lauren Davis, PhD, LMT, BCTMB, Brenda Hanson, PhD, Sara Gilliam, PhD

Background: The objective of this study is to investigate the effects of Light Touch Manual Therapies (LTMT), such as Craniosacral Therapy (Upledger) and Brain Curriculum (Chikly) on soldiers with Post-Traumatic Stress Disorder (PTSD) and mild Traumatic Brain Injury (mTBI). PTSD and mTBI are pervasive in military and general populations. There is an overlap in some PTSD and mTBI symptomatology (e.g., anxiety, depression, fatigue); persistent headache is prevalent in mTBI. Treatment for PTSD and mTBI symptoms is often ineffective and accompanied by side effects.

Methods: Active Duty United States Service Members diagnosed with PTSD and accepted into an intensive outpatient program were screened for having a self-reported injury to the head at least two years prior. Twenty-seven Service Members were screened during eight months of pilot study recruitment, eleven participants with a positive screen were enrolled, and ten participants completed our pilot study. After obtaining IRB informed consent, all participants received two 60-minute sessions (one week apart) of mixed LTMT, including primarily Craniosacral Therapy (Upledger) and Brain Curriculum (Chikly). Self-reported data collected by paper and computer surveys (Patient-Reported Outcomes Measurement Information System [PROMIS] and Quality of Life in Neurological Diseases [Neuro-QoL]) were gathered before and after LTMT sessions. Twenty variables were examined for change.

Results: Headache, anxiety, and pain interference each significantly decreased (p values range from .008–.039, Cohen's d ranges from 0.82–1.27, $N=10$). PTSD Checklist-Military version scores significantly increased ($p=.013$, $d=1.21$, $N=9$) possibly indicating exacerbated PTSD symptoms, not uncommon at the start of a treatment program. The other comparisons were not statistically significant.

Conclusions: Mixed LTMT may be helpful in reducing some symptoms of PTSD and injury to the head. Further investigation is warranted to determine if LTMT is an effective treatment for headache, anxiety, or other problems associated with PTSD or injury to the head. Also worth future investigation is whether or how changes in neuronal shape, a potential mechanism underlying effects of LTMT, cause long-term

changes in the central nervous system, which in turn may affect symptoms such as headache, anxiety, or other physiological processes.

Disclaimer: The views expressed in this document are those of the authors and do not reflect the official policy of William Beaumont Army Medical Center, the Department of the Army, or the United States Government.

* Davis L, Hanson B, Gilliam S. Pilot study of mixed light touch manual therapies on soldiers with chronic post-traumatic stress disorder and injury to the head. *J Bodywk Move Ther.* 2016;20(1):42–51.

EFFECTS OF MASSAGE THERAPY ON POSTOPERATIVE PAIN IN INFANTS WITH CONGENITAL HEART DISEASE

Corrie Frey, LMT, CIMI, CPMT, Tondi M Harrison, PhD, RN, CPNP, FAAN, Travis Duffey, LMT, Lauren Renner, RN-BC, MS, PNP-PC/AC, Jill A Fitch, MD, FAAP

Introduction: Pain management is essential for pediatric patients following cardiothoracic surgery. Massage reduces self-reported postoperative pain in adults with heart disease, but has received little attention in infants.

Objective: Examine the effect of massage on pain in infants following surgical intervention for congenital heart disease.

Methods: We used a two-group RCT design with a sample of 60 infants between birth and 12 months of age following cardiothoracic surgery. Group 1 received standard postoperative care plus a daily 30-minute period where nonessential nursing care was deferred. Parent interaction with infant was not restricted. Group 2 received standard postoperative care plus a daily 30-minute massage. Interventions continued for seven consecutive days. Pain was measured six times daily using the Face, Legs, Activity, Cry, Consolability Pain Assessment Tool (FLACC). Average daily analgesic dose was recorded. Descriptive statistics and GLMM repeated measures assessments of FLACC by group were calculated. Latent growth models of FLACC by group were created using fentanyl-equivalent narcotic values as a time-varying covariate each of the seven study days.

Results: Adjusted pain scores for fentanyl-equivalent narcotic were lower for massage infants on all but day 7. Overall group effects on level and rate of change of pain were not statistically significant [$\beta_0 = -0.118$ (SE=0.294), Wald test=-.408, $p=.687$ and $\beta_1 = -0.005$ (SE=0.087), Wald test=-0.053, $p=.958$, respectively]. However, specific contrasts for each day revealed that massage infants had lower pain scores

with small to medium effect size differences, largest at days 4, 5, and 6.

Conclusions: Although statistical significance was not reached, effect sizes demonstrated clinically important effects of massage on daily pain. This study provides beginning evidence this nonpharmacological adjunct to pain management may reduce pain in infants with congenital heart disease, providing a particular benefit for this population by reducing demand on the cardiorespiratory system. Additional research is needed to further assess effects.

CHRONIC ANKLE INSTABILITY (CAI), CLINICAL REASONING AND RESEARCH LITERACY: A CASE REPORT

Rosi Goldsmith, BA, LMT, DAFNS

Introduction: Ankle sprains comprise up to 85% of athletic injuries. Most heal without consequences. Chronic ankle sprains, especially in sports, can result in more proximal complaints. A perception of instability and sensorimotor deficits are key symptoms of chronic ankle instability (CAI).

Objective: To note how clinical reasoning and research literacy reframed a clinical focus CAI that improved outcomes and patient satisfaction.

Case Presentation: A 48-year-old athletically inclined corporation middle manager had a history of sports injuries. After multiple prior treatments, including two knee surgeries, she still experienced restriction in her ability to walk, run, stand, squat, or engage in sports. The patient's initial complaint was knee pain.

Interventions: Ortho-Bionomy® (O-B) techniques were initially applied to hypertonic, painful muscles around the knee and proximal to it, in 7 sessions over 4 months. The practitioner surveyed the research and found that patient self-report of lower limb instability is an indication of CAI, despite absence of pain at the anterior talofibular ligament (ATFL). Positive anterior drawer and talar tilt tests suggested a change of focus to the ankle. O-B for ATFL and calcaneofibular ligaments was applied in 3 sessions. Four months later, the patient presented with re-injury, and practitioner found new research recommending massage techniques for CAI sensorimotor deficits. Practitioner assessed ATFL pain by palpation and pinwheel tests, and found diminished sensation and changed frequency, dosage and methods. In 11 half-hour sessions over 4 weeks, practitioner used O-B for proximal fibula and hypertonic lower leg muscles plantar fascia massage, ankle isometric and isotonic exercises to increase proprioceptive awareness and improve ankle biomechanics to prevent re-injury.

Results: Following the first 4 months of treatment, the patient reported diminished knee pain, but a

perception of instability. The 5th month, with ankle-focused sessions, increased the patient's perception of stability, but did not prevent re-injury. The last series of treatments 4 months later, the patient reported increased proprioception: "I can be mindful of how I use it", "Feel close to normal", "I am excited about getting my body back", "I just thought it was my knee", "Now I'm noticing the healing."

Implications: Massage practitioners may apply clinical reasoning skills, assessments within their scope of practice, and research literacy to target physiological dysfunction that is not immediately obvious or reported by the patient.

BOWENWORK® FOR MIGRAINE RELIEF: A CASE REPORT*

Sandra Gustafson, MHS, BSN, RN

Introduction: Migraine is a complex neurological disorder characterized by episodic, neurogenic, cerebrovascular inflammation and central nervous system hypersensitization, causing severe pain and disability. Previous research on the treatment of migraine focuses on the use of pharmaceutical prophylactic and symptomatic treatments and nonpharmaceutical therapies such as, acupuncture and massage. No published study has investigated Bowenwork for migraine intervention. Bowenwork is a neuromuscular, soft-tissue relaxation technique posited to reset dysfunctional myofascial tension patterns via proprioceptive pathways and the autonomic nervous system.

Objective: This prospective case report describes one migraineur's response to Bowenwork, aimed at reducing migraine, neck pain, and analgesic consumption, and improving wellbeing and activity function.

Case Presentation: A 66-year-old Caucasian female with a history of debilitating migraine since childhood, and severe neck pain and jaw injuries resulting from 2 motor vehicle accidents sustained as an adult. She had previously sought medical, pharmaceutical and CAM treatments for migraine, neck pain and right-sided thoracic outlet syndrome, arm and thumb pain, with no satisfactory relief.

Intervention: The client received fourteen one-hour Bowenwork sessions over 4 months. Measure Yourself Medical Outcome Profile version 2 (MYMOP2) was collected prior to the first and subsequent sessions to evaluate clinically meaningful changes in migraine and neck pain occurrences, medication use, functional ability, and sense of wellbeing. During each session, the practitioner applied Bowenwork to the lower back, upper back, neck and temporomandibular joint, and areas relevant to the client's symptoms.

Interpretation: Initial MYMOP2 data showed symptoms scoring 5/6 ("As bad as can be"). In

subsequent sessions, the client reported decreased migraine and neck pain. However, she acquired a respiratory infection with prolonged coughing (session 11); and experienced an allergic food reaction, requiring pharmaceutical treatment, that exacerbated neck pain, but not migraine (session 12). At session 14, MYMOP2 data showed no migraine (0/6), neck pain (0/6) nor medication use, improved activity function and sense of wellbeing. Her right arm and thumb symptoms persisted to a lesser extent.

Implications: Bowenwork progressively offered relief for one chronic migraineur, despite two episodes of acute symptoms. This single-case report's inherent limitation lies in not being standardizable nor generalizable to larger populations. Limited research literature on Bowenwork as a nonpharmaceutical treatment, highlights the need for further studies on larger migraineur cohorts, using reliable and valid assessment tools.

* Gustafson S. Bowenwork® for Migraine Relief: A Case Report. 2016. Accepted by *IJTB* for publication.

SURVEY OF REGISTERED MASSAGE THERAPISTS IN CANADA ON HOME CARE PRACTICES AND BELIEFS

Robynne Kingswood, RMT and Julie Dais, PhD

Introduction: Home care is an integral part of the overall treatment plan for clients of massage therapy. Home care includes hydrotherapy, therapeutic exercise and stretching, stress management techniques, and ergonomic wellness. Although home care instruction is a basic competency in regulated provinces, we wanted to find out if registered massage therapists (RMTs) effectively incorporated it as part of their practice.

Objectives: This survey of RMTs was conducted to gain a better understanding of their incorporation of home care in patient treatment plans, as well as their views on patient compliance.

Methods: An online questionnaire-based study was conducted throughout regulated provinces in Canada. Therapists' inclusion of home care in treatment plans including methods of delivery were surveyed along with their views regarding patient compliance and any reasons for noncompliance.

Results: Of the RMTs surveyed, those who received home care training while in school reported that they consistently applied it in some form in their clinical practice. They reported that compliance in their patient base was between 50%–75%. In addition, 81% of RMT respondents indicated they would participate in home care continuing education programming if offered, and 100% agreed that home care enhances treatment and advances treatment plans, supporting best-practice standards.

Conclusion: This study indicates that there is an opportunity for further home care development as RMTs showed a willingness to utilize new strategies of home care planning in order to provide better instruction and enhanced patient compliance. Due to small population size, more research will be needed, and it was suggested that bilingual continuing education instruction be provided. We recommend exploring the impact of smartphone apps and web-based home care assignments for patients to tailor home care protocols to the patient and support improved compliance.

PROPOSED MODEL STRUCTURE FOR PROTOCOL ADHERENCE UTILIZING A MANUALIZED THERAPEUTIC MASSAGE INTERVENTION*

Erika Larson, LMT, MS, Mark Hyman Rapaport, MD, Pamela Schettler, PhD, Sherry A. Edwards, BS, Boadie W. Dunlop, MD, Jeffrey J. Rakofsky, MD, Becky Kinkead, PhD, Leticia Allen, Margaret Alfieri, LMT, CPT

Introduction: Standardized treatment protocols used in grant-funded research aim to ensure that each participant in the study group receives identical treatment. The concept of repeatability is core to scientific research. Manualization of a therapeutic massage protocol provides methodological rigor in a clinical study utilizing massage therapy as an intervention. Collaboration between scientists and massage therapists in the development and refinement of a manualized therapeutic massage protocol is essential.

Objectives: A training model designed to decrease both intra- and inter-therapist variability in performance of a massage protocol was developed. This training model was followed throughout a study utilizing Swedish Massage Therapy versus Light Touch control condition in order to maintain massage protocol integrity and to decrease variability among massage therapists.

Methods: The proposed model includes massage therapist training (initial and ongoing quarterly retraining sessions) utilizing routinized treatment protocols and accessible resources (training video, script, treatment guides, weekly study meetings). The key differences in this model are the use of ongoing hands-on and video-based retraining and self-report feedback from study participants.

Results: During the study, utilizing this training model increased consistency of treatment intervention as measured by testing massage therapists during the retraining sessions. After implementing quarterly retrainings, massage therapists demonstrated increased ability to apply the study intervention as measured by observation during retraining sessions and subject self-report. The number of study participants

reporting differences between massage therapists treatment delivery dropped measurably over time. Unexpectedly we found that massage therapists also increased their participation in team discussions regarding additional ways to standardize the treatment protocol. Intra- and inter-therapist reliability data (collected from study subjects at the end of each session) confirmed massage therapists' adherence to the treatment protocol.

Conclusion: Through rigorous application of aforementioned measures collaboration between scientists and massage therapists can result in a stable, highly standardized therapeutic massage intervention.

* Larson E, Rapaport MH, Schettler P, Edwards SA, Dunlop BW, Rakofsky JJ, Kinkead B, Allen L, Alfieri M. Proposed model structure for protocol adherence utilizing a manualized therapeutic massage intervention. *J Clin Psychiatry*. 2016. Accepted for publication.

VOLUNTEERISM OF MASSAGE THERAPISTS: A MASSAGENET STUDY

Dana Madigan, DC, MPH, Jerrilyn Cambron, LMT, DC, PhD, Ann Blair Kennedy, LMT, DrPH, Kaley Burns, BS, Jennifer Dexheimer, LMT, BS

Introduction: Volunteerism among physicians, nurses, and other health care professionals has been described in the literature. To our knowledge, there is currently no published literature regarding the volunteerism of massage therapists.

Objective: The aim of this study was to describe the volunteerism activities, motivations, and barriers for massage therapists.

Methods: Practicing massage therapists in the United States were recruited through MassageNet, a practice-based research network, to take a survey containing questions regarding volunteerism. Participants took a survey containing questions regarding professional, volunteerism, and personal characteristics. Specific volunteerism questions addressed if volunteering was massage- or nonmassage-related, motivations, barriers, and their primary role including direct service, administrative/organizational, or fundraising. This was intended to serve as a preliminary assessment using a small sample of therapists and is not representative of the massage therapy profession.

Results: Of the 96 massage therapists who completed the survey, in the past year 27 participated in only massage-related volunteering, 12 participated in only nonmassage-related volunteering, 37 participated in both massage- and nonmassage-related volunteering, and 20 did not volunteer. The most commonly reported motivations for volunteering include the enjoyment of the activity (67.7%), desire to contribute to betterment of society (59.4%), and desire to give

back to society (56.3%). The most commonly reported barriers for volunteering include not having enough time (62.5%), organizational restrictions (38.5%), and personal health concerns (20.8%). For those who participated in massage-related volunteering, the most commonly reported settings included social and community service groups (40.6%), hospital, clinic or health care organization (37.5%), and health research or education organizations (34.4%). The most common population specified was cancer patients (15.6%). Of the 64 participants who participated in massage-related volunteering, the majority engaged primarily in direct service volunteering (46.9%).

Conclusion: The majority of massage therapists surveyed participated in volunteer work during the past year, primarily with social and community groups in a direct service role. Service is important to various sectors of the massage community; therefore, recognizing the benefits and barriers to volunteerism for massage therapists may enhance participation and impact the profession positively.

A DESCRIPTIVE STUDY OF THE MYOFASCIAL UNWINDING EXPERIENCE*

Rebecca S. Massmann, MS, LMT

Introduction: Myofascial unwinding (MU) describes involuntary movement and sensations in the body occurring in response to a practitioner's touch, or through self-induction. To date there is a paucity of literature examining the experience of MU for the recipient.

Purpose: The aim of this study was to generate a rich description of recipients' MU experience.

Methods: Naturalistic inquiry and descriptive content analysis guided the research. Data were collected through semi-structured interviews. The purposive sample consisted of eight highly experienced practitioners of manual therapies, who were also experienced recipients of MU.

Findings: The findings portray the essential features of the MU experience:

- Preconditions for the MU experience include feeling safe in order to let go, working with a trusted practitioner, and trusting oneself in the process
- The practitioner-recipient relationship influences the MU experience
- The lived experience of MU can include a wide range of physiological responses, emotional expression, mental processes, and transpersonal experiences
- The impact of the MU experience for recipients is highly individualized and multidimensional. Outcomes reflected in this study

demonstrated that MU supports the body's ability to heal and prevent injuries, process traumatic events, support the aging process, improve physiological function, manage emotions, and affect changes in personal belief systems and patterns of behavior.

Implications: The use of an empathic practitioner and the body-centered approach to MU, along with the multidimensional experience, and psychophysiological responses to MU suggest its effectiveness as an intervention in trauma recovery. Limitation: Participants in this study may not reflect the experiences of the average client.

Conclusion: Myofascial unwinding is a process that is centered in trusting the inherent wisdom of the body to inform the psychophysiological, psychosocial, and/or transpersonal levels necessary to promote a greater state of ease for the recipient.

* Massman, RS. A descriptive study of the myofascial unwinding experience [AMTA poster]. Abstracts from the 2015 AMTA Poster session. *IJTM*. 2015;8(4):9.

ESTABLISHING A NONTRADITIONAL PBRN: A MESSAGE THERAPY PRACTICE-BASED RESEARCH NETWORK

D. Mastnardo, BS, LMT, J. Muellner, MPA, A. Ross

Background: Many health providers believe that licensed massage therapists (LMTs) provide beneficial therapy and contribute to overall patient wellness. To improve the legitimacy of licensed massage therapy, there is a need for more research in the field. Researchers have identified two barriers to conducting research in licensed massage therapy. The lack of formal research methods training among LMTs reduces their ability to participate in research and LMTs traditionally practice as individuals, which restricts collaboration. The formation of a practice-based research network (PBRN) of LMTs was identified as an avenue to both educate LMTs regarding the practice of research and provide collaborative opportunities to encourage best practices to further the integration of licensed massage therapy in general health care.

Methods: In 2013, the Practice-Based Research Network Shared Resources (PBRNSR) at Case Western Reserve University conducted an interest survey of LMTs in Ohio. The survey showed that LMTs were highly interested in forming a research group and a structural model for establishing Massage of Northern Ohio Practice-Based Research Network (MNO-PBRN) was developed.

Results: MNO-PBRN was launched in 2014 with the infrastructure and research support from the

PBRNSR and with collaboration from the Center for Reducing Health Disparities. The mission of MNO-PBRN is to improve access to massage therapy, conduct research on massage efficacy, and to educate the public, health care providers, and policy makers about massage therapy. Led by a steering committee of LMTs, the network consists of privately practicing, licensed massage therapists who meet on a bi-annual basis to discuss best practices and opportunities for conducting research across a network, within their own practices.

Conclusions: With continued infrastructure research consultation and support from the PBRNSR the MNO-PBRN has the opportunity to conduct research and impact patient care at the same capacity as a traditional PBRN.

INTRADIALYTIC MASSAGE FOR LEG CRAMPS AMONG HEMODIALYSIS PATIENTS: A PILOT RANDOMIZED CONTROLLED TRIAL

Diane Mastnardo, BS, LMT, Catherine M. Sullivan, MS, RD, LD, Katrice Cain, MA, Jacqueline Theurer, MBA, Anne Huml, MD, Janice M. Lewis, BA, LMT, Kristi Hall, LMT, Ashwini R. Sehgal, MD

Background: Patients on hemodialysis often experience muscle cramps that result in discomfort, shortened treatment times, and inadequate dialysis dose. Massage in cancer patients has demonstrated decreases in pain, inflammation, and feelings of anxiety. Although there is limited evidence available about massage in dialysis patients, it may be an effective treatment modality for hemodialysis-related lower extremity cramping.

Purpose: To determine the effectiveness of intradialytic massage on the frequency of cramping among hemodialysis patients prone to lower extremity cramping.

Participants: 26 maintenance hemodialysis patients with frequent lower extremity cramps.

Setting: 3 outpatient hemodialysis centers in Northeast Ohio

Research Design: Randomized controlled trial.

Intervention: The intervention group received a 20-minute massage of the lower extremities during each treatment (3 times per week) for 2 weeks. The control group received usual care by dialysis center staff. Main Outcome Measure: Change in frequency of lower leg cramping.

Results: Patient reported cramping at home decreased by 1.3 episodes per week in the intervention group compared to 0.2 episodes per week in the control group ($p=.005$). Patient reported cramping during dialysis decreased by 0.8 episodes in the intervention group compared to 0.4 episodes in the control group ($p=.44$)

Conclusion: Intradialytic massage appears to be an effective way to address muscle cramping. Larger studies with longer duration should be conducted to further examine this approach.

INTEGRATING BODY-ORIENTED THERAPY PRACTICES IN TRAUMA INFORMED CARE

Tara McManaway, M.Div. C.A.G.S., LMT, LCPC, ALPS

Introduction: Trauma is, by definition, unspeakable and unbearable. Trauma interferes with language and the fight/flight response. Counseling and mental health treatments for trauma may incorporate embodied practices, including massage therapy and movement. A review of available literature across disciplines was conducted to investigate evidence of benefit of this integration. Body-oriented therapy needs to be defined, evidence supported practices for use in trauma work identified, and supervision and ethical considerations for body-oriented practitioners developed.

Objectives: 1) Identify evidence-supported practices that may be effective in trauma work. 2) Identify preliminary best practices utilizing body-oriented therapy. 3) Identify supervision and ethical considerations for body-oriented practitioners.

Methods: A review was conducted of available books, journal articles, dissertations, reviews, and research articles from 1996–2015, accessing databases and collections available through Johns Hopkins University Catalyst—including, but not limited to, publications from mental health, psychology, psychiatry, neuropsychology, neuroscience, massage therapy, public health, epidemiology, and trauma. 158 publications were identified and reviewed for basic supporting science, treatment effectiveness specific to trauma symptomology, preliminary evidence, current best practices, and ethical and supervision considerations in body-oriented trauma-informed care.

Results: The review indicated that body-oriented therapies may be categorized into no-touch or near-touch therapies, movement therapies, and touch therapies. Pilot studies with torture, trauma, and sexual abuse survivors, as well as other findings, although limited, suggest that body-oriented therapy may play a unique role in the path toward embodiment for trauma survivors. Ethical and supervision issues were identified and guidelines developed based on best practices to date.

Conclusion: Body-oriented therapies show promise in helping reconnect the body sensations with emotions, reduce anxiety, improve restorative sleep, and help clients create and repair functioning connections to body awareness and emotional control that were damaged during trauma. A number

of supervision considerations need to be addressed when working ethically with vulnerable populations of trauma survivors.

DO CONFERENCE PRESENTATIONS TRANSLATE TO PUBLICATION? ENDURING DISSEMINATION IMPACT OF THE 2005 ALBUQUERQUE & 2010 SEATTLE MASSAGE THERAPY FOUNDATION SPONSORED RESEARCH CONFERENCES.

Ellen Benjamin and Niki Munk, PhD, LMT

Introduction: The Massage Therapy Foundation (MTF) has organized three research conferences prior to the current 2016 meeting: 2005 in Albuquerque, New Mexico, 2010 in Seattle, Washington, and 2013 in Boston, Massachusetts. Understanding the extent to which presentations given at these meetings are further disseminated through peer-reviewed publication may provide a measure for assessing the enduring conference impact for the therapeutic massage and bodywork (TMB) field. A similar conference assessment from the physical therapy field allowed presenters years to publish. The current assessment sought to identify publications stemming from 2005 and 2010 MTF research conference presentations.

Methods: Authors and titles of posters presented at the 2005 conference and posters and oral presentations for the 2010 conference were identified through conference programs. Publications were identified through Google Scholar and PubMed searches for authors and key title words from the conference year through 1 Dec. 2015. Several authors were contacted directly through email inquiries to confirm findings.

Results: Albuquerque, 2005: Seven of the 23 posters (30%) presented at the inaugural MTF sponsored conference were identified as published in five different journals, only one of which is specifically associated with TMB. Published research included 3 prospective experimental studies, 1 controlled trial, 1 randomized control trial (RCT), and 1 observational study. Seattle, 2010: Eleven of the 28 posters (39%) and 14 of the 30 oral presentations (47%) were identified as published in 12 different journals, six of which include TMB within their areas of interest. Published research included 4 case reports, 4 cross-sectional survey studies, 5 RCTs, and 2 mixed-methods studies.

Conclusions: Research findings and discussion points presented at research conferences have limited impact if dissemination is not reinforced with peer-reviewed publication. Peer-reviewed publications increased from the first MTF sponsored conference to the second and may suggest meaningful impact on the TMB field.

THE BENEFICIAL EFFECTS OF GUIDED IMAGERY OR CLINICAL MASSAGE ON THE STATUS OF PATIENTS IN A PROGRESSIVE CARE UNIT

Gail Elliott Patricolo, BA(Hons), GradCert(CAM), Amanda LaVoie, RD, MS, Barbara Slavin, RN, BSN, MS, Deborah Jagow BSN, RN, CNML, Karen Armstrong, LMT, NCTM

Introduction: Patients admitted to the Progressive Care Unit (PCU) typically experience high levels of pain and anxiety and exhibit difficult sleeping.

Objectives: To determine whether either clinical massage or guided imagery could improve patient satisfaction scores, reduce pain and anxiety, and improve sleep.

Methods: This study involved in-patients in two PCU floors. The PCU floors were identical, and patients were assigned to either floor based solely on space available. Each patient on one PCU floor was daily offered a 15-min complimentary clinical massage, while the patients on the other floor were provided continuous access to a 30-min guided imagery recording. Three aspects of the patient satisfaction scores were evaluated and compared with historical averages. In addition, patients were provided a questionnaire and asked to self-rate their pain and anxiety levels using an 11-point scale immediately before and after the massage intervention or were asked via a questionnaire before discharge whether the guided imagery intervention was helpful for pain, anxiety, or insomnia.

Results: A total of 288 patients participated in the study. The clinical massage and guided imagery interventions appeared to have some positive effects on certain aspects of patient satisfaction scores. In addition, the patients receiving the massage intervention showed an immediate and significant reduction in self-reported pain and anxiety ($p < .0001$); likewise, a significant number of patients self-reported that guided imagery helped alleviate pain, anxiety, and insomnia ($p < .0001$).

Conclusions: This study indicates that clinical massage and guided imagery can have a positive impact on PCU patients.

STUDENT PERCEPTIONS OF ONLINE EDUCATION

Susan G. Salvo, MEd, LMT, BCTMB

Purpose: Student satisfaction is one of the five pillars of quality online education. In 2015, 19% of massage schools offered online courses for their entry-level programs. If trends in massage education follow colleges and universities, this number

will increase. The purpose of this study was to gain a deeper understanding of how students perceive their online educational experiences. Educators and administrators are interested in this topic as satisfied students are more likely to achieve academic success, less likely to drop out, and more likely to re-enroll in future online courses.

Methods: Studies, reports, and textbooks were obtained using scholarly databases. Keywords used during searches were online, distance, learning, education, student, perception, attitude, university. Inclusion criteria were participants must be students of higher education and must have completed at least one online course. Publication dates must be prior to January 2000. Studies that examined faculty perceptions were excluded. Data gathered from 34 sources were used during analysis.

Results: Students cited flexibility and convenience as primary reasons why they choose online courses. Learning management systems (LMSs) were important to online course implementation. The most valued LMS features were uploading assignments and utilizing digital resources such library databases. The least valued feature was discussion boards. Students had a strong preference for courses that were well-organized. One consistent finding was students felt there was a lack of teacher presence, inadequate teacher feedback, and time intervals between student inquiry and teacher response were excessive. These experiences produced feelings of anxiety among online learners.

Conclusion: Students enjoyed their online learning experiences overall. Teacher presence was an important contributing factor that improved student satisfaction. Teachers help create substantial learning experiences for students learning online by stimulating and directing discussions, asking probing questions, clarifying misconceptions, and emphasizing key concepts.

PERCEPTIONS, BENEFITS AND BARRIERS TO BACHELOR'S DEGREE-BASED EDUCATION FOR MASSAGE THERAPY: PHD THESIS SURVEY FINDINGS

D.M. Smith, PhD (Cand), PGDip (TT), BTSM, RMT, J.M. Smith, PhD, MEd, BHSc, RMT J.M., A. McLean, PhD, R. Spronken-Smith, PhD

Introduction: A bachelor's degree for massage therapists was first available in New Zealand in 2002, but has not been embraced by many within the massage therapy industry and reasons for this stance are unknown.

Objectives: The purpose of this research was to investigate the range of perceptions and attitudes toward bachelor's degree-based education across stakeholder groups within the massage therapy industry, namely:

massage educators, practicing massage therapists, and massage therapy students.

Methods: A mixed methods research approach with two sequential phases was used. The first phase (reported here) was an online survey (n=128) conducted with stakeholder groups. Every prospective massage therapist who was listed in the Yellow Pages directory or on the Massage New Zealand website and each massage school was telephoned or emailed. Massage therapy students were accessed via a contact person from each massage school. Those contacted were emailed a letter of invitation with the link to the online survey.

Results: The survey findings indicated a nearly equal amount of agreement (45.6%) and disagreement (40.1%) for degree-based education being essential for massage therapists practicing in New Zealand. Many (84.8%) disagreed that a bachelor's degree in massage therapy should be the minimum qualification to practice as a relaxation massage therapist, but nearly half of participants (49.6%) agreed that a bachelor's degree in massage therapy should be the minimum qualification to practice as a therapeutic/clinical rehabilitation massage therapist. There was more agreement (54.7%) than disagreement (25.8%) that degree-based education was essential for the growth of the massage therapy industry. The perceived benefits of a massage degree were: elevating standards, building expertise, increasing research capability, providing individual and collective benefits and new opportunities, improving the image of massage therapy, and building credibility. The perceived barriers to a massage degree included: accessibility issues such as time, location, and finances; and perceptions of a degree, namely, a lack of knowledge, and the view that a degree was unnecessary or restrictive.

Conclusion: Some participants' perceptions demonstrated a desire to move the massage therapy industry into a new phase of growth, capability and credibility; they viewed bachelor's degree-based education as a means to achieve this status. However, the tension and disagreements reported were further explored in phase two of this research study.

A CONCEPTUAL MODEL: STEPPING TOWARDS LEGITIMATION FOR NEW ZEALAND MASSAGE THERAPISTS INVOLVED IN THERAPEUTIC/CLINICAL REHABILITATION MASSAGE THERAPY PRACTICE

D.M. Smith, PhD (Cand), PGDip (TT), BTSM, RMT, J.M. Smith, PhD, MEd, BHSc, RMT J.M., A. McLean, PhD, R. Spronken-Smith, PhD

Introduction: New Zealand massage therapists have sought legitimation and acceptance as health care providers. However, to date the practice of massage

therapy within New Zealand is unregulated, education standards vary, and massage therapists are still seeking credibility as professionals. Bachelor's degree-based education has been utilized as a strategy to support the process of legitimizing and professionalizing the practice of massage therapy in New Zealand.

Objectives & Method: A two-phase, sequential, mixed methods approach [online survey (n=128) and semi-structured interviews (n=20)] was used to explore New Zealand based massage educators, practicing massage therapists, and massage therapy students perceptions and attitudes toward bachelor degree education. Additional questions on current issues and strategies for growth of the massage therapy industry were added in phase two. Phase two participants volunteered to be interviewed by indicating their interest on the online survey.

Results: Results from the two phases of the study were integrated and a conceptual model 'Stepping towards legitimation for massage therapists' for therapeutic/clinical rehabilitation massage therapy practice was developed. This model involves two coalition partners, bachelor degree-based education and the

massage therapy professional association, each brings different strengths to assist in the advancement of the massage therapy industry. The four core components of bachelor degree-based education were: knowledge, skills and research, experience, personal growth, and professional socialization. The four core components of a strong professional association were: regulation, commitment to high level education and research, growth in membership, and a defined unified group. Study participants sought credibility, best practice, and a professional identity. The conceptual model suggests that the pathway to achieving these outcomes requires both coalition partners.

Conclusion: The conceptual model pulls together key components to provide a framework for further research and discussion on the use of bachelor degree-based education for advancement of the industry. Findings can also inform the international massage therapy community and may provide a basis for future discussions on the benefits and tensions related to bachelor degree-based education.
